

**YE22**  
**EUROPE**

2022 / 2023



# CUTTING TOOLS



HOLEMAKING



THREADING



MILLING



TOOLING SYSTEM

[www.yg1.kr](http://www.yg1.kr)

**YG** YG-1 CO., LTD.



# Guide Line to Icons



## GUIDE LINE TO ICONS

### Tool Material

<b>CBN</b>	Cubic Boron Nitride
<b>CARBIDE</b>	Carbide
<b>HSS PM</b>	YG-1 Premium Powder Metallurgy HSS
<b>PM 60</b>	Powder Metallurgy HSS
<b>HSS Co8</b>	8% Cobalt HSS
<b>HSS-E</b>	5% Cobalt HSS
<b>HSS</b>	High Speed Steel

### Standard of Tools

<b>YG STD</b>	YG-1 Standard		
<b>DIN 327</b>	<b>DIN 844</b>	<b>DIN 1889</b>	Number of DIN Standard
<b>DIN 333</b>	<b>DIN 1869/1</b>	<b>DIN 1870/1</b>	
<b>DIN 371/376</b>	<b>DIN 374</b>	<b>DIN 5157</b>	

### No. of Flute



### Cutting Condition

	Milling
	Drills
	Reamers
	Countersinks
	Taps

### Helix Angle

		End mills
		Drills
		Taps
		Reamers

### The Type of Shank

		Plain shank (with DIN Standard)
		Flat shank (with DIN Standard)
		Range of Morse Taper Shank

### Tolerance of Radius

		Tolerance of Ball Radius ±0.005, ±0.01 mm
		Tolerance of Corner Radius ±0.005, ±0.015 mm

### Tolerance of Dimension

		Tolerance of Outside Diameter
		Tolerance of Shank Diameter

### Point Angle



### Chamfer Angle

		Reamers
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### O.D. Tolerance of Reamer

<b>H7</b>	DIN 1420 for H7 Reamed Hole
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# GUIDE LINE TO ICONS

## Surface Treatment

<b>BLUE</b>	YG-1 Blue-Coating
<b>AlTiN</b>	Aluminum Titanium Nitride Coating
<b>X-Coating</b>	YG-1 X-Coating
<b>Z-Coating</b>	YG-1 Z-Coating
<b>Y-Coating</b>	YG-1 Y-Coating
<b>Diamond</b>	Diamond Coating
<b>TiAlN</b>	Titanium Aluminum Nitride Coating
<b>DLC</b>	Diamond-Like Carbon Coating
<b>Uncoated</b>	Non-coated
<b>Hardslick</b>	TiAlN + WC/C Coating
<b>TiN</b>	Titanium Nitride Coating
<b>TiCN</b>	Titanium Carbon Nitride Coating
<b>Homo</b>	Steam Tempered (Black Oxide finish)
<b>Bright</b>	Bright Finish

## Chamfer Lead Acc. to DIN2197

	Set of Hand Taps
	Long Chamfer Lead for Nut Tap
	Form B (with Gun-nose and Chamfer Lead 4-5 Thread)
	Form C (Chamfer Lead 2-3 Thread)
	Form E (Chamfer Lead 1.5-2 Thread)

## Class of Thread

<b>6H</b>	<b>6H+0.1</b>	<b>6HX</b>	<b>7G</b>	<b>4H</b>
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## Thread Angle

	
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## The Type of Periphery

<b>NR</b>	Roughing - Coarse
<b>WR</b>	Roughing - Aluminium
<b>NF</b>	Roughing & Finishing
<b>HR</b>	Roughing - Fine

## Coolant Supply Pressure

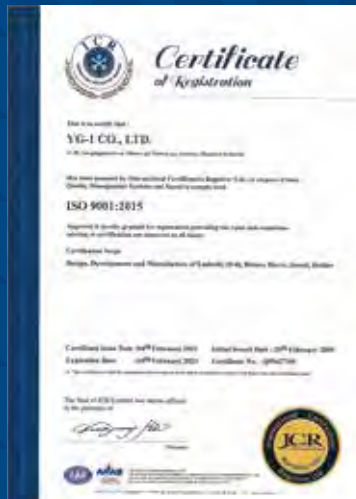
	Internal Coolant Supply at 45 bar average pressure
	Internal Coolant Supply at 20 bar average pressure

## Working Material

	Steels with good machinability $R_m < 850 \text{ N/mm}^2$
	Heat treated and heat-resistant steels $850 \text{ N/mm}^2 \leq R_m \leq 1,200 \text{ N/mm}^2$
	High alloyed steels $R_m > 1,200 \text{ N/mm}^2$
	Stainless steels
	Carbon steels with low contents of alloys $R_m < 700 \text{ N/mm}^2$
	Titanium alloys
	Nickel alloys
	Any material with at least 8-10% elongation
	Aluminum & Aluminum alloys
	Grey Cast Iron
	Brass
	Multi-Purpose




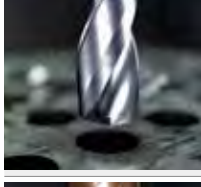







# CUTTING TOOLS




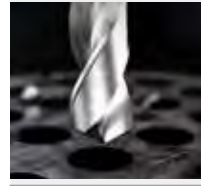

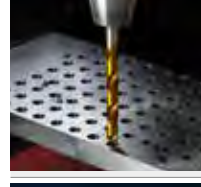
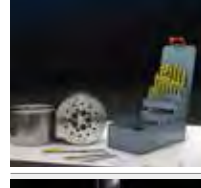
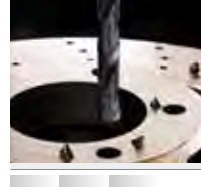
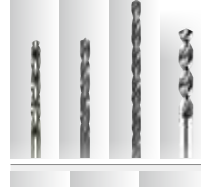
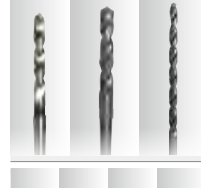
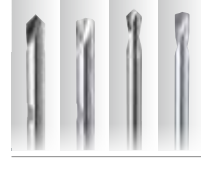
# HOLEMAKING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPANISH 6. RUSSIAN 7. POLISH 8. TURKISH

PRODUCTS	DESCRIPTION	PAGE
 <p>1 <b>i-ONE DRILLS, CARBIDE INSERTS &amp; HOLDERS</b>                      2 i-One DRILLS, VHM auswechselbare Bohrschneiden                      3 i-ONE DRILLS, PLAQUETTE CARBURE DE PERÇAGE                      4 PUNTE i-ONE DRILLS                      5 i-one Drills con inserto de carburo                      6 Сверла i-ONE с твердосплавными сменными пластинами                      7 Wiertła i-ONE na wymienne płytki węglkowe                      8 i-ONE DRILLS, DEĞİŞTİRİLEBİLİR KARBÜR UÇLU MATKAPLAR</p>	High Performance Exchangeable for General Steels and Cast Iron	<b>A21</b>
 <p>1 <b>i-DREAM DRILLS, CARBIDE INSERTS &amp; HOLDERS</b>                      2 i-DREAM DRILLS, HM-Wechselplatten                      3 i-DREAM DRILLS - PLAQUETTES CARBURE                      4 INSERTI i-DREAM DRILL                      5 Brocas i-dream, inserto de metal duro                      6 Сверла i-DREAM с твердосплавными сменными пластинами                      7 WIERTŁA i-DREAM DRILL, PŁYTKI WĘGLIKOWE                      8 i-DREAM DRILL, DEĞİŞTİRİLEBİLİR KARBÜR UÇLU MATKAPLAR</p>	For General Steels and Stainless Steels	<b>A39</b>
 <p>1 <b>SOLID CARBIDE DREAM DRILLS - PRO (with &amp; without Coolant Holes)</b>                      2 VHM DREAM DRILLS PRO BOHRER (mit und ohne Kühlkanäle)                      3 DREAM DRILLS - FORETS CARBURE PRO (avec et sans arrosage central)                      4 MD, DREAM DRILLS PRO (con e senza fori di refrigerazione)                      5 BROCA DE METAL DURO DREAM DRILL PRO (SIN Y CON REFRIGERACIÓN)                      6 Твердосплавные сверла Dream Drills Pro (с отверстиями для СОЖ и без)                      7 WIERTŁA WĘGLIKOWE DREAM-DRILL - Pro (Z CHŁODZENIEM LUB BEZ CHŁODZENIA WEW.)                      8 SOLID KARBÜR DREAM DRILL PRO MATKAPLAR (İçten su delikli ve su deliksiz)</p>	For General Purpose (HRc30 to HRc50) Extremely High hardness and Heat resistance due to YG-1 special Z-Coating technology	<b>A59</b>
 <p>1 <b>SOLID CARBIDE DREAM DRILLS - GENERAL (with &amp; without Coolant Holes)</b>                      2 VHM-DREAM DRILLS-UNIVERSAL (mit und ohne Kühlkanäle)                      3 DREAM DRILLS - FORETS CARBURE Général (avec et sans arrosage central)                      4 PUNTE DREAM DRILLS (con e senza fori di refrigerazione)                      5 Brocas Dream de metal duro- General (con y sin agujeros de refrigeración)                      6 Твердосплавные сверла DREAM DRILLS - GENERAL общего применения (с/без отверстий для СОЖ)                      7 WIERTŁA WĘGLIKOWE DREAM-DRILL - DO OGÓLNEGO ZASTOSOWANIA (Z CHŁODZENIEM LUB BEZ CHŁODZENIA WEW.)                      8 SOLID KARBÜR DREAM DRILL MATKAPLAR-GENEL KULLANIM (İçten su delikli ve su deliksiz)</p>	For General Purpose (HRc30 to HRc50)	<b>A77</b>
 <p>1 <b>SOLID CARBIDE DREAM DRILLS - HIGH FEED (with Coolant Holes)</b>                      2 VHM Dream Drills - High Feed mit innerer Kühlmittelzufuhr (IK)                      3 DREAM DRILLS Grande Avance, FORETS CARBURE MONOBLOC (avec arrosage central)                      4 PUNTE DREAM DRILLS AD ELEVATO AVANZAMENTO (Con fori di refrigerazione)                      5 Dream Drills de carburo sólido, de alto avance con agujeros de refrigeración                      6 ТВЕРДОСПЛАВНЫЕ СВЕРЛА DREAM DRILLS - HIGH FEED ДЛЯ ВЫСОКОЙ ПОДАЧИ (с отверстиями для СОЖ)                      7 Wiertła węglkowe Dream Drill - High Feed (z chłodzeniem wewnętrznym)                      8 SOLID KARBÜR DREAM DRILL MATKAPLAR -YÜKSEK İLERLEMELİ MATKAPLAR (İçten su delikli)</p>	1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill for Carbon Steels, Alloy Steels (up to HRc35) and Cast Iron	<b>A99</b>
 <p>1 <b>SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM (with &amp; without Coolant Holes)</b>                      2 VHM Dream Drills - Flachbohrer                      3 DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC                      4 PUNTE DREAM DRILLS FLAT BOTTOM                      5 Dream Drills de carburo sólido - Flat Bottom                      6 ТВЕРДОСПЛАВНЫЕ СВЕРЛА DREAM DRILLS С ПЛОСКИМ ТОРЦЕМ                      7 Wiertła węglkowe Dream Drill - płaskie dno                      8 SOLID KARBÜR DREAM DRILL MATKAPLAR -DÜZ AĞIZLI</p>	For Holes on Various Angled Surfaces	<b>A107</b>
 <p>1 <b>SOLID CARBIDE DREAM DRILLS - INOX (with Coolant Holes)</b>                      2 VHM - DREAM DRILLS - INOX (mit Kühlkanälen)                      3 DREAM DRILLS - FORETS CARBURE Spécial INOX (avec arrosage central)                      4 PUNTE DREAM DRILLS PER INOX (con fori di refrigerazione)                      5 Brocas de metal duro- Inox (con agujeros de refrigeración)                      6 Твердосплавные сверла DREAM DRILLS - INOX для нержавеющей стали, никелевых сплавов, титана (с отверстиями для СОЖ)                      7 WIERTŁA WĘGLIKOWE DREAM DRILL- INOX (Z CHŁODZENIEM WEWNĘTRZNYM)                      8 SOLID KARBÜR DREAM DRILL PASLANMAZ ÇELİK MATKAPLARI (İçten su delikli)</p>	For Tough Materials like Stainless Steels	<b>A117</b>
 <p>1 <b>SOLID CARBIDE DREAM DRILLS - ALU (with Coolant Holes)</b>                      2 VHM - DREAM DRILLS - ALU (mit Kühlkanälen)                      3 DREAM DRILLS - FORETS CARBURE Spécial ALU (avec arrosage central)                      4 PUNTE DREAM DRILLS ALU (con fori di refrigerazione)                      5 Brocas de metal duro- ALU(con agujeros de refrigeración)                      6 Твердосплавные сверла DREAM DRILLS - ALU для алюминия (с отверстиями для СОЖ)                      7 WIERTŁA WĘGLIKOWE DREAM DRILL - ALU (Z CHŁODZENIEM WEWNĘTRZNYM)                      8 SOLID KARBÜR DREAM DRILL ALUMINYUM MATKAPLARI (İçten su delikli)</p>	For Aluminum and Aluminum Alloys	<b>A129</b>
 <p>1 <b>SOLID CARBIDE DREAM DRILLS - MQL TYPE (with Coolant Holes)</b>                      2 VHM - DREAM DRILLS - MQL (mit Kühlkanälen)                      3 DREAM DRILLS - FORETS CARBURE - Type MQL (avec arrosage central)                      4 PUNTE DREAM DRILL MQL (con fori per refrigerazione)                      5 Brocas Dream de metal duro- Tipo MQL(con agujeros de refrigeración)                      6 Твердосплавные сверла DREAM DRILLS - MQL для глубокого сверления (с отверстиями для СОЖ)                      7 WIERTŁA WĘGLIKOWE DREAM DRILL - TYP MQL (Z CHŁODZENIEM WEWNĘTRZNYM)                      8 SOLID KARBÜR DREAM DRILL MQL MATKAPLAR (İçten su delikli)</p>	Minimum Quantity Lubrication Drilling Deep Holes (10xD - 40xD)	<b>A141</b>

# HOLEMAKING TOOLS




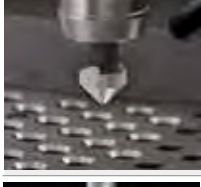

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPANISH 6. RUSSIAN 7. POLISH 8. TURKISH

PRODUCTS	DESCRIPTION	PAGE
 <p>1 <b>SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS (without Coolant Holes)</b>                      2 VHM - DREAM DRILLS FÜR HOCHGEHÄRTETE STÄHLE                      3 DREAM DRILLS - FORETS CARBURE pour ACIERS DURS                      4 PUNTE DREAM DRILLS PER ACCIAI TEMPRATI                      5 Brocas Dream de metal duro para aceros templados                      6 Твердосплавные сверла DREAM DRILLS для закалённой стали                      7 WIERTŁA WĘGLIKOWE DREAM DRILL DO STALI UTWARDANYCH                      8 SOLID KARBÜR DREAM DRILL SETLEŞTİRİLMİŞ ÇELİK MATKAPLARI</p>	For High Hardened Steels (HRc50 to HRc70)	<b>A149</b>
 <p>1 <b>GENERAL SOLID CARBIDE DRILLS (JOBBER &amp; STUB LENGTH)</b>                      2 UNIVERSELLE VHM - BOHRER (in Längen nach DIN 338 und DIN 1897)                      3 FORETS CARBURE à usage général- SERIE COURTE                      4 PUNTE GENERICHE CORTE ED EXTRA CORTE                      5 Brocas de metal duro, longitud extra corta, estándar                      6 Твердосплавные сверла общего применения, обычной длины и укороченные                      7 WIERTŁA WĘGLIKOWE DO OGÓLNEGO ZASTOSOWANIA                      8 NORMAL ve KISA BOY KARBÜR GENEL KULLANIM MATKAPLARI</p>	For General Purpose, DIN338 & DIN6539	<b>A153</b>
 <p>1 <b>HSS-PM MULTI-1 DRILLS</b>                      2 HSS-PM MULTI-1 BOHRER                      3 MULTI-1 DRILLS - FORETS HSS-PM                      4 PUNTE MULTI-1 DRILLS                      5 Brocas HSS sinterizado Multi-1                      6 Сверла MULTI-1 из порошковой быстрорежущей стали                      7 WIERTŁA MULTI-1 HSS-PM                      8 HSS-PM MULTI-1 MATKAPLAR</p>	Premium HSS-PM Drills For Wide Range of Applications Particularly Stainless Steels and Titanium	<b>A161</b>
 <p>1 <b>HSSCo8 &amp; HSS-E HPD STRAIGHT SHANK DRILLS</b>                      2 PREMIUM-HSS HPD ZYLINDERSCHAFT BOHRER                      3 FORETS HSS-PM Haute Performance cylindriques                      4 PUNTE HPD GAMBO CILINDRICO                      5 Brocas HSS Co HPD mango cilíndrico                      6 Сверла HPD с цилиндрическим хвостовиком из улучшенной быстрорежущей стали                      7 WIERTŁA PROSTE PREMIUM HSS DO OBRÓBKİ PRECYZYJNEJ                      8 PREMIUM HSS SİLİNDİRİK ŞAFTLI YÜKSEK PERFORMANS MATKAPLARI</p>	High Precision Drilling for General Steels & Stainless Steels	<b>A171</b>
 <p>1 <b>HSS &amp; HSS-E GOLD-P DRILLS</b>                      2 HSS GOLD-P BOHRER                      3 GOLD-P, FORETS HSS                      4 PUNTE GOLD-P DRILLS                      5 Brocas Acero rápido Gold-P                      6 Сверла GOLD-P из быстрорежущей стали                      7 WIERTŁA GOLD-P HSS                      8 HSS GOLD-P MATKAPLAR</p>	Same Performance as Full TiN-coated Drills	<b>A191</b>
 <p>1 <b>SUPER HSS SUPER-GP DRILLS</b>                      2 HSS BOHRER MIT ZYLINDERSCHAFT                      3 FORETS HSS Cylindriques                      4 PUNTE SUPER GP-DRILLS                      5 Brocas HSS mango cilíndrico                      6 Сверла SUPER-GP DRILLS из супер быстрорежущей стали                      7 WIERTŁA Z CHWYTEM PROSTYM HSS                      8 HSS SİLİNDİRİK DÜZ ŞAFTLI MATKAPLAR</p>	All Applications Regardless of Machining Conditions; Good or Poor	<b>A209</b>
 <p>1 <b>HSS, HSS-E &amp; HSSCo8 STRAIGHT SHANK DRILLS</b>                      2 HSS BOHRER MIT ZYLINDERSCHAFT                      3 FORETS HSS Cylindriques                      4 PUNTE HSS GAMBO CILINDRICO                      5 Brocas HSS mango cilíndrico                      6 Сверла из быстрорежущей стали с цилиндрическим хвостовиком                      7 WIERTŁA Z CHWYTEM PROSTYM HSS                      8 HSS SİLİNDİRİK DÜZ ŞAFTLI MATKAPLAR</p>	For General Purpose (Soft & Tough Materials)	<b>A215</b>
 <p>1 <b>HSS &amp; HSS-E MORSE TAPER SHANK DRILLS</b>                      2 HSS BOHRER MIT MORSEKEGEL                      3 FORETS HSS Queue Cône Morse                      4 PUNTE HSS CON ATTACCO CONO MORSE                      5 Brocas HSS mango cónico                      6 Сверла из быстрорежущей стали с хвостовиком конус Морзе                      7 WIERTŁA Z CHWYTEM MORSE HSS                      8 HSS MORS KONİK ŞAFTLI MATKAPLAR</p>	Morse Taper Shank Drills for Wide Applications	<b>A267</b>
 <p>1 <b>SOLID CARBIDE &amp; HSSCo8 NC-SPOTTING DRILLS</b>                      2 VHM/HSS-Co8 - NC-ANBOHRER                      3 FORETS CARBURE/HSSCo8 A POINTER NC                      4 PUNTE NC A CENTRARE IN MDI/HSSCo8                      5 Brocas de metal duro/HSS Co8 para puntear                      6 Твердосплавные центровочные сверла для станков с ЧПУ из быстрорежущей стали, с содержанием кобальта                      7 NAWIERTAKI WĘGLIKOWE/HSSCo8                      8 SOLID KARBÜR/HSS (%8 Cobalt) NC PUNTA MATKAPLARI</p>	For Centering and Chamfering of Holes	<b>A279</b>



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PRODUCTS	DESCRIPTION	PAGE
 <p>1 <b>SOLID CARBIDE, HSS &amp; HSS-E CENTER DRILLS</b>                      2 VHM/HSS - ZENTRIERBOHRER                      3 FORETS CARBURE/HSS à centrer                      4 PUNTE A CENTRARE MD/HSS                      5 Brocas CARBURO/HSS de centrar                      6 Твердосплавные центровочные сверла из быстрорежущей стали, с содержанием кобальта                      7 WIERTŁA WEGLIKOWE/HSS CE NTRUJĄCE                      8 SOLID KARBÜR/HSS PUNTA MATKAPLARI</p>	For General Purpose	<b>A287</b>
 <p>1 <b>SPADE DRILLS, INSERTS &amp; HOLDERS</b>                      2 HM &amp; HSS-PM BOHRMESSER                      3 LAMES CARBURE &amp; HSS-PM                      4 PUNTE SPADE DRILLS METALLO DURO &amp; HSS-PM                      5 Insertos de metall duro y HSS para taladrado                      6 Сверла Spade со сменными твердосплавными пластинами из быстрорежущей стали                      7 WIERTŁA SKŁADANE WEGLIKOWE I HSS-PM                      8 KARBÜR ve HSS-PM DEĞİŞTİRİLEBİLİR UÇLU MATKAPLAR</p>	For General Machines and Drilling Large Diameters Longer Tool Life and High Productivity	<b>A299</b>
 <p>1 <b>CARBIDE, HSS &amp; HSS-E REAMERS</b>                      2 REIBAHLEN                      3 ALESOIRS                      4 ALESATORI                      5 Escariadores                      6 Развертки                      7 ROZWIERTAKI                      8 RAYBALAR</p>	Carbide NC Machine Reamers HSS Hand Reamers HSS-E Chucking Reamers	<b>A381</b>
 <p>1 <b>HSS &amp; HSS-Co8 COUNTERSINKS</b>                      2 HSS SENKER                      3 FRAISES A EBAVURER HSS                      4 SVASATORI IN HSS                      5 Avellanadores conicos HSS mango cilíndrico                      6 Зенкеры из быстрорежущей стали                      7 POGLEBIACZE HSS                      8 HSS HAVŞA VE PAH TAKIMLARI</p>	For Deburring, Chamfering and Countersinking	<b>A407</b>
 <p>1 <b>HSS-E COUNTERBORES</b>                      2 HSS-E FLACHSENKER                      3 FRAISES A LAMER HSS-E                      4 LAMATORI IN HSS-E                      5 Avellanadores tipo Allen HSS mango cilíndrico                      6 Цековки из быстрорежущей стали                      7 POGLEBIACZE HSS-E                      8 HSS-E KADEMELI TAKIMLAR</p>	For Machining Screw Head Seats	<b>A417</b>

# THREADING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPANISH 6. RUSSIAN 7. POLISH 8. TURKISH

PRODUCTS	DESCRIPTION	PAGE
 <p>1 <b>SOLID CARBIDE THREAD MILLS (with &amp; without Coolant Holes)</b>                      2 VHM - GEWINDEFÄRÄSER (mit und ohne Kühlkanäle )                      3 FRAISE A FILETER CARBURE (avec et sans arrosage central)                      4 FRESE A FILETTARE IN METALLO DURO (con e senza fori di refrigerazione)                      5 Fresas de rosca de metal duro (con y sin agujeros de refrigeración)                      6 Твердосплавные резьбофрезы (с/без отверстий для СОЖ)                      7 WEGLIKOWE FREZY GWINTUJĄCE (Z I BEZ CHŁODZENIA WEWNĘTRZNEGO)                      8 SOLID KARBÜR VIDA AÇMA FREZELERİ (Su delikli ve su deliksiz)</p>	Threading Large Diameter in High Quality Available with Chamfer	<b>B31</b>
 <p>1 <b>HSS-PM SYNCHRO TAPS (Spiral Flute, Spiral Point, Straight Flute &amp; Cold Forming)</b>                      2 HSS_PM Synchro Gewindebohrer                      3 Tarauds SYNCHRO HSS                      4 MASCHI SYNCHRO                      5 MACHOS HSS-PM SYNCHRO                      6 Метчики SYNCHRO с покрытием TiN/TiCN из порошковой быстрорежущей стали для высокоскоростного нарезания резьбы                      7 GWINTOWNIKI SYNCHRO HSS                      8 HSS SYNCHRO TİP KILAVUZLAR</p>	For High Speed Tapping on Rigid CNC Machine	<b>B55</b>
 <p>1 <b>HSS-PM PRIME TAPS (Spiral Point &amp; Spiral Flute Tap)</b>                      2 HSS_PM PRIME GEWINDEBOHRER (gerade- und drallgenutet)                      3 PRIME TAPS - TARAUDS HSS (Entree GUN, HELICOIDAUX)                      4 MACHO HSS-PM PRIME (Fori passanti e fori ciechi)                      5 Machos PRIME HSS (tipo helicoidal con entrada corregida)                      6 Метчики Prime из порошковой быстрорежущей стали HSS-PM(с винтовой подточкой, с винтовыми канавками)                      7 GWINTOWNIKI PRIME HSS                      8 HSS PRIME KILAVUZLAR (Düz kanal eğik ağız bilemeli ve helis kanallı)</p>	High and reliable performance on various ductile materials	<b>B63</b>
 <p>1 <b>HSS-E &amp; HSS-PM COMBO TAPS (Spiral Point &amp; Spiral Flute Tap)</b>                      2 HSS COMBO GEWINDEBOHRER (gerade- und drallgenutet)                      3 COMBO TAPS - TARAUDS HSS (Entree GUN, HELICOIDAUX)                      4 MASCHI COMBO IN HSS (Fori passanti e fori ciechi)                      5 Machos Combo HSS (tipo helicoidal con entrada corregida)                      6 Метчики COMBO из быстрорежущей стали (с винтовой подточкой, с винтовыми канавками)                      7 GWINTOWNIKI COMBO HSS                      8 HSS COMBO KILAVUZLAR (Düz kanal eğik ağız bilemeli ve helis kanallı)</p>	For Multi Purpose Tapping	<b>B77</b>
 <p>1 <b>HSS &amp; HSS-E YG TAP GENERAL</b>                      2 YG Gewindebohrer Universal                      3 Taraud YG pour usage général                      4 MASCHI FORI CIECHI/FORI PASSANTI                      5 MACHOS YG PARA USO GENERAL                      6 Метчики YG из быстрорежущей стали для общего применения                      7 GWINTOWNIKI UNIWERSALNE                      8 HSS YG GENEL KILAVUZLAR</p>	Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation	<b>B127</b>
 <p>1 <b>HSS-E &amp; HSS-PM YG TAP STEEL</b>                      2 HSS YG Gewindebohrer Stähle                      3 Taraud YG HSS pour ACIERS                      4 MASCHI IN HSS                      5 MACHOS HSS YG PARA ACERO                      6 Метчики YG из быстрорежущей стали для обработки стали                      7 GWINTOWNIKI HSS DO STALI                      8 HSS YG ÇELİK KILAVUZLARI</p>	For Steel Materials but also other Long Chip Forming Materials	<b>B171</b>
 <p>1 <b>SOLID CARBIDE &amp; HSS-E YG TAP HARDENED</b>                      2 HSS YG Gewindebohrer für gehärtete Stähle                      3 Taraud YG HSS pour Aciers Trempés                      4 MASCHI IN HSS PER ACCIAI TEMPRATI                      5 MACHOS HSS YG PARA MATERIALES DE ALTA DUREZA                      6 Метчики YG из быстрорежущей стали для закаленной стали                      7 GWINTOWNIKI HSS DO STALI ULEPSZONYCH CIEPLNIE                      8 HSS YG SERTLEŞTİRİLMİŞ ÇELİK KILAVUZLARI</p>	For Hardened Steels Applications to Control the Continuous and Red-glowing Chips	<b>B199</b>
 <p>1 <b>HSS-E &amp; HSS-PM YG TAP INOX</b>                      2 HSS YG Gewindebohrer INOX                      3 Taraud YG HSS pour INOX                      4 MASCHI IN HSS PER INOX                      5 MACHOS HSS YG PARA ACEROS INOXIDABLES                      6 Метчики YG из быстрорежущей стали для обработки нержавеющей стали                      7 GWINTOWNIKI HSS DO STALI NIERDZEWNEJ                      8 HSS YG PASLANMAZ ÇELİK KILAVUZLARI</p>	For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher	<b>B211</b>





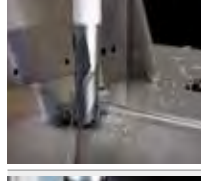


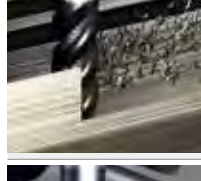

# THREADING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPANISH 6. RUSSIAN 7. POLISH 8. TURKISH

PRODUCTS	DESCRIPTION	PAGE
 <p>1 <b>SOLID CARBIDE &amp; HSS-E YG TAP CAST IRON</b>                      2 HSS YG Gewindebohrer Guss                      3 Taraud YG HSS pour la FONTE                      4 MASCHI IN HSS PER GHISA                      5 MACHOS HSS YG PARA FUNDICIÓN                      6 Метчики YG из быстрорежущей стали для обработки чугуна                      7 GWINTOWNIKI HSS DO ŻELIWA                      8 HSS YG DÖKME DEMİR KILAVUZLARI</p>	For Cast Iron or Similar Work Materials	<b>B235</b>
 <p>1 <b>HSS-E YG TAP ALU</b>                      2 HSS YG TAP Aluminium                      3 Taraud YG HSS pour ALU                      4 MASCHI IN HSS PER ALU                      5 MACHOS HSS YG PARA ALUMINIO                      6 Метчики YG из быстрорежущей стали для обработки алюминия                      7 GWINTOWNIKI HSS DO ALUMINIUM                      8 HSS YG ALUMINYUM KILAVUZLARI</p>	For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations	<b>B247</b>
 <p>1 <b>HSS-PM YG TAP Ti Ni</b>                      2 HSS YG Gewindebohrer Titan / Superlegierungen                      3 Taraud YG HSS pour Titane                      4 MASCHI IN HSS PER SUPERLEGHE E LEGHE DI TITANIO                      5 MACHOS HSS YG PARA TITANIO Y ALEACIONES CON NIQUEL                      6 Метчики YG из быстрорежущей стали для обработки никелевых и титановых сплавов                      7 GWINTOWNIKI HSS DO STOPÓW TYTANU I NIKLU                      8 HSS YG TITANYUM-NIKEL KILAVUZLARI</p>	For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief	<b>B261</b>
 <p>1 <b>HSS-E &amp; HSS-PM YG TAP FORMING</b>                      2 HSS YG INNENGEWINDEFORMER                      3 TARAUDS HSS A REFOULER                      4 MASCHI A RULLARE                      5 Machos HSS de laminación                      6 Раскатники из быстрорежущей стали                      7 WYGNIAKAKI Z HSS                      8 HSS OVALAMA KILAVUZLARI</p>	Tapping by Forming Soft Materials	<b>B277</b>
 <p>1 <b>HSS-E NUT TAPS</b>                      2 HSS MUTTERGEWINDEBOHRER                      3 TARAUDS HSS ENFILADE                      4 MASCHI PER DADI                      5 Machos HSS para roscado de tuercas                      6 Гачные метчики из быстрорежущей стали                      7 GWINTOWNIKI NAKRĘTKOWE HSS                      8 HSS SOMUN KILAVUZLARI</p>	Nut Tapping Machines	<b>B295</b>
 <p>1 <b>HSS-E SCREW THREAD INSERT TAPS</b>                      2 HSS GEWINDEBOHRER FÜR GEWINDEDRAHTEINSÄTZE                      3 TARAUDS HSS POUR FILETS RAPPORTES                      4 MASCHI PER HELICOIL                      5 Machos HSS para insertos de roscas de tornillo (helicoil)                      6 Метчики из быстрорежущей стали под резьбовые вставки                      7 GWINTOWNIKI EG HSS                      8 HSS HELICOIL KILAVUZLARI</p>	Tapping STI Threads of Soft Materials	<b>B299</b>
 <p>1 <b>HSS &amp; HSS-E PIPE TAPS</b>                      2 HSS GASGEWINDEBOHRER                      3 TARAUDS HSS POUR TUBE                      4 MASCHI PER TUBI                      5 Machos HSS rosca GAS                      6 Метчики из быстрорежущей стали для трубной резьбы                      7 GWINTOWNIKI RUJOWE                      8 HSS BORU KILAVUZLARI</p>	Tapping Whitworth Pipe threads	<b>B307</b>

# MILLING TOOLS



1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPANISH 6. RUSSIAN 7. POLISH 8. TURKISH

PRODUCTS	DESCRIPTION	PAGE
 <p>1 <b>CBN END MILLS</b>                      2 CBN - FRÄSER                      3 FRAISE CBN                      4 FRESE CBN                      5 Fresas CBN                      6 Концевые фрезы CBN из кубического нитрида бора                      7 FREZY CBN                      8 CBN PARMAC FREZELER</p>	CBN(Cubic Boron Nitride) Machining High Hardened Steels up to HRC70 Mirror Finish	<b>C33</b>
 <p>1 <b>i-Xmills, CARBIDE INSERT END MILLS</b>                      2 i-Xmills, HM-WP - FRÄSER                      3 i-Xmills, PLAQUETTES CARBURE                      4 INSERTI i-XMILLS                      5 i-Xmills, insertos metal duro para copiado                      6 Фрезы i-Xmills с твердосплавными сменными пластинами                      7 PŁYTKI WĘGLIKOWE i-Xmills                      8 i-Xmills, DEĞİŞTİRİLEBİLİR KARBÜR UÇLU PARMAC FREZE</p>	Various Applications Type of Inserts Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steels and Graphite	<b>C39</b>
 <p>1 <b>i-SMART, CARBIDE MODULAR HEAD END MILLS</b>                      2 i-Smart, Schafffräser mit auswechselbaren VHM Schneidköpfen                      3 i-SMART, PLAQUETTE CARBURE DE FRAISAGE                      4 TESTINE MODULARI IN MD i-SMART                      5 i-SMART, Sistema de fresado modular                      6 Концевые фрезы i-SMART модульного типа                      7 Frezy i-SMART na wymienne płytki węglkowe                      8 i-SMART - MODULER KARBÜR UÇLU PARMAC FREZE</p>	For General Steels, Hardened Steels and Cast Iron	<b>C65</b>
 <p>1 <b>X5070 NANO SOLID CARBIDE END MILLS</b>                      2 X5070 NANO-VHM - FRÄSER                      3 X5070 - FRAISE CARBURE NG                      4 FRESE X-5070                      5 X5070, fresas de metal duro nanograno                      6 Концевые фрезы X5070 из nano-зернистого твердого сплава                      7 FREZY NANO WĘGLIKOWE X5070                      8 X5070 NANO SOLID KARBÜR PARMAC FREZELER</p>	For High Hardened Steels (HRC45 to HRC70) High Speed Machining and Dry Cutting	<b>C85</b>
 <p>1 <b>4G Mill SOLID CARBIDE END MILLS</b>                      2 4G Mill VHM - FRÄSER                      3 4G Mill - FRAISE CARBURE                      4 FRESE 4G MILL                      5 Fresas de metal duro 4G Mill                      6 Твердосплавные концевые фрезы 4G Mill                      7 FREZY WĘGLIKOWE 4G                      8 4G MILL SOLID KARBÜR PARMAC FREZELER</p>	High Speed Cutting for Pre-Hardened Steels up to HRC55	<b>C145</b>
 <p>1 <b>X-POWER PRO SOLID CARBIDE END MILLS</b>                      2 X-POWER PRO VHM - FRÄSER                      3 X-POWER PRO - FRAISE CARBURE                      4 FRESE X-POWER PRO                      5 Fresas de metal duro X-Power                      6 Твердосплавные концевые фрезы X-POWER PRO                      7 FREZY WĘGLIKOWE X-POWER PRO                      8 X-POWER PRO SOLID KARBÜR PARMAC FREZELER</p>	For Pre-Hardened Steels up to HRC55	<b>C329</b>
 <p>1 <b>TitaNox-POWER SOLID CARBIDE END MILLS</b>                      2 TitaNox-Power VHM Schafffräser                      3 TitaNox-POWER, FRAISES CARBURE MONOBLOC                      4 FRESE TITANOX - POWER                      5 TitaNox- Power, Fresas de metal duro                      6 Твердосплавные концевые фрезы TitaNox для обработки титана, инконеля и нержавеющей стали                      7 Frezy węglkowe TitaNox-POWER                      8 TITANOX-POWER SOLID KARBÜR PARMAC FREZELER</p>	High Speed Machining for Exotic Materials: Titanium and Stainless Steels	<b>C377</b>
 <p>1 <b>JET-POWER SOLID CARBIDE &amp; HSS-PM END MILLS</b>                      2 JET - POWER VHM - FRÄSER                      3 JET-POWER - FRAISE CARBURE                      4 FRESE JET-POWER                      5 Fresas de metal duro Jet-Power                      6 Фрезы JET-POWER из твердого сплава и порошковой быстрорежущей стали                      7 FREZY WĘGLIKOWE I HSS-PM JET POWER                      8 JET-POWER SOLID KARBÜR ve HSS-PM PARMAC FREZELER</p>	For Exotic materials like Stainless Steels, Nickel Alloys and Titanium	<b>C393</b>
 <p>1 <b>V7 PLUS SOLID CARBIDE END MILLS</b>                      2 V7 Plus VHM CPH Schafffräser                      3 V7 PLUS, FRAISES CARBURE MONOBLOC                      4 FRESE V7 PLUS                      5 V7 Plus, fresas de metal duro                      6 Концевые фрезы V7 PLUS из твердого сплава                      7 Frezy węglkowe V7 Plus                      8 V7 PLUS- SOLID KARBÜR PARMAC FREZELER</p>	High Performance Carbide End Mills for Steels, Cast Iron and Stainless Steels	<b>C415</b>



# MILLING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPANISH 6. RUSSIAN 7. POLISH 8. TURKISH

PRODUCTS	DESCRIPTION	PAGE
 <p>1 <b>ALU-POWER HPC SOLID CARBIDE END MILLS</b>                      2 Alu Power HPC VHM Fräser                      3 ALU-POWER HPC - FRAISE CARBURE                      4 FRESE ALU-POWER HPC                      5 ALUPOWER HPC FRESAS DE METAL DURO                      6 Концевые фрезы ALU-POWER HPC для обработки алюминиевых сплавов и цветных металлов                      7 FREZY WEGLIKOWE ALU-POWER HPC                      8 ALU-POWER HPC SOLID KARBÜR PARMAK FREZELER</p>	For Aluminium, Aluminum Die Cast, Non-ferrous Alloys and Plastics	<b>C441</b>
 <p>1 <b>ALU-POWER SOLID CARBIDE END MILLS</b>                      2 ALU - POWER VHM - FRÄSER                      3 ALU-POWER - FRAISE CARBURE                      4 FRESE ALU-POWER                      5 Fresas de metal duro Alu-Power y HSS-PM                      6 Фрезы ALU-POWER из твердого сплава и порошковой быстрорежущей стали                      7 FREZY WEGLIKOWE I HSS-PM ALU-POWER                      8 ALU-POWER SOLID KARBÜR ve HSS-PM PARMAK FREZELER</p>	For Aluminium Alloys and Silent Cutting	<b>C455</b>
 <p>1 <b>D-POWER GRAPHITE SOLID CARBIDE END MILLS</b>                      2 D - POWER Graphit VHM - FRÄSER                      3 D-POWER graphite - FRAISE CARBURE                      4 FRESE D-POWER GRAFITE                      5 Fresas de metal duro D-Power grafito                      6 Твердосплавные концевые фрезы D-POWER для Графита (с алмазным покрытием)                      7 FREZY WEGLIKOWE D-POWER GRAPHITE                      8 D-POWER GRAFIT SOLID KARBÜR FREZELER</p>	For Graphites	<b>C475</b>
 <p>1 <b>CRX S SOLID CARBIDE END MILLS</b>                      2 CRX S VHM - FRÄSER                      3 CRX S - FRAISE CARBURE                      4 FRESE CRX S                      5 Fresas de metal duro CRX S                      6 Твердосплавные концевые фрезы CRX S                      7 FREZY WEGLIKOWE CRX S                      8 CRX S SOLID KARBÜR PARMAK FREZELER</p>	DLC Coated End Mills for Copper	<b>C495</b>
 <p>1 <b>K-2 SOLID CARBIDE END MILLS</b>                      2 K-2 VHM - FRÄSER                      3 K-2 - FRAISE CARBURE                      4 FRESE K-2                      5 Fresas de metal duro K-2                      6 Твердосплавные концевые фрезы K2                      7 FREZY WEGLIKOWE K-2                      8 K-2 SOLID KARBÜR PARMAK FREZELER</p>	General Purpose Conventional or High Speed Milling Wet or Dry Cutting	<b>C507</b>
 <p>1 <b>ONLY ONE COATED PM60 END MILLS</b>                      2 Only One, beschichtete Pulvermetall PM60 Schaftfräser                      3 ONLY ONE, FRAISES PM60 REVÊTUES                      4 FRESE ONLY ONE IN PM60, RIVESTITE                      5 Only One, Cortador de PM60 con recubrimiento                      6 Концевые фрезы ONLY ONE из быстрорежущей стали PM60, с покрытием                      7 Pokrywane frezy PM60 z serii ONLY ONE                      8 ONLY ONE KAPLAMALI HSS-PM60 FREZELER</p>	Perfect Solution of Carbide Chipping under Vibrations	<b>C583</b>
 <p>1 <b>TANK-POWER HSS-PM END MILLS</b>                      2 TANK - POWER HSS-PM - FRÄSER                      3 TANK-POWER - FRAISES HSS-PM                      4 FRESE TANK-POWER IN HSS-PM                      5 Fresas HSS-PM Tank-Power                      6 Концевые фрезы TANK-POWER из порошковой быстрорежущей стали                      7 FREZY HSS-PM TANK-POWER                      8 TANK-POWER HSS-PM PARMAK FREZELER</p>	High Toughness for Stainless Steels, Carbon steels and Alloy Steels for General Application, Roughing & Finishing	<b>C605</b>
 <p>1 <b>GENERAL HSS END MILLS</b>                      2 HSS SCHAFTFRÄSER                      3 FRAISES HSS                      4 FRESE IN HSS                      5 Fresas HSS                      6 Концевые фрезы общего применения из быстрорежущей стали                      7 FREZY Z HSS                      8 GENEL KULLANIM HSS PARMAK FREZELER</p>	General Purpose Coating Available	<b>C639</b>
 <p>1 <b>HSS MILLING CUTTERS</b>                      2 HSS FRÄSER                      3 FRAISES DE FORME HSS                      4 CORPI FRESA IN HSS                      5 Fresas HSS                      6 Фрезы из быстрорежущей стали специального применения                      7 FREZY Z HSS                      8 HSS FREZE KAFALARI</p>	General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS(8% Cobalt) Corner Rounding, Shell End Mills	<b>C703</b>

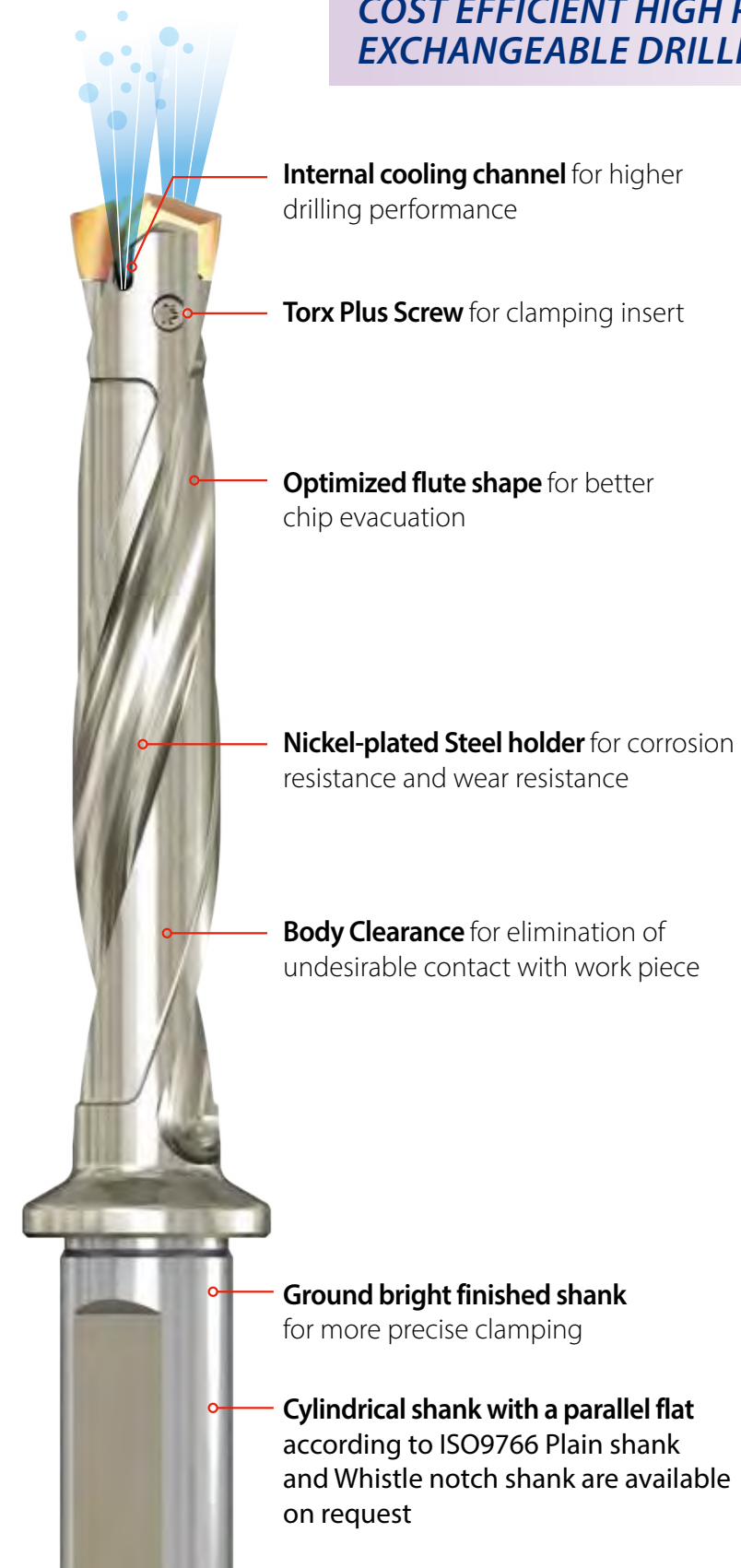
# PRODUCT FEATURES

## i - ONE DRILLS

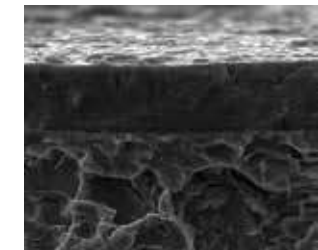
Reference page : p.A21 - p.A38

### Micro Grain Carbide Inserts and Premium Tool Steel Holder with Coolant Holes

#### COST EFFICIENT HIGH PERFORMANCE EXCHANGEABLE DRILLING TOOLS



- **Secure & Quick clamping system**
- **Multi layered 'H'-coating**  
reduces the cracking and provides higher shear strength while achieving excellent oxidation resistance and hot hardness

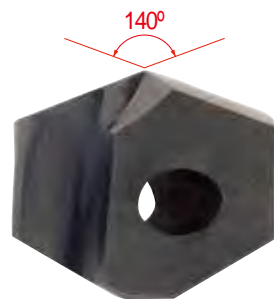
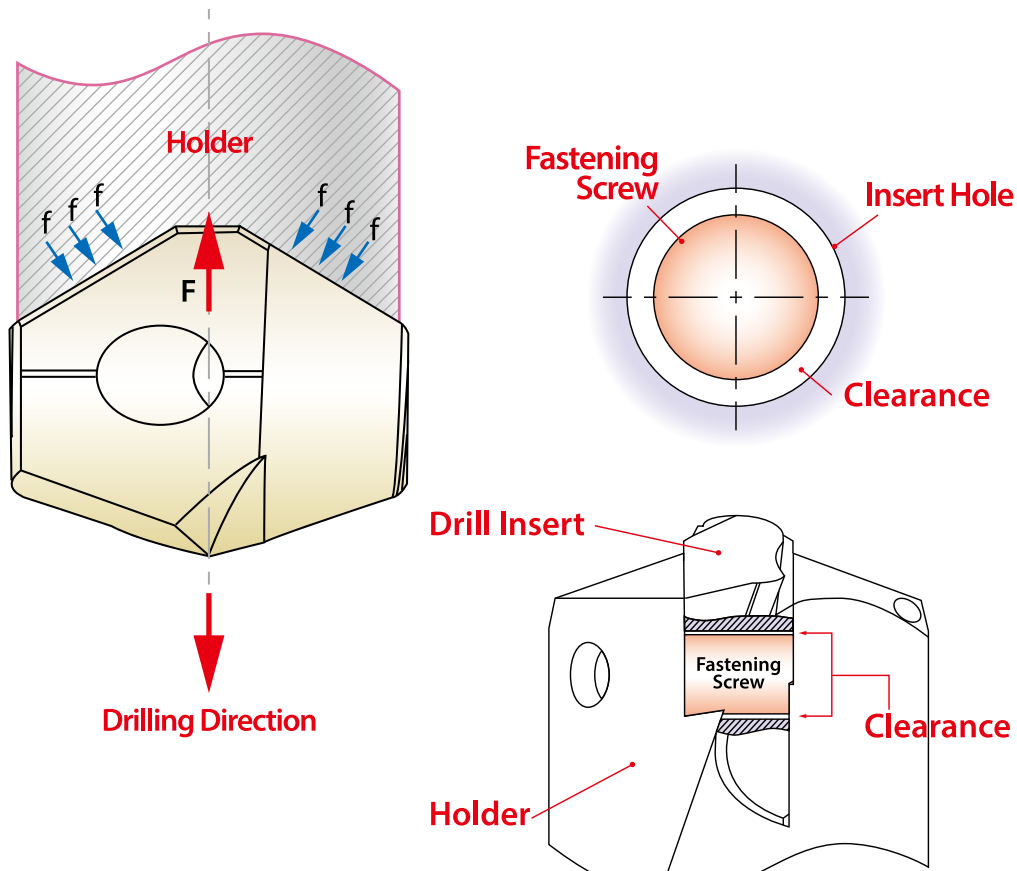


- **Optimized point geometry**  
of i-ONE Drills ensures centering ability and smoother cutting
- **Self Centering and Chip Breaking**  
by Radius Thinning
- **Ground Negative land**  
on cutting edge for Reliable Tool Life



### Stable Insert locking System

- V type locking system allowed for stabilized drilling
- Design that fastening screw doesn't touch insert to protect the insert locking system from the vibration during the drilling cycle



### Self-Centering 140° Point & Helical Thinning

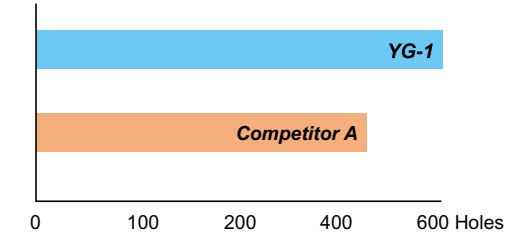
- Excellent Centering
- Minimized cutting resistance
- Design for maximum toughness, hardness and chip evacuation
- High penetration rate
- Reduced heat from cutting edge processing to allow long tool life
- Lower required torque and horsepower

### TEST I GENERAL

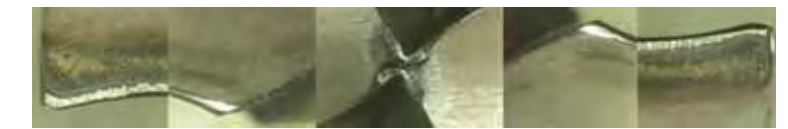
#### Cutting Condition

HOLDER	ZH14505020
INSERT	YB1A1450 / Ø14.5
Work Material	- ASTM : A36 - DIN : St37-2 - JIS : SS400
Cutting Speed	80 m/min
Feed	0.24 mm/rev.
Feedrate	421 mm/min.
RPM	1,756 rev./min.
Drilling	48.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

#### RESULT



#### ► YG-1 (Total Drilling 600 Holes)



#### ► Competitor A (Total Drilling 470 Holes)

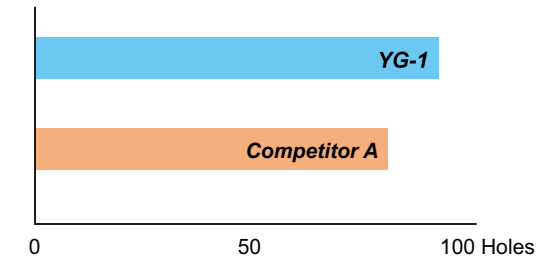


### TEST II INOX

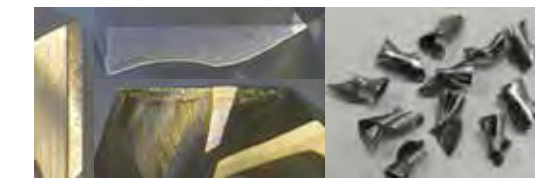
#### Cutting Condition

HOLDER	ZH14005020
INSERT	YB2C1400 / Ø14.0
Work Material	- AISI : 304 - DIN : X5CrNi189 - JIS : SUS304
Cutting Speed	55 m/min
Feed	0.15 mm/rev.
Feedrate	188 mm/min.
RPM	1,250 rev./min.
Drilling	50.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

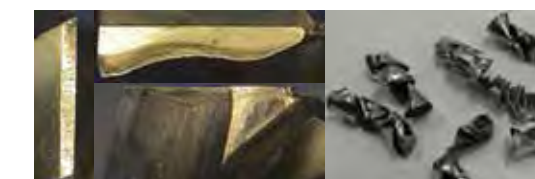
#### RESULT




#### ► YG-1 (Total Drilling 100 Holes)



#### ► Competitor A (Total Drilling 80 Holes)







Wave Shape

4 Facet

### Wave Shape Cutting Edge

- Improve chip formation
- Low Cutting Force

140°

### 140 Degree Point Angle


- Provides edge strength and Exceptional tool life
- Good Self Centering
- Low Torque

### Micro-grained Carbide

- Achieving Excellent Wear Resistance
- Maximum Tool Life and High Performance

### Optimized wide flute design

The unique flute structure provides good surface finish, longer tool life and requires less cutting force



Radius Shape


### Helical Thinning

- Low Thrust
- Stable Torque
- Good Chip Breakage

### Higher & Improved cutting conditions due to YG-1 Special Z-Coating Technology

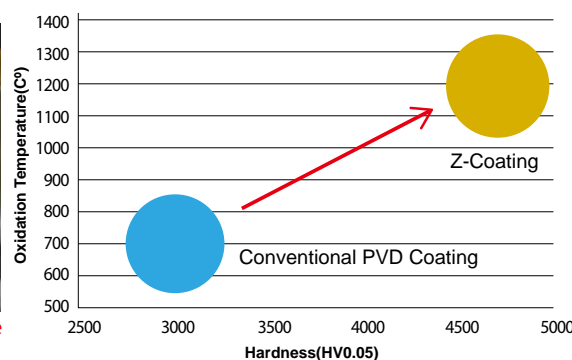
(YG-1's Unique Silicon Based Coating: Nano-Layer Coating )

- Extremely High Hardness and Heat Resistance



Superhard Ti/SiNx layer for Wear Resistance

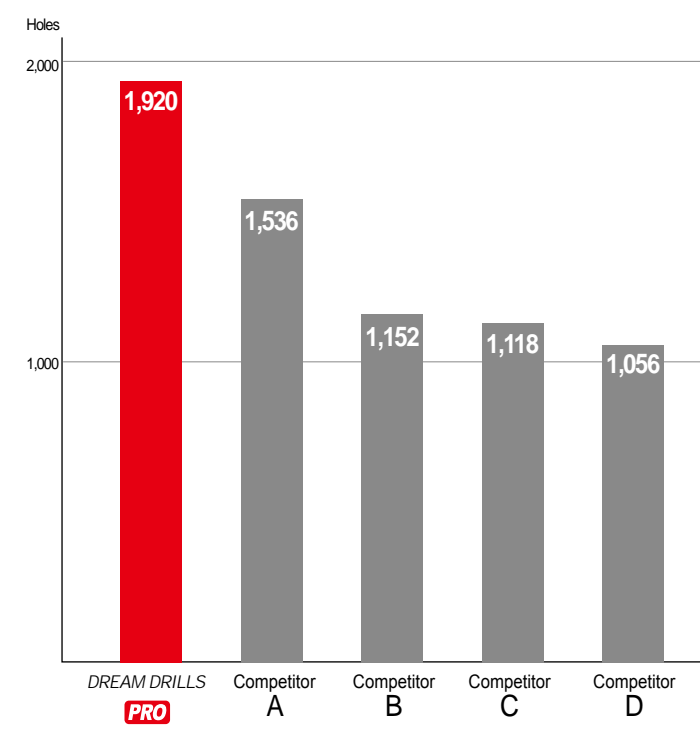
Multilayer for higher toughness and Heat Resistance



Coating Type	Hardness (HV0.05)	Oxidation Temperature (C°)
Conventional PVD Coating	~3000	~700
Z-Coating	~4500	~1300

Performance Upgrade with Faster Cutting Speed

### ► SOLID CARBIDE DREAM DRILLS - PRO with Coolant Holes



#### Cutting Condition

Work Material	- DIN: 42CrMo4 - ANSI: 4140 - JIS: SCM440 Hardness: HRC30 (HB286)
O.D Size	Ø10.0 (.3937 inch)
RPM	14,856 rev./min.
Cutting Speed	140 m/min.
Feed	0.30 mm/rev.
Drilling Depth	45.0 mm
Coolant	Internal Cooling (20 bar) Water Soluble (9% Emulsion)
Machine	Machining Center

### DREAM DRILLS PRO

Total Drilling 1,920 Holes



### Competitor A

Total Drilling 1,536 Holes



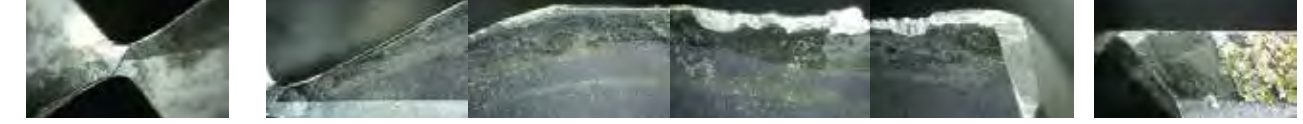
### Competitor B

Total Drilling 1,152 Holes



### Competitor C

Total Drilling 1,118 Holes



### Competitor D

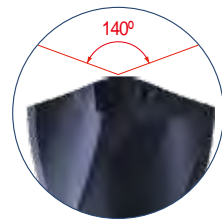
Total Drilling 1,056 Holes



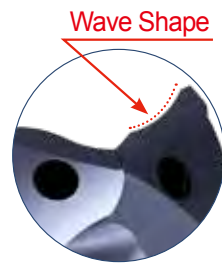




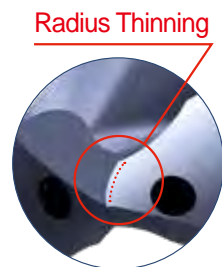
Micro-grained carbide for wear resistance and longer tool life



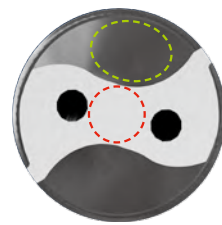
**140 Degree Point Angle**  
for good centering and low thrust



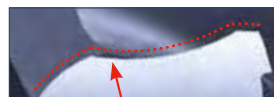
**Wave shape Cutting Edge**  
will allow low thrust, stable torque and long tool life



**Radius Thinning**  
for Self Centering and Chip Breaking

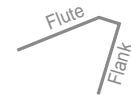


**Optimized flute shape**  
for strength of drill and smooth chip evacuation



**Negative land on the cutting edge**  
for Reliable Tool Life

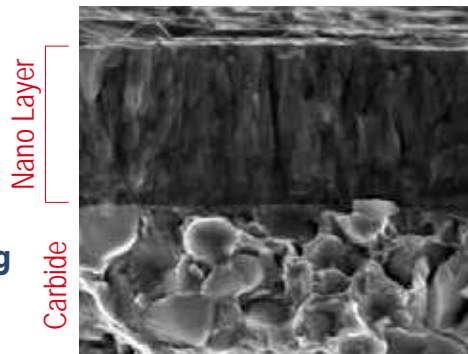
Negative Land (Honing)



**TiAlN Coating (Upgraded Titanium Aluminum Nitride : nano-Layer coating)**

- Higher wear resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality

**Special surface treatment after coating**  
to reduce friction and better chip flow.

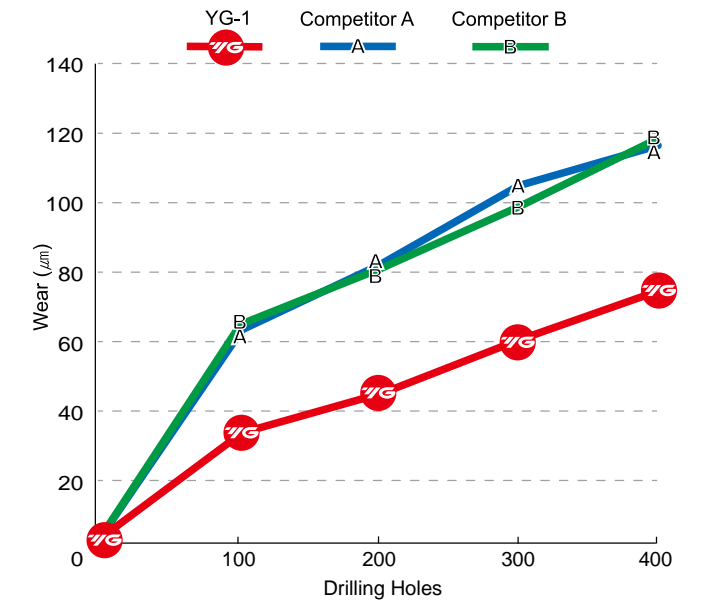


Nano Layer  
Carbide

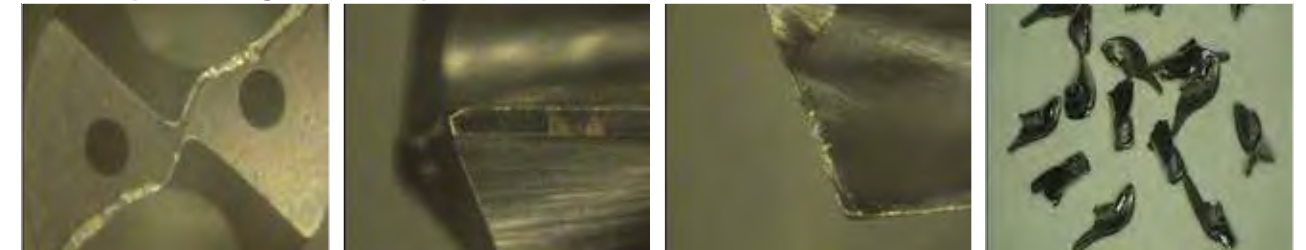
### ► SOLID CARBIDE DREAM DRILLS - GENERAL with Coolant Holes

#### Cutting Condition

Tool	DH408015 (Dream Drill with Coolant Holes)
Size	Ø1.5 × 3 × 15 × 55
Work Material	- DIN : X40GrMoV51 - WR : 1.2344 - JIS : SKD61 (HRC30)
RPM	14,856 rev./min.
Feed	0.05 mm/rev.
Drilling Depth	7.5 mm
Coolant	Wet Cut



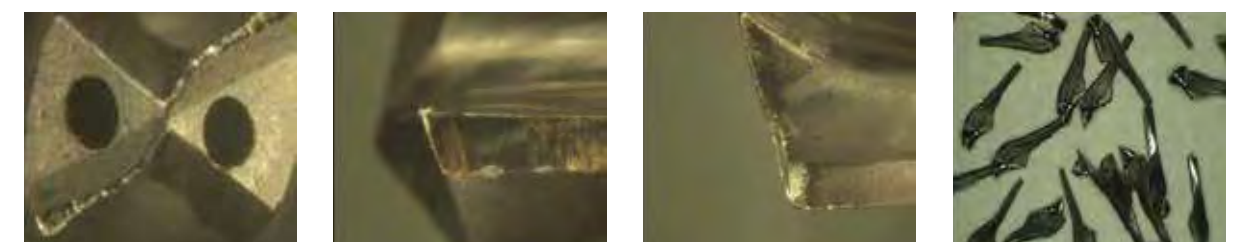
#### ► YG-1 (Total Drilling 400 Holes)

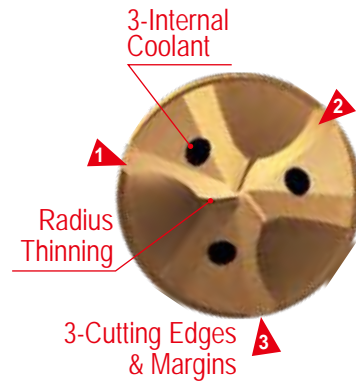


#### ► Competitor A (Total Drilling 400 Holes)



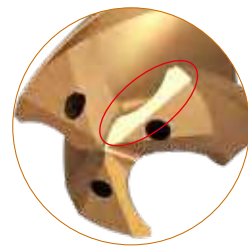
#### ► Competitor B (Total Drilling 400 Holes)





**3-Cutting Edges & Margins**  
will allow high penetration rate,  
accurate hole location and good surface finish

Radius Thinning for  
**Self Centering and Chip Breaking**

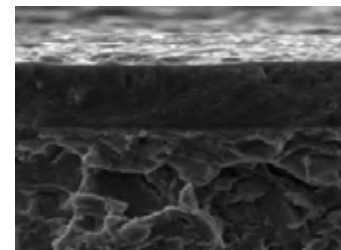


**Ground Negative land**  
on cutting edge for Reliable Tool Life

**3-Slots**  
on end of shank for smooth and consistent coolant supply

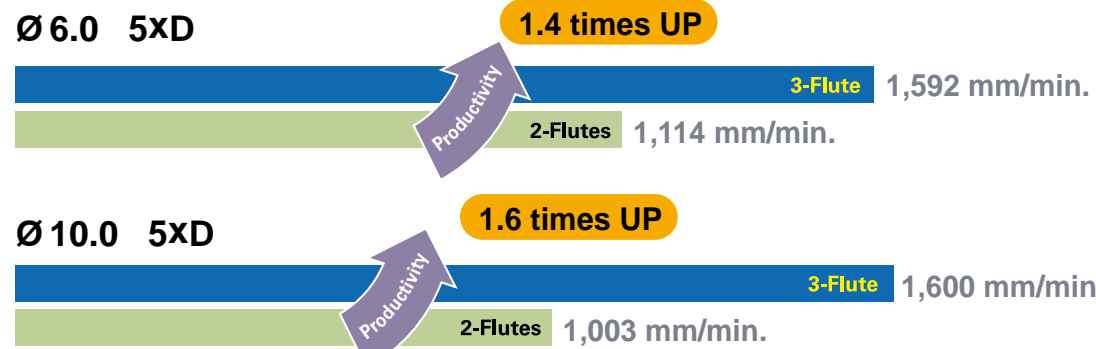


**H - Coating**  
(Upgraded AlCrN-Based : **Multi-Layer coating**)  
• Higher worn-out resistance and Lower friction  
• Higher Cutting Speed and Feed  
• Improved drill Hole Quality



Multi  
Layers  
Carbide

**Productivity (Carbon Steel)**



1.5 ~ 2 times Faster in drilling compared to two flute carbide drills

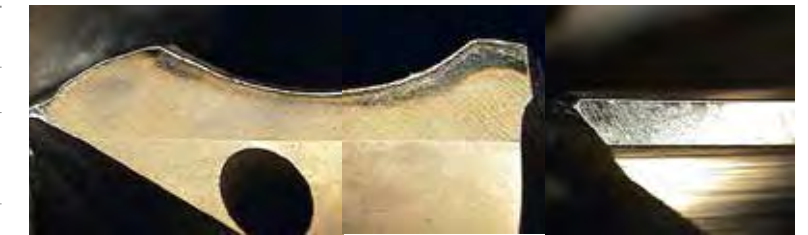
Dream Drills-High Feed offers 1.5 to 2 times higher feeding speed compared to conventional 2-flute drills. The unique flute design and exceptional surface finish promise extraordinary chip evacuation.

► **SOLID CARBIDE DREAM DRILLS - HIGH FEED with Coolant Holes**

Cutting Condition

Tool	DGR495100 (Dream Drills High Feed)
Size	Ø10 × Ø10 × 61 × 103
Work Material	- DIN : C45 - AISI : 1045 - JIS : S45C (HRc20)
RPM	3,200 rev./min.
Feed	0.5 mm/rev.
Drilling Depth	50 mm (5xD)
Drilling Method	Blind Hole
Coolant	Wet Cut
Machine	Machining Center

► **YG-1 (Total Drilling 330 Holes)**



► **Competitor A (Total Drilling 330 Holes)**



► **Competitor B (Total Drilling 330 Holes)**

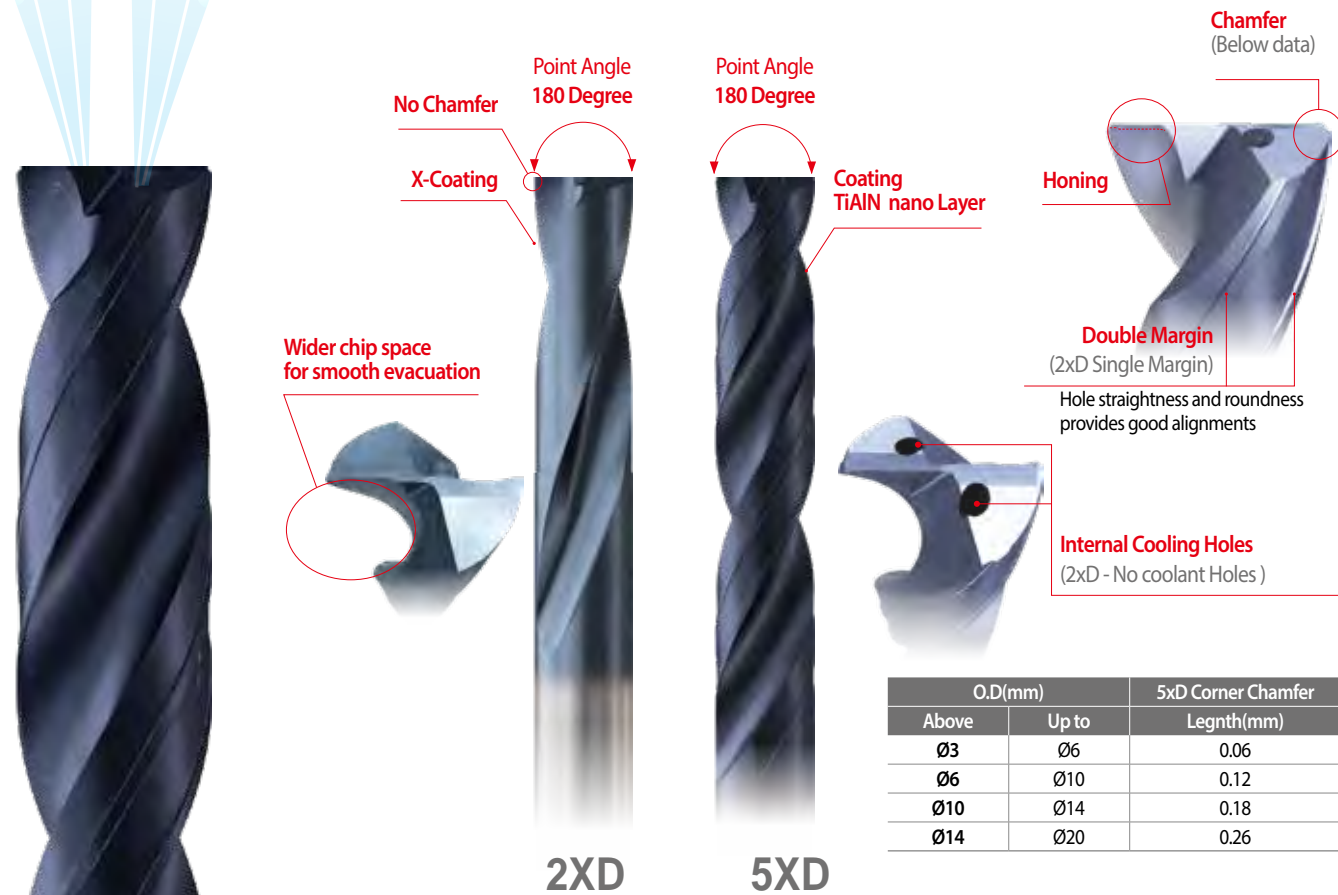




# PRODUCT FEATURES

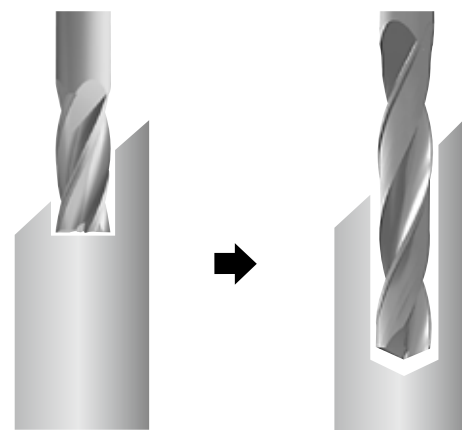
## DREAM DRILLS - FLAT BOTTOM

Reference page : p.A107 - p.A116



### Only One Operation for Angled Surface

For angled surfaces, two operations are required to drill in a conventional Process



**1st operation(End mill)**  
Counter boring to make flat surface and guide hole

**2nd operation(Drill)**  
Drilling to required depth of hole

For angled surfaces, only one operation can complete the drilling with Dream Drill Flat Bottom



**One operation(Dream Drill Flat Bottom)**  
**One Drill does it all**  
without using both an end mill and a drill

# CASE STUDY

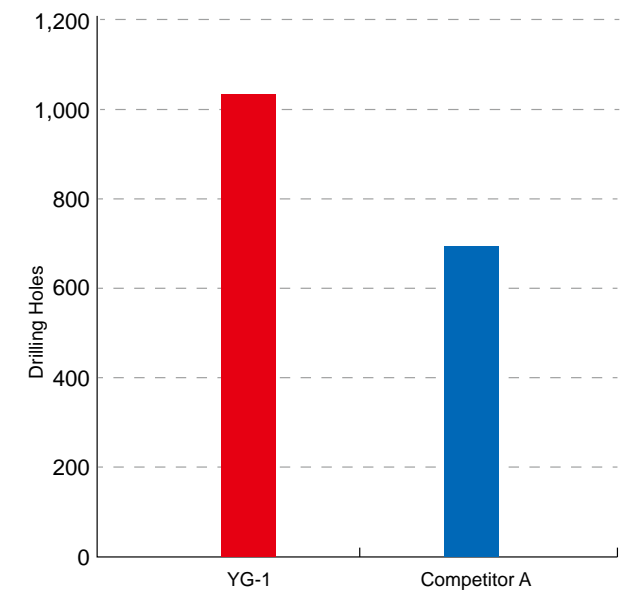
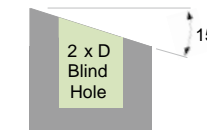
## DREAM DRILLS - FLAT BOTTOM

Reference page : p.A107 - p.A116

### TEST I ► SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM without Coolant Holes

#### Cutting Condition

Drill Diameter (mm)	Ø6.0
Work Material	- DIN : C45 - AISI : 1045 - JIS : S45C (HRC20)
Cutting Speed	75.4 m/min
RPM	4,000 rev/min
Feed	0.1 mm/rev
Drilling Depth	12.0 mm (2XD) Blind Hole / without Pecking
Coolant	External Cooling Water Soluble ( 9% Emulsion)
Machine	Machining Center



◀ **YG-1**  
Small Chipping

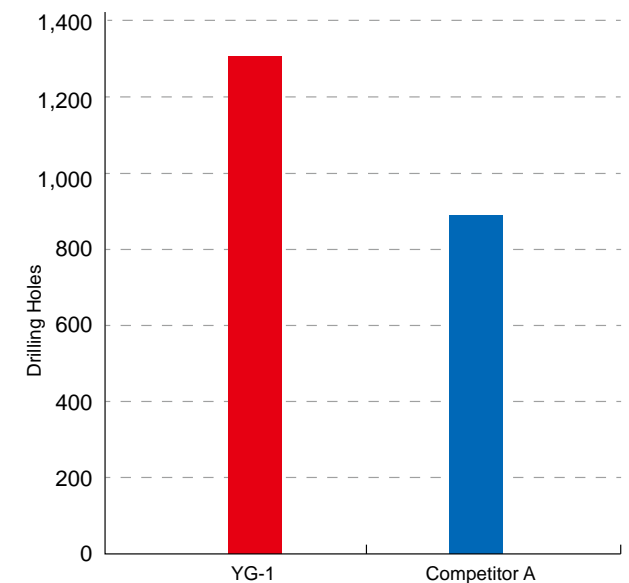
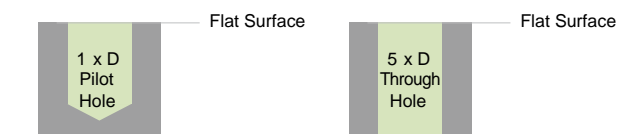


◀ **Competitor A**  
Big Chipping

### TEST II ► SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM with Coolant Holes

#### Cutting Condition

Drill Diameter (mm)	Ø6.0
Work Material	- DIN : 42CrMo4 - AISI : 4140 - JIS : SCM440 (HRC30)
Cutting Speed	100.0 m/min
RPM	5,300 rev/min
Feed	0.12 mm/rev
Drilling Depth	Pilot Drill- 6.0mm (1XD) Total depth- 30.0 mm (5XD) Through Hole / without Pecking
Coolant	Internal cooling / Water Soluble ( 9% Emulsion)
Machine	Machining Center/



◀ **YG-1**  
Small Chipping

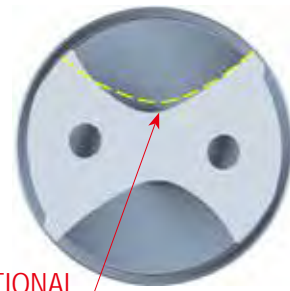


◀ **Competitor A**  
Big Chipping

# PRODUCT FEATURES

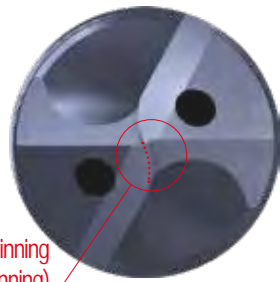
## DREAM DRILLS - INOX

Reference page : p.A117 - p.A128



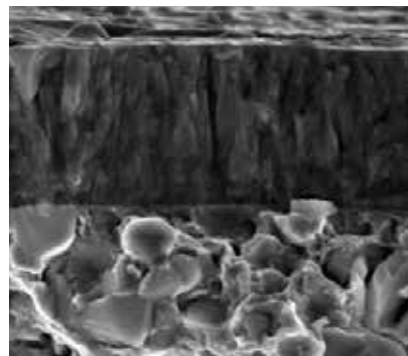
CONVENTIONAL

- Special Flute geometry and Chip pocket to help Chip evacuation and proper Chip Curl.
- strong rigidity from **Cutting Edge**
- high Performance on Stainless Steel and pre hardened Steel



R-Thinning  
(Radius Thinning)

- Positive Axial **Rake Angle** and cutting force, with **R-Thinning** enhance centering and Chip Breaking.



Nano Layer  
Carbide

### TiAlN Coating (Upgraded Titanium Aluminum Nitride : nano-Layer coating)

- Higher wear resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality

Special surface treatment after coating to reduce friction and better chip flow.

# CASE STUDY

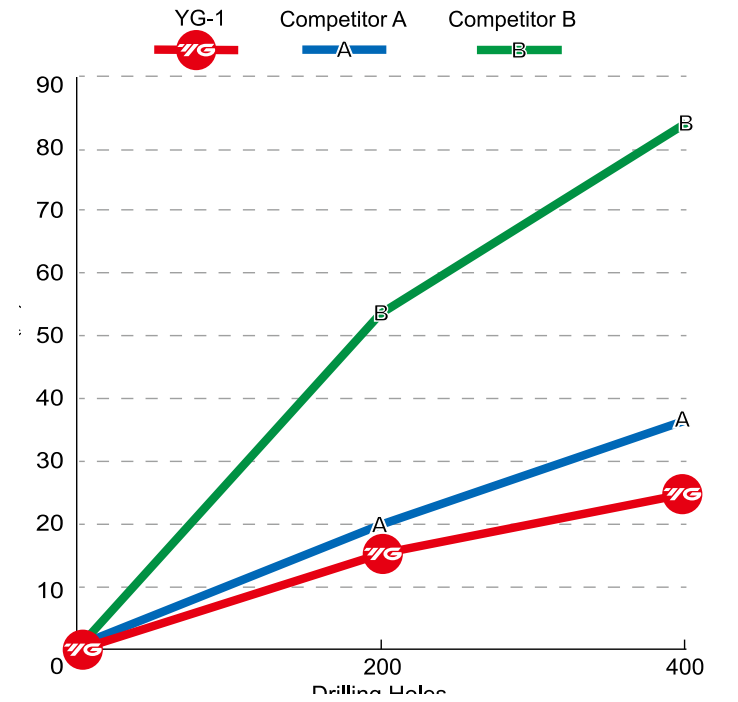
## DREAM DRILLS - INOX

Reference page : p.A117 - p.A128

### ► SOLID CARBIDE DREAM DRILLS - INOX with Coolant Holes

#### Cutting Condition

Tool	DH452060 (DREAM DRILL-INOX)
Size	Ø6 × Ø6 × 44 × 82
Work Material	- DIN : X5CrNi1810 (X4CrNi18-10) - WR : 1.4301 - JIS : SUS304
RPM	3,700 rev./min.
Feed	0.07 mm/rev.
Drilling Depth	24 mm
Coolant	Wet Cut



#### ► YG-1 (Total Drilling 400 Holes)



#### ► Competitor A (Total Drilling 400 Holes)



#### ► Competitor B (Total Drilling 400 Holes)





# PRODUCT FEATURES

## DREAM DRILLS - ALU

Reference page : p.A129 - p.A140



Design that optimized flute shape and geometry suitable for Aluminum, Aluminum alloy.

Optimized point thinning to prevent any chip-clogging from chip welding.



Polished flutes improve chip control and evacuation.

The Drilling of High Speed is possible while maintaining the excellent surface roughness of workpiece.

### Ø6.0 & Ø10.0 TEST, Aluminum(6061)

CUTTING CONDITION	DREAM DRILL-ALU		COMPETITOR A	
	Roundness	Straightness	Roundness	Straightness
SIZE Ø 6.0				
Drilling Holes 1200 Holes				
SIZE Ø10.0				
Drilling Holes 820 Holes				

# CASE STUDY

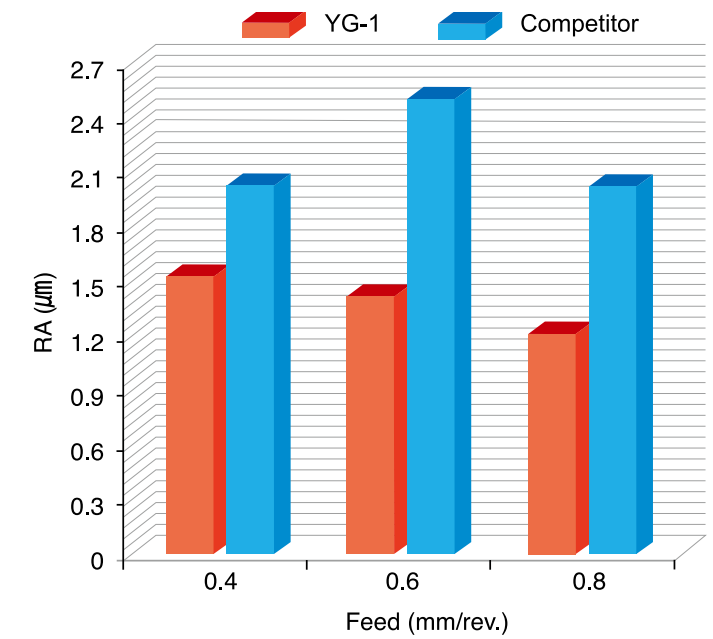
## DREAM DRILLS - ALU

Reference page : p.A129 - p.A140

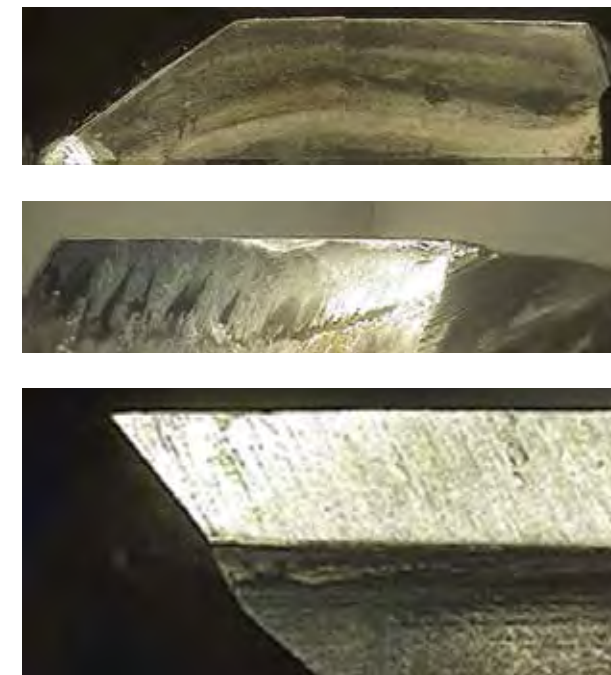
### ► SOLID CARBIDE DREAM DRILLS - ALU with Coolant Holes

#### Cutting Condition

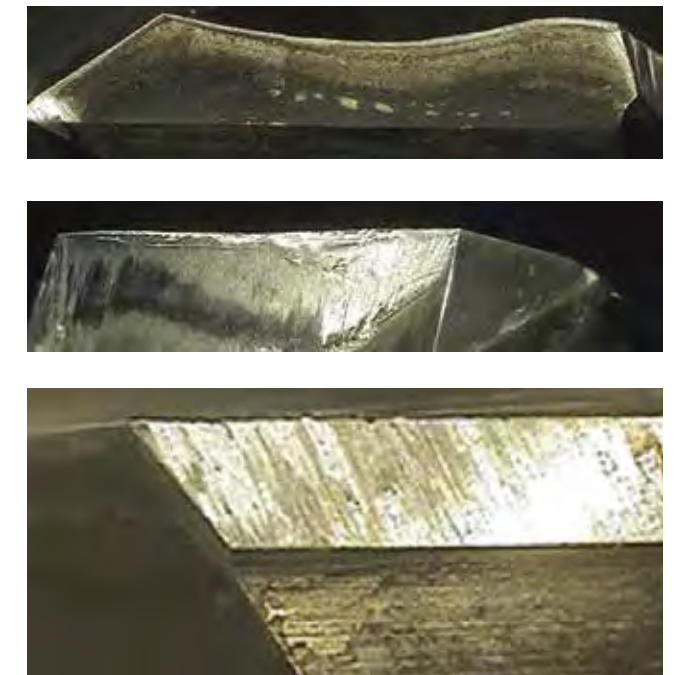
Tool	D5433100 (DREAM DRILLS-ALU)
Size	Ø10.0×Ø10×61×103
Work Material	- DIN : AlMgSiCu - AISI : 6061 - JIS : A6061
RPM	6,367 rev./min.
Feed	0.4 ~ 0.8 mm/rev.
Drilling Depth	45 mm
Coolant	Wet Cut



#### ► YG-1 (Total Drilling 820 Holes)



#### ► Competitor (Total Drilling 820 Holes)



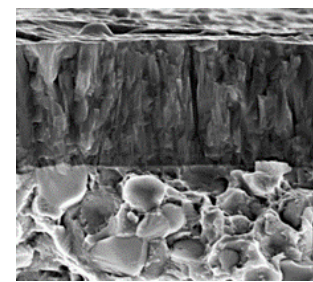


**4-Facet point for good centering capability**



**Polished flute for enhanced chip evacuation**

**Optimized special flutes are ideal for removing chips and for productive drilling**



**Upgraded TiAlN nano Layer Full Coating**

Carbide

**Compatible with the MQL (Minimum Quantity Lubrication) system.**

- Reduction of Coolant related costs such as preparing, maintaining, disposal of emulsion
- Avoids additional efforts associated with part cleaning
- Allows for secure machining process ensuring predictable lubrication

### Compare with Gun drills

- Used on conventional machining center (MQL Drills)
- **Higher productivity** than conventional HSS deep hole drills and Gun drills



- Size Range : Ø2~Ø25  
- Drilling Depth : 25xD ~ over 100xD  
\* Need Gun drilling machine

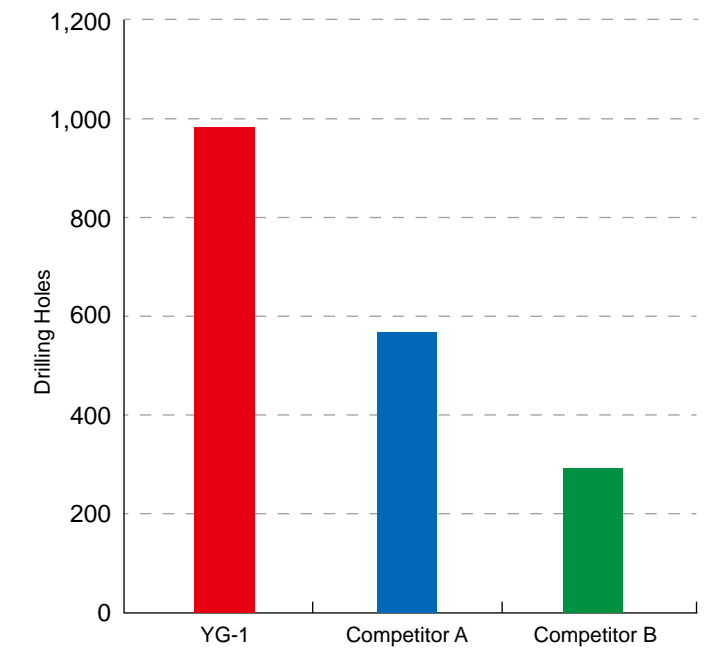
- Size Range : Ø3~Ø14  
- Drilling Depth : 10xD ~ 40xD  
\* Need enough machine stroke on machining center

- Flute Shape and Point Shape allowing better chip evacuation in deep hole drilling
- Excellent Coating and Surface Treatment for better performance and chip evacuation

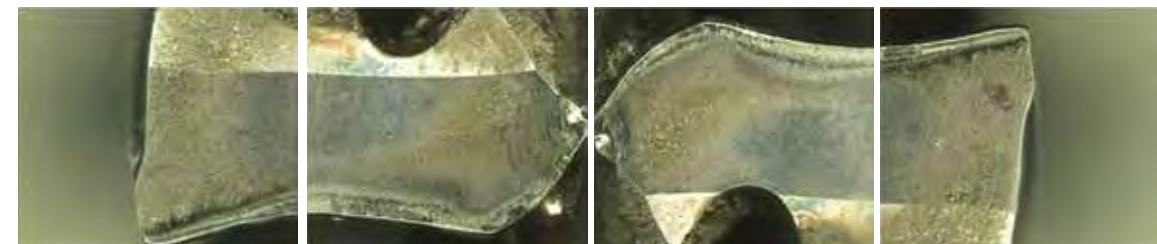
### ► SOLID CARBIDE DREAM DRILLS - MQL Type with Coolant Holes

#### Cutting Condition

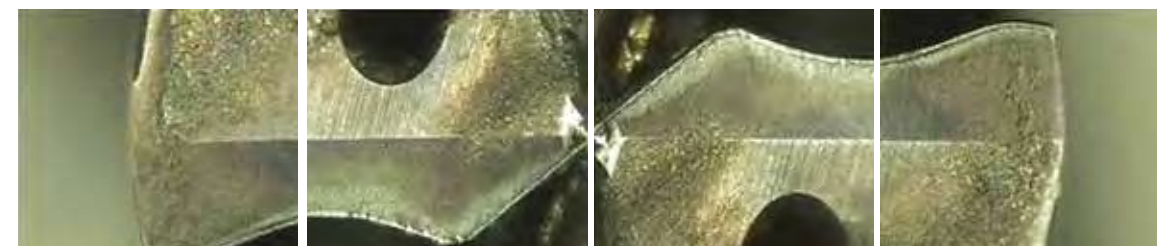
Tool	DH520060 (DREAM DRILL- MQL TYPE, 20xD)
Size	Ø6×Ø6×138×193
Work Material	- DIN : C45 - WR : 1.0503 - JIS : S45C(Hrc25)
RPM	3,528 rev./min.
Feed	0.19 mm/rev.
Drilling Depth	80 mm
Coolant	Oil Mist (MQL Techniques)



### ► YG-1 (After Drilling 1,000 Holes)



### ► Competitor A (After Drilling 546 Holes)





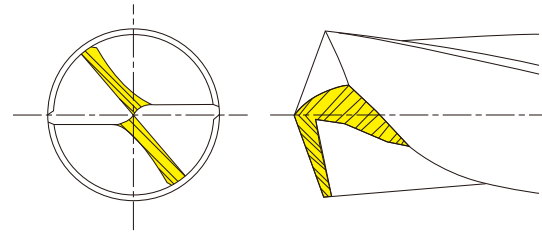


### Low Helix

The low Helix angle maximizes tools' rigidity and stability with less deflection

### Special Thinning (R+U Thinning)

Unique drill point geometry with special thinning to minimize cutting workload, axial thrust loading and heat generation.



### Coating

TiAlN nano coating combines high hardness with high thermal stability against oxidation, allows machining the upper level of hardened steels HRC 50-70.

### Polished Flutes

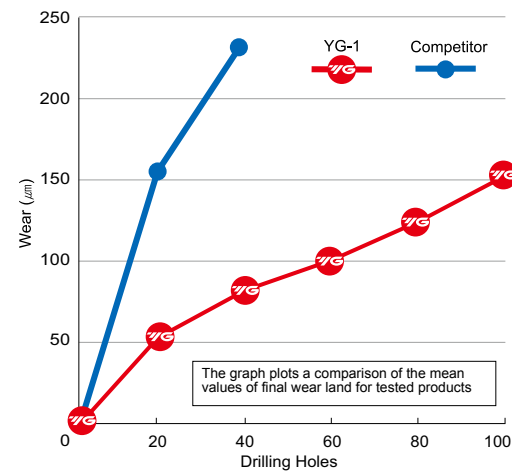
Polished flutes improve coating addition, with better chip control and evacuation.

### Point Shape



### Cutting Condition

Tool	DH500100 (Dream Drills for High Hardened Steels)
Size	Ø10xØ10x63x111
Work Material	- DIN : X155CrV-Mo12-1 - WR : 1.2379 - JIS : SKD11(HRC60)
RPM	380 rev./min..
Feed	0.04 mm/rev.
Drilling Depth	25 mm(2.5xD)
Coolant	Wet Cut



### ► YG-1 (After Drilling 100 Holes)



### ► Competitor (After Drilling 40 Holes)



### Standard-Point

Standard Point and Neutral Rake Angle for Stable Cutting  
Self Centering  
Chip Breaking  
Rigidity on Center

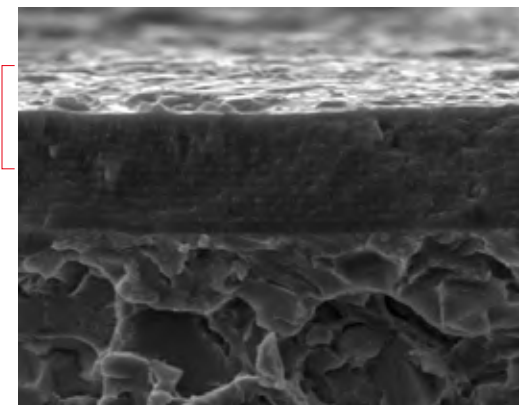


### SM-Point

Multiple Web Thinning for and Radius Back Face for Increased Cutting Speed and Feed  
Wide Chip Space  
Good Self-Centering  
Less Tool Lead-off  
Reduction in bell mouting



Multi Layers  
Carbide



### Multi layered 'H'-coating

### Micro Grain Carbide Insert

Outstanding Productivity & Reliability

### H - Coating

(Upgraded AlCrN-Based : Multi-Layer coating)

- Higher worn-out resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality



**Wide range of work materials;**

Carbon Steels, Alloy Steels, Structural Steels, Hardened Steels(up to HRC45), Cast Iron, Stainless Steels, Aluminum and Titanium



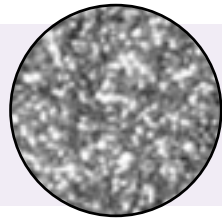
**Point Shape to Maximize Self-centering**

▶ Excellent positioning - bush is not necessary



**Flute Design for the Best Chip Evacuation**

▶ Prevent chip clogging and reduce axial thrust



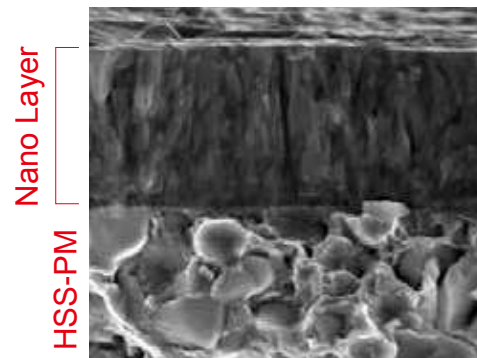
**Premium Powder Material with Excellent Toughness**

▶ Improve cutting edge strength with higher stability and rigidity

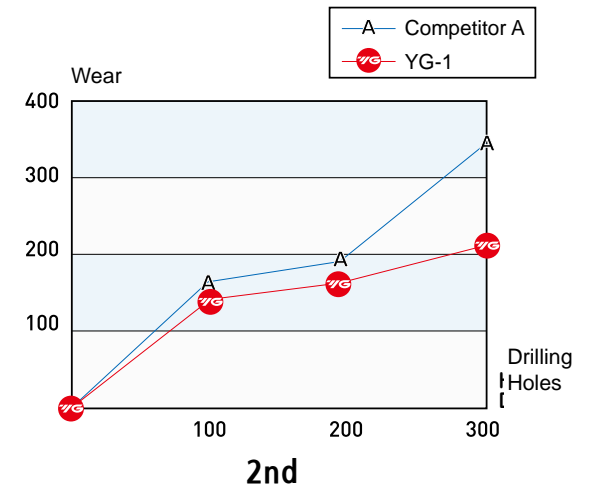
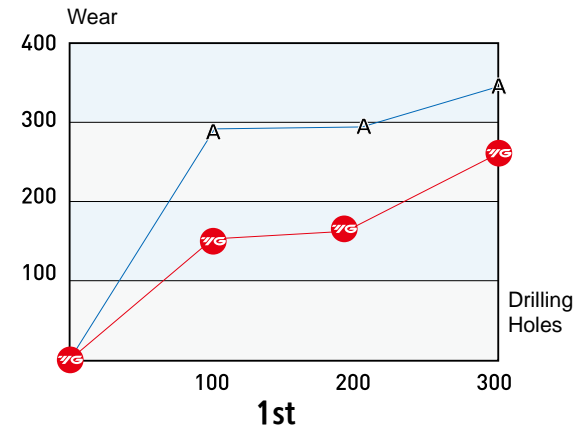
**TiAlN Coating**  
(Upgraded Titanium Aluminum Nitride: nano-Layer coating)

- Higher wear resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality

Special surface treatment after coating to reduce friction and better chip flow.



**TEST I Comparison of edge wear**

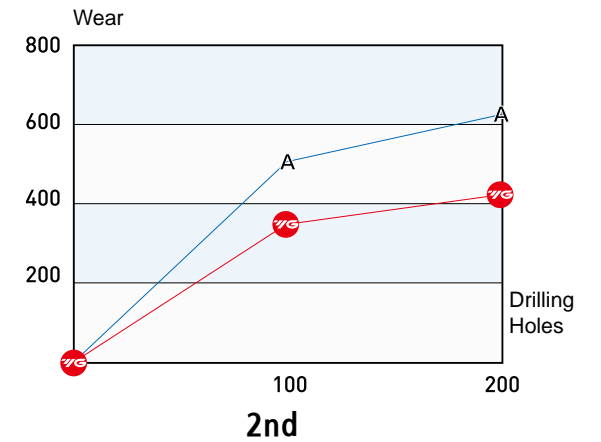
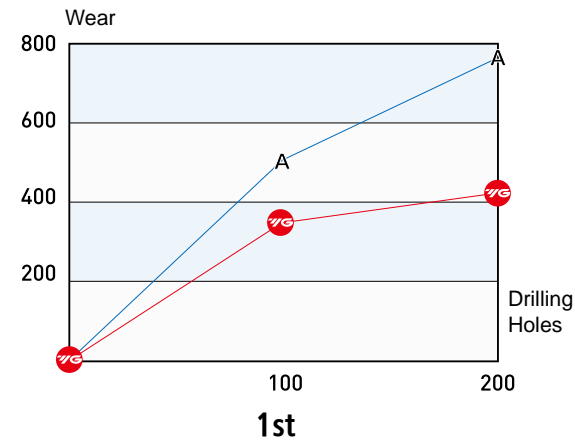


**Cutting Condition**

Work Material	- JIS : SUS316 - DIN : X3CrNiMo17-13-3 - WR : 1.4436
---------------	--

Drilling Depth	24mm
Total Drilling (hole)	300 Holes
RPM	600 rev./min.
Feed	110 mm/min.

**TEST II Comparison of edge wear**



**Cutting Condition**

Work Material	- JIS : SKD11 - DIN : X155CrVMo12-1 - WR : 1.4436
---------------	---

Drilling Depth	24mm
Total Drilling (hole)	200 Holes
RPM	600 rev./min.
Feed	110 mm/min.

▶ YG-1



▶ Competitor



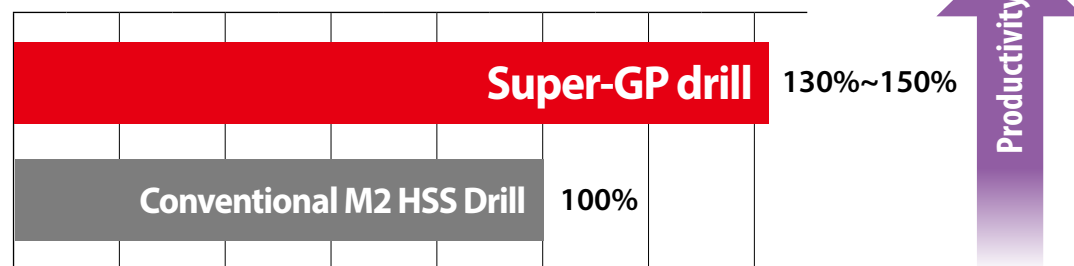




**Super-GP drill** was designed to improve the performance of the Conventional HSS M2 drill.

- Super HSS will Improve Toughness and Wear Resistance
- Rigid structure allows excellent performance for poor machining condition
- Minimized interference will reduce drilling force and friction
- Uniform helix angle will help chip formation and evacuation

**Increase Tool Life at same cutting conditions**



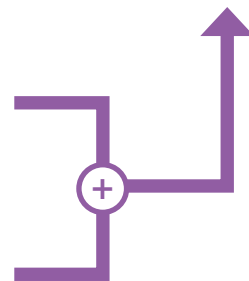
Just One-type of drill for all Applications  
Regardless of Machining Conditions; Good or Poor



Rigid Machining Condition



Unstable Machining Condition



**FEATURES OF GEOMETRY**

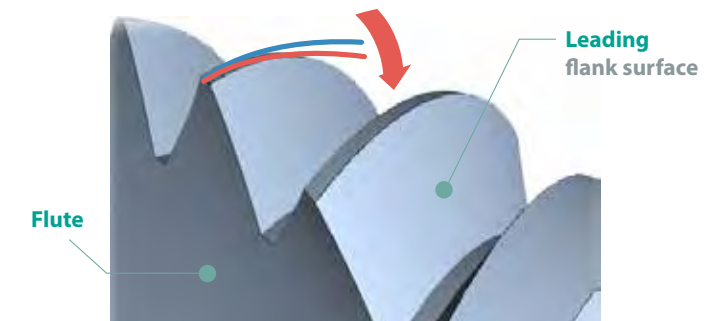
- ▶ Shorter thread length will reduce chip problems at higher speed tapping conditions



- ▶ Shank Tolerance 'h7' for precision clamping and rigid tapping

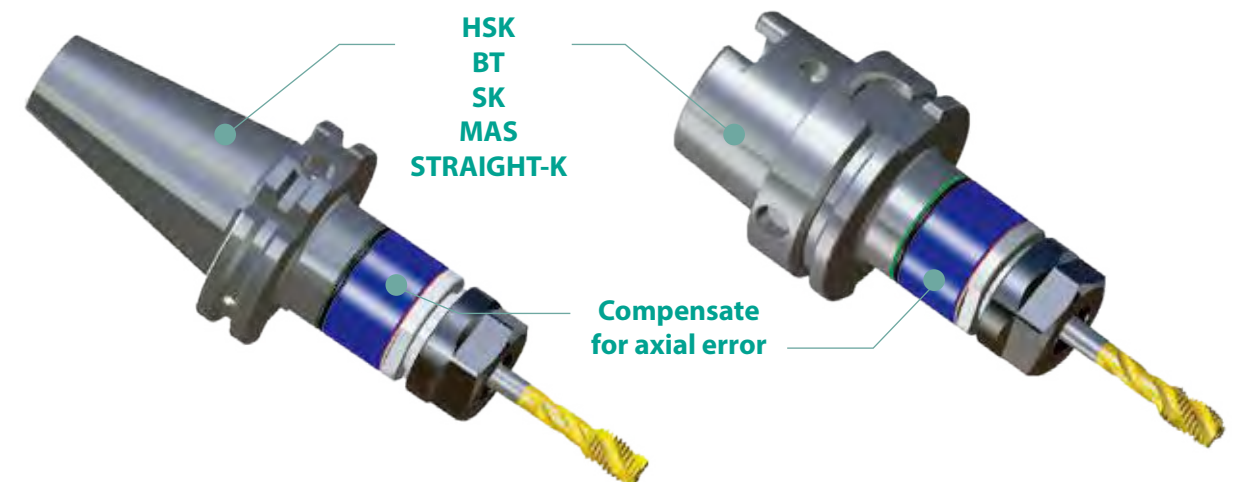
- ▶ More thread relief allows high speed cutting

- ▶ HSS-PM (Powder Metallurgy) for more reliable performance and wear resistance



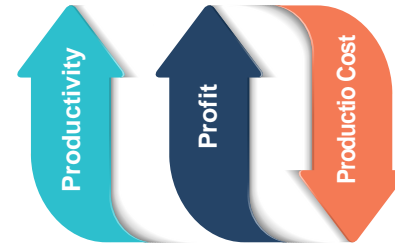
**SYNCHRO TAPPING CHUCK (ER TYPE)**

- ▶ When using Synchro taps, YG-1 strongly recommends SYNCHRO Tapping Chuck for the best thread quality and superior tool life

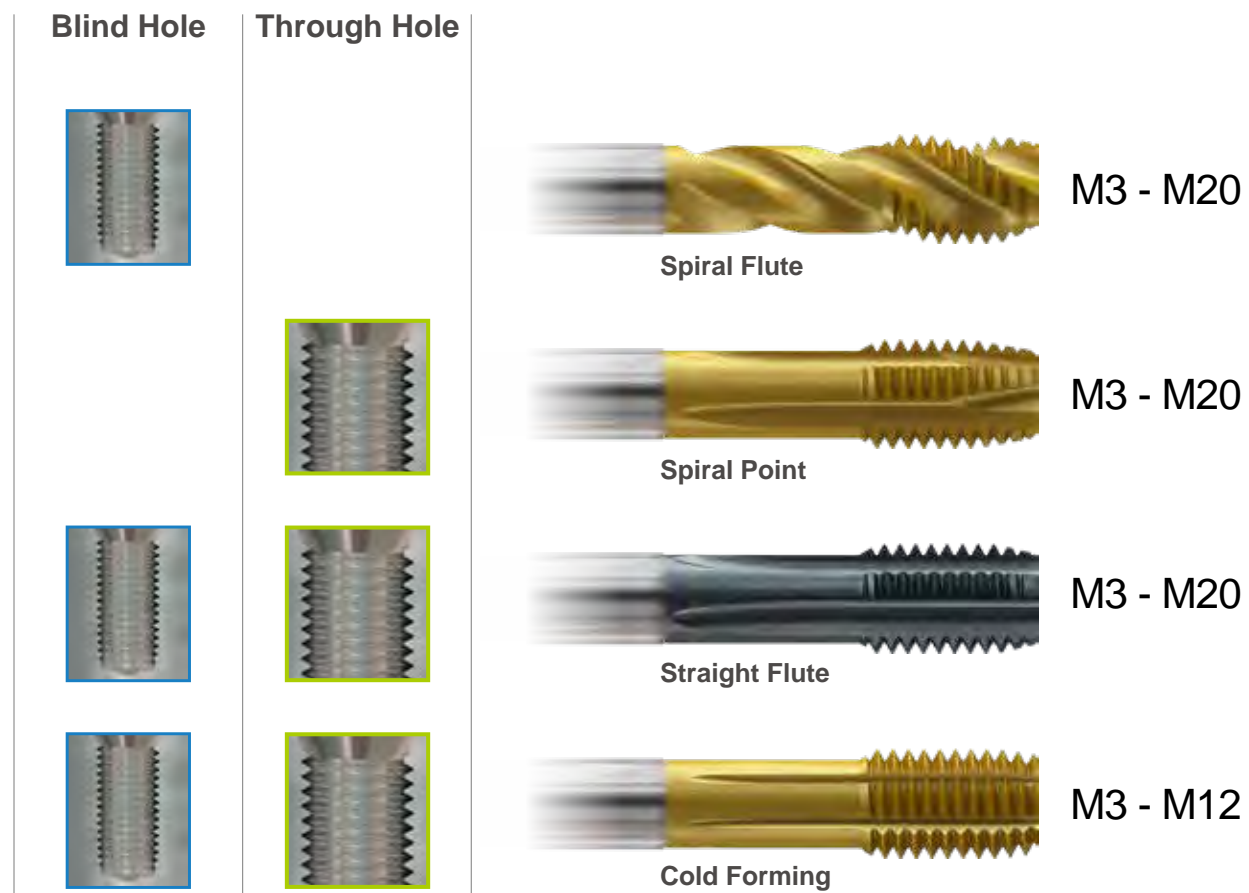


### ADVANTAGES

- ▶ **PRODUCTIVITY**  
Up to 3 times Faster  
in tapping compared to conventional taps (General Steel)

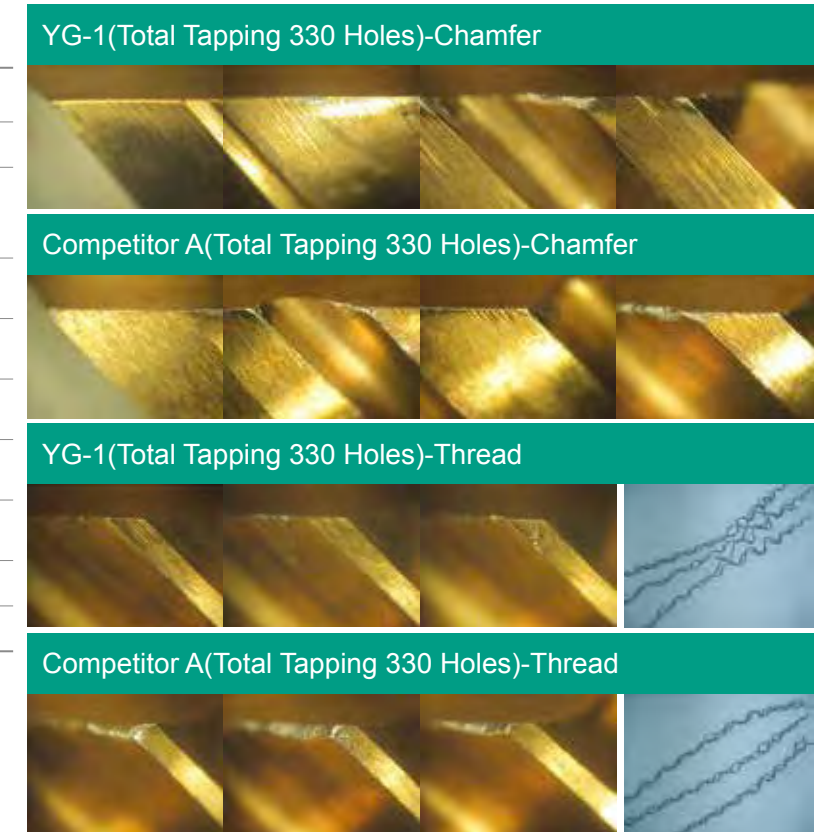


- ▶ 4 kinds of taps are available



### TEST I SPIRAL FLUTE

Cutting Condition	
Tool	HSS-PM Sychro Spiral Flute Tap
Size	M10x1.5
Work Material	- JIS : S45C(HRc35) - DIN : C45 - WR : 1.0503
Cutting Speed	30 m/min.
RPM	955 rev./min.
Feed	1.5 mm/rev.
Tapping Depth	25 mm
Tapping Method	Blind Hole Tapping
Coolant	Wet Cut
Machine	Machining Center



### TEST II SPIRAL FLUTE

Cutting Condition	
Tool	HSS-PM Sychro Spiral Flute Tap
Size	M6x1.0
Work Material	- JIS : S45C(HRc35) - DIN : C45 - WR : 1.0503
Cutting Speed	30 m/min.
RPM	1,592 rev./min.
Feed	1.0 mm/rev.
Tapping Depth	15 mm
Tapping Method	Blind Hole Tapping
Coolant	Wet Cut
Machine	Machining Center





## PRIME TAPS

Reference page : p.B63 - p.B76

### New Prime X-Coated Tap for CNC Machining on Various Ductile Materials

Special grinding process provides an unique geometry on spiral flute and spiral point taps to help control chip evacuation, preventing nest formation and enhance flute space.

#### FEATURES & BENEFITS

**YG-1 Special Thread Structure**

- Reduction in torque, wear, and the risk of over feeding as compared to conventional taps

**Optimized Edge Preparation**

- Consistent performance and process stability to Prevent chipping

**Extra Short Threaded Body and Recess**

- Minimize bird nesting, reduced chipping, improved thread finish

**Optimized Flutes Geometry for Excellent Chip Flow**

- Increased tool life as a result of an optimum combination of material, geometry, and coating which gives Unrestricted chip flow

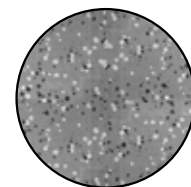
### HSS-PM(Powder Metallurgy)Premium Taps

YG-1's High Performance Coating for high heat and wear resistance



#### YG-1's X-Coating

Powdered Metal Technology for tough-chipping resistance cutting for long tool life and reliable thread finish



**Premium Cutting Edge Strength**

- More controlled structure with high wear resistance
- Consistent performance and process stability with chipping resistance



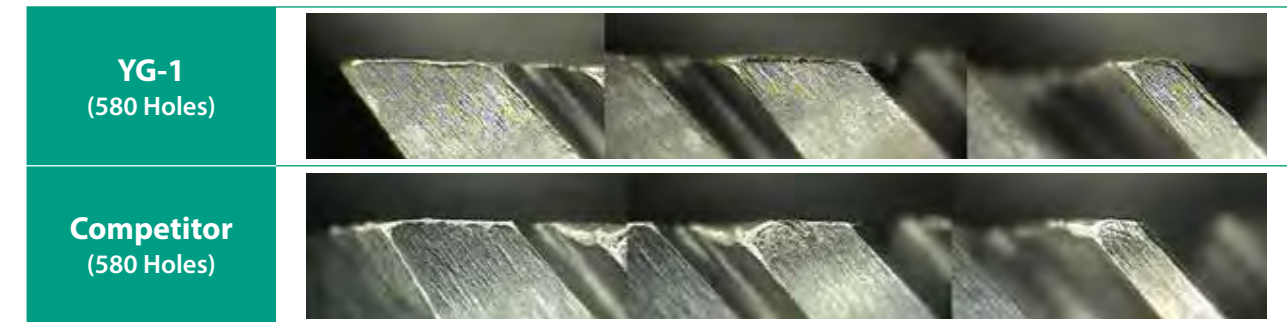
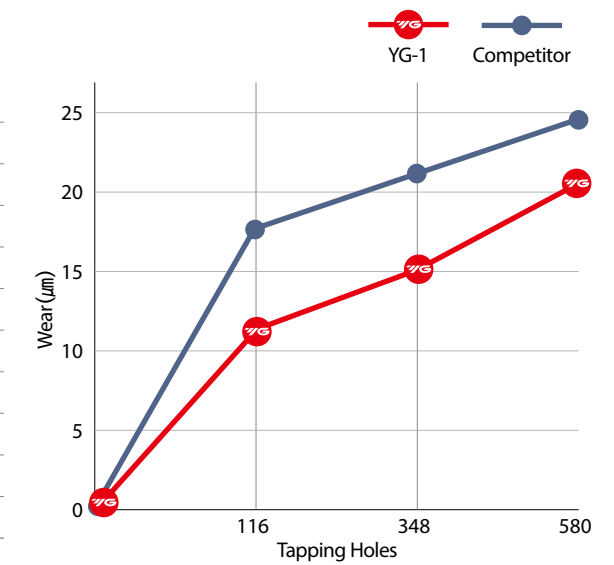
## PRIME TAPS

Reference page : p.B63 - p.B76

### TEST I SPIRAL FLUTE TAP (M4x0.7)

#### Cutting Condition

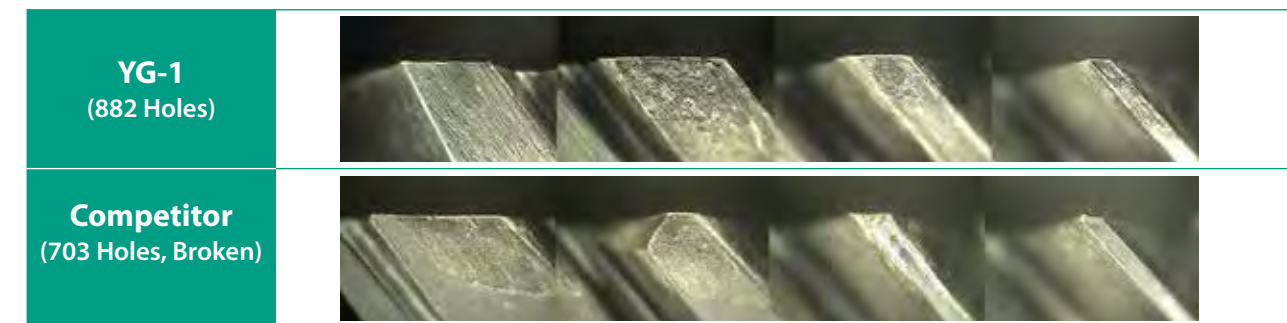
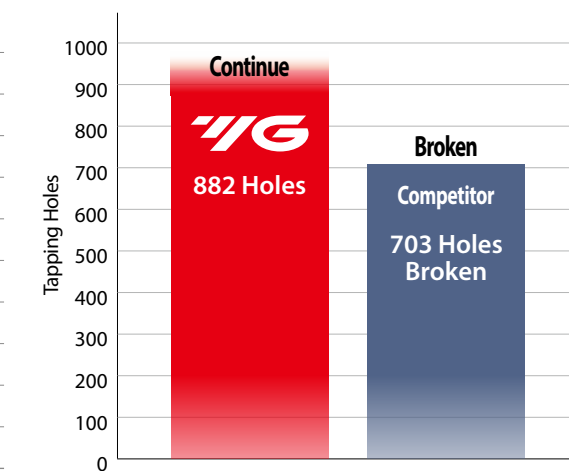
Tool	Spiral Flute Tap
Size	M4x0.7
Work Material	JIS: SCM440(HRc30) / DIN : 42CrMo4 / WR : 1.7225
RPM	2387 rev/min
Vc	30 m/min.
Feed	0.7 mm/rev.
Tap Drill Size	Ø3.3mm
Tapping depth	8mm
Tapping holes	580
Coolant	Wet Cut



### TEST II SPIRAL FLUTE TAP (M6x1.0)

#### Cutting Condition

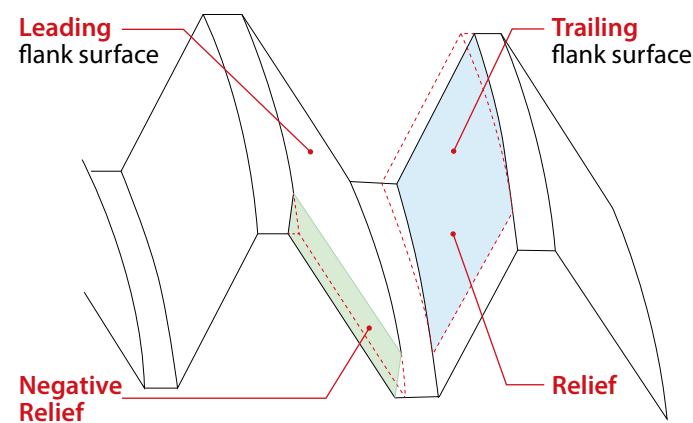
Tool	Spiral Flute Tap
Size	M6x1.0
Work Material	JIS: SUS316Ti / DIN : X6CrNiMoTi17-12-2 / WR : 1.4571
RPM	531 rev/min
Vc	10 m/min
Feed	1.0mm/rev.
Tap Drill Size	Ø5.1mm
Tapping depth	12.0mm
Tapping holes	YG-1: 882+α / Competitor : 703
Coolant	Wet Cut



### General Use for Various Materials

Combo Tap's geometry provides enough flute space resulting in smooth chip evacuation and therefore a continuous production process. Guarantee a high level of process reliability even under unfavorable conditions.

- ▶ For Steels, Stainless Steels, Cast Iron and Non-Ferrous Materials
- ▶ Prevents over & under feeding by its optimized flank geometry
- ▶ Constant threading quality preventing oversized threading



- **Optimized flank geometry** to prevent over & under feeding
- Enables **smoother tapping** with better chip evacuation
- **Compensation** of cutting force, which reduces tap wear and extends tool life.

### TEST I SPIRAL FLUTE

#### Cutting Condition

Tool	Combo Spiral Flute Tap
Size	M8x1.25
Work Material	- JIS : S45C(HRc35) - DIN : C45 - WR : 1.0503
Tapping Depth	20mm
Coolant	Water Soluble Oil
Vc(Tapping Speed)	10m/min

#### Surface Roughness of Work Piece

YG-1 Total Tapping 204 Holes	Competitor A Total Tapping 159 Holes	Competitor B Total Tapping 204 Holes

### TEST II SPIRAL POINT

#### Cutting Condition

Tool	Combo Spiral Point Tap
Size	M2x0.4
Work Material	JIS : S45C(HRc35) DIN : C45 WR : 1.0503
Tapping Depth	6mm
Coolant	Tapping Oil
Vc (Tapping Speed)	10m/min.

#### Surface Roughness of Work Piece

YG-1 Total Tapping 450 Holes	Competitor A Total Tapping 318 Holes	Competitor B Total Tapping 103 Holes
	Tool broke after tapping 318 holes	Tool broke after tapping 103 holes

### TEST I SPIRAL FLUTE

#### Cutting Condition

Tool	Combo tap for Stainless Steels (TQ744246)
Size	M4x0.7
Work Material	- JIS : SUS304 - DIN : X5CrNi18 10(X4CrNi18-10) - WR : 1.4303
Tapping Depth	10mm
Coolant	Wet Cut
Vc (Tapping Speed)	8m/min.

YG-1 Total Tapping 170 Holes	Competitor A Total Tapping 170 Holes	Competitor B Total Tapping 83 Holes
		Tool broke after tapping 83 holes

### TEST II SPIRAL FLUTE

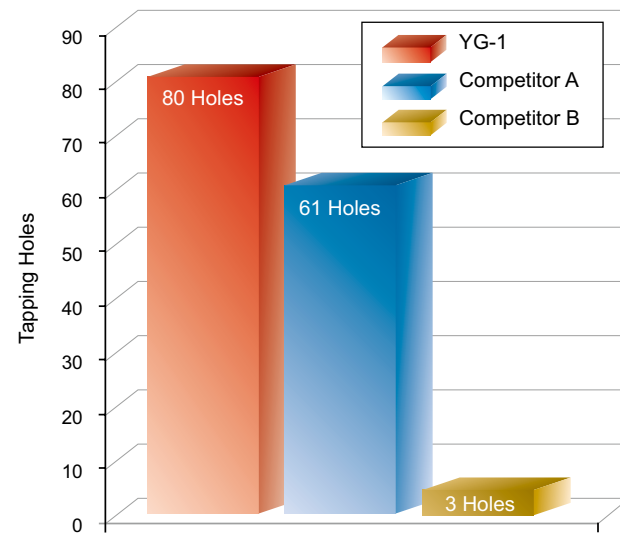
#### Cutting Condition

Tool	Combo tap for Stainless Steels (TQ744316)
Size	M6x1.0
Work Material	- JIS : SUS304 - DIN : X5CrNi18 10(X4CrNi18-10) - WR : 1.4303
Tapping Depth	15mm
Coolant	Wet Cut
Vc (Tapping Speed)	8m/min.

YG-1 Total Tapping 230 Holes	Competitor A Total Tapping 92 Holes	Competitor B Total Tapping 98 Holes
	Tool broke after tapping 92 holes	Tool broke after tapping 98 holes



### TEST I STRAIGHT FLUTE TAPS

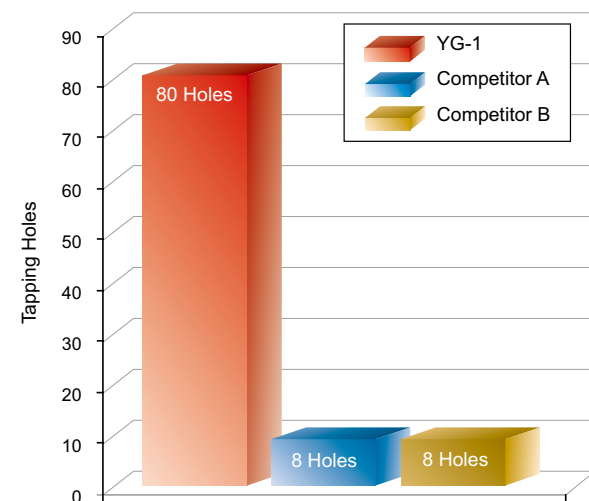


#### Cutting Condition

Tool	Straight flute tap
Size	M6x1.0
Work Material	- JIS : SKD61 (HRC50) - DIN : X40GrMoV51(1.2344) - AISI : H13
R.P.M.	120 rev./min.
Feed	1.0 mm/rev.
Tapping Depth	9mm (1.5xD)
Coolant	Wet Cut

YG-1 Total Tapping 80 Holes	Competitor A Total Tapping 61 Holes	Competitor B Total Tapping 3 Holes
	Tool broke after tapping 61 holes	Tool broke after tapping 3 holes

### TEST II STRAIGHT FLUTE TAPS



#### Cutting Condition

Tool	Straight flute tap
Size	M6x1.0
Work Material	- JIS : SKD61 (HRC50) - DIN : X40GrMoV51(1.2344) - AISI : H13
R.P.M.	120 rev./min.
Feed	1.0 mm/rev.
Tapping Depth	9mm (1.5xD)
Coolant	Wet Cut

YG-1 Total Tapping 80 Holes	Competitor A Total Tapping 8 Holes	Competitor B Total Tapping 8 Holes
		Tool broke after tapping 8 holes

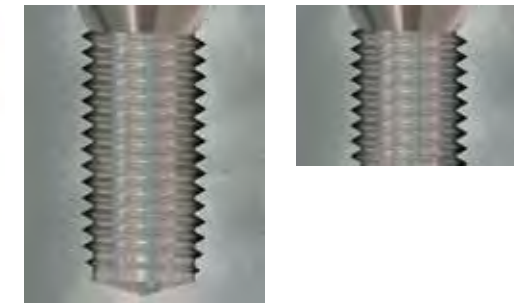


**A Thread mill can produce various thread diameters with the same pitch**

Disadvantage of tapping is that a different size tap is required for each size hole

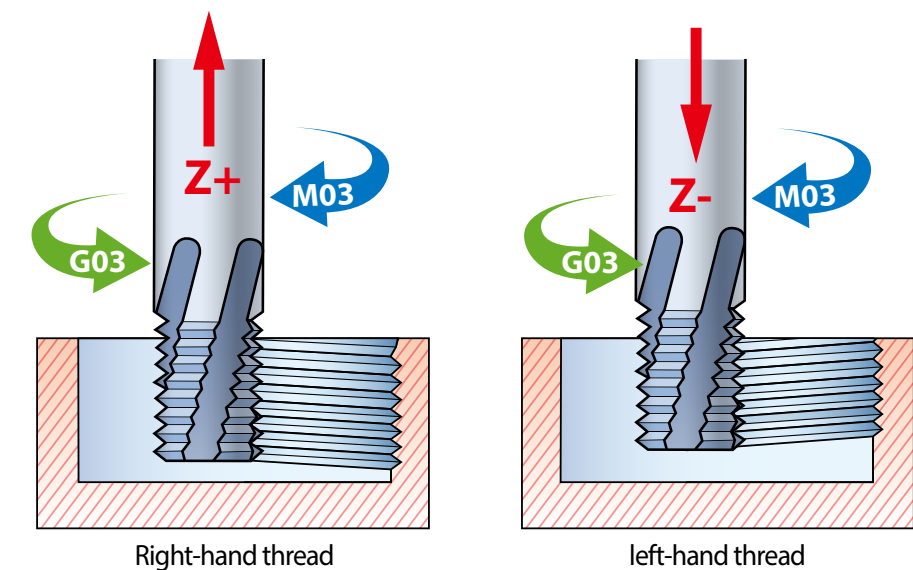
**One Thread mill for blind-holes and through-holes**

Thanks to short chips, No chip problems with tapping No problems removing broken tools from the workpiece.



**One Thread mill for right- and left-hand threads**

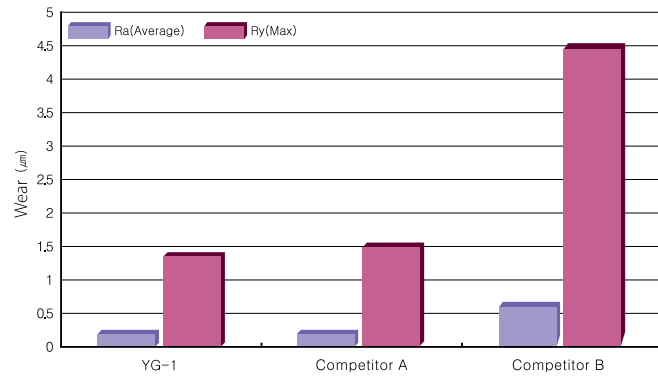
Right-hand and left-hand threads can be produce with the same tooling just by adjusting CNC commands.



**Higher Cutting Speed than tapping.**  
**Higher Reliable Process than tapping, because of short chips.**  
Thread Milling takes much less torque than tapping

### TEST I Total Milling Length : 240mm

#### Surface Roughness of Work Piece



#### Cutting Condition (Ø1 x R0.5)

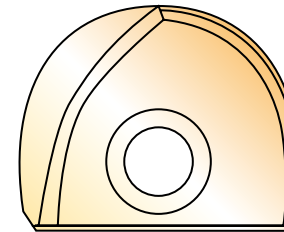
Tool	2Flute, CBN Ball Nose End mill
Size	Ø1xØ4x0.6x50
Work Material	- JIS : SKD11(HRc60) - DIN : X155CrV-Mo12-1 - WR : 1.2379
Vc (m/min.)	94.25
RPM (rev./min.)	30,000
Feed (mm/min.)	1,500
Milling Depth (mm)	0.01
Coolant	Oil Mist
Machine	Machining Center

### i-Xmill BALL INSERT



#### 1. Helical end gash ("S" gash) geometry

- Low milling torque
- Prevents chattering
- Improves chip ejection
- Prolong tool life



#### 2. Polished cutting edges

- Better wear resistance and tool life
- Improves repeatability in performance
- Improves surface roughness on work-piece
- Improves coating

#### 3. Special coating

- Combine high hardness with high thermal stability against oxidation
- Superior wear resistance
- Faster feeds and speeds

#### Maximum Wear (μm)

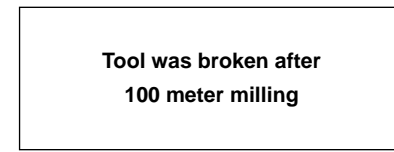
**YG CBN (19.611 μm)**



**Competitor A (32.249 μm)**

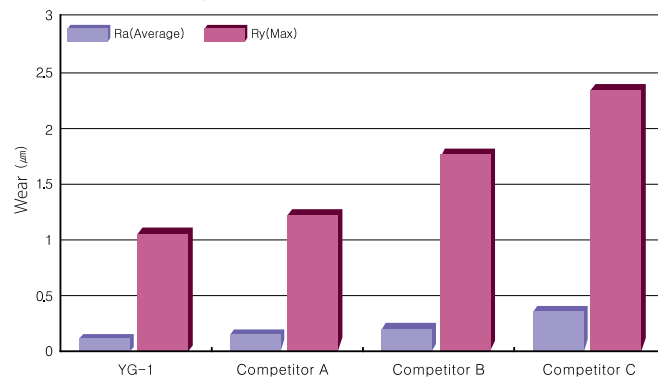


**Competitor B**



### TEST II Total Milling Length : 750mm

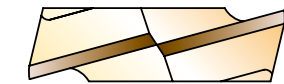
#### Surface Roughness of Work Piece



#### Cutting Condition (Ø2 x R1.0)

Tool	2Flute, CBN Ball Nose End mill
Size	Ø2xØ4x1.8x50
Work Material	- JIS : SKD11(HRc60) - DIN : X155CrV-Mo12-1 - WR : 1.2379
Vc (m/min.)	188.50
RPM (rev./min.)	30,000
Feed (mm/min.)	2,000
Milling Depth (mm)	0.01
Coolant	Oil Mist
Machine	Machining Center

### i-Xmill CORNER RADIUS INSERT

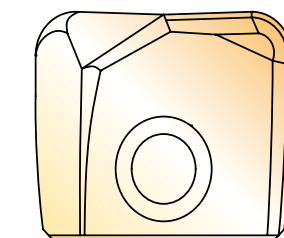


1. The optimized tool geometry achieves better reliability and reduces vibration and cutting load.

2. Corner radius insert can be used with the ball holder, but for a better precision in cutting. It is recommended to use the corner radius holder.

3. The various and wide cutting range allows machining in both roughing and finishing.

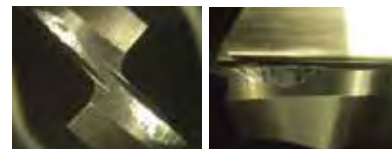
4. Special coating makes high hardness with high thermal stability against oxidation.



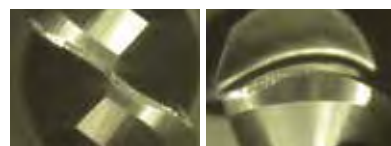
#### Maximum Wear (μm)



**YG CBN**  
57.630 μm



**Competitor A**  
100.314 μm



**Competitor B**  
71.471 μm



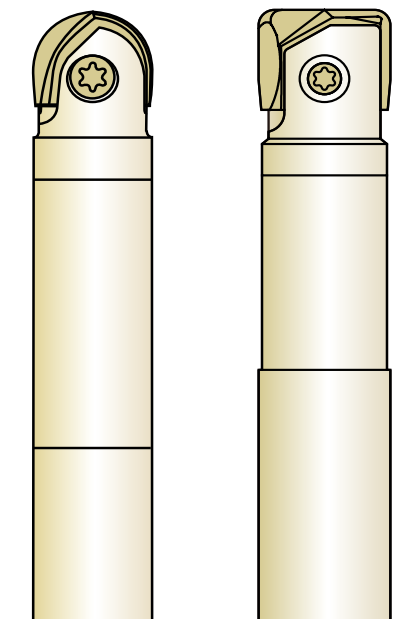
**Competitor C**  
170.200 μm

### i-Xmill CARBIDE HOLDER

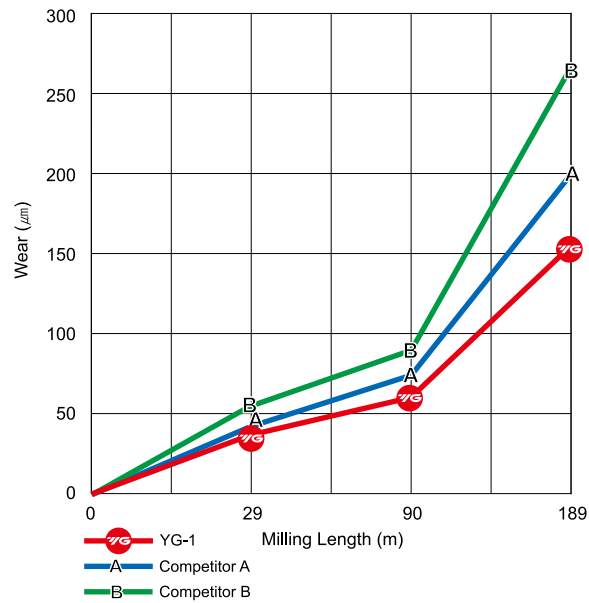
1. As rigid as a solid carbide end mill for stable machining with reduced vibration and enhanced finish
2. Allows a high quality of finishing even when machining the deeper part of a mold
3. Longer tool life than a steel holder
4. Shrink Fit Holding system can be applied
5. Upon request, the broken holder is able to be regenerated
6. Your carbide holder can be regenerated as YG-1 type upon request

### i-Xmill STEEL HOLDER

1. Premium alloy steel with excellent strength
2. Precise shank tolerance (h6)
3. Nickel plated, to prevent corrosion and improve lubricity



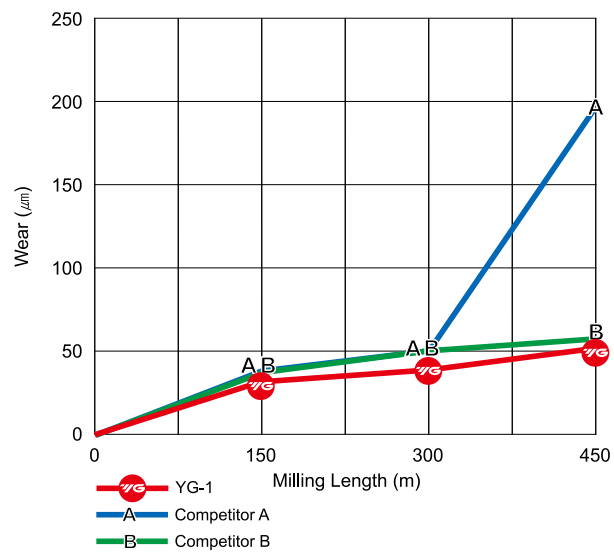
**TEST I** *i-Xmill* Ball Nose



**Cutting Condition (Side Cutting)**

<b>Tool</b>	i-Xmill Ball (XMB120C160)	<b>Vc (m/min.)</b>	80.42	<b>Milling Depth(mm)</b>	Axial : 0.8 mm Radial : 1.6 mm
<b>Size</b>	Ø16xR8.0	<b>RPM (rev./min.)</b>	1,600	<b>Coolant</b>	Oil Mist
<b>Work Material</b>	- JIS : SKD61 (HRC50), - DIN : X40GrMoV51(1.2344) - AISI : H13	<b>Feed (mm/min.)</b>	390	<b>Overhang</b>	YG-1, Competitor B : 48 / Competitor A : 56
		<b>Feed per tooth (mm/tooth)</b>	0.12	<b>Machine</b>	Machining Center

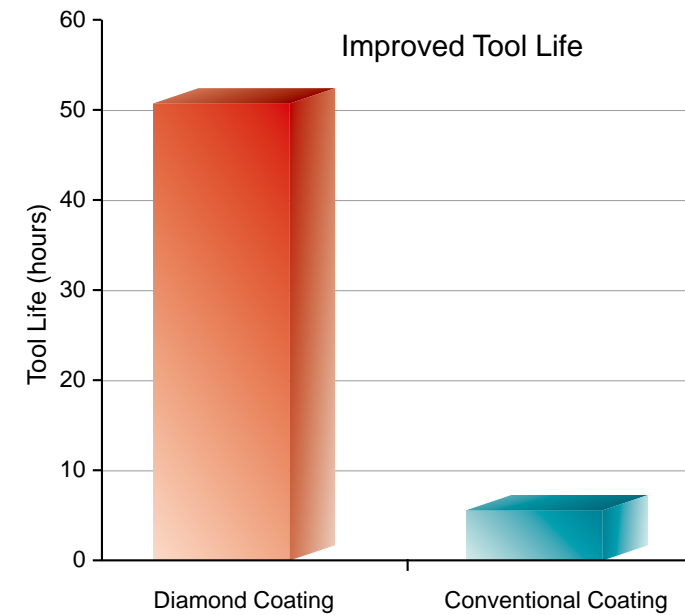
**TEST II** *i-Xmill* Corner Radius



**Cutting Condition (Side Cutting)**

<b>Tool</b>	i-Xmill Corner Radius (XMR110A16020)	<b>Vc (m/min.)</b>	280	<b>Milling Depth(mm)</b>	Axial : 3.0 Radial : 0.2
<b>Size</b>	Ø16xR2.0	<b>RPM (rev./min.)</b>	5,570	<b>Coolant</b>	Oil Mist
<b>Work Material</b>	- KS : KP4M (Mold steels HRC35) - DIN : 40CrMnNiMo8-6-4(1.2738) - AISI : P20+Ni	<b>Feed (mm/min.)</b>	2,230	<b>Overhang</b>	70
		<b>Feed per tooth (mm/tooth)</b>	0.2	<b>Machine</b>	Machining Center

**TEST III** *i-Xmill* with Diamond Coating



**Cutting Condition**

<b>Tool</b>	i-Xmill Corner Radius (XMR110D17010)
<b>Size</b>	Ø17 x R1.0
<b>Work Material</b>	Graphite
<b>Vc (m/min)</b>	320
<b>RPM (rev./min)</b>	6,000
<b>Feed (mm/min)</b>	2,800
<b>Feed per tooth (mm/tooth)</b>	0.23
<b>Milling Depth (mm)</b>	Axial : 0.2
<b>Coolant</b>	Air

**Coating properties**

This coating generation features a good crystalline structure. It protects tools perfectly against abrasive wear and is unsurpassed in graphite cutting.

**Feature**

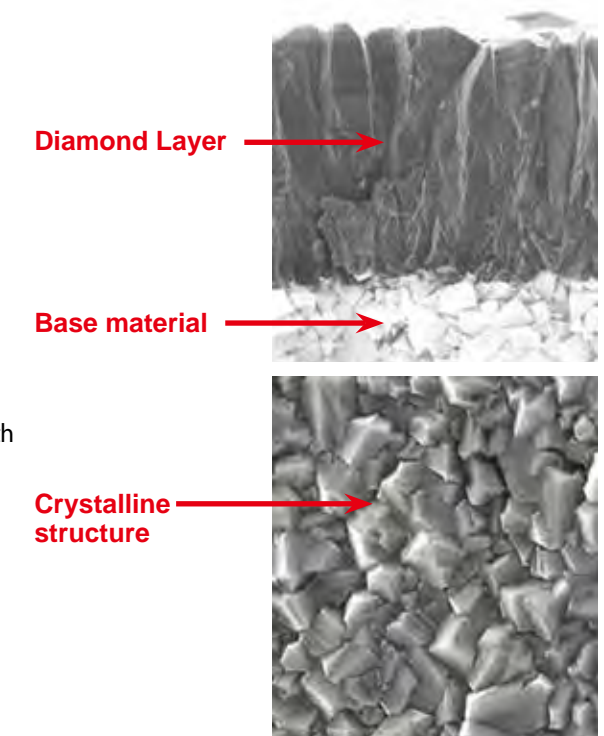
1. High Abrasive wear resistance.
2. Good Coefficient of friction.(against Al)
3. High Precision.

**Advantages**

Diamond coated i-Xmill possible to cut graphite workpieces with substantially greater speeds and in significantly better quality.

**Applications**

1. Precision-structured graphite electrodes.
2. Micro-Electromechanical Systems. (MEMS)
3. Printed Circuit Boards. (PCBs)
4. Ceramics (greens, sintered) Dental, machinery.







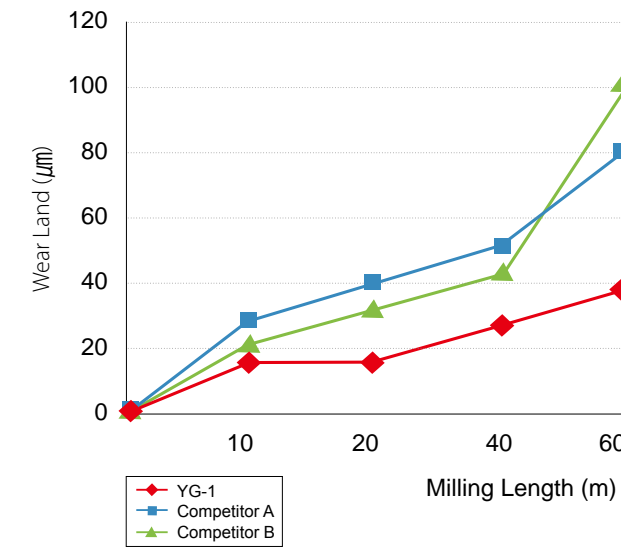
### Modular Type, Y-Coated Exchangeable Carbide Milling Heads for machining Pre-Hardened Steels

- Avoids expensive investments by using existing Copy Milling adaptor technology
- Proven performance transferred to cost effective modular system
- Optimal solution for large size or long reach Die&Mold applications

Seven different selections of modular heads fit in different holders.



### TEST Total Milling Length : 60m



### Cutting Condition (Down & Side Cutting)

Tool	4Flute Corner Radius
Size	Ø16 x R1.0
Work Material	- KP4M (Hrc35) - AISI P20+Ni - DIN 1.2738 Improved
Vc (m/min.)	155.82
RPM (rev./min.)	3,100
Feed (mm/min.)	280
Feed per tooth (mm/tooth)	0.02
Milling Depth (mm)	Axial : 12 Radial : 0.8
Overhang (mm)	77
Coolant	Wet Cut
Machine	Machining Center

### YG i-SMART



### CompetitorA



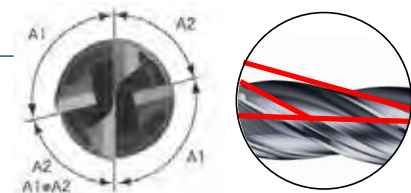
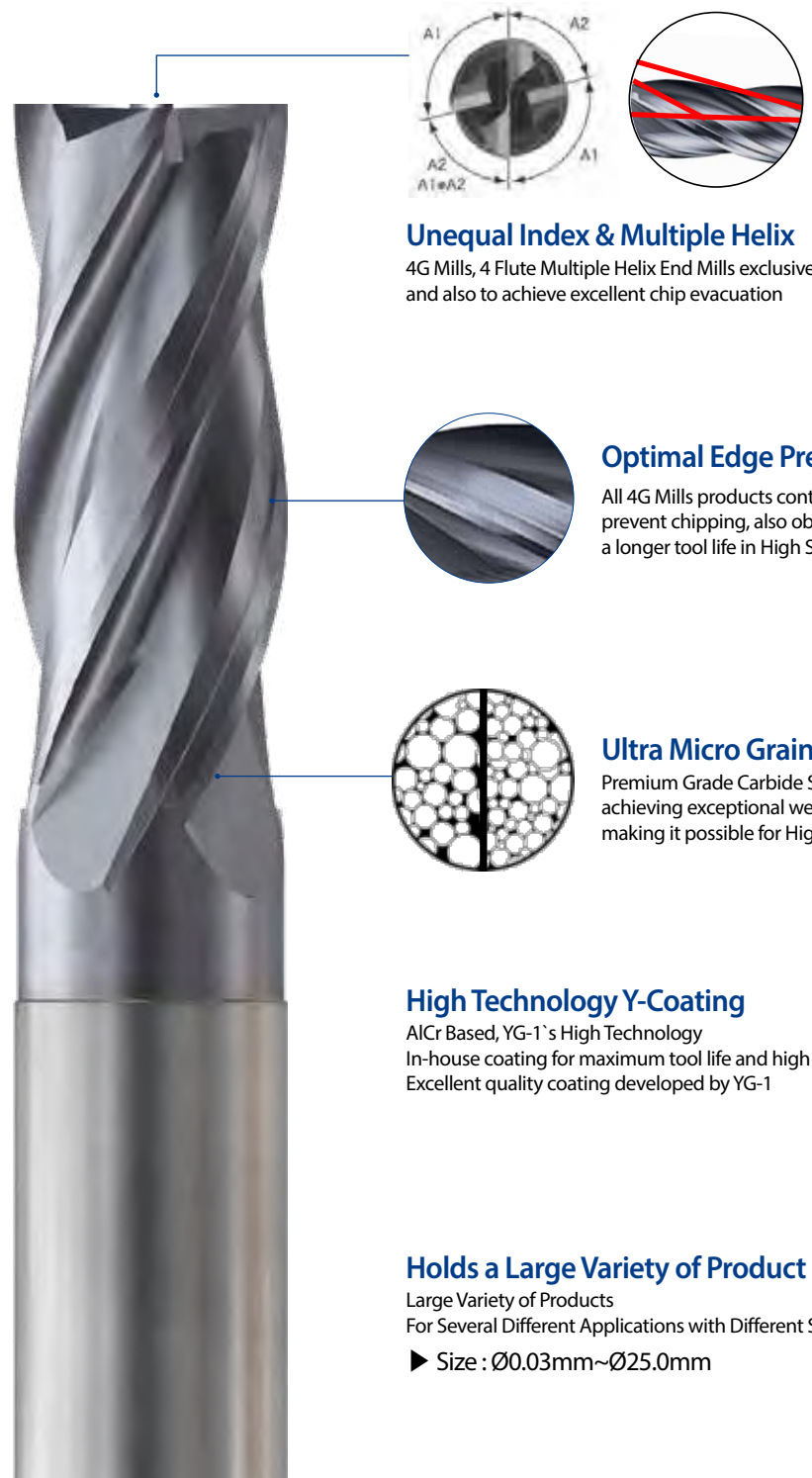
### CompetitorB





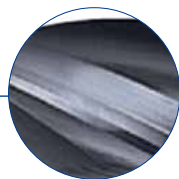
### High Speed Cutting for Pre-Hardened Steels up to HRc55

Suitable for wide range of work material, specifically for increasing tool life when machining pre-hardened materials, low hardness materials and cast iron, etc. High speed cutting, dry and wet cut recommended together.



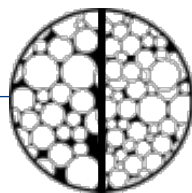
#### Unequal Index & Multiple Helix

4G Mills, 4 Flute Multiple Helix End Mills exclusively designed to reduce vibration and also to achieve excellent chip evacuation



#### Optimal Edge Preparation

All 4G Mills products contain an Optimal Edge Preparation to prevent chipping, also obtaining an excellent surface finish with a longer tool life in High Speed Cutting



#### Ultra Micro Grain & Nano Grain Carbide

Premium Grade Carbide Substrate Materials achieving exceptional wear resistance making it possible for High Precision Machining

#### High Technology Y-Coating

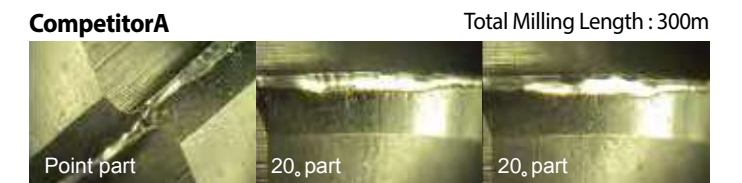
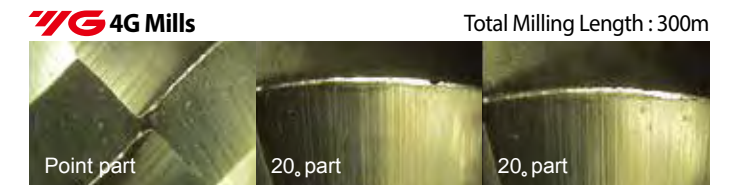
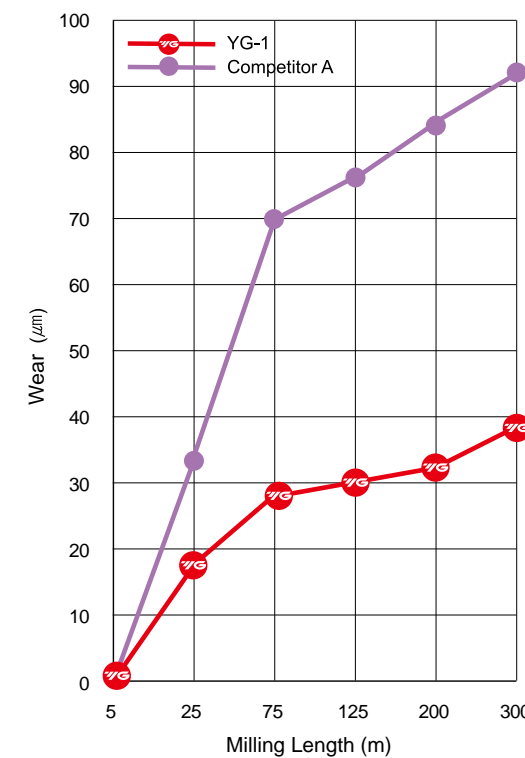
AlCr Based, YG-1's High Technology In-house coating for maximum tool life and high performance Excellent quality coating developed by YG-1

#### Holds a Large Variety of Product Range for Multiple Use

Large Variety of Products For Several Different Applications with Different Size and Lengths

► Size : Ø0.03mm~Ø25.0mm

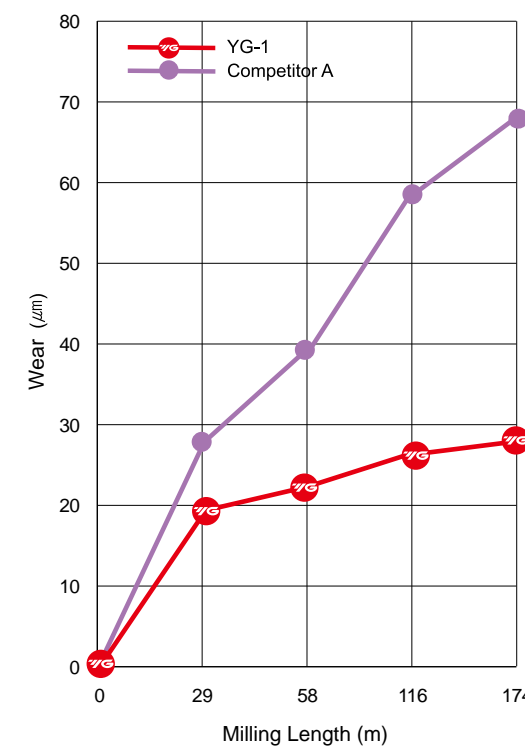
### TEST I - Ball Nose



#### Cutting Condition (Profile Cutting)

Tool	2Flute, SEMD98060E
Size	Ø6×6×12×90
Work Material	KP4M (HRc35 / DIN 1.2738 Improved)
Vc (m/min.)	130.061
RPM (rev./min.)	6,900
Feed (mm/min.)	830
Feed per tooth (mm/tooth)	0.060
Milling Depth (mm)	Axial : 0.2 / Radial : 1.2
Coolant	Oil Mist
Overhang (mm)	26
Machine	Machining Center

### TEST II - Corner Radius



#### Cutting Condition (Down & Side Cutting)

Tool	4Flute, SEME0110005E
Size	Ø10(R0.5)×10×25×100
Work Material	KP4M (HRc35 / DIN 1.2738 Improved)
Vc (m/min.)	51.522
RPM (rev./min.)	1,640
Feed (mm/min.)	180
Feed per tooth (mm/tooth)	0.027
Milling Depth (mm)	Axial : 25 / Radial : 0.5
Coolant	Oil Mist
Overhang (mm)	41
Machine	Machining Center

### Characteristics

- Unique flute design for excellent chip evacuation and vibration reduction.
- Optimal roughing tooth profile to reduce cutting forces.
- Special tool geometry for high feed rate and heavy cutting.
- Strong end tooth design for plunge and pocket milling.
- Custom engineered coating to allow long tool life and excellent chip evacuation.

#### ▶ 4 FLUTE

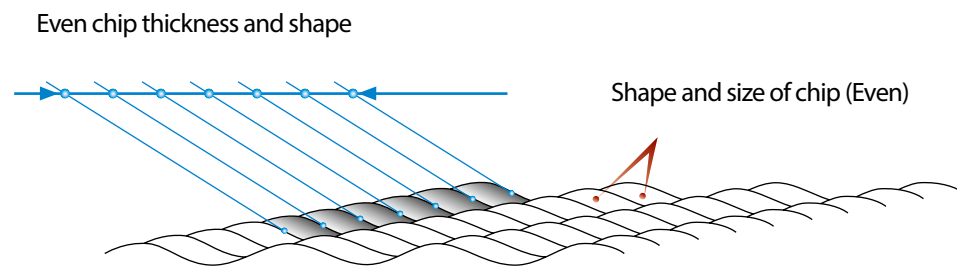


#### ▶ 5 FLUTE

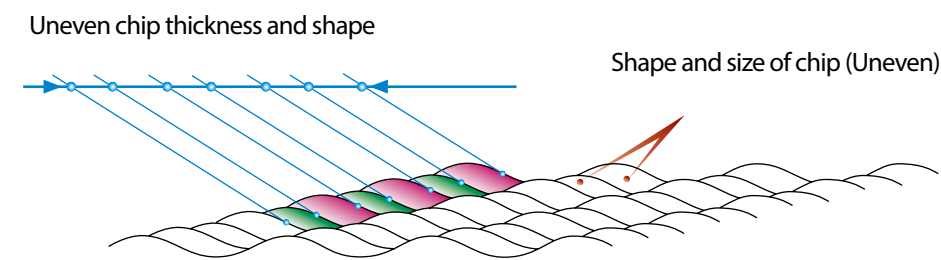


### Chip Thickness and Shape

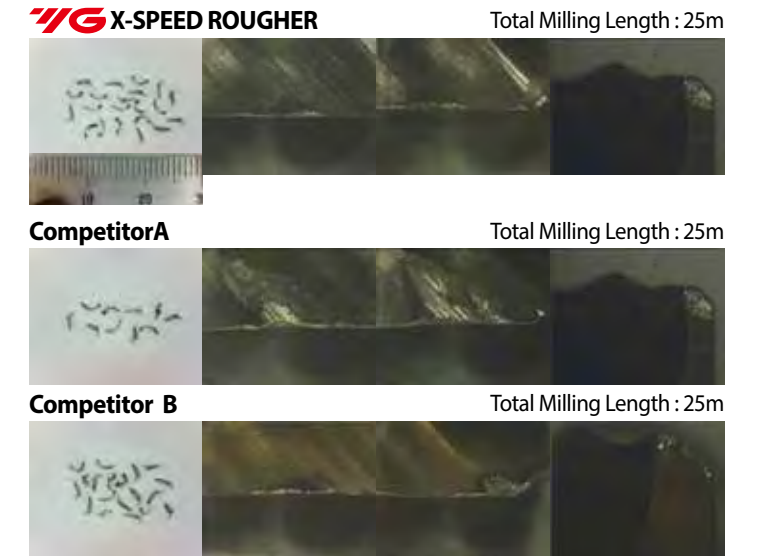
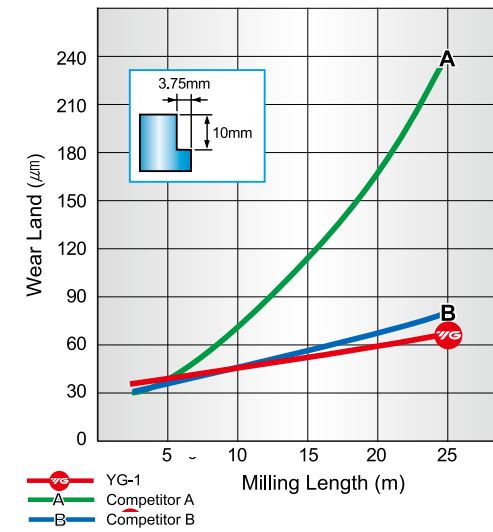
#### ▶ Conventional Roughing End Mills



#### ▶ X-SPEED Rougher



### TEST I 4 Flute Multiple Helix

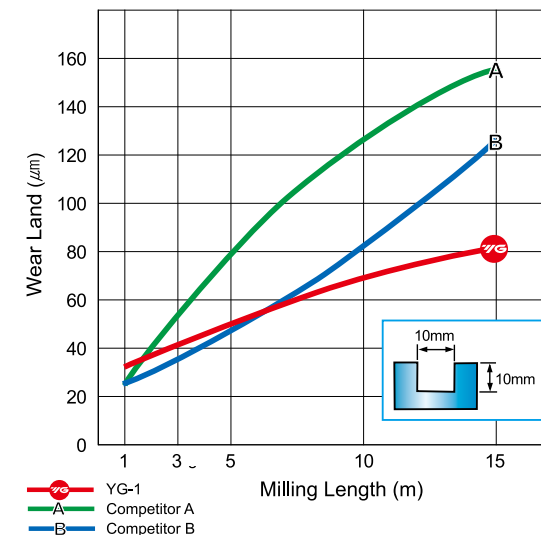


#### Cutting Condition (Down & Side Cutting)

Size	X-SPEED ROUGHER	Ø10×10×15×72
	Competitor A	Ø10×10×20×72
	Competitor B	Ø10×10×15×80
Work Material	- DIN : X40CrMoV51(1.2344) - JIS : SKD61 (HRC30) - AISI : H13	

RPM (rev./min.)	5,000 (157.08 m/min)
Feed (mm/min.)	1,300
Coolant	Wet Cut
Overhang (mm)	32
Machine	Machining Center

### TEST II 4 Flute Multiple Helix



#### Cutting Condition (Down & Side Cutting)

Size	X-SPEED ROUGHER	Ø10×10×15×72
	Competitor A	Ø10×10×20×72
	Competitor B	Ø10×10×15×80
Work Material	- DIN : X40CrMoV51(1.2344) - JIS : SKD61 (HRC30) - AISI : H13	

RPM (rev./min.)	4,000 (125.66 m/min)
Feed (mm/min.)	1,000
Coolant	Wet Cut
Overhang (mm)	32
Machine	Machining Center



### Performance Upgrade

- Achieved from several tests to apply the most optimal technology
- New coating, raw material, honing technology

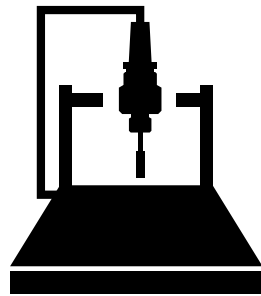
### Work Material

- Pre-Hardened Steels up to HRC 55, and Cast Iron



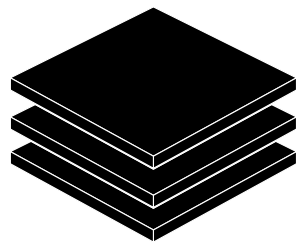
### For Mold & Die Industries

- Plastic injection, die casting, military parts, automotive parts, electronic parts, etc.



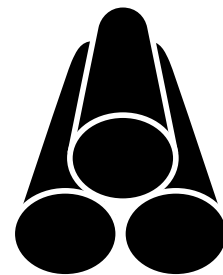
### Honing

Advanced honing technology system made from YG-1



### Coating

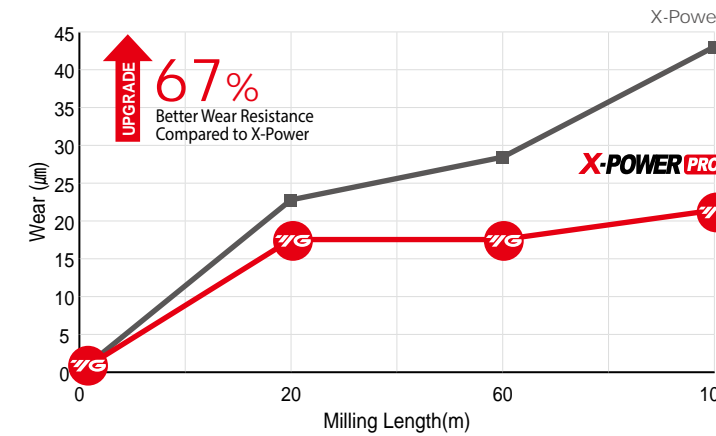
The optimal coating applied, chosen by several tests of different coating technologies



### Raw Material

Made from high performance raw material with better quality

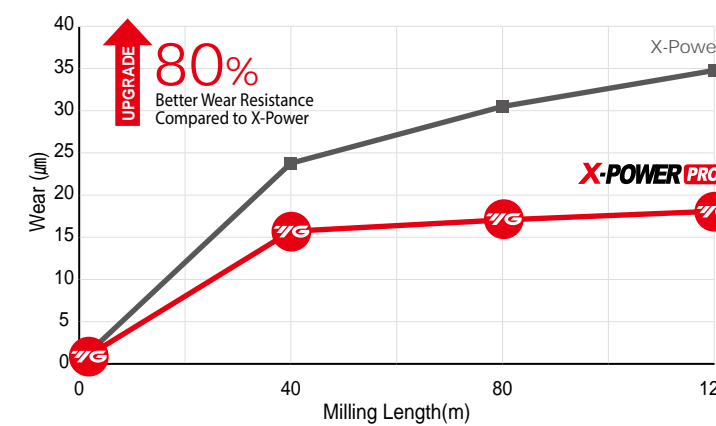
### TEST I 2 Flute Square End mills



### Cutting Condition (Down & Side Cutting)

Tool	X-POWER PRO	X-Power
Milling Length (m)	100	100
Size	Ø10.0xØ10.0x22x70	Ø10.0xØ10.0x22x70
Work Material	KP4M(HRC35)/DIN 1.2311, ANSI P20+Ni	KP4M(HRC35)/DIN 1.2311, ANSI P20+Ni
Vc (m/min.)	63	63
Feed (mm/min.)	300	300
Milling Depth (mm)	Ap:10, Ae:0.5	Ap:10, Ae:0.5
Coolant	Oil Mist	Oil Mist

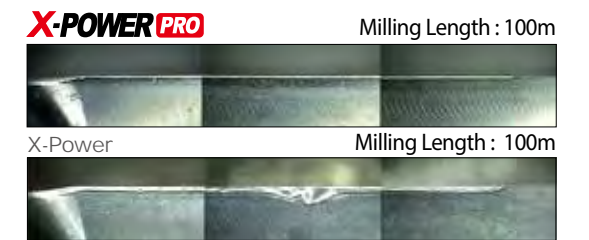
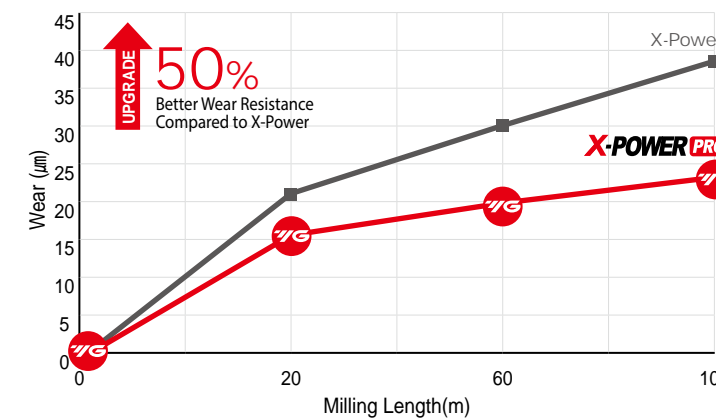
### TEST II 2 Flute Ball End mills



### Cutting Condition (Profile Cutting)

Tool	X-POWER PRO	X-Power
Milling Length (m)	120	120
Size	Ø6.0xØ6.0x12x90	Ø6.0xØ6.0x12x90
Work Material	KP4M(HRC35)/DIN 1.2311, ANSI P20+Ni	KP4M(HRC35)/DIN 1.2311, ANSI P20+Ni
Vc (m/min.)	130	130
Feed (mm/min.)	830	830
Milling Depth (mm)	Ap:0.2, Ae:1.2	Ap:0.2, Ae:1.2
Coolant	Oil Mist	Oil Mist

### TEST III 4 Flute Corner Radius End mills



### Cutting Condition (Down & Side Cutting)

Tool	X-POWER PRO	X-Power
Milling Length (m)	100	100
Size	Ø10.0(R0.5) x Ø10.0 x 30 x 90	Ø10.0(R0.5) x Ø10.0 x 30 x 90
Work Material	KP4M(HRC35)/DIN 1.2311, ANSI P20+Ni	KP4M(HRC35)/DIN 1.2311, ANSI P20+Ni
Vc (m/min.)	52	52
Feed (mm/min.)	180	180
Milling Depth (mm)	Ap:25, Ae:0.5	Ap:25, Ae:0.5
Coolant	Oil Mist	Oil Mist

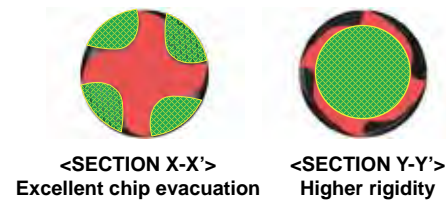


### High Speed Machining for Exotic Materials: Titanium and Stainless Steels

- Excellent tools for Aerospace Industries, Energy & Power generations.
- For Roughing and Semi-finishing of universal use, also for Finishing difficult-to-machine materials.
- YG-1's advanced coating technology makes it possible to maintain an excellent Wear resistance, Oxidation resistance and better Thermal stability.

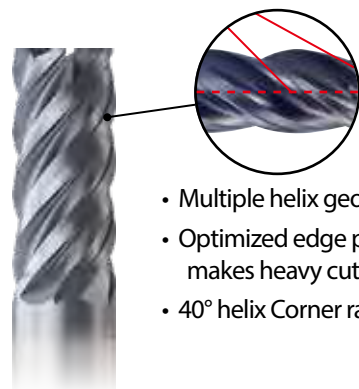
Offers a high performance metal removal rate with secured and chatter free machining in semi-finishing and finishing.

### I Y-Coated Solid Carbide 4 Flute End Mills with Double Core



- Double core geometry reduces tool deflection and improves dimensional stability.
- Optimized edge preparation protects chipping problems in high speed machining.
- Variable flute design brings out perfect performance in both slotting and side milling operations.

### II Y-Coated Solid Carbide 5 Flute End Mills with Multiple helix & TiAlN Coated Solid Carbide Roughing



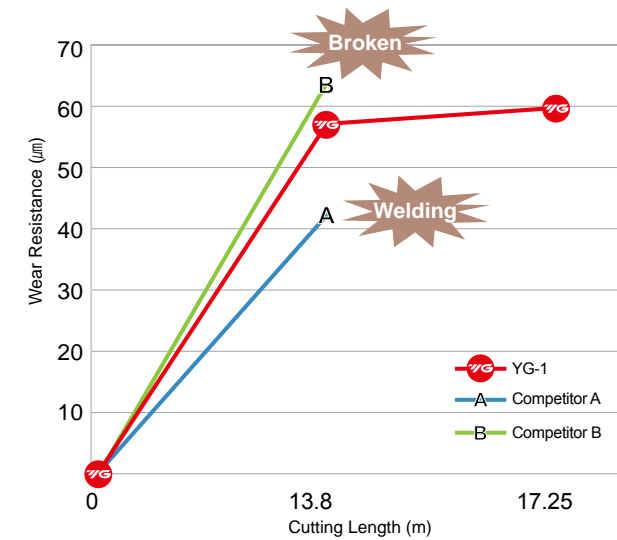
- Multiple helix geometry delivers silent cutting and reduces chattering.
- Optimized edge preparation increases tool life and makes heavy cutting possible.
- 40° helix Corner radius is available with optimal roughing tooth profile.



TiAlN Coated / Roughing

Y-Coated / 5 Flutes

### TEST I Y-Coated Solid Carbide 4 Flutes with Double Core End mills

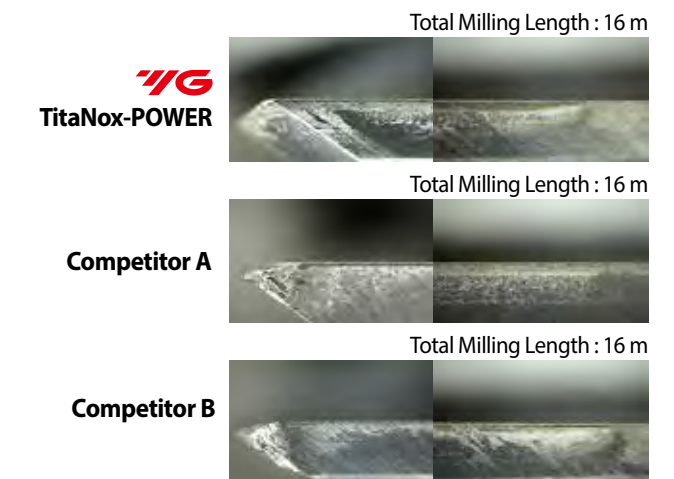
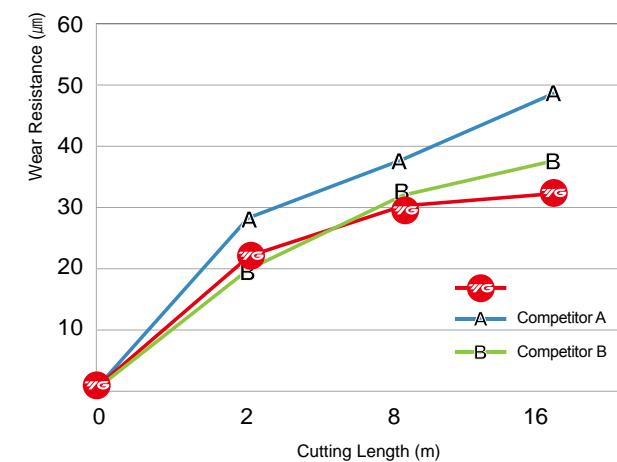


#### Cutting Condition (Slotting)

Tool	4Flute, with Double Core
Size	Ø12(R1) x Ø12 x 26 x 80
Work Material	DIN : TiAV6V4 (Titanium)
Cutting Depth (mm)	12 (Axial Depth)
RPM (rev./min.)	1,591

Feed (mm/min.)	254
Feed per tooth (mm/tooth)	0.027
Coolant	Wet Cut
Overhang (mm)	36
Machine	Machining Center

### TEST II Y-Coated Solid Carbide 5 Flutes End Mills



#### Cutting Condition (Down & Side Cutting)

Tool	5Flute
Size	Ø12 x Ø12 x 26 x 83
Work Material	DIN : TiAV6V4 (Titanium)
RPM (rev./min)	1,591

Feed (mm/min.)	398
Milling Depth (mm)	Axial : 18 / Radial : 3.6
Coolant	Wet Cut
Machine	Machining Center



- Chatter and Harmonics Reduced for Improved Stability and Better Finishing
- Special Design of Flute Geometry for Optimal Chip Formation and Chip Evacuation
- Engineered Coating Technology to Reduced Wear and Increase Heat Resistance
- Enhanced Corner Geometry for Longer Tool Life



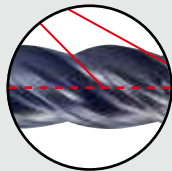
**Unequal Index**

Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Chip Evacuation with Better Surface Finish



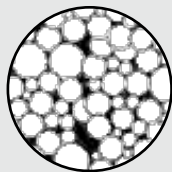
**Corner Geometries**

YG-1's High Performance Corner Geometries Including Corner Radius, applied for Longer Tool Life with Higher Cutting Speed and Heavy Cutting



**Multiple Helix**

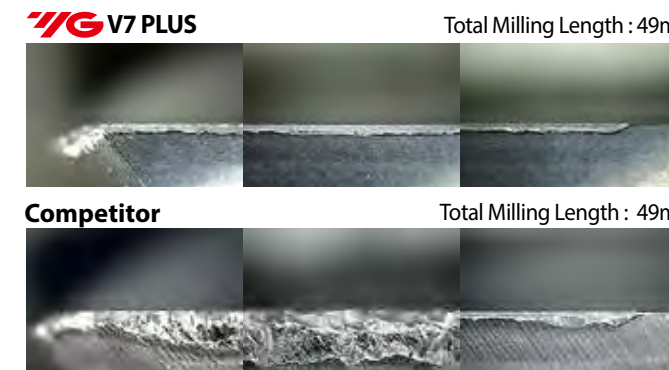
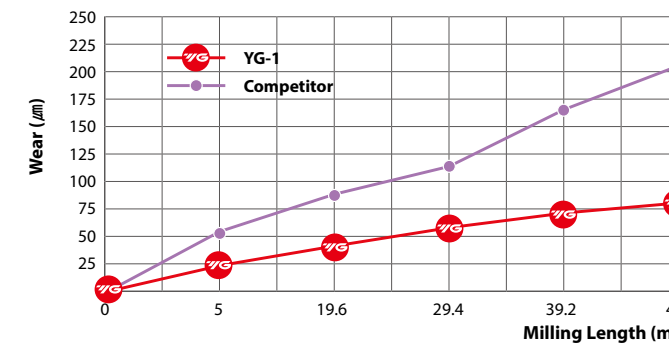
Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation Concluding Faster and Heavier Cutting making Higher Productivity



**Ultra Micro grain Carbide**

Premium Carbide Substrate Achieving Exceptional Wear Resistance

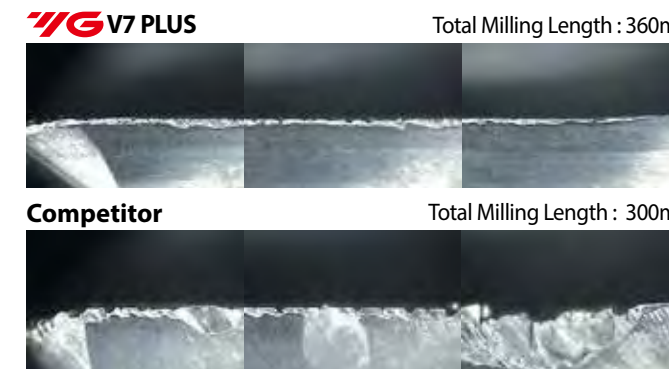
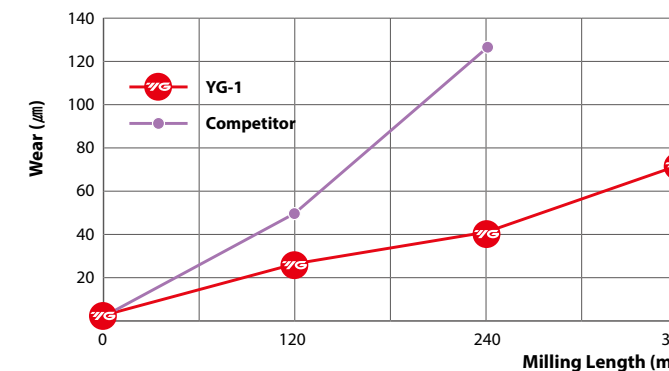
**TEST I 4 Flute**



**Cutting Condition (Side Cutting)**

Tool	V7 Plus	4Flute
Size	Ø10 x Ø10 x 22 x 72	
Work Material	- JIS : S45C(HRC30) - DIN : C45 - WR : 1.0503	
Vc (m/min.)	230.09	
RPM (rev./min.)	7,324	
Feed (mm/min.)	1,464	
Feed per tooth (mm/tooth)	0.05	
Milling Depth (mm)	Axial: 10 / Radial : 3	
Coolant	Wet Cut	
Overhang (mm)	34	
Machine	Machining Center	

**TEST II 6 Flute**



**Cutting Condition (Trochoidal Cutting)**

Tool	V7 Plus	6Flute
Size	Ø12(R1) x Ø12 x 26 x 83	
Work Material	- JIS : S45C(HRC30) - DIN : C45 - WR : 1.0503	
Vc (m/min.)	278.67	
RPM (rev./min.)	7,392	
Feed (mm/min.)	7,495	
Feed per tooth (mm/tooth)	0.17	
Milling Depth (mm)	Axial: 24(2D) Radial: 0.6(0.05D)	
Coolant	Wet Cut	
Overhang (mm)	36	
Machine	Machining Center	

**6 FLUTE CHIP SPLITTER**



**Unequal Index**

Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Surface Finish

**Corner Geometries**

YG-1's High Performance Corner Geometries Including Corner Radius, applied for Longer Tool Life with Higher Cutting Speed

**Chip Splitters**

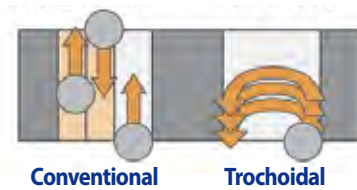
Special Chip Splitter Design Shorter Chip Length at High Axial Machining, improving Chip Removal from both the Component and the Machine

**6 FLUTE END MILLS**

**The Best Chatter Free Tool For High Speed**

- Unique geometry of the variable pitch provides the best chatter free tool for high speed and also trochoidal milling
- Several slot widths can be used with the same tool diameter in an efficient way
- Provides longer tool life and higher productivity on most materials
- Trochoidal milling is a programming technique applying a small radial width of cut with also higher cutting speed and feed per tooth

Trochoidal Milling performs better than conventional ways because it has..,



- Lower Cutting Force from smaller arc engagement
- Longer Tool Life from more flutes, and deeper cutting depth
- Higher Stability, Lower Vibration and Excellent Chip Evacuation



## ALU-POWER HPC End mills

Reference page : p.C441 ~ p.C454



### Available in a Wide Variety of Sizes and Corner Radii Ideal Symmetrical Shape

- 3-flute design "to the center" (all 3 flutes come to center)
- Designed with high spindle speeds in mind
- Highly effective in vertical ramping up to 20 degrees and step-over plunging applications

### Specialized Design of Corner Gash

- Unique flute design and superior corner protection enhance both tool life and protection against catastrophic failure in high feed applications
- Polished flutes for excellent chip flow

### Cylindrical Land

- Increased performance in a variety of cutting conditions
- Helps reduce vibration and chatter

### Engineered Flute Design

- Effective chip evacuation at high feed rates
- with lower cutting forces than competitive products

### DLC Diamond-Like Carbon

- Excels in hard aluminum and high speeds
- Provides edge strength and unsurpassed tool life

## From Side Cuts to Rough Cuts to Aggressive Ramping, No One Withstands Extreme Radial Forces Better-or Longer.



### ▲ Rough Cutting

Ultra-micrograin carbide supplies the rigidity to keep the chips flying. Highly polished 3-flute design ensures they'll keep flying – cut after cut.



### ▲ Ramping

In steep, aggressive ramping conditions, the ALU-POWER HPC holds its own to resist the torsional stress from extreme helical output.



### ▲ Side cutting

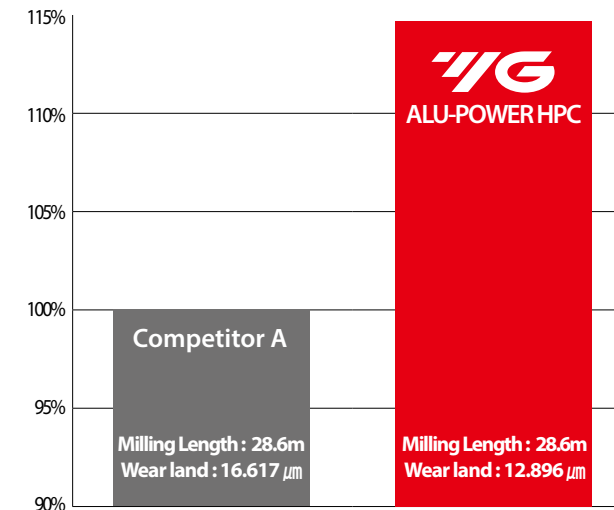
No one offers a cooler-running super high-speed End mill. While others melt down the materials they're cutting, ALU-POWER HPC keeps machining cool in aluminum and soft alloys, to boot.

## ALU-POWER HPC End mills

Reference page : p.C441 ~ p.C454

### TEST I Slotting Application

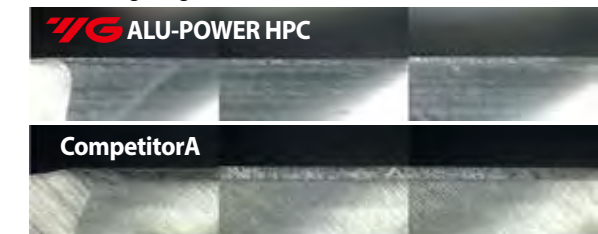
Ø1/2(R.090) 3 Flute Corner radius End Mill, Alu-Power HPC



### Cutting Condition (Slotting)

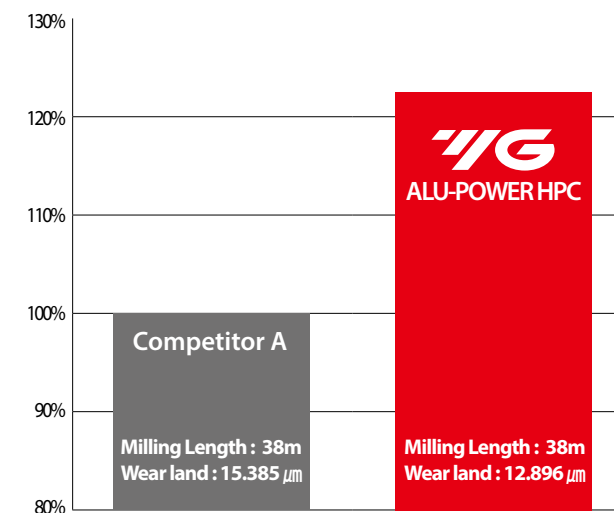
Tool	Ø1/2(R.090) x Ø1/2 x 1-1/4 x 3-1/2
Work Material	AL7075
R.P.M (rev./min.)	12,224
Feed (mm/min.)	5,588
Cutting Depth (mm)	Axial : 12.7
Coolant	Wet Cut (9% emulsion)
Overhang (mm)	48
Milling Method	Slotting
Machine	Machining Center

Total Milling Length : 38m



### TEST II Pocketing Application

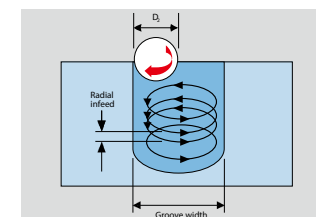
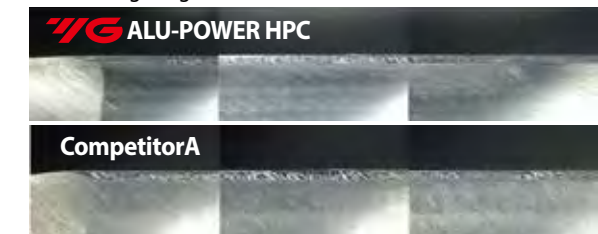
Ø1/2(R.090) 3 Flute Corner radius End Mill, Alu-Power HPC



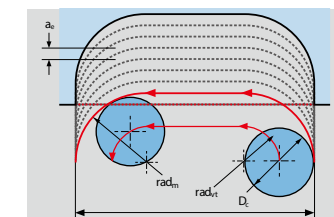
### Cutting Condition (Pocketing)

Tool	Ø1/2(R.090) x Ø1/2 x 1-1/4 x 3-1/2
Work Material	AL7075
R.P.M (rev./min.)	12,224
Feed (mm/min.)	5,588
Cutting Depth (mm)	Axial : 12.7 Radial : 12.2
Coolant	Wet Cut (9% emulsion)
Overhang (mm)	48
Milling Method	Pocketing
Machine	Machining Center

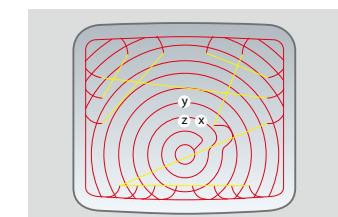
Total Milling Length : 38m



**In trochoidal milling applications,** the cutter follows a spiral path by moving radially as it rotates providing faster machining times, lower tooling costs and reduced loads on machine components.



**Peel milling applications** benefit from ALU-POWER HPC's super sharp high-speed milling ability.



Outstanding chip evacuation through deep gullet design coupled with high speed milling leaves **a well-defined clean cutter path.**

### ADVANTAGES OF CARBIDE

**Exceptional Wear Resistance**  
The ONLY ONE holds an Exceptional Wear Resistance Which is an advantage of the micro-grain carbide tools.

The ONLY ONE performs better without Causing chipping than Normal coated carbide End mills under the same carbide cutting conditions.

### ADVANTAGES OF HSS

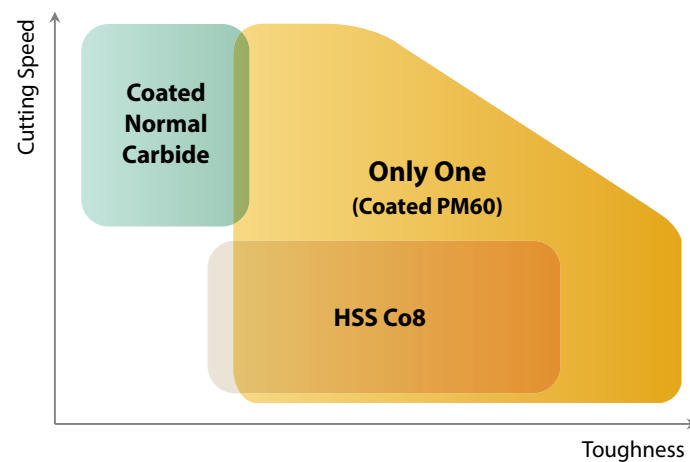
**High Toughness**  
ONLY ONE is based on Powder Metallurgy that ensures High Toughness which is one of the advantages of Cobalt HSS

The ONLY ONE holds a very Strong Toughness which can bring out Higher performances also on Machines with unstable conditions such as Vibration and irregular composition of materials

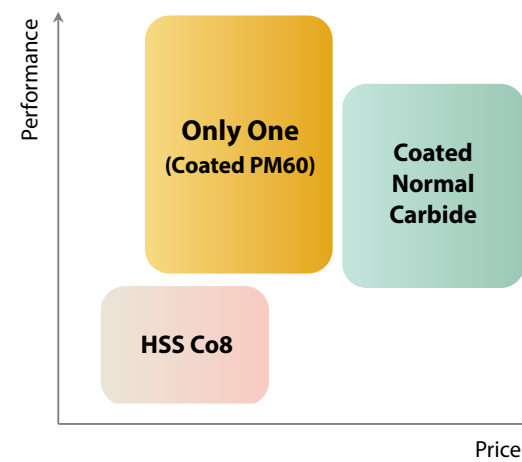


### Both Advantages of Solid Carbide & HSS

### To protect chipping problems under the unstable machining conditions with vibration

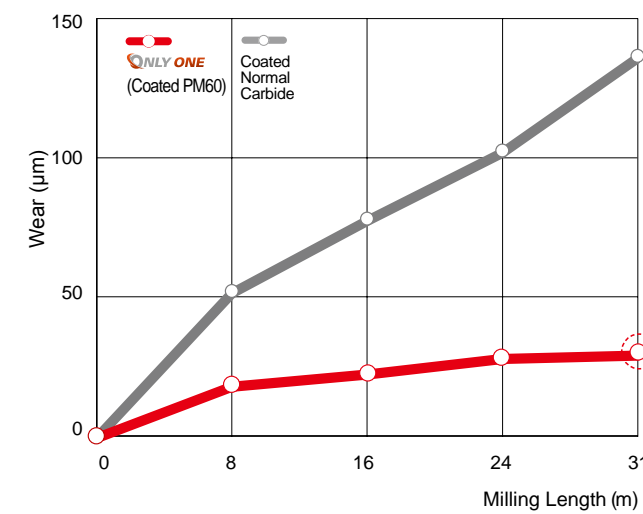


Higher Toughness than HSS Co8, Cutting Speed (Vc) is as high as Coated Normal Carbide.



Better performance than HSS Co8, Better price than Coated Normal Carbide.

### TEST I 4 Flute Square End mill



### Cutting Condition (Down & Side Cutting)

Tool	Only One Coated PM60	Coated Normal Carbide
Size	Ø10xØ10x22x72/Ø10xØ10x22x70	
Work Material	- JIS : S45C - KS : SM45C - DIN : C45 - AISI : 1045	
RPM (rev./min.)	2,750	
Feed (mm/min.)	520	
Milling Method (mm)	Axial : 3 / Radial : 1	
Coolant	Wet Cut	
Machine	Machining Center	

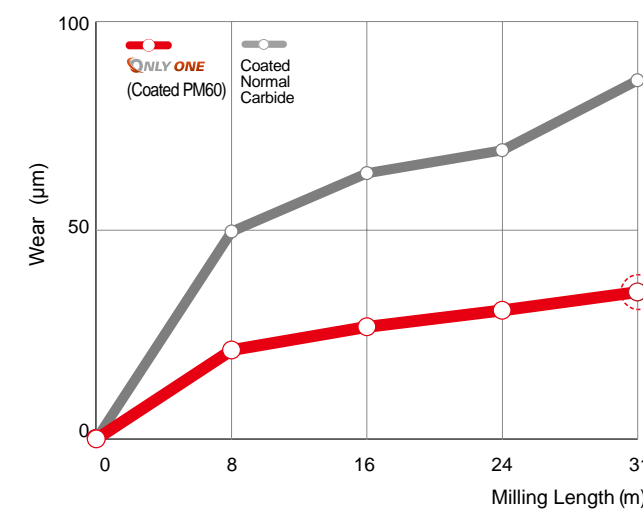
### ONLY ONE Coated PM60



### Coated Normal Carbide



### TEST II 4 Flute Square End mill



### Cutting Condition (Down & Side Cutting)

Tool	Only One Coated PM60	Coated Normal Carbide
Size	Ø10xØ10x22x72/Ø10xØ10x22x70	
Work Material	- JIS : S45C - KS : SM45C - DIN : C45 - AISI : 1045	
RPM (rev./min.)	2,750	
Feed (mm/min.)	520	
Milling Method (mm)	Axial : 10 / Radial : 1	
Coolant	Wet Cut	
Machine	Machining Center	

### ONLY ONE Coated PM60

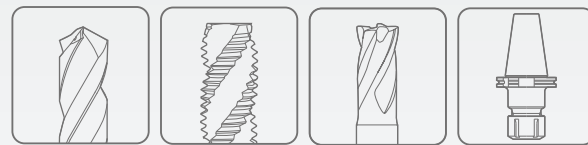


### Coated Normal Carbide




















Global Cutting Tool Leader **YG-1**



Coating (Icon)	Coating Color	Coating Type	Hardness (Hv)	Max. Usage Temperature (°C)	Friction Coefficient (dry)	Coating Thickness (µm)	General Information
Beschichtung (Ikone)	Beschichtungsfarbe	Beschichtungsart	Härtegrad	Max. Arbeitstemperatur	Reibungskoeffizient für Stahl (trocken)	Beschichtungsdicke	Allgemeine Informationen
<b>TiN Coating</b> 	Gold	Titanium Nitride	2,300	600	0.40	1 ~ 5	<ul style="list-style-type: none"> <li>• Making it possible to higher performance in comparison to traditional non-coated tools</li> <li>• Recommended for the general application</li> <li>• Ermöglicht eine höhere Leistung im Vergleich zu unbeschichteten Werkzeugen</li> <li>• Empfohlen für die allgemeine Anwendung*</li> </ul>
<b>TiCN Coating</b> 	Blue grey	Titanium Carbon Nitride	3,400	400	0.25	1 ~ 5	<ul style="list-style-type: none"> <li>• Characterized by high hardness and good toughness</li> <li>• Providing tools with effective protection against cold-welding from especially wear resistant and its low coefficient of friction</li> <li>• Zeichnet sich durch hohe Härte und gute Zähigkeit aus</li> <li>• Bietet den Werkzeugen einen wirksamen Schutz gegen Kaltverschweißung durch seine besondere Verschleißfestigkeit und seinen niedrigen Reibungskoeffizienten *</li> </ul>
<b>TiAlN Coating</b> 	Violet grey	Titanium Aluminium Nitride	3,100	900	0.50	1 ~ 5	<ul style="list-style-type: none"> <li>• Increase in hardness and an exceptional increase in resistance to oxidation at high temperature, compared to conventional coatings</li> <li>• Application to drilling with severe thermal stress on cutting edges when continuous non-step feed, dry cutting or high speed cutting</li> <li>• Höhere Härte und eine außergewöhnliche Steigerung der Oxidationsbeständigkeit bei hohen Temperaturen im Vergleich zu herkömmlichen Beschichtungen</li> <li>• Anwendung beim Bohren mit starker thermischer Beanspruchung der Schneidkanten, im Trockenschnitt oder bei der Hochgeschwindigkeitszerspanung*</li> </ul>
<b>AlTiN Coating</b> 	Blue grey	Aluminum Titanium Nitride	3,300	900	0.40	1 ~ 5	<ul style="list-style-type: none"> <li>• Optimised coating for use in hard and high-speed machining with the high hardness, oxidation resistance and thermal stability</li> <li>• Protection against abrasion and adhesion over the whole range of cutting speeds with high-strength and hard-to-machine materials</li> <li>• The good frictional properties reduce cutting forces</li> <li>• Optimierte Beschichtung für den Einsatz in der Hart- und Hochgeschwindigkeitsbearbeitung mit hoher Härte, Oxidationsbeständigkeit und thermischer Stabilität</li> <li>• Schutz vor Abrasions- und Adhäsionsverschleiß über den gesamten Schnittgeschwindigkeitsbereich bei hochfesten und schwer zu zerspanbaren Werkstoffen</li> <li>• Die positiven Reibungseigenschaften reduzieren die Schnittkräfte</li> </ul>



Coating (Icon)	Coating Color	Coating Type	Hardness (Hv)	Max. Usage Temperature (°C)	Friction Coefficient (dry)	Coating Thickness (μm)	General Information
Beschichtung (Ikone)	Beschichtungsfarbe	Beschichtungsart	härtegrad	Max. Arbeitstemperatur	Reibungskoeffizient für Stahl (trocken)	Beschichtungsdicke	Allgemeine Informationen
<b>X Coating</b> X Beschichtung 	Blue grey 	AlCrN Based	3,200	1,100	0.35	1 ~ 5	<ul style="list-style-type: none"> <li>Coating with low hardness drop at high temperatures and stability against thermal oxidation</li> <li>Coating for superior dry and wet machining performance at high cutting speed</li> <li>Wide range of application field with stable layer structure</li> </ul> <ul style="list-style-type: none"> <li>Beschichtung mit geringem Härteverlust bei hohen Temperaturen und Stabilität gegen thermische Oxidation</li> <li>Hervorragende Beschichtung für Trocken- und Nassbearbeitung bei hohen Schnittgeschwindigkeiten</li> <li>Breites Anwendungsspektrum durch stabilem Schichtaufbau</li> </ul>
<b>Y Coating</b> Y Beschichtung 	Bright grey 	AlCrN Based	3,200	1,100	0.35	1 ~ 5	<ul style="list-style-type: none"> <li>Optimized coating adhesion results in high-level reliability</li> <li>High thermal shock stability and oxidation resistance for wet and dry machining</li> <li>Significantly lengthened tool lifetimes as compared to common high-performance coatings</li> <li>Good chip removal and minimization of built-up edge formation</li> </ul> <ul style="list-style-type: none"> <li>Optimierte Schichthftung führt zu hoher Zuverlässigkeit</li> <li>Hohe Temperaturwechselbeständigkeit und Oxidationsresistenz bei Nass- und Trockenbearbeitung</li> <li>Deutlich verlängerte Werkzeugstandzeiten im Vergleich zu herkömmlichen Hochleistungsbeschichtungen</li> <li>Hervorragende Spanabfuhr und Minimierung von Aufbauschneidenbildung</li> </ul>
<b>H Coating</b> H Beschichtung 	Copper 	AlCrN Based	3,000	1,100	0.25	1 ~ 5	<ul style="list-style-type: none"> <li>Improved wear resistance compared to TiAl-based, and superior high temperature hardness</li> <li>Superior adhesion and surface roughness, and uniform tool wear characteristics with multi-layer coating</li> <li>Possible machining with minimum quantity of coolant and dry machining to reduce production costs</li> </ul> <ul style="list-style-type: none"> <li>Verbesserte Verschleißfestigkeit im Vergleich zu TiAl-Beschichtungen und überlegene physikalische Eigenschaften (Hochtemperaturhärte und Bruchfestigkeit)</li> <li>Verbesserte Verschleißfestigkeit im Vergleich zu TiAl-basierten Beschichtungen und größere Härte bei hohen Temperaturen</li> <li>Ermöglicht Bearbeitung mit Minimalmengenschmierung und Trockenbearbeitung zur Senkung der Produktionskosten</li> </ul>
<b>Hardslick Coating</b> Hardslick Beschichtung 	Black grey 	TiAlN Based	3,000	800	0.20	1 ~ 5	<ul style="list-style-type: none"> <li>Reduced the coefficient of friction, and enhance the corrosion resistance of anodic coating</li> <li>Ideal for applications requiring fast chip evacuation, such as molds, or additional chemical and corrosion resistance</li> </ul> <ul style="list-style-type: none"> <li>Reduziert den Reibungskoeffizienten und verbessert die Korrosionsbeständigkeit der Eloxschicht</li> <li>Ideal für Anwendungen, die einen schnellen Spanabtransport erfordern, wie z. B. Gesenkbau, oder eine zusätzliche chemische und Korrosionsbeständigkeit</li> </ul>

Coating (Icon)	Coating Color	Coating Type	Hardness (Hv)	Max. Usage Temperature (°C)	Friction Coefficient (dry)	Coating Thickness (μm)	General Information
Beschichtung (Ikone)	Beschichtungsfarbe	Beschichtungsart	härtegrad	Max. Arbeitstemperatur	Reibungskoeffizient für Stahl (trocken)	Beschichtungsdicke	Allgemeine Informationen
<b>Blue Coating</b> Blaue Beschichtung 	Blue violet 	Si Based	3,700	1,200	0.40	1 ~ 5	<ul style="list-style-type: none"> <li>Nanocomposite with Si Content for high hardness steel</li> <li>Extraordinary high temperature stability</li> <li>Excellent adhesion and good performance even for more unusual applications</li> </ul> <ul style="list-style-type: none"> <li>Nanokomposit mit Si-Anteil für hochgehärteten Stahl</li> <li>Außergewöhnliche Stabilität bei hohen Temperaturen</li> <li>Hervorragende Haftung und gute Leistung auch bei ungewöhnlichen Anwendungen</li> </ul>
<b>Z Coating</b> Z Beschichtung 	Copper 	Si Based	4,000	900	0.40	1 ~ 5	<ul style="list-style-type: none"> <li>Nanocomposite optimized among coatings for high hardness steel machining with Si grade coating</li> <li>Superior machinability at high temperatures and used in milling and drilling finishing processes</li> <li>Superior physical properties of hardness, adhesion and oxidation resistance at high temperatures</li> </ul> <ul style="list-style-type: none"> <li>Optimierte nanokomposit Beschichtung mit Si-Anteil für die Bearbeitung von hochharten Stählen</li> <li>Hervorragende Zerspanleistung bei hohen Temperaturen und bei Fräs- und Bohrbearbeitungsprozessen</li> <li>Hervorragende physikalische Eigenschaften wie Härte, Haftung und Oxidationsbeständigkeit bei hohen Temperaturen</li> </ul>
<b>DLC (Diamond Like Carbon) Coating</b> DLC (Diamond Like Carbon) Beschichtung 	Black 	Carbon	4,000 ~ 5,000	500	0.01~0.1	0.5 ~ 1.5	<ul style="list-style-type: none"> <li>Suitable coating for extreme wear conditions and fast cutting speeds without use of coolant</li> <li>Possible coating with high-speed machining and superior wear resistance</li> </ul> <ul style="list-style-type: none"> <li>Geeignete Beschichtung für extreme Verschleißbedingungen und hohe Gleitgeschwindigkeiten ohne Verwendung von Kühlmittel</li> <li>Beschichtung für die Hochgeschwindigkeitsbearbeitung bei überlegener Verschleißfestigkeit</li> </ul>
<b>Diamond Coating</b> Diamant Beschichtung 	Grey 	Carbon	10,000	600	~ 0.1	5 ~ 15	<ul style="list-style-type: none"> <li>Possible to cut graphite workpieces with high-speed cutters at greater speeds and in significantly better quality</li> <li>Making it possible to produce sophisticated workpieces from a single clamping to a single cutter</li> <li>Enable controlled coating structures and compliance with the most stringent tolerance limits</li> </ul> <ul style="list-style-type: none"> <li>Zerspannung von Graphitwerkstücken mit Hochgeschwindigkeitsfräsern bei wesentlich höheren Geschwindigkeiten und in wesentlich besserer Qualität</li> <li>Ermöglicht die Bearbeitung anspruchsvoller Werkstücke in einer einzigen Aufspannung und mit einem einzigen Werkzeug</li> <li>Kontrollierte Schichtstrukturen bei Einhaltung strengster Toleranzgrenzen</li> </ul>

# MATERIAL GROUPS

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	Examples	
P	1	Non-alloyed steel	About 0.15% C	Annealed	125	S15C, C15, 1015	
	2		About 0.45% C	Annealed	190	13	S45C, C45, 1045
	3		About 0.45% C	Quenched & Tempered	250	25	
	4		About 0.75% C	Annealed	270	28	SK5, Ck75, 1080
	5		About 0.75% C	Quenched & Tempered	300	32	
	6	Low-alloyed Steel		Annealed	180	10	
	7			Quenched & Tempered	275	29	
	8			Quenched & Tempered	300	32	SCM440, 42CrMo4, 410
	9			Quenched & Tempered	350	38	
	10	High-alloyed steel, and tool steel		Annealed	200	15	SKD, D2
	11			Quenched & Tempered	325	35	SKH, SUH, M42
M	12	Stainless Steel	Ferritic / Martensitic	Annealed	200	15	SUS 420, X40Cr13, 420
	13		Martensitic	Quenched & Tempered	240	23	
	14		Austenitic		180	10	SUS 316, 316, X5CrNiMo 17 12 2
K	15	Grey cast iron	Pearlitic / Ferritic		180	10	FC, GG, EN-GJL-250
	16		Pearlitic (Martensitic)		260	26	
	17	Nodular cast iron	Ferritic		160	3	FCD, GGG, EN-GJS-500-7
	18		Pearlitic		250	25	
	19	Malleable cast iron	Ferritic		130		FCMW, FCMP, GTS, GJMB350-10
	20		Pearlitic		230	21	
N	21	Aluminum-wrought alloy	Not Curable		60		SAE 1000, AlMg 1, 3.3315
	22		Curable	Hardened	100		SAE 7050, AlCuMg 1, 3.1325
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		ADC12, G-AlSi12, 3.2581
	24		≤ 12% Si, Curable	Hardened	90		C4BS, G-AlSi10Mg, 3.2381
	25		> 12% Si, Not Curable		130		
	26	Copper and copper alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		CuZn36Pb 3, 2.0375
	27		CuZn, CuSnZn (Brass)		90		CuZn 15, 2.0240
	28		CuSn, lead-free copper and electrolytic copper		100		G-CuZn40Fe, 2.0590
	29	Non-metallic materials	Duroplastic, Fiber Reinforced Plastic				CFRP
	30		Rubber, Wood, etc.				
S	31	Heat resistant super alloys	Fe Based	Annealed	200	15	X12 NiCrSi 36-16, 1.4864
	32			Aged	280	30	
	33			Annealed	250	25	Inconel 718, NiCr20TiAl, 2.4631
	34		Ni or Co Based	Aged	350	38	NiCu30Al, 2.4375
	35			Cast	320	34	G-X120Mn12, 1.3401
	36	Titanium alloys	Pure Titanium		400 Rm		
	37		Alpha + Beta Alloys	Hardened	1050Rm		TiAl6V4, 3.7165
H	38	Hardened steel		Hardened	550	55	SK3
	39			Hardened	630	60	
	40	Chilled cast iron	Cast	400	42		
	41	Hardened cast iron	Hardened	550	55		

# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description				Composition / Structure / Heat Treatment				HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
1.0037	STKM 12 C	St 37-2	-	4360 40 B	S235JR	E24-2	1311	Fe 360 B			16D	
1.0038	STKM 12 A	St 37-3	A570.36	4360 40 C	S275J2G3	E28-3	1312	Fe 360 D FF			ST14KP	
1.0045	SM 490 YA	S 355 JR	-	-	S 1207	E36-2	-	Fe 510 BFN				
1.0050	SS 50	St 50-2	A570 Gr. 50	4360 50 B	E 295	A50-2	2172	Fe 490			ST5PS	
1.0060	SM 58	St 60-2	A572 Gr. 65	4360 55 E	-	A60-2	1650	Fe 60-2			ST6PS	
1.0114		S 235 J0	-	En 40C	S 235 J0	E24-3		Fe 360 CFN				
1.0143		S 275 J0	-	-	S 275 J0	E28-3	1414	Fe 430 C				
1.0144	SM41C, SM400	St 44-3 N	A573 Gr. 81	4360 43C	S 275 J2 G3	E28-3	1412	Fe 430 D FF			ST14KP	
1.0149		Ro St 44-2	-	43C	S 275 J0 H	-	1412	Fe430C				
1.0301	S10C	C10	1010	045M10	C10	34C10, XC10		C10	F.1511	G10100	10	
1.0330	SPCC	St 12	-	DC 01	Fe P01	DC 01/Fe P01	1142	Fe P01			15KP	
1.0335	SPHE	DD 13 (StW 24)	A622(1008)	H 5 3	DD 13	3C		FeP13			08KP	
1.0338	SPCE	St 4	A620(1008)	14491CR	Fe P04	Fe 14	1147	DC04/FeP04			08JU	
1.0345	SPV 50	P235 GH	A516 Gr. 65	P 235 GH	P 235 GH	A 37 CP	1330	Fe E 235			K02503	
1.0401	S15C	C15	1015	080M15	-	C18RR, XC18	1350	C15, C16	F.1110	G10170	15	
1.0402	S20C	C22	1020	050 A 20	1 C 22	C20	1450	C 20	F.1120	G10200	20	
1.0425	SPV315	P265GH/HIL				A42CP	1430	Fe4101KW			K02801	16K
1.0443	SC 450	G5-45	A2765-35	A1		E23-45M	1305					
1.0539		S355NH				TSE355-4	2134	Fe510B				
1.0545		S355N		4360-50E		E355R	2334	FeE355KG				
1.0546		S355NL		4360-50EE		E355FP	2135	FeE355KT				
1.0547		S355J0H		4360-50C		TSE355-3	2172	Fe510C				
1.0549		S355NLH					2135	Fe510D				
1.0553	SM 520 M	StE 355	A14880-40	4360-50C		320-560M	1606	Fe510C				
1.0562	SM490A	St E 355	A633 Gr.C	P 355 N		FeE355KGN	2132	Fe E 355 KG			K12000	15GF
1.0565		W St E 355		P 355 NH		P 355 NH	2106	Fe E 355 KW			K01600	
1.0566	SLA 37	T St E 355		P 355 NL1		P 355 NL1	2107	Fe E 355 KT				
1.0570	SM 50 YA	St 52-3	1	4360-50 C	S355JR	E36-3	2172	Fe 510 B			17G15	
1.0715	SUM22	95Mn28	1213	230M07		S250	1912	CF5Mn28	F.2111	G12130		
1.0718	SUM22L	95MnPb28	12L13			S250Pb	1914	CF95MnPb28	F.2112	G12134		
1.0721		10S20	1108	10S20		10S20		CF10S20	F.2121	G11080		
1.0722		10SPb20	11L08			10PbF2		CF10SPb20	F.2121	G11084		
1.0736	SUM25	95Mn36	1215			S300		CF9Mn36	F.2113	G12150		
1.0737		95MnPb36	12L14			S300Pb	1926	CF95MnPb36	F.2114	G12144		
1.0972		S315MC		1501-40F30		E315D						
1.0976		S355MC		1501-43F35		E355D	2642	FeE355TM				
1.0982		S460MC		1501-50F45								
1.0984		S500MC				E490D	2662	FeE490TM				
1.0986		S500MC		1501-60F55		E560D		FeE560TM				
1.1121	S10C	CK10	1010	040A10		XC10	1265	C10	F.1510	G10100	10	
1.1141	S15	CK15	1015	040A15	32C	XC15	1370	C15	F.1110	G10150	15	
1.1151	S20C	C22E	1020	055M15		2C22	1450	C20	F.1120	G10230	20	
1.8900	S25C	StE380	A572-60	436055E			2145	FeE390KG				
		St44-2	A36	436043A		NFA35-501E28	1411					
		StE320-3Z		1501160			1421					



# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0501	S35C	C35	1035	080A32		1C35	1572	C35	F.113	G10350	35	13
1.0503	S45C	C45	1045	060A47		XC42H1TS	1672	C45	F.114	G10450	45	
1.0511	S40C	C40	1040	080M40		1C40		C40	F.114.A	G10400	40	
1.0540	S 50 C	C50					1674	C50		G10500		
1.0551		GS-52	A2770-36	A2		280-480M	1505					
1.0553	SM 520 M	St52-3U	A14880-40	4360-50C		320-560M	1606	Fe510C				
1.0577		S 355 J2 G4	A738	Fe510 D 2 FF		A52FP	2107					
1.0726		35520	1140	212M36	8M	35MF6	1957			G11400	40	
1.0727		45520	1146			45MF4	1973			G11460		
1.1157		40Mn4	1039	150M36	15	40M5				G10390	40G	
1.1158	S25C	C25E	1025	070M25		XC25		C25	F.1120	G10250	25	
1.1166	SMn433H	34Mn5	1536						TOB	G15360		
1.1167	SMn438(H)	36Mn5	1335	150M36		40M5	2120	36Mn6	F.1203	G13350	35G2	
1.1170	SCMn1	28Mn6	1330	150M28	14A	20M5		C28Mn	28Mn6	G13300	30G	
1.1178	S 30 C	C30E		080M30		XC32		C30	2C30	G10300		
1.1180		C35R	1035	080A35		3C35	1572		F.1135	G10350		
1.1181	S35C	C35E	1035	080A35		XC38	1572	C36	F.1130	G10340	35	
1.1191	S45C	Ck45	1045	080A46		XC45	1672	C45	F.1140		45	
1.1206	S 50 C	C50E	1050	080M50		2C50	1674	C50		G10500	50	
1.1213	S50C	C53	1050	070M55		XC48H1TS	1674	C53		G10500	50	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0481	SG365	17 Mn 4/P 295 GH	A516 Gr.70	224-460B	P 295 GH	A 48 CP	2102	Fe E 295	A47RC1	K03501	14G2	
1.0501	S35C	C35	1035	080A32		1C35	1572	C35	F.1130	G10350	35	
1.0503	S45C	C45	1045	060A47		XC42H1TS	1672	C45	F.1140	G10450	45	
1.0614		C76D	1074			XC75				G10750		
1.0616		C86D	1086			XC80		C85		G10860		
1.0618		C92D	1095			XC90				G10950		
1.0726		35520	1140	212M36	8M	35MF6	1957			G11400	40	
1.1157		40Mn4	1039	150M36	15	40M5				G10390	40G	
1.1165	SMn433H	30Mn5	1036	120M36		35M5		30Mn5	F.8211	K13300	30G2	
1.1167	SMn438(H)	36Mn5	1335	150M36		40M5	2120	36Mn6	F.1203	G13350	35G2	
1.1186	S40C	C40E	1040	060A40		2C40		C40		G10400		
1.1191	S45C	Ck45	1045	080M46		2C45	1672	C45	F.1140		45	
1.1201	S50C	C45R	1049	080M46		3C45	1660	C45	F.1145		38HM	
1.1213	S50C	C53	1050	070M55		XC48H1TS	1674	C53		G10500	50	
1.7242	SCM418 H	18CrMo4										
1.7337		16CrMo4-4	A387 Gr.12					A18CrMo45KW		K11564	15CM	
1.7362	SCMV 6	12CrMo195		3606-625		Z10CD5-05		16CrMo205		K41545		
		17MnV6	A572-60	436055E		NFA35-501E36	2142					

# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0603	S70 C-CSP	C67	107	080A67		XC65		C67		G10700		
1.0605		C75	1075	144980HS				C75		G10740	75	
1.1203	S55C	Ck55	1055	060A57		2C55	1655	C55	F.1150	G10550	55	
1.1209		C55R	1055	070M55		3C55		C55	F.1155	G10550		
1.1221	S58C	Ck60	1060	060A62	43D	2C60	1678	C60	F.1150	G10640	60	
1.1231	S70 C-CSP	C67E	1070	060A67		XC68	1770	C70	F.5103	G10700	65GA	
1.1248	C75	C75E	1074	060A78		XC75	1774	C75	F.5107	G10800	75(A)	
1.1269	SK 5 -CSP	C85E	1086			XC90		C90		G10900	85(A)	
1.1274	SUP4	Ck101	1095	060 A 96	C 1005	XC100	1870	C100	F.5117	G10950		
1.1545	SK 3	C 105 W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F.5118		U10A	
1.1663	SK 2	C 125 W	W112			Y2120					U13	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0070		St 70-2	1055	Fe690-2FN	-	A70-2	1655	Fe 690	F.1150		55	
1.0535	S55C	C55	1055	070M55		1C55	1655	C55		J05000	55	
1.0601	S58C	C60	1060	060A62	43D	1C60		C60		G10600	60(G)	
1.1203	S55C	Ck55	1055	060A57		2C55	1655	C55	F.1150	G10550	55	
1.1221	S58C	Ck60	1060	060A62	43D	2C60	1678	C60	F.1150	G10640	60	
1.1274	SUP4	Ck101	1095	060 A 96	C 1005	XC100	1870	C100	F.5117	G10950		
1.1545	SK 3	C 105 W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F.5118		U10A	
1.1663	SK 2	C 125 W	W112			Y2120					U13	
1.5120		38MnSi4										
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NC6						
1.7701		51CrMoV4						51CrMoV4				



# MATERIAL GROUPS

P	VDI 3323 6	Material Description				Composition / Structure / Heat Treatment						HB	HRC
		Low-alloyed Steel				Annealed						180	10
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.0116		St 37-3	A570 Gr.36	4360-40C	S 235 J2 G3	E24-3	1312	Fe 360 D1(2)	AE235D		ST3KP		
1.0904	SKH 1, SKT 4	55Si7	9255	250A53	45	55S7	2085	55Si8	56Si7	G92550	55S2		
1.0961	SUP 7	60SiCr7	9262			60SC6		60SiCr8	60SiCr8	G92620			
1.2067		100Cr6	L3	BL3		Y100C6			100Cr6				
1.2108		90CrSi5	L1				2092	105WCR5					
1.2210		115CrV3	L2			100C3		107CrV3KU	F520L		11KHF		
1.2241		51CrV4											
1.2330	SCM435TK	35CrMo4	4135	708A37		34CD4	2234	35CrMo4			35KHM		
1.2419	SKS31	105WCr6		105WC13		105WC13	2140	10WC6			CWG		
1.2510	SKS3	100MnCrW4	O1	BO1		90MnWCV5	2140	95MnWCr5 KU	F5220		9KHVG		
1.2542		45WCrV7	S1	BS1			2710	45WCrV8KU			5CW25F		
1.2550		60WCrV7	S1			55WC20	2710	58WCr9KU			5KHV25F		
1.2713	SKT4	55NiCrMoV6	L6			55NCDV7			F5205		5C NM		
1.2721		50NiCr13	L6			55NCV6	2550		F528				
1.2842		90MnCrV8	O2	BO2		90MV8				T31502	9G2F		
1.3501		100Cr2	E50100										
1.3505	SUJ2	100Cr6	52100	25135	31	100C6	2258	100Cr6	F1310		SCC 15		
1.5024		46Si7				45S7		46Si7	F1451				
1.5025		51Si7	9259H		50Si7	51S7	2090	50Si7	F1450				
1.5026		55Si7			56Si7	55S7	2085	55Si7	F1440	G92550	55S2		
1.5027		60Si7	9260	251A60	60Si7	60S7		60Si7	F1441	G92600	60S2		
1.5028	SUP7	65Si7	9260H										
1.5415	STFA 12	15Mo3	A204GrA	1503-243B		15D3	2912	16Mo3(KG)	F2601	K11820			
1.5419	SCPH11	20Mo4	4419	1503-243-430			2512	G20Mo5		G44190			
1.5423	SB450M	16Mo5	4520	1503-245-420				16Mo5(KG)	F2602	K11522			
1.5622		14Ni6	A350-LF5			16N6		14Ni6(KG)	F2641				
1.5732	SNC415(H)	14NiCr10	3415			14NC11		16NiCr11					
1.5752	SNC815(H)	14NiCr14	3310	655M13	36A	12NC15					20X2H4A		
1.6511	SUP10	36CrNiMo4	9840	816M40	110	40NCD3		36NiCrMo4(KB)			40C N2MA		
1.6523	SNCM220(H)	21NiCrMo2	8620	805M20	362	20NCD2	2506	20NiCrMo2			20C GNM		
1.6546	SNCM240	40NiCrMo2-2	8740	311-Tyre7				40NiCrMo2(KB)			38C GNM		
1.6566		17NiCrMo6-4											
1.6587		17CrNiMo6		820A16		18NCD6		14NiCrMo13					
1.6657		10NiCrMo13-4						14NiCrMo131					
1.7015	SCr415(H)	10Cr3	5015	523M15		12C3				G50150	15C		
1.7033	SCr430(H)	34Cr4	5132	530A32	18B	32C4		34Cr4(KB)		G51300	35C		
1.7035	SCr440(H)	41Cr4	5140	530M40	18	42C4	2245	41Cr4		G51400	40H		
1.7131	SCR415	16MnCr5	5115	527M17		16MCS	2511	16MnCr5		G51150	12KH2		
1.7139		16MnCr55					2127				18HG		
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3			50CGA		
1.7218	SCM420	25CrMo4	4130	CDS110		25CD4	2225	25CrMo4(KB)			20C M		
1.7220	SCM432	34CrMo4	4135	708 A 37		35CD4	2234	34CrMo4			35C M		
1.7223	SNB22-1	41CrMo4	4142					41CrMo4			40C FA		
1.7225	SCM440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42 CD 4	2244	42 CrMo 4	F.1252		38HM		
1.7228		55NiCrMoV6G		823M30	33		2512	653M31					
1.7262	SCM415(H)	15CrMo5				12CD4	2216	12CrMo4					
1.7321		20MnCr4					2625						
1.7335	SCM415(H)	13CrMo4-4	A182-F11	1501-620		15CD4-5	2216	14CrMo45			12C M		
1.7361		32CrMo12		722M24	40B	30CD12	2240	30CrMo12	F.124A				
1.7380		10CrMo9-10	A182F22	1501-622		12CD9-10	2218	12CrMo9			12KH8		

# MATERIAL GROUPS

P	VDI 3323 6	Material Description				Composition / Structure / Heat Treatment						HB	HRC
		Low-alloyed Steel				Annealed						180	10
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.7715		14MoV6-3						1503-660-440				13MoCrV6	
1.8159	SUP 10	50CrV4	6150	735A50	47	50CV4	2230	50CrV4		G61500	50C GFA		
1.8161		58CrV4											
1.8509	SACM 645	41CrAlMo7	A355A	905M39	41B	40CAD6-12	2940	41CrAlMo7					
1.8523		39CrMoV13-9						897M39	40C			36CrMoV12	

P	VDI 3323 7	Material Description				Composition / Structure / Heat Treatment						HB	HRC
		Low-alloyed Steel				Quenched & Tempered						275	29
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.5415	STFA 12	15Mo3	A204GrA	1503-243B		15D3	2912	16Mo3(KG)	F.2601	K11820			
1.5423	SB450M	16Mo5	4520	1503-245-420				16Mo5(KG)	F.2602	K11522			
1.5622		14Ni6	A350-LF5			16N6		14Ni6(KG)	F.2641				
1.5732	SNC415(H)	14NiCr10	3415			14NC11		16NiCr11					
1.5752	SNC815(H)	14NiCr14	3310	655M13	36A	12NC15					20X2H4A		
1.5755	SNC236	31NiCr14		653M31		18NC13	2534		F.1270				
1.6565	SNCM447	40NiCrMo6	4340	817M40	24	35NCD6	2541	35NiCrMo6(KB)			38C 2N2MA		
1.6587		17CrNiMo6		820A16		18NCD6		14NiCrMo13					
1.6657		10NiCrMo13-4						14NiCrMo131					
1.6957		26NiCrMoV14-5											
1.7015	SCr415(H)	10Cr3	5015	523M15		12C3				G50150	15C		
1.7262	SCM415(H)	15CrMo5				12CD4	2216	12CrMo4					
1.7335	SCM415(H)	13CrMo4-4	A182-F11	1501-620		15CD4-5	2216	14CrMo45			12C M		
1.7380		10CrMo9-10	A182F22	1501-622		12CD9-10	2218	12CrMo9			12KH8		
1.7715		14MoV6-3						1503-660-440			13MoCrV6		
1.7733		24CrMoV55				20CDV6		21CrMoV511					
1.7755		GS-45CrMoV10-4											
1.8070		21CrMoV511						35NiCr9					

P	VDI 3323 8	Material Description				Composition / Structure / Heat Treatment						HB	HRC
		Low-alloyed Steel				Quenched & tempered						300	32
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.1730		C45W3	C45W								XC48		
1.2332	SCM(440)	47CrMo4	4142	708M40	19A	42CD4	2244	42CrMo4					
1.5736	SNC 631 (H)	36NiCr10	3435			30NC11							
1.6523	SNCM220(H)	21NiCrMo2	8620	805M20	362	20NCD2	2506	20NiCrMo2			20C GNM		
1.7033	SCr430(H)	34Cr4	5132	530A32	18B	32C4		34Cr4(KB)		G51300	35C		
1.7218	SCM420	25CrMo4	4130	CDS110		25CD4	2225	25CrMo4(KB)			20C M		
1.8515		32CrMo12		722M24	40B	30CD12	2240	32CrMo12	F.124A				



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P	VDI 3323 9	Material Description Low-alloyed Steel				Composition / Structure / Heat Treatment Quenched & Tempered					HB 350	HRC 38	
		Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST
1.0904	SKH 1, SKT 4	55Si7	9255	250A53	45	55S7	2085	55Si8			G92550	55S2	
1.0961	SUP 7	60SiCr7	9262			60SiC6		60SiCr8			G92620		
1.2067		100Cr6	L3	BL3		Y100C6		100Cr6					
1.2419	SKS31	105WCr6		105WC13		105WC13	2140	10WCr6				CWG	
1.2542		45WCrV7	S1	B51			2710	45WCrV8KU				5CW25F	
1.2713	SKT4	55NiCrMoV6	L6							F5205		5C NM	
1.4882		X50CrMnNiNbN219				Z50CMNnb21-09							
1.5120		38MnSi4											
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NC6							
1.5755	SNC236	31NiCr14		830m31		18NC13	2534			F1270			
1.6511	SUP10	36CrNiMo4	9840	816M40	110	40NCD3		36NiCrMo4(KB)				40C N2MA	
1.6546	SNCM240	40NiCrMo2-2	8740	311-Tyre7				40NiCrMo2(KB)				38C GNM	
1.7035	SCr440(H)	41Cr4	5140	530M40	18	42C4	2245	41Cr4			G51400	40H	
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3				50C GA	
1.7220	SCM432	34CrMo4	4135	708Aa37		35CD4	2234	34CrMo4				35C M	
1.7223	SNB22-1	41CrMo4	4142					41CrMo4				40C FA	
1.7225	SCM 440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42 CD 4	2244	42 CrMo 4		F1252		38HM	
1.7361		32CrMo12		722M24	40B	30CD12	2240	30CrMo12		F124A			
1.8159	SUP 10	50CrV4	6150	735A50	47	50CrV4	2230	50CrV4		51CrV4	G61500	50C GFA	
1.8161		58CrV4											
1.8509	SACM 645	41CrAlMo7	A355A	905M39	41B	40CAD6-12	2940	41CrAlMo7					
1.8523		39CrMoV13-9		897M39	40C			36CrMoV12					

P	VDI 3323 10	Material Description High-alloyed steel, and tool steel				Composition / Structure / Heat Treatment Annealed					HB 200	HRC 15	
		Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST
1.0347	SPCD	RRSt 3	A619	CR 3	Fe P03	F 13		DC03/FeP03				08JU	
1.0723	SUM32	15S22		210A15			1922			F210F			
1.2080	SKD1	X210Cr12	D3	BD3	X210Cr12	Z200C12		X205Cr12KU			T30403	KH12	
1.2162	SCR 420 H	21MnCr5				20MCS							
1.2311		40CrMnMo7				40CMD8		35CrMnO8KU					
1.2312		40CrMnMoS8.6	P20+S			40CMD8S							
1.2316		X36CrMo17			X38CrMo16								
1.2343	SKD 6	X38CrMoV5-1	H11	BH11		Z38CDV5		X37CrMoV51KU			T20811	4C 5MFS	
1.2344	SKD61	X40CrMoV5-1	H13	BH13		Z40CDV5	2242	X40CrMoV511KU	F5318		T20813	4C 5MF1S	
1.2363	SKD12	X100CrMoV5-1	A2	BA2		Z100CDV5	2260	X100CrMoV51KU	F5227			9KH5VF	
1.2379	SKD11	X155CrVMo121	D2	BD2		Z160CDV12	2310	X165CrMoW12KU			T30402	KH12MF	KRUPP2379
1.2436	SKD 2	X210CrW12	D4(D6)	BD6		Z200CD12	2312	X215CrW121KU	F5213			KH12	

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P	VDI 3323 10	Material Description High-alloyed steel, and tool steel				Composition / Structure / Heat Treatment Annealed					HB 200	HRC 15	
		Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST
1.2510	SKS3	100MnCrW4	O1	B01			90MWCV5	2140	95MnCr5 KU	F5220			9KHVG
1.2581	SKD5	X30WCrV9-3	H21	BH21			Z30WCV9		X30WCrV93KU	F526	T20821	3C 2W8F	
1.2601		X165CrMoV12						2310	X160CrMoV12				KH12MF
1.2606	SKD 62	X37CrMoW51	H12	BH12			Z35CWDV5		X35CrMoW05KU	F537	T20812	5C NM	
1.2764		X19NiCrMo4											
1.2767		X45NiCrMo4					45NCD16		40NiCrMoV8KU				
1.2842		90MnCrV8	O2	B02			90MV8		90MnCr8KU		T31502	9G2F	
1.3243	SKH55	S6-5-2-5	T15				KCV06-05-05-04-02	2723	H56-5-2-5				R6M5K5
1.3249	SKH 3	S18-1-2-5	T4	BT4			Z80WKC18-05-04						R18K5F2
1.3343	SKH51,SKH9	S6-5-2	M2	BM2			Z85WDCV	2722	H5652	F5604			R6M5
1.3348	SKH 58	S2-9-2	M7				Z100DCW09-04-02	2782	H5292	F5607			
1.3355	SKH 2	S18-0-1	T1	BT1			Z80WCV18-4-01						R18
1.4718	SUH1	X45CrSi9-3	HNV3	401S45	52		Z45CS9		X45CrSi8	F322			40C 9S2
1.5662	SL9N60(53)	X8Ni9	ASMA353	502-650			9Ni		X10Ni9	F2645			
1.5680		12Ni19	2515	12Ni19			Z18N5						

P	VDI 3323 11	Material Description High-alloyed steel, and tool steel				Composition / Structure / Heat Treatment Quenched & Tempered					HB 325	HRC 35	
		Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST
1.2080	SKD1	X210Cr12	D3	BD3	X210Cr12	Z200C12		X205Cr12KU			T30403	KH12	
1.2344	SKD61	X40CrMoV5-1	H13	BH13		Z40CDV5	2242	X40CrMoV51KU	F5318		T20813	4C 5MF1S	
1.2363	SKD12	X100CrMoV5-1	A2	BA2		Z100CDV5	2260	X100CrMoV51KU	F5227			9KH5VF	
1.2436	SKD 2	X210CrW12	D4(D6)	BD6		Z200CD12	2312	X215CrW121KU	F5213			KH12	
1.2581	SKD5	X30WCrV9-3	H21	BH21			Z30WCV9		X30WCrV93KU	F526	T20821	3C 2W8F	
1.2601		X165CrMoV12						2310	X160CrMoV12				KH12MF
1.2714	SKT 4	55NiCrMoV7	6F3/L6				55NiCrMoV7			F5205			5KHNV
1.3202		S12-1-4-5		BT15					H512-1-5-5				
1.3207		S10-4-3-10		BT42			Z130WKCDV						
1.3243	SKH55	S6-5-2-5	T15				KCV06-05-05-04-02	2723	H56-5-2-5				R6M5K5
1.3246		S7-4-2-5	M35				Z110WKCDV07-05-04		H57-4-2-5				
1.3247	SKH 51	S2-10-1-8	M42	BM42			Z110DKCW09-08-04		H52-9-1-8				R2AM9K5
1.3255	SKH 3	S18-1-2-5	T4	BT4			Z80WKC18-05-04						R18K5F2
1.3343	SKH51,SKH9	S6-5-2	M2	BM2			Z85WDCV	2722	H5652	F5604			R6M5
1.3348	SKH 58	S2-9-2	M7				Z100DCW09-04-02	2782	H5292	F5607			
1.3355	SKH 2	S18-0-1	T1	BT1			Z80WCV18-4-01						R18
1.4718	SUH1	X45CrSi9-3	HNV3	401S45	52		Z45CS9		X45CrSi8	F322			40C 9S2
1.4935	SUH 616	X20CrMoWV121	422								S42200		
1.5680		12Ni19	2515	12Ni19			Z18N5						



# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4000	SUS403	X6Cr13	403	403S17		Z6C13	2301	X6Cr13	F3110	S40300	08C 13	ATI 410S
1.4001		X7Cr14	410 S	403S7		Z8C13	2301		F8401		08C 13	
1.4002	SUS 405	X6CrAl13	405	405S17		Z6CA13	2302	X6CrAl13		S40500		
1.4005	SUS416	X12CrS13	416	416S21		Z11CF13	2380	X12CrS13	F3411	S41600		ATI 416
1.4006	SUS410	X12Cr13	410	410S21	56A	Z10C13	2302	X12Cr13	F3401	S41000	12C 13	ATI 410
1.4016	SUS430	X6Cr17	430	430S15	X8Cr17	Z8C17	2320	X8Cr17	F3113	S43000	12C 17	ATI 430
1.4027	SCS 2	GX20Cr14		420C29		Z20C13M					20C 13L	
1.4028	SUS420J2	X30Cr13	420	420S45		Z30C13	2304			S42020	20C 13	
1.4034	SUS420J2	X46Cr13		420S45		Z40C14		X40Cr14	F3405			
1.4057	SUS431	X19CrNi17-2	431	431S29	57	Z15CN16-02	2321	X16CrNi16	F3427	S43100	20C 17N2	431 (HT)
1.4086		GX120Cr29		452C11								
1.4104	SUS430F	X12CrMoS17	430F	420S37		Z10CF17	2383	X10CrS17	F3117	S43020		
1.4112	SUS 440 B	X90CrMoV18	440B							S44003	95KH18	
1.4113	SUS434	X6CrMo17	434	434S17		Z8CD17-01	2325	X8CrMo17		S43400		AL 434
1.4313	SCSS	X3CrNi13-4	CA6-NM	425C11		Z4CND13-04M	2385	(G)X6CrNi304		J91540		
1.4340		GX40CrNi274								J92615		
1.4417		X2CrNiMoS1195	S31500							S39215		
1.4418		X4CrNiMo165				Z6CND16-04-01	2387					APX4
1.4510	SUS430LX	X6CrTi17	XM8			Z4CT17		X6CrTi17	F3115	S43035	08C 17T	430 Ti
1.4511	SUS430LK	X6CrNb17				Z4CNb17		X6CrNb17	F3122			AVX525
1.4512	SUH409	X6CrTi12	409	LW19		Z3CT12		X6CrTi12		S40900		
1.4720		X20CrMo13										
1.4724	SUS 405	X10CrAl113	405	403S17		Z10C13		X10CrAl112	F311		10C 13SJU	
1.4742	SUS430	X10CrAl118	430	439S15	60	Z10CAS18		X8Cr17	F3113	S43000	15C 13SJU	
1.4747	SUH4	X8CrNiSi20	HNV6	443S65	59	Z80CSN20-02		X80CrSiNi20	F3208	S65006		15KH28
1.4749		X18CrN28	446									
1.4762	SUH446	X10CrAl124	446			Z10CAS24	2322	X16Cr26		S44600		
1.4871	SUH35,SUH36	X53CrMnNiN21-9	EV8	349S54		Z52CMN21-09		X53CrMnNiN219		S63008	55C 20G9AN4	
		X10CrNi15	429									
		X12CrNi18-9	302	302S31		Z10CN18-09	2330					

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4000	SUS403	X6Cr13	403	403S17		Z6C13	2301	X6Cr13	F3110	S40300	08C 13	ATI 410S
1.4001		X7Cr14	410 S	403S7		Z8C13	2301		F8401		08C 13	
1.4006	SUS410	X12Cr13	410	410S21	56A	Z10C13	2302	X12Cr13	F3401	S41000	12C 13	ATI 410
1.4016	SUS430	X6Cr17	430	430S15	X8Cr17	Z8C17	2320	X8Cr17	F3113	S43000	12C 17	ATI 430
1.4021	SUS 420J1	X20Cr13	420	420S37		Z20C13	2303	14210	F5261	S42000	20C 13	ATI 420
1.4027	SCS 2	GX20Cr14		420C29		Z20C13M					20C 13L	
1.4031	SUS 420 J2	X40Cr13	420			Z40C14	-2304		F3404	S42080	40C 13	
1.4034	SUS420J2	X46Cr13		420S45		Z40C14		X40Cr14	F3405			
1.4057	SUS431	X19CrNi17-2	431	431S29	57	Z15CN16-02	2321	X16CrNi16	F3427	S43100	20C 17N2	431 (HT)
1.4104	SUS430F	X12CrMoS17	430F	420S37		Z10CF17	2383	X10CrS17	F3117	S43020		
1.4113	SUS434	X6CrMo17	434	434S17		Z8CD17-01	2325	X8CrMo17		S43400		AL 434
1.4313	SCSS	X3CrNi13-4	CA6-NM	425C11		Z4CND13-04M	2385	(G)X6CrNi304		J91540		
1.4544		A 700	321	S.524		Z10 CNT 18 11		X6CrNiTi1811		J92630	08C 18N12T	
1.4546		X5CrNiNb18-10	348	347S31				X6CrNiNb1811		J92640		ATI 348
1.4871	SUH35,SUH36	X53CrMnNiN21-9	EV8	349S54		Z52CMN21-09		X53CrMnNiN219		S63008	55C 20G9AN4	
1.4922		X20CrMnV12-1					2317	x20CrMnV1201				
1.4923		X22CrMoV121										Jethete X20

# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4301	SUS 304	X5CrNi18-10	304	304S15		Z5CN18-09	2332		F3551	S30409	08C 18N10	
1.4305	SUS303	X10CrNiS18-10	303	303S21	58M	Z8CNF18-09	2346	X10CrNiS18.09	F3508	S30300	30C 18N11	ATI 303
1.4306	SCS19	X2CrNi1911	304L	304C12	X3CrNi1810KD	Z2CN18-09	2352	GX2CrNi1910	F3503	S30403	03KH18N11	ATI 304L
1.4308	SUS304L	GX6CrNi18-9	CF-8	304C15	58E	Z6CN18-10M	2333					CF-8
1.4310	SUS 301	X10CrNi18-8	301	301S21		Z12CN17-07	2331	X2CrNi1807	F3517	S30100	07KH16N6	ATI 301
1.4311	SUS304LN	X2CrNiN18 10	304LN	304S62		Z2CN18-10	2371	X2CrNiN1810	F3541	S30453	03KH18N11	
1.4312	SCS12	GX10CrNi188	305	302C25		Z10CN18-9M					10C 18N9L	ATI 305
1.4350	SUS304	X5CrNi18-9	304	304S15	58E	Z6CN18-09	2332	X5CrNi1810	F.3551	S30400		ATI 304
1.4362		X2CrNiN234	S32304			Z2CN23-04AZ	2327			S32304		ATI 2304TM
1.4371		X3CrMnNi18887	202	284S16		Z8CMN18-08-05						
1.4401	SUS316	X5CrNiMo17-12-2	316	316S13		Z3CND17-11-01	2347	X5CrNiMo17 12 2	F.3534	S31600	08KH17H13M2T	ATI 316
1.4404	SUS316L	X2CrNiMo17-13-2	316L	316S11		Z2CND17-12	2348	X2CrNiMo1712	F.3533	S31603		ATI 316L
1.4406	SUS316LN	X2CrNiMo17122	316LN	316S61		Z2CND17-12AZ		X2CrNiMo1712	F.3542	S31653	07C 18N	ATI 316LN
1.4408	SCS14	GX6CrNiMo18-10	CF-8M	316C16			2343	X7CrNiMo2010	F.8414	J92900	10G252MSL	
1.4410	SCS 14 A	GX10CrNiMo18-9				Z5CND20-12M	2328				S32750	
1.4429	SUS316LN	X2CrNiMoN17-13-3	316Ln	316S62		Z2CND17-13AZ	2375	X2CrNiMoN17133	F.3543		03KH16N15M3	
1.4435	SUS316L	X2CrNiMo18143	316L	316S11		Z3CND17-12-03	2375	X2CrNiMo17 13 2	F.3533	S31603	03C 17N14M3	
1.4436	SUS316	X3CrNiMo17-13-3	316	316S19		Z6CND18-12-03	2343	X5CrNiMo17 12 2	F.3543	S31600		
1.4438	SUS317L	X2CrNiMo18164	317L	317S12		Z2CND19-15-04	2367	X2CrNiMo18 16 4	F.3539	S31703		ATI 317L
1.4439		X2CrNiMoN17135	(s31726)			Z3CND18-14-06AZ						
1.4440		X2CrNiMo18-16										
1.4449	SUS317	X5CrNiMo17133	317	317S16				X5CrNiMo1815		S31700		ATI 317
1.4460	SUS 329 J1	X8CrNiMo275	329				2324			S32900		10RE51
1.4462	SUS329J3L	X2CrNiMoN2253		318S13		Z3CND22-05AZ	2377			S31803		ATI 2205TM
1.4500		X7NiCrMoCuNb2520				Z3NCDU25-20M					J95150	
1.4521	SUS444	X2CrMoTi18-2	443444				2326	X2CrMoTiNb18 2	F.3123			
1.4539		X1NiCrMoCuN25205				Z2NCDU25-20	2562			N08904		ATI 904L
1.4541	SUS321	X14CrNiTi18-10	321	321S31		Z6CNT18-10	2337	X6CrNiTi18 11	F.3523	S32100	06C 18N10T	ATI 321
1.4542	SUS630	X5CrNiCuNb174	630			Z7CNU15-05						UGIMA 4542
1.4545		Z7CNU15.05	15-5PH							S15500		ATI 15-5
1.4547		X1CrNiMoN20187	S31254				2378			S31254		Uranus B256Mo
1.4550	SUS347	X6CrNiNb18-10	347	347S17	58F	Z6CNNb18-10	2338	X6CrNiNb18 11	F.3552	S34700	08C 18N12B	ATI 347
1.4552	SCS 21	GX7CrNiNb18-9				Z4CNNb19-10M				J92710		
1.4568	SUS 631	X 7 CrNiAl 177		316S111		Z9 CAN 17-7	2388	Z8CNA17-07		S17700	09C 17NJU1	17-7PH
1.4571	SUS 316Ti	X6CrNiMoTi17-12-2	316Ti	320S31	58J	Z6NDT17-12	2350	X6CrNiMoTi17 12	F.3535		10C 17N13M2T	ATI 316Ti
1.4581	SCS 22	GX5CrNiMoNb18		318C17		Z4CNDNb18-12M						
1.4583		X6CrNiMoNb18-12	318	303S21		Z15CNS20-12		X15CrNiSi2 12				
1.4585		GX7CrNiMoCuNb1818						X6CrNiMoTi17 12		J94651		
1.4821		X20CrNiSi254				Z20CNS25-04				S44635		
1.4823		GX40CrNiSi274								J92605		
1.4828	SCS17	X15CrNiSi20-12	309	309S24	58C	Z15CNS20-12			F.8414	S30900	20C 20N14S2	ATI 309
1.4833	SUS 309 S	X6CrNi2213	309S	309S13		Z15CN24-13				J93400		
1.4845	SUH310	X12CrNi25-21	310S	310S24		Z12CN25-20	2361	X6CrNi2520	F.331	S31008	20C 23N18	ATI 310S
1.4878	SUS321	X12CrNiTi18-9	321	321S20	58B	Z6CNT18-12(B)	2337	X6CrNiTi1				



# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
<b>K</b> <b>VDI 3323 15</b> Grey cast iron    Pearlitic / Ferritic    180    10												
0.6010	FC100	GG10	A48 20 B	Grade 100	GJL-100	Ft 10 D	0100	G10	FG10		Sc 10	
0.6015	FC150	GG15	A48 25 B	Grade 150	GJL-150	Ft 15 D	0115	G15	FG15		Sc 15	
0.6020	FC200	GG20	A48 30 B	Grade 200	GJL-200	Ft 20 D	0120	G20	FG20	W06020	Sc 20	
0.6025	FC250	GG25	A48 40 B	Grade 260	GJL-250	Ft 25 D	0125	G25	FG25		Sc 25	
0.6660		GGL-NiCr 20.2	1050/700/7	Grade F2	GJL-XNiCr 20-2	L-NC 202	0523	-		F41002	Ni-Resist 2	
1.4449	SUS317	XSCrNiMo17133	317	317S16				XSCrNiMo1815		S31700	ATI 317	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
<b>K</b> <b>VDI 3323 16</b> Grey cast iron    Pearlitic (Martensitic)    260    26												
0.6025	FC250	GG25	A48 40 B	Grade 260	GJL-250	Ft 25 D	0125	G25	FG25		Sc 25	
0.6030	FC300	GG30	A48 45 B	Grade 300	GJL-300	Ft 30 D	0130	G30	FG30		Sc 30	
0.6035	FC350	GG35	A48 50 B	Grade 350	GJL-350	Ft 35 D	0135	G35	FG35		Sc 35	
0.6040	FC400	GG40	A48 60 B	Grade 400	GJL-400	Ft 40 D	0140	G40	FC40		Sc 40	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
<b>K</b> <b>VDI 3323 17</b> Nodular cast iron    Ferritic    160    3												
0.7033	FCD350-22L	GGG35.3	-	350/22L40	GJS-350-22-LT	FGS 370-17	0717-15	-				
0.7040	FCD400	GGG40	60-40-18	SNG 420-12	GJS-400-15	FCS 400-12	0717-02	GS 400-12	FG E38-17	F32800	Vc 42-12	
0.7043	FCD 370	GGG40.3	60-40-18	SNG 370-17	GJS-400-18-LT	FGS 370-17	0717-12	GSO 42-17			Vc 42-12	
0.6040	FC400	GG40	A48 60 B	Grade 400	GJL-400	Ft 40 D	0140	G40	FC40		Sc 40	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
<b>K</b> <b>VDI 3323 18</b> Nodular cast iron    Pearlitic    250    25												
0.7050	FCD500	GGG50	80-55-06	SNG 500-7	GJS-500-7	FGS 500-7	0727-02	GS 500-7	FG E50-7	F33100	Vc 50-2	
0.7060	FCD600	GGG60	80-55-06	SNG 600-3	GJS-600-3	FGS 600-3	0732-03	GS 600-3	FG E60-2		Vc 60-2	
0.7070	FCD700	GGG70	100-70-03	SNG 700-2	GJS-700-2	FGS 700-2	0737-01	GS 700-2	FG S70-2	F34800	Vc 70-2	
0.7652	FCDA-NiMn 137	GGGNiMn 13-7	-	Grade 56	GJSA-XNiMn 13-7	FGS Ni13 Mn7	0772	-			Nodumag	
0.7660		GGG NiCr 20-2	A436 D2	Grade 52	GJSA-XNiCr 20-2	FGS Ni20 Cr2	0776	-			Ni-Resist D-2	

# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
<b>K</b> <b>VDI 3323 19</b> Malleable cast iron    Ferritic    130												
0.8135	FCMW330	GTS-35	32510	B 340-12	GJMB350-10	MN 35-10	0815	GMN 35	GTS35		Kc 35-10	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
<b>K</b> <b>VDI 3323 20</b> Malleable cast iron    Pearlitic    230    21												
0.8145	FCMW370	GTS-45	A220-40010	P 440-7	GJMB450-6	MN 450	0852	GMN 45				
0.8155	FCMP490	GTS-55	50005	P 510-4	GJMB-550-4	MP 50-5	0854	GMN 55			Kc 60-3	
0.8165	FCMP590	GTS-65	70003	P 570-3	GJMB-650-2	MN 650-3	0856	GMN 65				
0.8170	FCMP690	GTS-70	90001	P 690-2	GJMB-700-2	MN 700-2	0862	GMN 70			Kc 70-2	



# MATERIAL GROUPS

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	N	VDI 3323 21	Material Description Aluminum-wrought alloy	Composition / Structure / Heat Treatment Not Curable	HB 60	HRc
3.0205		Al99	Al99															
3.0255	(A1050)	Al99.5	1000	L31		A59050C					D1							
3.3315		AlMg1																

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	N	VDI 3323 22	Material Description Aluminum-wrought alloy	Composition / Structure / Heat Treatment Curable, Hardened	HB 100	HRc
3.1325		AlCuMg1									AD35							
3.1655	A2011	AlCuSiPb																
3.2315		AlMgSi1									AK9							
3.4345		AlZnMgCuO.5	7050	L86		AZ4GU/9051		811-04										
3.4365	7075	AlZnMgCu1.5	7075	7075		7075		AlZn5.8MgCuCr			B95							

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	N	VDI 3323 23	Material Description Aluminum-cast, alloyed	Composition / Structure / Heat Treatment ≤ 12% Si, Not Curable	HB 75	HRc
3.2163		G-AlSi9Cu3									VAL8							
3.2382		GD-AlSi10Mg																
3.2383		G-AlSi0Mg(Cu)	A360.2	LM9			4253											
3.2581		G-AlSi12																
3.3561		G-ALMg5																
3.5101		G-MgZn45E1Zr1	ZE41	MAG5														
3.5103		MgSE3Zn27r1	EZ33	MAG6		G-TR3Z2												
3.5812		G-MgAl8Zn1	AZ81	NMAG1														
3.5912		G-MgAl9Zn1	AZ91	MAG7														
			A356-72	2789		NFA32-201												
A5052			356.1	LM25			4244				AK7							
		G-AlSi12	A413.2	LM6			4261											
ADC12		G-AlSi12(Cu)	A413.1	LM20			4260				AK12							
A6061		GD-AlSi12	A413.0				4247											
A7075		GD-AlSi8Cu3	A380.1	LM24			4250											

# MATERIAL GROUPS

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	N	VDI 3323 24	Material Description Aluminum-cast, alloyed	Composition / Structure / Heat Treatment ≤ 12% Si, Curable, Hardened	HB 90	HRc
2.1871		G-AlCu4TiMg																
3.1754		G-AlCu5Ni1.5																
3.2371		G-AlSi7Mg	4218B									AK8						
3.2373	C4BS	G-AlSi9MGWA	SC64D			A-57G	4251					AK9						
3.2381		G-AlSi10Mg										AK12						
3.5106		G-MgAg3SE2Zr1	QE22	mag12														
		G-ALMG5	GD-AlSi12	LM5		A-SU12	4252											

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	N	VDI 3323 26	Material Description Copper and Copper Alloys (Bronze / Brass)	Composition / Structure / Heat Treatment Cutting alloys, PB>1%	HB 110	HRc
2.0375		CuZn36Pb3										LS60-2						
2.1090		G-CuSn75pb	C93200			U-E7Z5pb4												
2.1096		G-CuSn5ZnPB	c83600	LG2														
2.1098		G-CuSn2Znpb	C83600															
2.1182		G-CuPb15Sn	C23000	LB1		U-pb15E8												

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	N	VDI 3323 27	Material Description Copper and copper alloys (Bronze / Brass)	Composition / Structure / Heat Treatment CuZn, CuSnZn (Brass)	HB 90	HRc
2.0240	C2300	CuZn15										L90						
2.0321		CuZn37	C27200	cz108		CuZn36CuZn37		C2700				L63						
2.0590		G-CuZn40Fe																
2.0592		G-CuZn35Al1	C86500	U-Z36N3		HTB1												
2.0596		G-CuZn34Al2	C86200	HTB1		U-Z36N3						LTs23AD						
2.1293		CuCrZr	C18200	CC102		U-Cr0-8Zr												

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	N	VDI 3323 28	Material Description Copper and copper alloys (Bronze / Brass)	Composition / Structure / Heat Treatment CuSn, lead-free copper and electrolytic copper	HB 100	HRc
2.0060		E-Cu57																
2.0966		CuAl10Ni5Fe4	C63000	Ca104		U-A10N						BRAD						
2.0975		G-CuAl10Ni	B-148-52															
2.1050		G-CuSn10	c90700	CT1														
2.1052		G-CuSn12	C90800	pb2		UE12P												
2.1292		G-CuGrF35	C81500	CC1-FF														





# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<b>S</b> <b>VDI 3323 31</b> Heat resistant super alloys    Fe Based, Annealed    HB 200    HRc 15												
1.4558	NCF 800TB	X2NiCrAlTi3220	N08800	NA15								
1.4562		X1NiCrMoCu32287	N08031									
1.4563		X1NiCrMoCuN31274	N08028			Z1NCU31-27-03	2584				EK77	
1.4864	SUH330	X12NiCrSi36-16	330	NA17		Z12NCS37-18				N08330		
1.4865	SCH15	GX40NiCrSi38-18		330C40				XG50NiCr3919		J94605		
1.4958		X5NiCrAlTi3120										

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<b>S</b> <b>VDI 3323 32</b> Heat resistant super alloys    Fe Based, Aged    HB 280    HRc 30												
1.4977		X40CoCrNi2020				Z42CNKDWNb						

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<b>S</b> <b>VDI 3323 33</b> Heat resistant super alloys    Ni or Co Based, Annealed    HB 250    HRc 25												
2.4360		NiCu30Fe		NA13		NU30				N04400		Monel400
2.4603		NiCr 30 FeMo	5390A			NC22FeD						Hastelloy G-30
2.4610		NiMo16Cr16Ti								N26455		HastelloyC-4
2.4630		NiCr20Ti		HRS,203-4		NC20T				N06075		Nimonic75
2.4631	NCF 80A	NiCr20TiAl		Hr40		NC20TA			N07080	KHN77TYuR		Nimonic 80A
2.4642	NCF 690	NiCr29Fe				Nrc30Fe			N06690			Inconel 690
2.4856		NiCr22Mo9Nb		NA21		NC22FeDNb			N06625			Inconel 625
2.4858		NiCr21Mo		NA16		NC21FeDU			N08825	KHN38VT		Incoloy 825

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<b>S</b> <b>VDI 3323 34</b> Heat resistant super alloys    Ni or Co Based, Aged    HB 350    HRc 38												
2.4375		NiCu30Al	4676	NA18		NU30AT				N05500		MonelK500
2.4662		NiFe35Cr14MoTi	5660			ZSNCDT42				N09901		Incoloy 901
2.4668		NiCr19Fe19NbMo	5383	HR8		NC19eNB				N07718		Inconel 718
2.4670		S-NiCr13Al16MoNb	5391	Mar-46		NC12AD						Nimocast 713
2.4694		NiCr16Fe7TiAl								N07751		Inconel 751
2.4955		NiFe25Cr20NbTi										
2.4964		CoCr20W15Ni	5772			KC20WN						Haynes 25
		CoCr22W14Ni	AMS 5772			KC22WN						

# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<b>S</b> <b>VDI 3323 35</b> Heat resistant super alloys    Ni or Co Based, Cast    HB 320    HRc 34												
2.4669		NiCr15Fe7TiAl				NC15TNbA				N07750		Inconel X750
2.4685		G-NiMo28								N10665		Hastelloy B
2.4810		G-NiMo30										Hastelloy C
2.4973		NiCr19Co11MoTi	AMS 5399			NC19KDT					VT5-1	
3.7115		TiAl5Sn2								R54520	VT1-00	ATI Grade 6

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<b>S</b> <b>VDI 3323 36</b> Titanium alloys    Pure Titanium    HB 400 Rm												
2.4674		NiCo15Cr10MoAlTi	AMS 5397							N13100		IN 100
3.7025		Ti1	R50250	2TA1						R50250		ATI 30 CP Gr. 1
3.7225		Ti1pd	R52250	TP1						R52250		

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<b>S</b> <b>VDI 3323 37</b> Titanium alloys    Alpha + Beta Alloys, Hardened    HB 1050 Rm												
3.7124		TiCu2				2TA21-24						
3.7145		TiAl6Sn2Zr4Mo2Si	R54620							R54620		
3.7165		TiAl6V4	AMS R56400	TA10-13		T-A6V					VT6	
3.7185		TiAl4Mo4Sn2		TA45-51								
3.7195		TiAl3V2.5								R56320		ATI 3-2.5
		TiAl4Mo4Sn4Si0.5										
		TiAl5Sn2.5	AMS R54520	TA14/17		T-A5E						
		Ti6Al4VELI	AMS R56401	TA11								



# MATERIAL GROUPS

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <h2>H</h2> <p>VDI 3323 <b>38</b></p> </div> <div style="text-align: center;"> <p>Material Description</p> <p><b>Hardened steel</b></p> </div> <div style="text-align: center;"> <p>Composition / Structure / Heat Treatment</p> <p><b>Hardened</b></p> </div> <div style="text-align: center;"> <p>HB</p> <p><b>550</b></p> </div> <div style="text-align: center;"> <p>HRc</p> <p><b>55</b></p> </div> </div>												
1.1231	S70 C-CSP	Ck67	1070	060 A 67	C 67S	XC 68	1770	C 70	F5103		70	
1.1248	C 75	Ck 75	1078, 1080	060 A 78	C 75S	XC 75	1774	C 75	F5107		75	
1.1274	SUP 4	Ck 101	1095	060 A 96	C 100S	XC 100	1870	C 100	F5117			
1.1545	SK 3	C 105 W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F5118		U10A	
1.2762		75CrMoNiW67	-	-	-	-	-	-	-			
1.3401	SCMnH1	GX120Mn12	A128(A)			Z120M12	2183	GX120Mn12	F8251		110G13L	
1.4021	SUS 420 J1	X 20 Cr 13	420	420 S 37	X 20 Cr 13	Z 20 C 13	2303	X 20 Cr 13	F5261		20KH13	ATI 420
1.4109	SUS 440 A	X 65 CrMo 14	440 A	-	X 70 CrMo 15	Z 70 D 14	-	-	-			ATI 440A
1.4112	SUS 440 B	X 90 CrMoV 18	440 B	409 S 19	X 90 CrMoV 18	Z 2 CND 18 05	2327	X CrTi 12				
1.4125	SUS 440 C	X 105 CrMo 17	440 C	-	X 105 CrMo 17	Z 100 CD 17	-	X 105 CrMo 17			95KH18	ATI 440C
1.6746		32NiCrMo14-5	-	832M31	32NiCrMo145	35NCD14	-	-				
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3				
1.7225	SCM 440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42 CD 4	2244	42 CrMo 4	F1252		38HM	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <h2>H</h2> <p>VDI 3323 <b>40</b></p> </div> <div style="text-align: center;"> <p>Material Description</p> <p><b>Chilled cast iron</b></p> </div> <div style="text-align: center;"> <p>Composition / Structure / Heat Treatment</p> <p><b>Cast</b></p> </div> <div style="text-align: center;"> <p>HB</p> <p><b>400</b></p> </div> <div style="text-align: center;"> <p>HRc</p> <p><b>42</b></p> </div> </div>												
0.9620		GX260NiC42	A532 IB	Grade 2 A	GJN-HV520	FB Ni4 Cr2 BC	0512	-		F45001		Ni-Hard2
0.9625		GX330NiC42	A532 IA	Grade 2 B	GJN-HV550	FB Ni4 Cr2 HC	0513	-		F45000		Ni-Hard1
0.9630		GX300CrNiSi 9 5 2	A532 ID	Grade 2 C	GJN-HV600	FB Cr9 Ni5	0457	-		F45003		Ni-Hard 4
0.9640		GX300CrMoNi1521	-	-	-	-	-	-		F45005		
0.9650		GX260Cr27	-	Grade 3 D	-	-	0466	-				
0.9655		GX300CrNiMo271	-	Grade 3 E	-	-	-	-			20C 25N2052	
1.4841	SUH 310	X15CrNiSi25-20	310	314531	X 15 CrNiSi 25 20	Z15CrNiSi25-20	-	-		S31400		Cronifer 2520

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <h2>H</h2> <p>VDI 3323 <b>41</b></p> </div> <div style="text-align: center;"> <p>Material Description</p> <p><b>Hardened cast iron</b></p> </div> <div style="text-align: center;"> <p>Composition / Structure / Heat Treatment</p> <p><b>Hardened</b></p> </div> <div style="text-align: center;"> <p>HB</p> <p><b>550</b></p> </div> <div style="text-align: center;"> <p>HRc</p> <p><b>55</b></p> </div> </div>												
0.9635		GX300CrMo 15 3	-	-	-	-	-	-				
0.9645		GX260CrMoNi 20 21	-	-	-	-	-	-		F45007		

# MATERIAL GROUPS

## COMPARISON CHART SCALE FOR HARDNESS

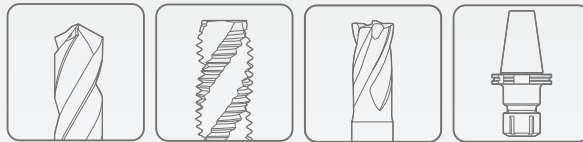
Rockwell Hardness C Scale 150kg Brale (HRC)	Diamond Pyramid Hardness Number, Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm²
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520







Global Cutting Tool Leader **YG-1**



# HOLEMAKING TOOLS

i-ONE DRILLS, CARBIDE INSERTS & HOLDERS

i-DREAM DRILLS, CARBIDE INSERTS & HOLDERS

SOLID CARBIDE DREAM DRILLS - PRO (with & without Coolant Holes)

SOLID CARBIDE DREAM DRILLS - GENERAL (with & without Coolant Holes)

SOLID CARBIDE DREAM DRILLS - HIGH FEED (with Coolant Holes)

SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM (with & without Coolant Holes)

SOLID CARBIDE DREAM DRILLS - INOX (with Coolant Holes)

SOLID CARBIDE DREAM DRILLS - ALU (with Coolant Holes)

SOLID CARBIDE DREAM DRILLS - MQL TYPE (with Coolant Holes)

SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS (without Coolant Holes)

GENERAL SOLID CARBIDE DRILLS (JOBBER & STUB LENGTH)

HSS-PM MULTI-1 DRILLS

HSSCo8 & HSS-E HPD STRAIGHT SHANK DRILLS

HSS & HSS-E GOLD-P DRILLS

SUPER HSS SUPER-GP DRILLS

HSS, HSS-E & HSSCo8 STRAIGHT SHANK DRILLS

HSS & HSS-E MORSE TAPER SHANK DRILLS

SOLID CARBIDE & HSSCo8 NC-SPOTTING DRILLS

SOLID CARBIDE, HSS & HSS-E CENTER DRILLS

SPADE DRILLS, INSERTS & HOLDERS

CARBIDE, HSS & HSS-E REAMERS

HSS & HSSCo8 COUNTERSINKS

HSS-E COUNTERBORES

TECHNICAL DATA

 **YG-1 CO., LTD.**



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### CARBIDE EXCHANGEABLE DRILLS

### SOLID CARBIDE DRILLS

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### CARBIDE & HSS DRILLS

### CARBIDE & HSS INSERT DRILLS

### REAMERS

### COUNTERSINKS

### COUNTERBORES

### TECHNICAL DATA

#### i-ONE DRILLS, CARBIDE INSERTS & HOLDERS

High Performance Exchangeable for General Steels and Cast Iron

i-ONE  
DRILLS

#### i-DREAM DRILLS, CARBIDE INSERTS & HOLDERS

For General Steels and Stainless Steels

i-DREAM  
DRILLS

#### SOLID CARBIDE DREAM DRILLS - PRO (with & without Coolant Holes)

For General Purpose (HRc30 to HRc50) / Extremely High hardness and Heat resistance due to YG-1 special Z-Coating echnology

DREAM  
DRILLS  
-PRO

#### SOLID CARBIDE DREAM DRILLS - GENERAL (with & without Coolant Holes)

For General Purpose (HRc30 to HRc50)

DREAM  
DRILLS  
-GENERAL

#### SOLID CARBIDE DREAM DRILLS - HIGH FEED (with Coolant holes)

1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill for Carbon Steels, Alloy Steels(up to HRc35) and Cast Iron

DREAM  
DRILLS  
-HIGH FEED

#### SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM (with & without Coolant Holes)

For Holes on Various Angled Surfaces

DREAM  
DRILLS  
-FLAT BOTTOM

#### SOLID CARBIDE DREAM DRILLS - INOX (with Coolant Holes)

For Tough Materials like Stainless Steels

DREAM  
DRILLS  
-INOX

#### SOLID CARBIDE DREAM DRILLS - ALU (with Coolant Holes)

For Aluminum and Aluminum Alloys

DREAM  
DRILLS  
-ALU

#### SOLID CARBIDE DREAM DRILLS - MQL TYPE (with Coolant Holes)

Minimum Quantity Lubrication Drilling Deep Holes (10×D ~ 40×D)

DREAM  
DRILLS  
-MQL

#### SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS (without Coolant Holes)

For High Hardened Steels (HRc50 to HRc70)

DREAM DRILLS  
for HIGH  
HARDENED  
STEELS

#### GENERAL SOLID CARBIDE DRILLS (JOBBER & STUB LENGTH)

For General Purpose, DIN338 & DIN6539

GENERAL  
CARBIDE  
DRILLS

#### HSS-PM MULTI-1 DRILLS

Premium HSS-PM Drills For Wide Range of Applications Particularly Stainless Steels and Titanium

MULTI-1  
DRILLS

#### HSSCo8 & HSS-E HPD STRAIGHT SHANK DRILLS

High Precision Drilling for General Steels & Stainless Steels

HPD  
DRILLS

#### HSS & HSS-E GOLD-P DRILLS

Same Performance as Full TiN-coated Drills

GOLD-P  
DRILLS

#### SUPER HSS SUPER-GP DRILLS

All Applications Regardless of Machining Conditions; Good or Poor

SUPER-GP  
DRILLS

#### HSS, HSS-E & HSSCo8 STRAIGHT SHANK DRILLS

For General Purpose (Soft & Tough Materials)

STRAIGHT  
SHANK  
DRILLS

#### HSS & HSS-E MORSE TAPER SHANK DRILLS

Morse Taper Shank Drills for Wide Applications

TAPER SHANK  
DRILLS

#### SOLID CARBIDE & HSSCo8 NC-SPOTTING DRILLS

For Centering and Chamfering of Holes

NC-  
SPOTTING  
DRILLS

#### SOLID CARBIDE, HSS & HSS-E CENTER DRILLS

For General Purpose

CENTER  
DRILLS

#### SPADE DRILLS, INSERTS & HOLDERS

For General Machines and Drilling Large Diameters / Longer Tool Life and High Productivity

SPADE  
DRILLS

#### CARBIDE, HSS & HSS-E REAMERS

Carbide NC Machine Reamers / HSS Hand Reamers / HSS-E Chucking Reamers

REAMERS

#### HSS & HSSCo8 COUNTERSINKS

For Deburring, Chamfering and Countersinking

COUNTER  
SINKS

#### HSS-E COUNTERBORES

For Machining Screw Head Seats

COUNTER  
BORES

#### TECHNICAL DATA

TECHNICAL  
DATA



SELECTION GUIDE



HOLEMAKING TOOLS

SERIES  
SIZE MIN  
SIZE MAX  
PAGE

i-ONE DRILLS INSERTS					
Y101H	Y121H	Y141H	Y161H	Y181H	Y201H
10.00	12.00	14.00	16.00	18.00	20.00
11.91	13.90	15.90	17.90	19.90	21.90
<b>A24</b>	<b>A25</b>	<b>A26</b>	<b>A27</b>	<b>A28</b>	<b>A29</b>

SURFACE TREATMENT

H-Coating



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎: Excellent ○: Good

ISO	VDI 3323	Material Description	HB	Hrc	
P	1	Non-alloy steel	125		
	2		190	13	
	3		250	25	
	4		270	28	
	5		300	32	
	6	Low alloy steel	180	10	
	7		275	29	
	8		300	32	
	9		350	38	
	10		High alloyed steel, and tool steel	200	15
	11	325	35		
M	12	Stainless steel	200	15	
	13		240	23	
K	14	Grey cast iron	180	10	
	15		260	26	
	16		Nodular cast iron	160	3
	17			250	25
	18		Malleable cast iron	130	
19	230	21			
N	20	Aluminum-wrought alloy	60		
	21		100		
	22		Aluminum-cast, alloyed	75	
	23			90	
	24			130	
	25		Copper and Copper Alloys (Bronze / Brass)	110	
	26			90	
	27			100	
	28		Non Metallic Materials		
	29				
30					
S	31	Heat Resistant Super Alloys	200	15	
	32		280	30	
	33		250	25	
	34		350	38	
	35		320	34	
	36		Titanium Alloys	400 Rm	
	37			1050 Rm	
H	38	Hardened steel	550	55	
	39		630	60	
	40		Chilled Cast Iron	400	42
	41		Hardened Cast Iron	550	55

i-ONE DRILLS INSERTS						i-ONE DRILLS HOLDERS		
Y221H	Y241H	Y261H	Y281H	Y301H	Y321H	ZD*3	ZD*5	ZD*8
22.00	24.00	26.00	28.00	30.00	32.00			
23.90	25.90	27.78	29.77	31.75	33.73			
<b>A30</b>	<b>A31</b>	<b>A32</b>		<b>A33</b>				

H-Coating



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SELECTION GUIDE

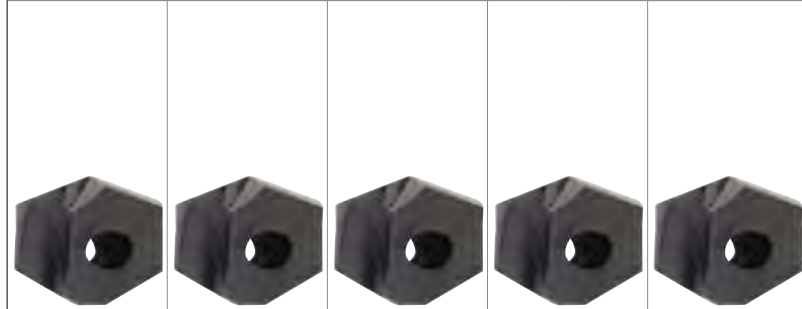


HOLEMAKING TOOLS

SERIES  
TYPE  
SIZE MIN  
SIZE MAX  
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i-DREAM DRILLS INSERTS										
YA1A	YA2C	YB1A	YB2C	YC1A	YC2C	YD1A	YD2C	YE1A	YE2C	
A		B		C		D		E		
12.00		14.00		16.00		18.00		20.00		
13.89		15.87		17.86		19.84		21.83		
A44		A45		A46		A47		A48		

SURFACE TREATMENT



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ISO	VDI 3323	Material Description	HB	HRc	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN		
P	1	Non-alloy steel	125	13	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	2		190	13	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	3		250	25	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	4		270	28	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	5		300	32	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	6	180	Low alloy steel	10	10	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	
	7	275		29	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○
	8	300		32	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○
	9	350		38	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○
	10	200		High alloyed steel, and tool steel	15	15	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○
	11	325	35		⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○
M	12	Stainless steel	200	15	○	⊙	○	⊙	○	○	⊙	○	○	⊙	○	
	13		240	23	○	⊙	○	⊙	○	○	⊙	○	○	⊙	○	
	14		180	10	○	⊙	○	⊙	○	○	⊙	○	○	⊙	○	
K	15	Grey cast iron	180	10	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	16		260	26	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	17	Nodular cast iron	160	3	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	18		250	25	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
	19		130	21	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○		
20	Malleable cast iron	230	21	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○	○	○	○		
	22		100		○	○	○	○	○	○	○	○	○	○		
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○	○	○	○		
	24		90		○	○	○	○	○	○	○	○	○	○		
	25		130		○	○	○	○	○	○	○	○	○	○		
	26		110		○	○	○	○	○	○	○	○	○	○		
	27		90		○	○	○	○	○	○	○	○	○	○		
	28		100		○	○	○	○	○	○	○	○	○	○		
	29															
	30															
S	31	Heat Resistant Super Alloys	200	15												
	32		280	30												
	33		250	25												
	34		350	38												
	35		320	34												
	36		400 Rm													
37	Titanium Alloys	1050 Rm														
H	38	Hardened steel	550	55												
	39		630	60												
	40		400	42												
	41		550	55												



i-DREAM DRILLS INSERTS										i-DREAM DRILLS HOLDERS		
YF1A	YF2C	YG1A	YG2C	YH1A	YH2C	YI1A	YI2C	YJ1A	YJ2C	ZH*3	ZH*5	ZH*7
F		G		H		I		J				
22.00		24.00		26.00		28.00		30.00				
23.81		25.80		27.78		29.77		31.75				
A49		A50		A51		A52		A53				



TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	3XD	5XD	7XD
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			1
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			2
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			3
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			4
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			5
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			6
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			7
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			8
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			9
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			10
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			11
○	⊙	○	⊙	○	⊙	○	⊙	○	⊙			12
○	⊙	○	⊙	○	⊙	○	⊙	○	⊙			13
○	⊙	○	⊙	○	⊙	○	⊙	○	⊙			14
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			15
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			16
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			17
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			18
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			19
⊙	○	⊙	○	⊙	○	⊙	○	⊙	○			20
○	○	○	○	○	○	○	○	○	○			21
○	○	○	○	○	○	○	○	○	○			22
○	○	○	○	○	○	○	○	○	○			23
○	○	○	○	○	○	○	○	○	○			24
○	○	○	○	○	○	○	○	○	○			25
○	○	○	○	○	○	○	○	○	○			26
○	○	○	○	○	○	○	○	○	○			27
○	○	○	○	○	○	○	○	○	○			28
○	○	○	○	○	○	○	○	○	○			29
○	○	○	○	○	○	○	○	○	○			30
												31
												32
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												39
												40
												41

SELECTION GUIDE



HOLEMAKING TOOLS

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

SURFACE TREATMENT

SPADE DRILLS INSERTS

SERIES	1~8	Y,Z,0,1~4	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3
SIZE MIN	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)
SIZE MAX	Ø114.3(#8)	Ø65.09(#4)	Ø35(#2)	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)
PAGE	A302	A308	A313	A316	A319	A323

TiN / TiCN / TiAlN



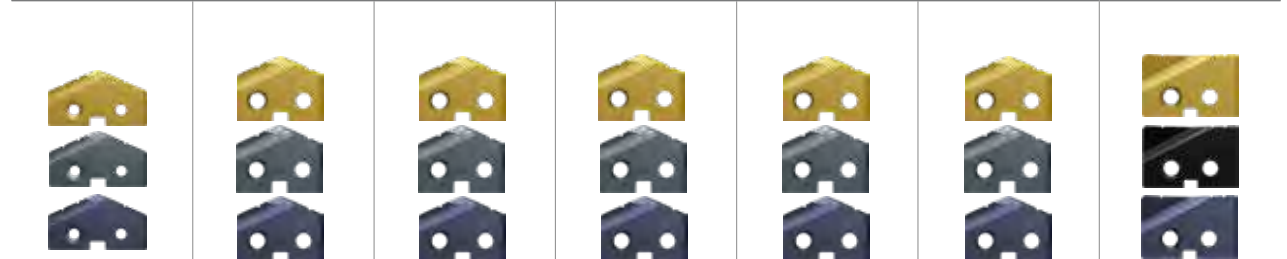
ISO	VDI 3323	Material Description	HB	HRc	1~8	Y,Z,0,1~4	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	
P	1	Non-alloy steel	125		○	◎	◎		○	◎	
	2		190	13	○	◎	◎		○	◎	
	3		250	25	○	◎	◎		○	◎	
	4		270	28	○	◎	◎		○	◎	
	5		300	32							
	6	Low alloy steel	180	10	○	◎	◎		○	◎	
	7		275	29	○	◎	◎		○	◎	
	8		300	32		○	◎		○	◎	
	9		350	38		○	◎		○	◎	
	10		High alloyed steel, and tool steel	200	15		○	◎		○	◎
	11	325		35		○	◎		○	◎	
M	12	Stainless steel	200	15	◎	○		◎	○		
	13		240	23	◎	○		◎	○		
	14		180	10	◎	○		◎	○		
K	15	Grey cast iron	180	10	◎	○	○	◎	○	○	
	16		260	26	○	◎	◎	◎	○	○	
	17	Nodular cast iron	160	3	◎	○	○	◎	○	○	
	18		250	25	○	◎	◎	◎	○	○	
	19		130		◎	○	○	◎	○	○	
20	Malleable cast iron	230	21	○	◎	◎	◎	○	○		
N	21	Aluminum-wrought alloy	60		◎	○	○	◎	○		
	22		100		◎	○	○	◎	○		
	23	Aluminum-cast, alloyed	75								
	24		90								
	25		130								
	26	Copper and Copper Alloys (Bronze / Brass)	110						◎	○	
	27		90		◎	○	○		◎	○	
	28		100								
	29										
	30	Non Metallic Materials									
S	31	Heat Resistant Super Alloys	200	15		◎	◎		◎	○	
	32		280	30		○	◎		◎	○	
	33		250	25		○	◎		◎	○	
	34		350	38		○	◎		◎	○	
	35		320	34		○	◎		◎	○	
	36	Titanium Alloys	400 Rm						◎	○	
	37		1050 Rm						◎	○	
H	38	Hardened steel	550	55		○	◎		○	◎	
	39		630	60							
	40	Chilled Cast Iron	400	42							
	41	Hardened Cast Iron	550	55							



SPADE DRILLS INSERTS

1~3	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1,2
Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)
Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)
A328	A331	A335	A338	A341	A345	A349

TiN / TiCN / TiAlN



1~3	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1,2	TiN / Hardslick / TiAl
○	◎	◎		○	◎	◎	1
○	◎	◎		○	◎	◎	2
○	◎	◎		○	◎	◎	3
○	◎	◎		○	◎	◎	4
							5
○	◎	◎		○	◎	◎	6 P
○	◎	◎		○	◎	◎	7
	○	◎		○	◎	○	8
	○	◎		○	◎	○	9
	○	◎		○	◎	○	10
	○	◎		○	◎	○	11
◎	○			◎	○	○	12
◎	○			◎	○	○	13 M
◎	○			◎	○	○	14
◎	○	○	◎	○	○	○	15
○	◎	◎	◎	○	○	◎	16
◎	○	○	◎	○	○	○	17 K
○	◎	◎	◎	○	○	◎	18
◎	○	○	◎	○	○	○	19
○	◎	◎	◎	○	○	◎	20
◎	○	○		◎	○	○	21
◎	○	○		◎	○	○	22
							23
							24
							25 N
							26
◎	○	○		◎	○	○	27
							28
							29
							30
	◎	◎		◎	○	◎	31
	○	◎		◎	○	○	32
	○	◎		◎	○	○	33
	○	◎		◎	○	○	34 S
	○	◎		◎	○	○	35
							36
							37
	○	◎		○	◎	○	38
							39 H
							40
							41



SELECTION GUIDE



HOLEMAKING TOOLS

SERIES  
DRILLING DEPTH  
LENGTH  
SIZE MIN  
SIZE MAX  
PAGE

DREAM DRILLS PRO				DREAM DRILLS GENERAL		
DGN523	DGN526	DGN506	DGN508	DH404	DH423 DH443	DH424 DH444
3XD	5XD	3XD	5XD	3XD	3XD	5XD
SHORT	LONG	SHORT	LONG	STUB	SHORT	LONG
D3.0	D1.0	D3.0	D1.0	D3.0	D3.0	D1.0
D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0
<b>A62</b>	<b>A65</b>	<b>A68</b>	<b>A71</b>	<b>A80</b>	<b>A82</b>	<b>A85</b>

SURFACE TREATMENT

Z-Coating	TiAIN
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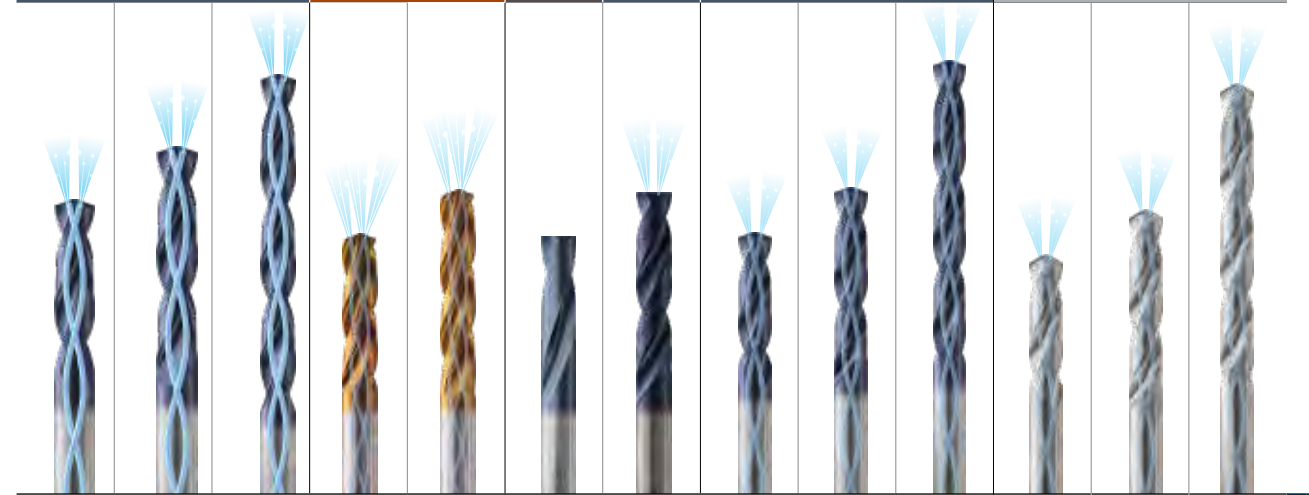
Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc							
P	1	Non-alloy steel	125								
	2		190	13	◎	◎	◎	◎	◎	◎	
	3		250	25	◎	◎	◎	◎	◎	◎	
	4		270	28	◎	◎	◎	◎	◎	◎	
	5	300	32	○	○	○	○	○	○		
	6	180	Low alloy steel	10	◎	◎	◎	◎	◎	◎	
	7	275		29	◎	◎	◎	◎	◎	◎	
	8	300		32	○	○	○	○	○	○	
	9	350		38	○	○	○	○	○	○	
	10	200		High alloyed steel, and tool steel	15	◎	◎	◎	◎	◎	◎
	11	325	35		○	○	○	○	○	○	
M	12	Stainless steel	200	15	○	○	○	○	○	○	
	13		240	23	○	○	○	○	○	○	
	14		180	10							
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎	
	16		260	26	○	○	○	○	○	○	
	17	Nodular cast iron	160	3	◎	◎	◎	◎	◎	◎	
	18		250	25	○	○	○	○	○	○	
	19		130		◎	◎	◎	◎	◎	◎	
20	Malleable cast iron	230	21	○	○	○	○	○	○		
N	21	Aluminum-wrought alloy	60								
	22		100								
	23	Aluminum-cast, alloyed	75								
	24		90								
	25		130								
	26		110								
	27		90								
	28		100								
	29										
	30										
S	31	Heat Resistant Super Alloys	200	15							
	32		280	30							
	33		250	25							
	34		350	38							
	35		320	34							
	36		400 Rm								
H	37	Titanium Alloys	1050 Rm								
	38		550	55	○	○	○	○	○	○	
	39		630	60							
	40		400	42							
	41		550	55							



DREAM DRILLS GENERAL			DREAM DRILLS HIGH FEED		DREAM DRILLS FLAT BOTTOM		DREAM DRILLS -INOX			DREAM DRILLS -ALU		
DH406 DH446	DH408 DH448	DH421	DGR493	DGR495	DPP447	DH450	DH451	DH452	DH453	D5432	D5433	D5434
3XD	5XD	8XD	3XD	5XD	2XD	5XD	3XD	5XD	8XD	3XD	5XD	8XD
SHORT	LONG	EXTRA LONG	SHORT	LONG	SHORT	LONG	SHORT	LONG	EXTRA LONG	SHORT	LONG	EXTRA LONG
D3.0	D1.0	D3.0	D5.0	D5.0	D3.0	D3.0	D3.0	D1.0	D3.0	D3.0	D3.0	D3.0
D20.0	D20.0	D14.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D14.0	D20.0	D20.0	D14.0
<b>A88</b>	<b>A91</b>	<b>A94</b>	<b>A101</b>	<b>A103</b>	<b>A110</b>	<b>A112</b>	<b>A119</b>	<b>A122</b>	<b>A125</b>	<b>A131</b>	<b>A134</b>	<b>A137</b>

TiAIN	H-Coating	X-Coating	TiAIN	TiAIN	Bright
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◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				1
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				2
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				3
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				4
○	○	○	○	○	○	○	○	○	○				5
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				6 P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				7
○	○	○	○	○	○	○	○	○	○				8
○	○	○	○	○	○	○	○	○	○				9
◎	◎	◎	◎	◎									10
○	○	○	○	○									11
○	○	○			○	○	◎	◎	◎				12
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							◎	◎	◎				14
◎	◎	◎	◎	◎	◎	◎							15
○	○	○	○	○	○	○							16
◎	◎	◎	◎	◎									17 K
○	○	○	○	○									18
◎	◎	◎	◎	◎									19
○	○	○	○	○									20
							○	○	◎	◎	◎	◎	21
							○	○	◎	◎	◎	◎	22
								○	○	○	◎	◎	23
								○	○	○	◎	◎	24
									○	○	○		25 N
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													36
										○	○	○	37
○	○	○											38
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													40
													41



SELECTION GUIDE



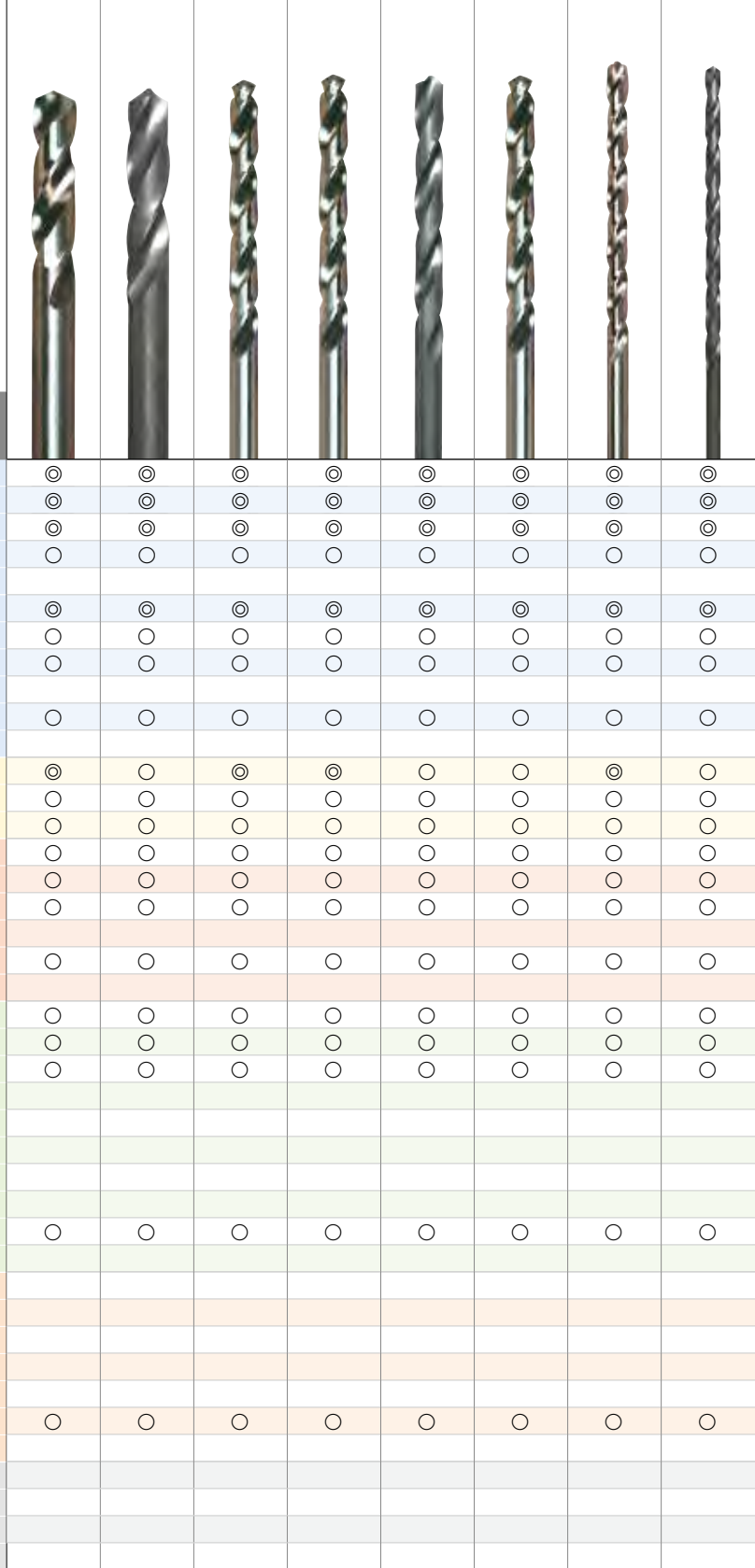
HOLEMAKING TOOLS

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SERIES STANDARD LENGTH SIZE MIN SIZE MAX PAGE

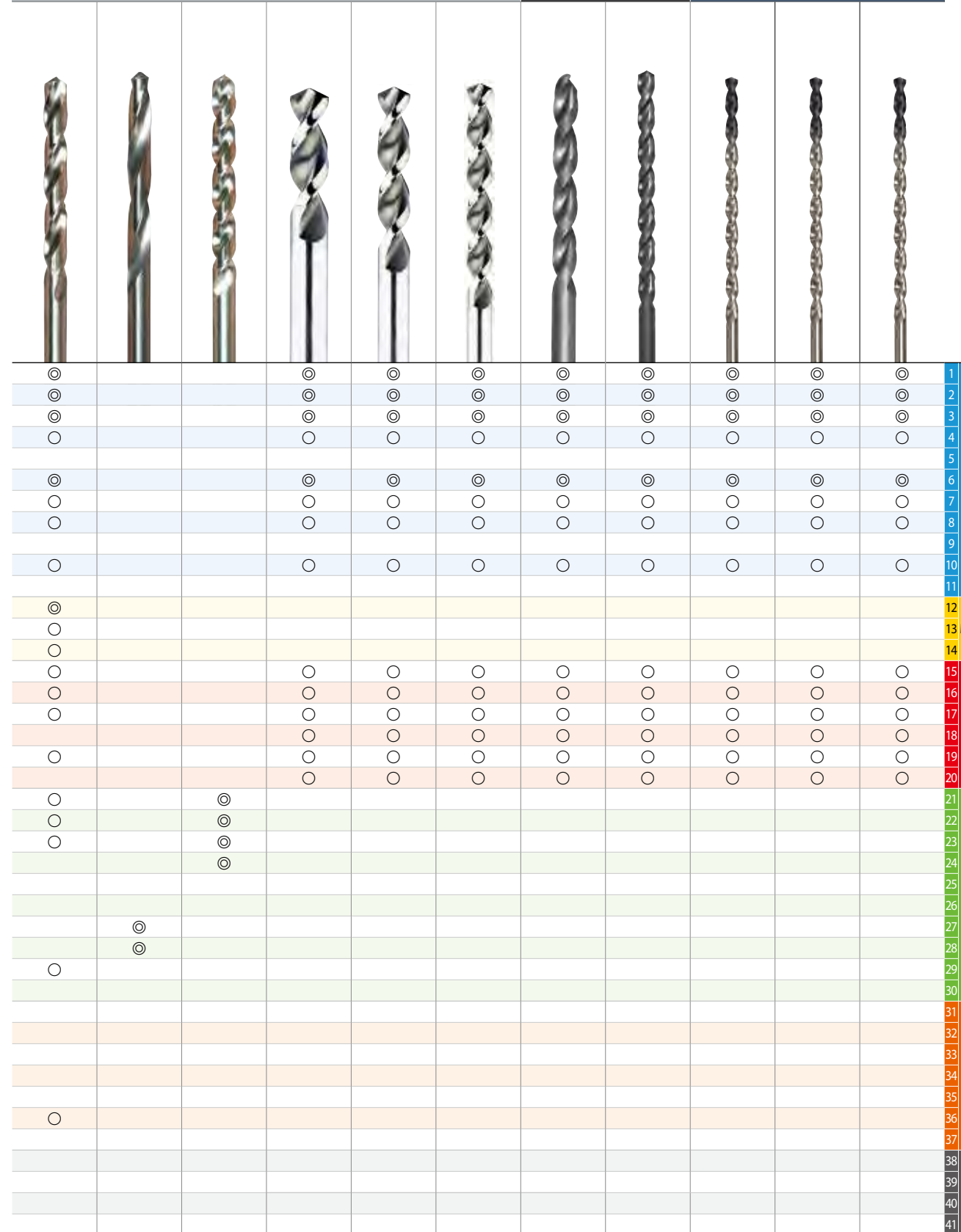
Table with 8 columns: D2107, D1107, D2105, DL105, D1105, D1125, D2104, D1121. Includes surface treatment options like Gold Coloring, Steam Tempered, Bright, etc.

Material selection table with columns: ISO, VDI 3323, Material Description, HB, HRc, and performance indicators (circles) for each drill type.



STRAIGHT SHANK DRILLS

Table with 11 columns: DL109, D1100, D1106, DH100 DL510, DH100 DL508, DH100 DL509, DH100 DL505, DH100 DL504, DH100 DT600, DH100 DT692, DH100 DT693. Includes surface treatment options like Bright, Steam Tempered, TiAIN.





SELECTION GUIDE



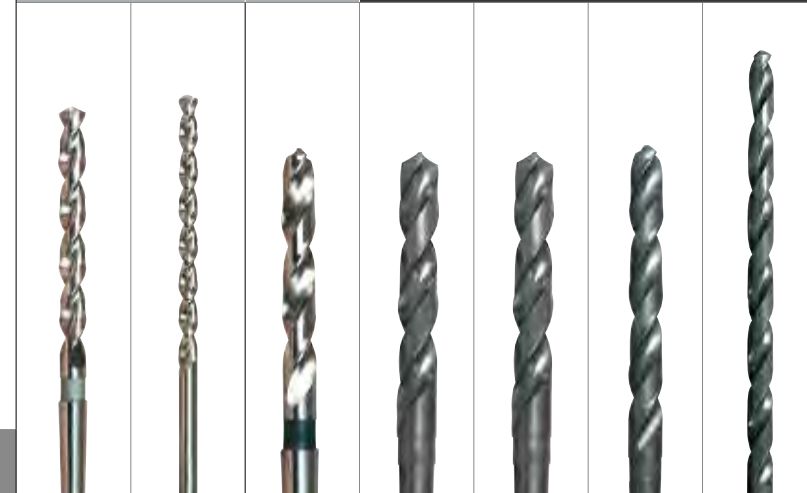
HOLEMAKING TOOLS

SERIES  
STANDARD  
LENGTH  
SIZE MIN  
SIZE MAX  
PAGE

SERIES	STRAIGHT SHANK DRILLS		MORSE TAPER SHANK DRILLS				
	DH100 DL608	DH50 DL507	DL205	D1205	D1206	D1209	D1210
STANDARD	DIN341	-	DIN345	DIN345	DIN341	DIN1870/1	DIN1870/2
LENGTH	LONG	EXTRA LONG	JOBBER	JOBBER	LONG	EXTRA LONG	EXTRA LONG
SIZE MIN	D13.0	D2.0	D13.0	D5.0	D13.0	D13.0	D13.0
SIZE MAX	D30.0	D13.0	D30.0	D60.0	D30.0	D50.0	D50.0
PAGE	A259	A260	A270	A271	A274	A275	A276

SURFACE TREATMENT

Bright Bright Steam Tempered



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 ◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	DL205	D1205	D1206	D1209	D1210
P	1	Non-alloy steel	125		◎	○	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎
	4		270	28	○	○	○	○	○
	5		300	32					
	6	180	Low alloy steel	10	◎	◎	◎	◎	◎
	7	275		29	○	○	○	○	○
	8	300		32	○	○	○	○	○
	9	350		38					
	10	200		High alloyed steel, and tool steel	15	○	○	○	○
	11	325	35						
M	12	Stainless steel	200	15	◎	◎	◎	◎	
	13		240	23	○	○	○	○	
K	14	Grey cast iron	180	10	○	○	○	○	
	15		260	26	○	○	○	○	
	16		160	3	○	○	○	○	
	17		250	25	○	○	○	○	
	18		130	Malleable cast iron	21	○	○	○	○
19	230	21	○		○	○	○		
20									
N	21	Aluminum-wrought alloy	60		◎	○	○	○	
	22		100		◎	○	○	○	
	23	Aluminum-cast, alloyed	75		○	○	○	○	
	24		90						
	25		130						
	26	Copper and Copper Alloys (Bronze / Brass)	110						
	27		90						
	28		100						
	29					○	○	○	○
	30	Non Metallic Materials							
S	31	Heat Resistant Super Alloys	200	15					
	32		280	30					
	33		250	25					
	34		350	38					
	35		320	34					
	36	Titanium Alloys	400 Rm			○	○	○	
37	1050 Rm				○	○	○		
H	38	Hardened steel	550	55					
	39		630	60					
	40	Chilled Cast Iron	400	42					
	41		550	55					



SELECTION GUIDE



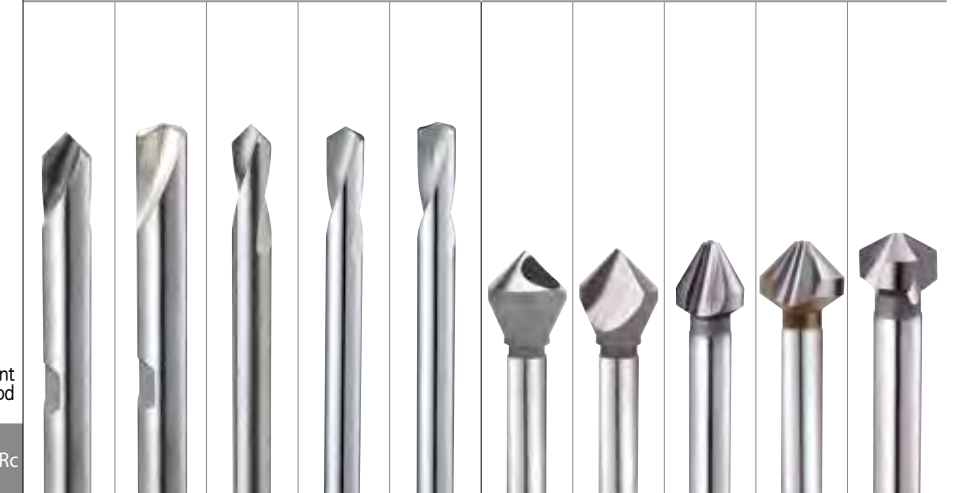
HOLEMAKING TOOLS

SERIES  
STANDARD  
LENGTH  
SIZE MIN  
SIZE MAX  
PAGE

SERIES	NC-SPOTTING DRILLS					COUNTERSINKS				
	D5306 D5307	D5320	D2306 D2321	D2307 D2322	D2320 D2323	C1109 C3109	C1119 C3119	C1136 C3136	C1139 C3139	C1132 C3132
STANDARD	-	-	-	-	-	-	-	DIN3334C	DIN3335C	-
LENGTH	90° / 120°	142°	90°	120°	142°	90°	90°	60°	90°	120°
SIZE MIN	D6.0	D3.0	D3.0	D3.0/D6.0	D3.0/D6.0	D10.0	D10.0	D6.3	D4.3	D8.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0/D12.0	D20.0/D12.0	D50.0	D50.0	D25.0	D31.0	D25.0
PAGE	A281	A282	A283	A284	A285	A410	A411	A412	A413	A414

SURFACE TREATMENT

Bright Bright



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	D5306 D5307	D5320	D2306 D2321	D2307 D2322	D2320 D2323	C1109 C3109	C1119 C3119	C1136 C3136	C1139 C3139	C1132 C3132	
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	○	○	◎	◎	◎	
	2		190	13	◎	◎	◎	◎	◎	○	○	◎	◎	◎	
	3		250	25	◎	◎	◎	◎	◎	○	○	○	○	○	
	4		270	28						○	○	○	○	○	
	5		300	32						○	○	○	○	○	
	6	180	Low alloy steel	10	◎	◎	◎	◎	◎						
	7	275		29	○	○	○	○	○						
	8	300		32											
	9	350		38											
	10	200		High alloyed steel, and tool steel	15										
	11	325	35												
M	12	Stainless steel	200	15	○	○	○	○	○	○	○	○	○	○	
	13		240	23						○	○	○	○	○	
K	14	Grey cast iron	180	10						○	○	○	○	○	
	15		260	26	◎	◎	◎	◎	◎	○	○	○	○	○	
	16		160	3	○	○	○	○	○	○	○	○	○	○	
	17		250	25	○	○	○	○	○	○	○	○	○	○	
	18		130	Malleable cast iron	21	○	○	○	○	○	○	○	○	○	○
19	230	21	○		○	○	○	○	○	○	○	○	○		
20															
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	◎	◎	◎	◎	
	22		100		○	○	○	○	○	○	○	○	○	○	
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○	○	○	○	
	24		90							○	○	○	○	○	
	25		130							○	○	○	○	○	
	26	Copper and Copper Alloys (Bronze / Brass)	110							○	○	○	○	○	
	27		90							○	○	○	○	○	
	28		100							○	○	○	○	○	
	29										○	○	○	○	○
	30	Non Metallic Materials													
S	31	Heat Resistant Super Alloys	200	15											
	32		280	30											
	33		250	25											
	34		350	38											
	35		320	34											
	36	Titanium Alloys	400 Rm		○	○									
37	1050 Rm														
H	38	Hardened steel	550	55											
	39		630	60											
	40	Chilled Cast Iron	400	42											
	41		550	55											



SELECTION GUIDE

COUNTERBORES

HSS



SERIES

EL950

TYPE

MEDIUM

FINE

BEOFRE  
THREADING

PILOT DIA.

3.4~14.0

3.2~13.0

2.5~10.2

CUTTER DIA.

6.0~20.0

PAGE

A419

SURFACE TREATMENT

Bright

HOLEMAKING TOOLS



Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc		
P	1	Non-alloy steel	125		◎	
	2		190	13	◎	
	3		250	25	◎	
	4		270	28	◎	
	5		300	32	◎	
	6	Low alloy steel	180	10	◎	
	7		275	29	◎	
	8		300	32	◎	
	9		350	38	○	
	10		High alloyed steel, and tool steel	200	15	◎
	11	325		35	○	
M	12	Stainless steel	200	15		
	13		240	23		
	14		180	10		
K	15	Grey cast iron	180	10		
	16		260	26		
	17	Nodular cast iron	160	3		
	18		250	25		
	19		130			
20	Malleable cast iron	230	21			
N	21	Aluminum- wrought alloy	60		○	
	22		100		○	
	23	Aluminum-cast, alloyed	75		○	
	24		90		○	
	25		130			
	26		Copper and Copper Alloys	110		
	27			90		
	28		Non Metallic Materials	100		
	29					
	30					
S	31	Heat Resistant Super Alloys	200	15		
	32		280	30		
	33		250	25		
	34		350	38		
	35		320	34		
	36	Titanium Alloys	400 Rm			
	37		1050 Rm			
H	38	Hardened steel	550	55		
	39		630	60		
	40	Chilled Cast Iron	400	42		
	41	Hardened Cast Iron	550	55		

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA







Leading Through Innovation



CARBIDE INSERTS  
& HOLDERS

# *i* - ONE DRILLS

## i-One Drills

- High Performance Exchangeable for General Steels and Cast Iron
- Leistungsstarke, austauschbare Bohrwerkzeuge für allgemeine Stähle und Gusseisen





**i-ONE DRILL INSERTS & HOLDERS**

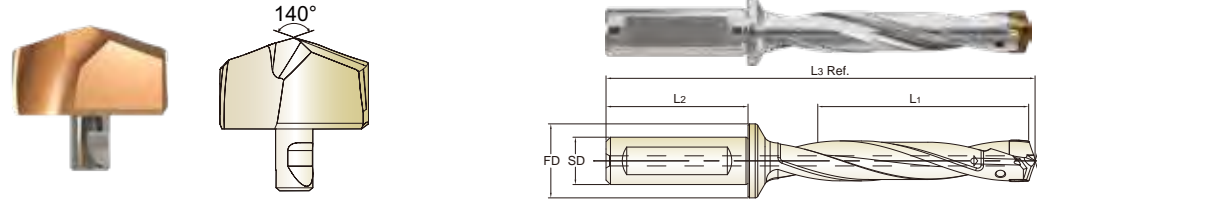
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- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
- INSERTI & PORTAINSERTI i-ONE DRILL

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CARBIDE ISO 9766 h7 140° Coating p.A34

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245-246	-	-
ER COLLET CHUCK		D73-115	

Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.	
		h7	dec.	frac.					mm	L1			L3 Ref.
<b>S10</b>	Y101H1000	0.3937	-	10.00	<b>ZD10003016</b>	16	48	23	3D	31.5	103.0	TX1011P5	
	Y101H1010	0.3976	-	10.10					5D	52.5	123.0		
	Y101H1020	0.4016	-	10.20					8D	84.0	153.0		
	Y101H1030	0.4055	-	10.30	<b>ZD10503016</b>	16	48	23	3D	33.0	104.0		
	Y101H1032	0.4063	13/32	10.32					5D	55.0	125.0		
	Y101H1040	0.4094	-	10.40					8D	88.0	156.5		
	Y101H1050	0.4134	-	10.50	<b>ZD11003016</b>	16	48	23	3D	34.5	105.0		
	Y101H1060	0.4173	-	10.60					5D	57.5	127.0		
	Y101H1070	0.4213	-	10.70					8D	92.0	160.0		
	Y101H1072	0.4219	27/64	10.72	<b>ZD11503016</b>	16	48	23	3D	36.0	106.0		
	Y101H1080	0.4252	-	10.80					5D	60.0	129.0		
	Y101H1090	0.4291	-	10.90					8D	96.0	163.5		
	Ø10.00 to Ø11.99	Y101H1100	0.4331	-	11.00	<b>ZD13003016</b>	16	48	23	3D	40.5		112.8
		Y101H1110	0.4370	-	11.10					5D	67.5		138.8
		Y101H1111	0.4375	7/16	11.11					8D	108.0		177.8
		Y101H1120	0.4409	-	11.20	<b>ZD13503016</b>	16	48	23	3D	42.0		113.8
		Y101H1130	0.4449	-	11.30					5D	70.0		140.8
		Y101H1140	0.4488	-	11.40					8D	112.0		181.3
		Y101H1150	0.4528	-	11.50	<b>ZD15003016</b>	16	48	23	3D	44.0		114.8
	Y101H1151	0.4531	29/64	11.51	5D					72.0	141.8		
	Y101H1160	0.4567	-	11.60	8D					114.8	182.3		
	Y101H1170	0.4606	-	11.70	<b>ZD1505016</b>	16	48	23	3D	46.0	115.8		
	Y101H1180	0.4646	-	11.80					5D	74.0	142.8		
	Y101H1190	0.4685	-	11.90					8D	116.8	183.3		
	Y101H1191	0.4688	15/32	11.91									

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**i-ONE DRILL INSERTS & HOLDERS**

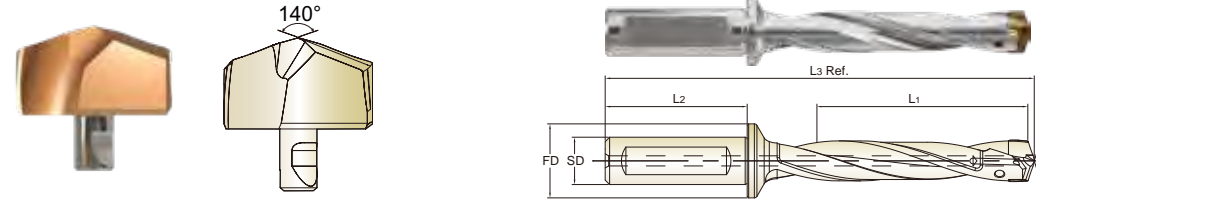
- i-ONE DRILL EINSÄTZE UND HALTER
- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
- INSERTI & PORTAINSERTI i-ONE DRILL

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CARBIDE ISO 9766 h7 140° Coating p.A34

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245-246	-	-
ER COLLET CHUCK		D73-115	

Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.	
		h7	dec.	frac.					mm	L1			L3 Ref.
<b>S12</b>	Y121H1200	0.4724	-	12.00	<b>ZD12003016</b>	16	48	23	3D	37.5	109.8	TX1213P5	
	Y121H1210	0.4764	-	12.10					5D	62.5	133.8		
	Y121H1220	0.4803	-	12.20					8D	100.0	169.8		
	Y121H1230	0.4844	31/64	12.30	<b>ZD12503016</b>	16	48	23	3D	39.0	110.8		
	Y121H1240	0.4882	-	12.40					5D	65.0	135.8		
	Y121H1250	0.4921	-	12.50					8D	104.0	173.3		
	Y121H1260	0.4961	-	12.60	<b>ZD13003016</b>	16	48	23	3D	40.5	112.8		
	Y121H1270	0.5000	1/2	12.70					5D	67.5	138.8		
	Y121H1280	0.5039	-	12.80					8D	108.0	177.8		
	Y121H1290	0.5079	-	12.90	<b>ZD13503016</b>	16	48	23	3D	42.0	113.8		
	Y121H1300	0.5118	-	13.00					5D	70.0	140.8		
	Y121H1310	0.5156	33/64	13.10					8D	112.0	181.3		
	Ø12.00 to Ø13.99	Y121H1320	0.5197	-	13.20	<b>ZD15003016</b>	16	48	23	3D	44.0		114.8
		Y121H1330	0.5236	-	13.30					5D	72.0		141.8
		Y121H1340	0.5276	-	13.40					8D	114.8		182.3
		Y121H1349	0.5313	17/32	13.49	<b>ZD1505016</b>	16	48	23	3D	46.0		115.8
		Y121H1350	0.5315	-	13.50					5D	74.0		142.8
		Y121H1360	0.5354	-	13.60					8D	116.8		183.3
		Y121H1370	0.5394	-	13.70	<b>ZD1508016</b>	16	48	23	3D	48.0		116.8
	Y121H1380	0.5433	-	13.80	5D					76.0	143.8		
	Y121H1389	0.5469	35/64	13.89	8D					118.8	184.3		
	Y121H1390	0.5472	-	13.90									

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**i-ONE DRILL INSERTS & HOLDERS**

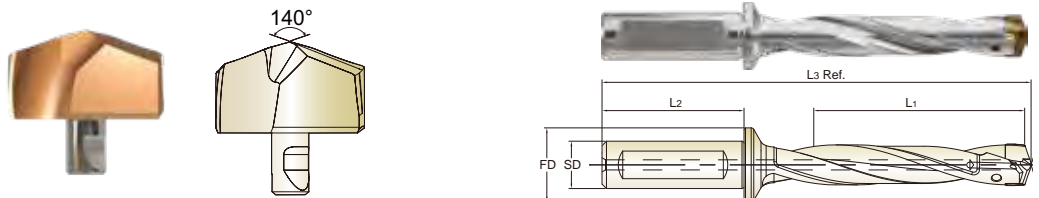
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Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245-246	-	-
ER COLLET CHUCK			D73-115

Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		dec.	frac.	mm					L1	L3 Ref.		
<b>S14</b> Ø14.00 to Ø15.99	Y141H1400	0.5512	-	14.00	<b>ZD14003016</b>	16	48	23	3D	43.5	116.3	TX1415P7
	Y141H1410	0.5551	-	14.10					5D	72.5	144.3	
	Y141H1420	0.5591	-	14.20					8D	116.0	186.3	
	Y141H1429	0.5625	9/16	14.29								
	Y141H1430	0.5630	-	14.30								
	Y141H1440	0.5669	-	14.40								
	Y141H1450	0.5709	-	14.50	<b>ZD14503016</b>	16	48	23	3D	45.0	118.3	
	Y141H1460	0.5748	-	14.60					5D	75.0	147.3	
	Y141H1468	0.5781	37/64	14.68					8D	120.0	190.8	
	Y141H1470	0.5787	-	14.70								
	Y141H1480	0.5827	-	14.80	<b>ZD15003016</b>	16	48	23	3D	46.5	120.3	
	Y141H1490	0.5866	-	14.90					5D	77.5	150.3	
	Y141H1500	0.5906	-	15.00					8D	124.0	195.3	
	Y141H1508	0.5938	19/32	15.08	<b>ZD15008016</b>	16	48	23	3D	48.0	121.3	
	Y141H1510	0.5945	-	15.10					5D	80.0	152.3	
	Y141H1520	0.5984	-	15.20					8D	128.0	198.8	
	Y141H1530	0.6024	-	15.30								
	Y141H1540	0.6063	-	15.40								
	Y141H1548	0.6094	39/64	15.48								
Y141H1550	0.6102	-	15.50									
Y141H1560	0.6142	-	15.60									
Y141H1570	0.6181	-	15.70	<b>ZD15503016</b>	16	48	23	3D	48.0	121.3		
Y141H1580	0.6220	-	15.80					5D	80.0	152.3		
Y141H1588	0.6250	5/8	15.88					8D	128.0	198.8		
Y141H1590	0.6260	-	15.90									

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◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



**i-ONE DRILL INSERTS & HOLDERS**

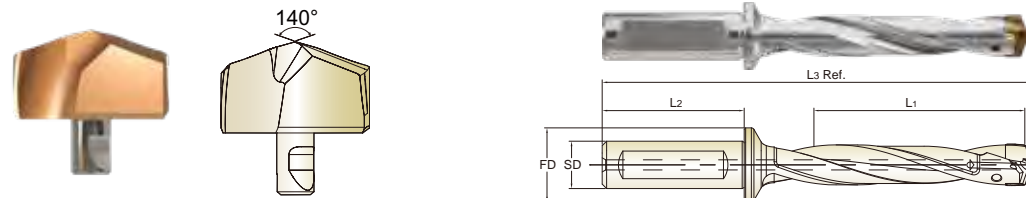
- i-ONE DRILL EINSÄTZE UND HALTER
- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
- INSERTI & PORTAINSERTI i-ONE DRILL

**- Applications**  
 ▶ For carbon steels, alloy steels and cast iron.  
 ▶ Holder length: 3xD, 5xD, 8xD

**- Benefits**  
 ▶ Secure and quick clamping system.  
 ▶ High performance with cost efficiency.  
 ▶ Multi-layered coating delivers outstanding productivity and reliability.

**- Anwendungen**  
 ▶ Für Kohlenstoffstähle, legierte Stähle und Gusseisen.  
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**- Vorteile**  
 ▶ Sicheres und schnelles Spannsystem.  
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CARBIDE ISO 9766 h7 140° Coating p.A34

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245-246	-	-
ER COLLET CHUCK			D73-115

Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		dec.	frac.	mm					L1	L3 Ref.		
<b>S16</b> Ø16.00 to Ø17.99	Y161H1600	0.6299	-	16.00	<b>ZD16003020</b>	20	50	25	3D	51.0	127.0	TX1617P7
	Y161H1609	0.6335	-	16.09					5D	85.0	160.0	
	Y161H1610	0.6339	-	16.10					8D	136.0	209.5	
	Y161H1620	0.6378	-	16.20								
	Y161H1627	0.6406	41/64	16.27								
	Y161H1630	0.6417	-	16.30								
	Y161H1640	0.6457	-	16.40								
	Y161H1650	0.6496	-	16.50								
	Y161H1660	0.6535	-	16.60								
	Y161H1667	0.6563	21/32	16.67								
	Y161H1670	0.6575	-	16.70	<b>ZD17003020</b>	20	50	25	3D	54.0	130.0	
	Y161H1680	0.6614	-	16.80					5D	90.0	165.0	
	Y161H1690	0.6654	-	16.90					8D	144.0	217.5	
	Y161H1700	0.6693	-	17.00								
	Y161H1707	0.6719	43/64	17.07								
	Y161H1710	0.6732	-	17.10								
	Y161H1720	0.6772	-	17.20								
	Y161H1730	0.6811	-	17.30								
	Y161H1740	0.6850	-	17.40	<b>ZD17005020</b>	20	50	25	3D	54.0	130.0	
	Y161H1746	0.6875	11/16	17.46					5D	90.0	165.0	
Y161H1750	0.6890	-	17.50	8D					144.0	217.5		
Y161H1760	0.6929	-	17.60									
Y161H1770	0.6969	-	17.70									
Y161H1780	0.7008	-	17.80									
Y161H1786	0.7031	45/64	17.86	<b>ZD17008020</b>	20	50	25	3D	54.0	130.0		
Y161H1790	0.7047	-	17.90					5D	90.0	165.0		

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**i-ONE DRILL INSERTS & HOLDERS**

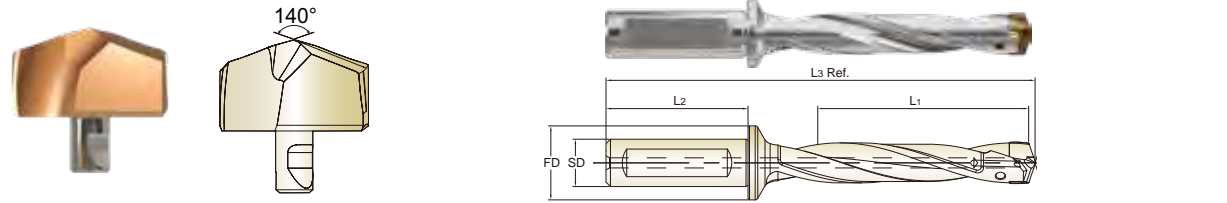
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- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
- INSERTI & PORTAINSERTI i-ONE DRILL

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CARBIDE ISO 9766 h7 140° Coating p.A34

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245-246	-	-
ER COLLET CHUCK		D73-115	

Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		dec.	frac.	mm					L1	L3 Ref.		
<b>S18</b> Ø18.00 to Ø19.99	Y181H1800	0.7087	-	18.00	ZD18003025	25	56	32	3D	57.0	141.3	TX1819P9
	Y181H1810	0.7126	-	18.10								
	Y181H1820	0.7165	-	18.20								
	Y181H1826	0.7188	23/32	18.26								
	Y181H1830	0.7205	-	18.30								
	Y181H1840	0.7244	-	18.40								
	Y181H1850	0.7283	-	18.50								
	Y181H1860	0.7323	-	18.60								
	Y181H1865	0.7344	47/64	18.65								
	Y181H1870	0.7362	-	18.70								
	Y181H1880	0.7402	-	18.80								
	Y181H1890	0.7441	-	18.90								
	Y181H1900	0.7480	-	19.00	ZD19003025	25	56	32	5D	100.0	184.3	TX1920P9
	Y181H1905	0.7500	3/4	19.05								
	Y181H1910	0.7520	-	19.10								
	Y181H1920	0.7559	-	19.20								
	Y181H1927	0.7587	-	19.27								
	Y181H1930	0.7598	-	19.30								
	Y181H1940	0.7638	-	19.40								
	Y181H1945	0.7656	49/64	19.45								
Y181H1950	0.7677	-	19.50									
Y181H1960	0.7717	-	19.60									
Y181H1970	0.7756	-	19.70									
Y181H1980	0.7795	-	19.80									
Y181H1984	0.7813	25/32	19.84									
Y181H1990	0.7835	-	19.90									

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Duplex	Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**i-ONE DRILL INSERTS & HOLDERS**

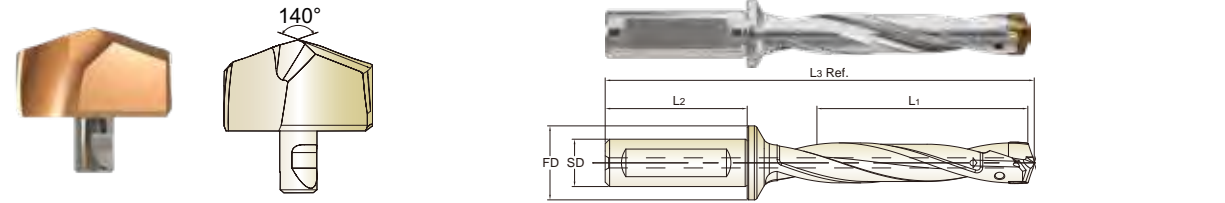
- i-ONE DRILL EINSÄTZE UND HALTER
- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
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CARBIDE ISO 9766 h7 140° Coating p.A34

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245-246	-	-
ER COLLET CHUCK		D73-115	

Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		dec.	frac.	mm					L1	L3 Ref.		
<b>S20</b> Ø20.00 to Ø21.99	Y201H2000	0.7874	-	20.00	ZD20003025	25	56	32	3D	63.0	147.5	TX2021P9
	Y201H2010	0.7913	-	20.10								
	Y201H2020	0.7953	-	20.20								
	Y201H2024	0.7969	51/64	20.24								
	Y201H2030	0.7992	-	20.30								
	Y201H2040	0.8031	-	20.40								
	Y201H2050	0.8071	-	20.50								
	Y201H2060	0.8110	-	20.60								
	Y201H2064	0.8125	13/16	20.64								
	Y201H2070	0.8150	-	20.70								
	Y201H2080	0.8189	-	20.80								
	Y201H2090	0.8228	-	20.90								
	Y201H2100	0.8268	-	21.00	ZD21003025	25	56	32	5D	110.0	193.5	TX2122P9
	Y201H2103	0.8281	53/64	21.03								
	Y201H2110	0.8307	-	21.10								
	Y201H2120	0.8346	-	21.20								
	Y201H2130	0.8386	-	21.30								
	Y201H2140	0.8425	-	21.40								
	Y201H2143	0.8438	27/32	21.43								
	Y201H2150	0.8465	-	21.50								
Y201H2160	0.8504	-	21.60									
Y201H2170	0.8543	-	21.70									
Y201H2180	0.8583	-	21.80									
Y201H2183	0.8594	55/64	21.83									
Y201H2190	0.8622	-	21.90									

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Duplex	Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

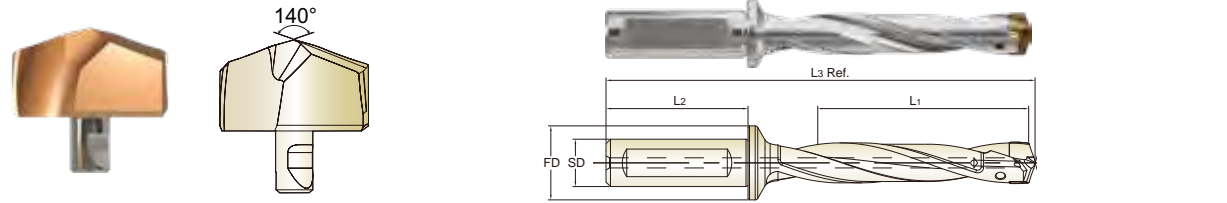
  

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**i-ONE DRILL INSERTS & HOLDERS**

- i-ONE DRILL EINSÄTZE UND HALTER
- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
- INSERTI & PORTAINSERTI i-ONE DRILL

- Applications
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  - Sicheres und schnelles Spannsystem.
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CARBIDE
ISO 9766
h7
140°
H Coating
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Recommended ToolHolder
Flat Shank
INDEXABLE DRILL HOLDER D245-246
Plain Shank
ER COLLET CHUCK
D73-115

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		h7							L1	L3 Ref.		
		dec.	frac.	mm								
<b>S22</b>	Y221H2200	0.8661	-	22.00	<b>ZD22003025</b>	25	56	32	3D	69.0	153.4	TX2223P9
	Y221H2210	0.8701	-	22.10								
	Y221H2220	0.8740	-	22.20								
	Y221H2223	0.8750	7/8	22.23								
	Y221H2230	0.8780	-	22.30								
	Y221H2240	0.8819	-	22.40								
	Y221H2250	0.8858	-	22.50								
	Y221H2260	0.8898	-	22.60								
	Y221H2262	0.8906	57/64	22.62								
	Y221H2270	0.8937	-	22.70								
	Y221H2280	0.8976	-	22.80								
	Y221H2290	0.9016	-	22.90								
	Y221H2300	0.9055	-	23.00	<b>ZD23003025</b>	25	56	32	3D	72.0	157.4	TX2324P9
	Y221H2302	0.9063	29/32	23.02								
	Y221H2310	0.9094	-	23.10								
	Y221H2320	0.9134	-	23.20								
	Y221H2330	0.9173	-	23.30								
	Y221H2340	0.9213	-	23.40								
	Y221H2342	0.9219	59/64	23.42								
	Y221H2350	0.9252	-	23.50								
Y221H2360	0.9291	-	23.60									
Y221H2370	0.9331	-	23.70									
Y221H2380	0.9370	-	23.80									
Y221H2381	0.9375	15/16	23.81	<b>ZD23008025</b>				8D	192.0	274.9		
Y221H2390	0.9409	-	23.90									

► Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

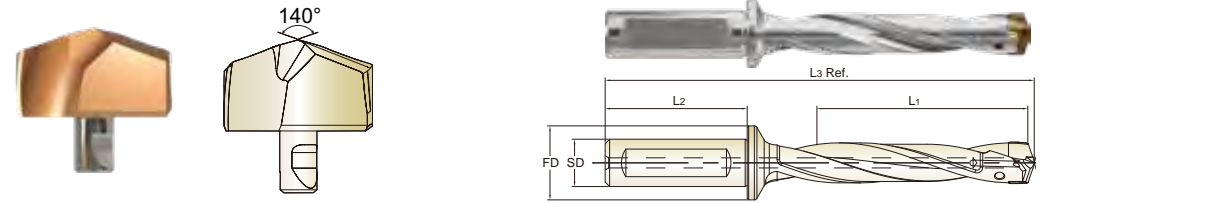
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



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- Vorteile
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CARBIDE
ISO 9766
h7
140°
H Coating
p.A34

Recommended ToolHolder
Flat Shank
INDEXABLE DRILL HOLDER D245-246
Plain Shank
ER COLLET CHUCK
D73-115

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		h7							L1	L3 Ref.		
		dec.	frac.	mm								
<b>S24</b>	Y241H2400	0.9449	-	24.00	<b>ZD24003032</b>				3D	75.0	165.8	TX2425P10
	Y241H2410	0.9488	-	24.10								
	Y241H2420	0.9528	-	24.20								
	Y241H2421	0.9531	61/64	24.21								
	Y241H2430	0.9567	-	24.30								
	Y241H2440	0.9606	-	24.40								
	Y241H2450	0.9646	-	24.50								
	Y241H2460	0.9685	-	24.60								
	Y241H2461	0.9688	31/32	24.61								
	Y241H2470	0.9724	-	24.70								
	Y241H2480	0.9764	-	24.80								
	Y241H2490	0.9803	-	24.90								
	Y241H2500	0.9844	63/64	25.00	<b>ZD25003032</b>				3D	78.0	170.8	TX2526P10
	Y241H2510	0.9882	-	25.10								
	Y241H2520	0.9921	-	25.20								
	Y241H2530	0.9961	-	25.30								
	Y241H2540	1.0000	1	25.40								
	Y241H2550	1.0039	-	25.50								
	Y241H2560	1.0079	-	25.60								
	Y241H2567	1.0106	-	25.67								
Y241H2570	1.0118	-	25.70									
Y241H2580	1.0156	1-1/64	25.80									
Y241H2590	1.0197	-	25.90									
Y241H2500	0.9844	63/64	25.00	<b>ZD24005032</b>	32	60	37	5D	125.0	214.8	TX2425P10	
Y241H2510	0.9882	-	25.10									
Y241H2520	0.9921	-	25.20									
Y241H2530	0.9961	-	25.30									
Y241H2540	1.0000	1	25.40									
Y241H2550	1.0039	-	25.50									
Y241H2560	1.0079	-	25.60									
Y241H2567	1.0106	-	25.67									
Y241H2570	1.0118	-	25.70									
Y241H2580	1.0156	1-1/64	25.80									
Y241H2590	1.0197	-	25.90									
Y241H2500	0.9844	63/64	25.00	<b>ZD24008032</b>				8D	200.0	288.3		
Y241H2510	0.9882	-	25.10									
Y241H2520	0.9921	-	25.20									
Y241H2530	0.9961	-	25.30									
Y241H2540	1.0000	1	25.40									
Y241H2550	1.0039	-	25.50									
Y241H2560	1.0079	-	25.60									
Y241H2567	1.0106	-	25.67									
Y241H2570	1.0118	-	25.70									
Y241H2580	1.0156	1-1/64	25.80									
Y241H2590	1.0197	-	25.90									

► Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**i-ONE DRILL INSERTS & HOLDERS**

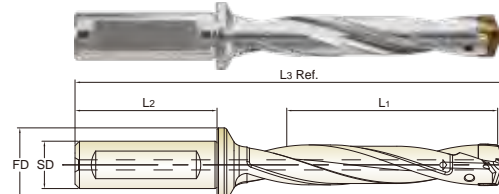
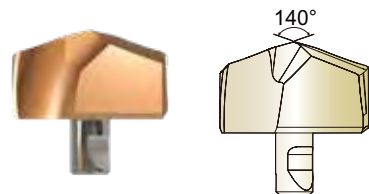
- i-ONE DRILL EINSÄTZE UND HALTER
- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
- INSERTI & PORTAINSERTI i-ONE DRILL

- Applications  
 ▶ For carbon steels, alloy steels and cast iron.  
 ▶ Holder length: 3xD, 5xD, 8xD

- Benefits  
 ▶ Secure and quick clamping system.  
 ▶ High performance with cost efficiency.  
 ▶ Multi-layered coating delivers outstanding productivity and reliability.

- Anwendungen  
 ▶ Für Kohlenstoffstähle, legierte Stähle und Gusseisen.  
 ▶ Halterlänge: 3xD, 5xD, 8xD

- Vorteile  
 ▶ Sicheres und schnelles Spannsystem.  
 ▶ Hohe Leistungsfähigkeit bei gleichzeitiger Kosteneffizienz.  
 ▶ Mehrschichtige Beschichtung bietet hervorragende Produktivität und Zuverlässigkeit.



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		h7							L1	L3 Ref.		
(mm)	H-Coating	dec.	frac.	mm	SD	L2	FD					
<b>S26</b> Ø26.00 to Ø27.99	Y261H2600	1.0236	-	26.00	<b>ZD26003032</b>	32	60	37	3D	81.0	172.2	TX2627P10
	Y261H2619	1.0313	1-1/32	26.19					5D	135.0	225.2	
	Y261H2650	1.0433	-	26.50					8D	216.0	304.	
	Y261H2659	1.0469	1-3/64	26.59	<b>ZD27003032</b>	32	60	37	3D	84.0	175.2	TX2728P10
	Y261H2699	1.0625	1-1/16	26.99					5D	140.0	230.2	
	Y261H2700	1.0630	-	27.00					8D	224.0	312.7	
<b>S28</b> Ø28.00 to Ø29.99	Y261H2738	1.0781	1-5/64	27.38	<b>ZD28003032</b>	32	60	37	3D	87.0	179.2	TX2829P10
	Y261H2750	1.0827	-	27.50					5D	145.0	236.2	
	Y261H2778	1.0938	1-3/32	27.78					8D	232.0	321.7	
	Y281H2800	1.1024	-	28.00	<b>ZD28008032</b>	32	60	37	3D	90.0	183.2	TX2930P10
	Y281H2818	1.1094	1-7/64	28.18					5D	150.0	242.2	
	Y281H2850	1.1220	-	28.50					8D	240.0	330.7	
Y281H2858	1.1250	1-1/8	28.58	<b>ZD29003032</b>	32	60	37	3D	90.0	183.2	TX2930P10	
Y281H2897	1.1406	1-9/64	28.97					5D	150.0	242.2		
Y281H2900	1.1417	-	29.00					8D	240.0	330.7		
Y281H2937	1.1563	1-5/32	29.37	<b>ZD29005032</b>	32	60	37	3D	90.0	183.2	TX2930P10	
Y281H2950	1.1614	-	29.50					5D	150.0	242.2		
Y281H2977	1.1719	1-11/64	29.77					8D	240.0	330.7		

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**i-ONE DRILL INSERTS & HOLDERS**

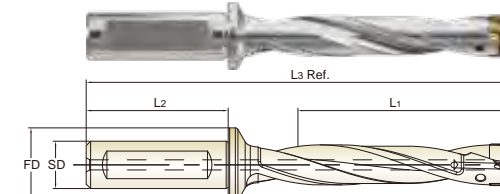
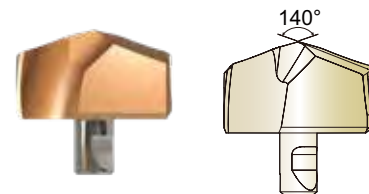
- i-ONE DRILL EINSÄTZE UND HALTER
- PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
- INSERTI & PORTAINSERTI i-ONE DRILL

- Applications  
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- Vorteile  
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 ▶ Hohe Leistungsfähigkeit bei gleichzeitiger Kosteneffizienz.  
 ▶ Mehrschichtige Beschichtung bietet hervorragende Produktivität und Zuverlässigkeit.



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
		h7							L1	L3 Ref.		
(mm)	H-Coating	dec.	frac.	mm	SD	L2	FD					
<b>S30</b> Ø30.00 to Ø31.99	Y301H3000	1.1811	-	30.00	<b>ZD30003032</b>	32	60	37	3D	93.0	187.0	TX3031P15
	Y301H3016	1.1875	1-3/16	30.16					5D	155.0	248.0	
	Y301H3050	1.2008	-	30.50					8D	248.0	339.5	
	Y301H3056	1.2031	1-13/64	30.56	<b>ZD31003032</b>	32	60	37	3D	96.0	191.0	TX3132P15
	Y301H3096	1.2188	1-7/32	30.96					5D	160.0	254.0	
	Y301H3100	1.2205	-	31.00					8D	256.0	348.5	
Y301H3135	1.2344	1-15/64	31.35	<b>ZD32003032</b>	32	60	37	3D	99.0	197.2	TX3233P15	
Y301H3150	1.2402	-	31.50					5D	165.0	262.2		
Y301H3175	1.2500	1-1/4	31.75					8D	264.0	359.7		
<b>S32</b> Ø32.00 to Ø33.99	Y321H3200	1.2598	-	32.00	<b>ZD32005032</b>	32	60	37	3D	102.0	201.2	TX3334P15
	Y321H3215	1.2656	1-17/64	32.15					5D	170.0	268.2	
	Y321H3250	1.2795	-	32.50					8D	272.0	368.7	
	Y321H3254	1.2813	1-9/32	32.54	<b>ZD33003032</b>	32	60	37	3D	102.0	201.2	TX3334P15
	Y321H3294	1.2969	1-19/64	32.94					5D	170.0	268.2	
	Y321H3300	1.2992	-	33.00					8D	272.0	368.7	
Y321H3334	1.3125	1-5/16	33.34	<b>ZD33005032</b>	32	60	37	3D	102.0	201.2	TX3334P15	
Y321H3350	1.3189	-	33.50					5D	170.0	268.2		
Y321H3373	1.3281	1-21/64	33.73					8D	272.0	368.7		

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel	Duplex	Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev)					
				Ø10.0-11.99	Ø12.09-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.0-26.9	Ø27.0-33.99
P	1	Non-alloy steel	100-126	0.14-0.24	0.18-0.31	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	2		84-110	0.12-0.21	0.15-0.26	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	3		63-84	0.11-0.18	0.13-0.22	0.19-0.31	0.24-0.35	0.33-0.51	0.36-0.54
	4		58-74	0.09-0.14	0.11-0.18	0.17-0.28	0.23-0.33	0.28-0.42	0.32-0.47
	5		58-74	0.09-0.14	0.11-0.18	0.17-0.28	0.23-0.33	0.28-0.42	0.32-0.47
	6	Low alloy steel	74-95	0.11-0.18	0.13-0.22	0.19-0.31	0.24-0.35	0.33-0.51	0.37-0.55
	7		63-84	0.11-0.18	0.13-0.22	0.17-0.28	0.24-0.35	0.33-0.51	0.37-0.55
	8		58-74	0.09-0.14	0.11-0.18	0.14-0.23	0.23-0.33	0.28-0.42	0.32-0.47
	9		47-63	0.07-0.11	0.09-0.13	0.14-0.23	0.23-0.33	0.28-0.42	0.32-0.47
	10	High alloyed steel, and tool steel	53-68	0.09-0.14	0.11-0.18	0.14-0.23	0.20-0.29	0.22-0.34	0.26-0.39
	11		42-58	0.09-0.14	0.11-0.18	0.12-0.20	0.23-0.33	0.22-0.34	0.26-0.39
K	15	Grey cast iron	105-131	0.13-0.23	0.17-0.29	0.22-0.41	0.30-0.46	0.40-0.56	0.44-0.61
	16		79-100	0.10-0.18	0.12-0.22	0.18-0.32	0.22-0.33	0.28-0.39	0.32-0.44
	17	Nodular cast iron	100-126	0.11-0.20	0.14-0.24	0.19-0.34	0.23-0.35	0.31-0.44	0.35-0.48
	18		79-100	0.10-0.18	0.12-0.22	0.15-0.29	0.21-0.32	0.28-0.39	0.32-0.44
	19	Malleable cast iron	105-131	0.11-0.20	0.14-0.24	0.19-0.34	0.23-0.35	0.31-0.44	0.35-0.48
20	79-100		0.10-0.15	0.12-0.20	0.15-0.29	0.21-0.32	0.28-0.39	0.32-0.44	

- ▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
- ▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 8xD holders.
- ▶ For use of 8xD holder, we recommend to use a pilot drill with equal to or larger than 140° point angle (0.5xD ~ 1.5xD). The use of the centering pre-hole improves hole location, roundness and surface finish.

**Comparison with Split Point Drill, Spade Drill & Dream Drill**



Normal Split Point Drill

*Solid Tool*



Dream Drill

*Solid Tool*



Spade Drill

*Insert Tool*



i-One Drill

*Insert Tool*

**ASSEMBLY OF i-ONE DRILLS  
MONTAGE DES i-ONE DRILLS**

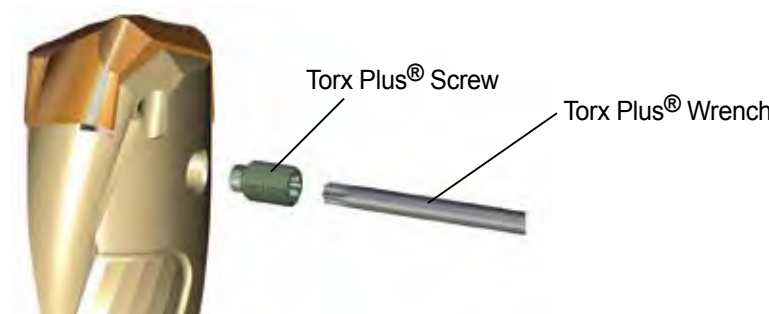




Make sure to clean the insert and insert seat.  
Schneideinsatz und Haltersitz sorgfältig reinigen.



Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.  
Schneideinsatz in den Haltersitz einführen und den Schneideinsatz fest auf den Grund des Haltersitzes pressen.

After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.  
Wenn der Schneideinsatz fest auf den Grund des Haltersitzes gepresst ist, die Schraube fest anziehen und dabei Spezialfett verwenden.



WRENCH TYPE	PRODUCT NO.	SERIES (INSERT SIZE)	TORX PLUS®	TORQUE (N·m)
	TWFP05	S10~S12 (10.00 ~ 13.90)	5 IP	0.6
	TWDP07	S14~S16 (14.00 ~ 17.90)	7 IP	1.0
	TWDP09	S18~S22 (18.00 ~ 23.90)	9 IP	1.5
	TWDP10	S24~S28 (24.00 ~ 29.77)	10 IP	2.2
	TWDP15	S30~S32 (30.00 ~ 33.73)	15 IP	3.2

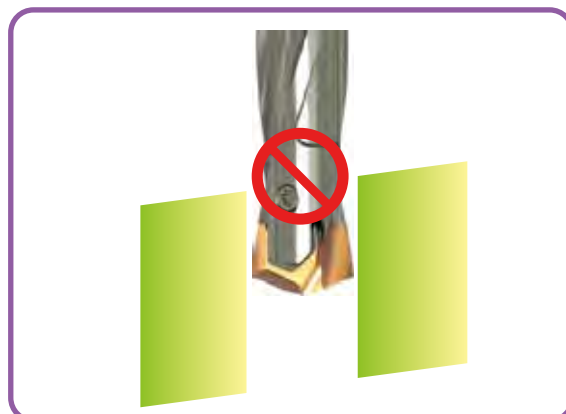
- Use the Torx Plus wrench  
Benutzen Sie den Winkeldreher oder T - Schlüsse
- ▶ Need to use appropriate wrenches and screws as indicated.  
Unbedingt die angegebenen Schrauben und Dreher verwenden.
  - ▶ It's important to tighten up the screw properly.  
Es ist wichtig, die Schraube korrekt und fest anzuziehen.



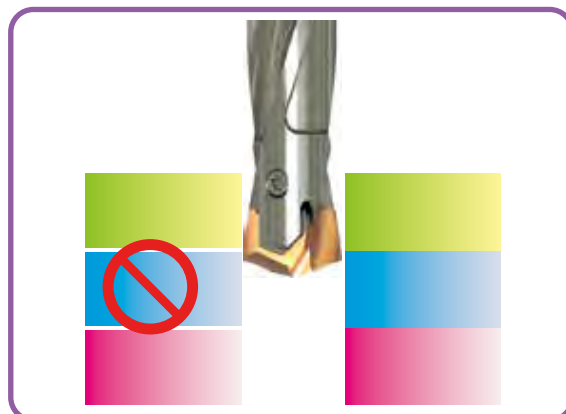
**CAUTION-NOT RECOMMENDABLE APPLICATION**  
**ACHTUNG - NICHT EMPFOHLENE ANWENDUNG**



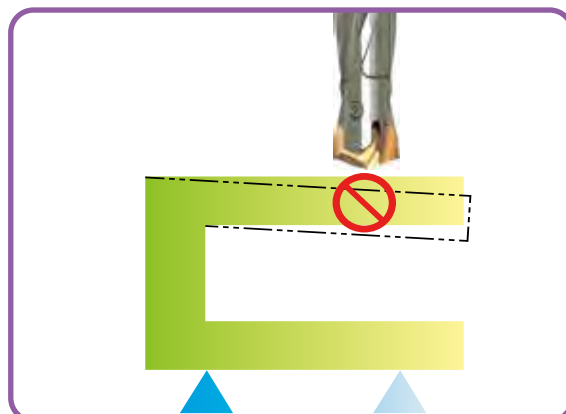
**Intersecting cross hole is bigger than the drill insert's Margin Length.**  
Der Haltersitz ist größer als die Breite des Schneideinsatzes.



**Material with slanting entrance and exit over 7 degrees.**  
(If drilling 7 degrees or under slanting surface, reduce the feed about 30-50%)  
Werkstücke mit schrägem Anschnitt oder Austritt von über 7°. (Zum Bohren von bis zu 7° Schräge den Vorschub um ca. 30-50% reduzieren).

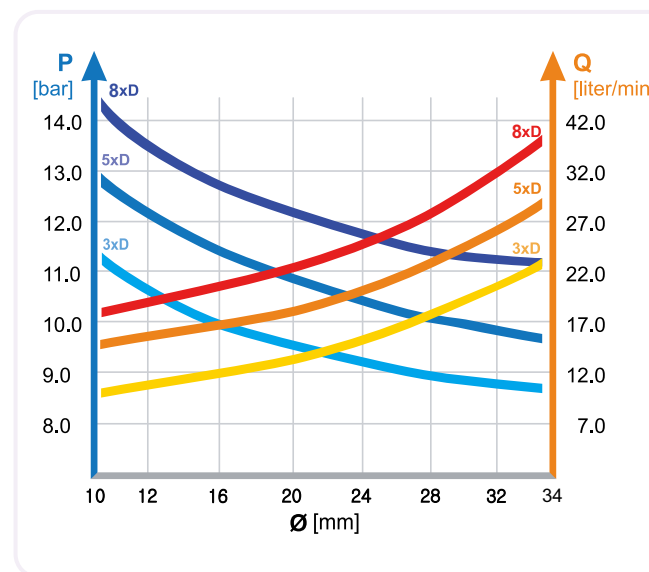


**For drilling stacked plates, minimize the space between the plates.**  
Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.  
**The space between stacked plates can cause insert breakage or poor chip control.**  
Freiraum in Blechpaketen kann den Bruch des Schneideinsatzes oder schlechte Entspannung verursachen.



**The material needs to be fixtured securely before drilling.**  
Das Werkstück muss fest und sicher aufgespannt sein

**RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING**  
**EMPFOHLENE KÜHLMITTELDRUCK UND - MENGE BEIM VERTIKALEN BOHREN**



- Recommended emulsion mix is 6 - 8%.  
Empfohlene Emulsionsmischung 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.  
Beim Bohren in rostfreie und hochfeste Stähle werden 10% empfohlen.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.  
Beim horizontalen Bohren können Kühlmitteldruck und -menge um 30% gemindert werden.
- Dry drilling is possible for 1-2xD drilling. (But not recommended.)  
Trocken Bohren ist möglich bei 1-2xD. (Aber nicht empfohlen.)

**TROUBLE SHOOTING**  
**PROBLEMLÖSUNGEN**



- 1) Heavy flank wear / Fast flank wear**
- Reduce cutting speed
  - Increase feed



- 2) Chipping on cutting edge**
- Reduce feed
  - Check the rigidity of spindle and chuck
  - Rigid clamping of workpiece



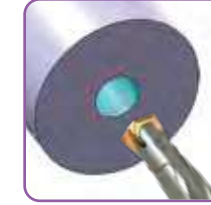
- 3) Build-up on cutting edge**
- Increase cutting speed
  - Use a coated insert



- 4) Chipping or break down on outer corner**
- Reduce feed
  - Rigid clamping of workpiece



- 5) Wear of land margin**
- Rigid clamping of workpiece
  - Reduce cutting speed
  - Increase coolant flow



- 6) Unsatisfactory positioning of the hole**
- Rigid clamping of workpiece
  - Reduce feed during entrance or exit



- 7) Scratching on holder**
- Rigid clamping of workpiece
  - Reduce feed
  - Increase coolant flow

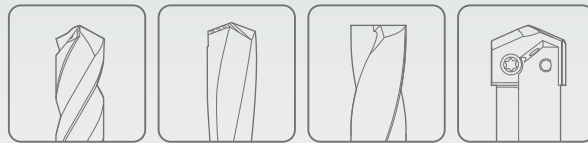


- 8) Unsatisfactory surface finish**
- Rigid clamping of workpiece
  - Increase coolant flow and pressure





Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

CARBIDE INSERTS  
& HOLDERS

# *i*-DREAM DRILLS

**i-Dream Drills**

- For General Steels and Stainless Steels
- Für allgemeine Stähle und Edelstähle



SELECTION GUIDE



SERIES	YA1A	YA2C	YB1A	YB2C
TYPE	A		B	
SIZE MIN	12.00		14.00	
SIZE MAX	13.89		15.87	
PAGE	A44		A45	

SURFACE TREATMENT	TiAIN	TiCN	TiAIN	TiCN

CARBIDE INSERTS & HOLDERS

*i*-DREAM DRILLS

For General Steels and Stainless Steels



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

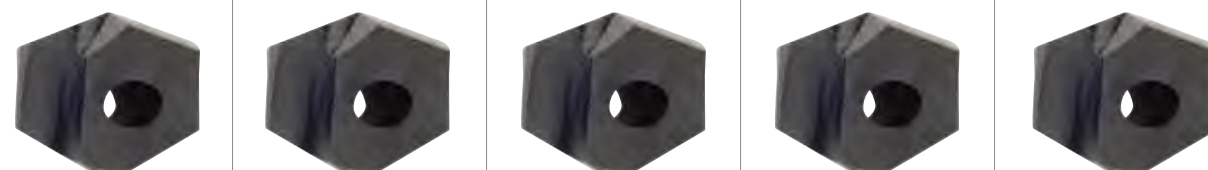
◎ : Excellent ○ : Good

Recommended cutting conditions : p.A54, 55

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	TiAIN	TiCN	TiAIN	TiCN		
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	○	◎	○		
	2		About 0.45% C Annealed	190	13	◎	○	◎	○		
	3		About 0.45% C Quenched & Tempered	250	25	◎	○	◎	○		
	4		About 0.75% C Annealed	270	28	◎	○	◎	○		
	5		About 0.75% C Quenched & Tempered	300	32	◎	○	◎	○		
	6	Low alloy steel	Annealed	180	10	◎	○	◎	○		
	7		Quenched & Tempered	275	29	◎	○	◎	○		
	8		Quenched & Tempered	300	32	◎	○	◎	○		
	9		Quenched & Tempered	350	38	◎	○	◎	○		
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	○	◎	○	
	11			Quenched & Tempered	325	35	◎	○	◎	○	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15		◎		◎		
	13		Martensitic Quenched & Tempered	240	23		◎		◎		
	14		Austenitic	180	10		◎		◎		
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎		◎			
	16		Pearlitic (Martensitic)	260	26	◎		◎			
	17	Nodular cast iron	Ferritic	160	3	◎		◎			
	18		Pearlitic	250	25	◎		◎			
	19		Ferritic	130		◎		◎			
	20		Malleable cast iron	Pearlitic	230	21	◎		◎		
N	21	Aluminum-wrought alloy	Not Curable	60			○		○		
	22		Curable Hardened	100			○		○		
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75			○		○		
	24		≤ 12% Si, Curable Hardened	90				○		○	
	25		> 12% Si, Not Curable	130				○		○	
	26		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110			○		○	
	27		CuZn, CuSnZn (Brass)		90			○		○	
	28		CuSn, lead-free copper and electrolytic copper		100			○		○	
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30			Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15						
	32		Cured	280	30						
	33		Annealed	250	25						
	34		Ni or Co Based Cured	350	38						
	35		Cast	320	34						
	36	Titanium Alloys	Pure Titanium	400 Rm							
	37		Alpha + Beta Alloys Hardened	1050 Rm							
H	38	Hardened steel	Hardened	550	55						
	39		Hardened	630	60						
	40		Chilled Cast Iron	Cast	400	42					
	41		Hardened Cast Iron	Hardened	550	55					

YC1A	YC2C	YD1A	YD2C	YE1A	YE2C	YF1A	YF2C	YG1A	YG2C
C		D		E		F		G	
16.00		18.00		20.00		22.00		24.00	
17.86		19.84		21.83		23.81		25.80	
A46		A47		A48		A49		A50	

TiAIN	TiCN	TiAIN	TiCN	TiAIN	TiCN	TiAIN	TiCN	TiAIN	TiCN



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◎	○	◎	○	◎	○	◎	○	◎	○	6
◎	○	◎	○	◎	○	◎	○	◎	○	7
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◎	○	◎	○	◎	○	◎	○	◎	○	9
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										41



HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA









YC1A SERIES

YC2C SERIES

**i-DREAM DRILL INSERTS & HOLDERS**

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- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung

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Series Range	Insert EDP No.		Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
	General (TiAlN)	INOX (TiCN)	h7							L1	L3 Ref.		
			dec.	frac.	mm								
C Ø16.00 to Ø17.99	YC1A1600	YC2C1600	.6299	-	16.00	ZH16003020				3D	48	125.0	TX1617T08
	YC1A1609	YC2C1609	.6335	-	16.09	ZH16005020	20	50	25	5D	80	157.0	
	YC1A1620	YC2C1620	.6378	-	16.20	ZH16007020				7D	112	189.0	
	YC1A1627	YC2C1627	.6406	41/64	16.27	ZH16503020				3D	49.5	127.0	
	YC1A1630	YC2C1630	.6417	-	16.30	ZH16505020	20	50	25	5D	82.5	160.0	
	YC1A1650	YC2C1650	.6496	-	16.50	ZH16507020				7D	115.5	193.0	
	YC1A1667	YC2C1667	.6562	21/32	16.67	ZH17003020				3D	51	128.0	
	YC1A1680	YC2C1680	.6614	-	16.80	ZH17005020	20	50	25	5D	85	162.0	
	YC1A1700	YC2C1700	.6693	-	17.00	ZH17007020				7D	119	196.0	
	YC1A1707	YC2C1707	.6719	43/64	17.07	ZH17503020				3D	52.5	130.0	
TX1718T08	YC1A1746	YC2C1746	.6875	11/16	17.46	ZH17505020	20	50	25	5D	87.5	165.0	
	YC1A1750	YC2C1750	.6890	-	17.50	ZH17507020				7D	122.5	200.0	
	YC1A1780	YC2C1780	.7008	-	17.80								
	YC1A1786	YC2C1786	.7031	45/64	17.86								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YC1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YC2C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
YC1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YC2C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



YD1A SERIES

YD2C SERIES

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Series Range	Insert EDP No.		Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
	General (TiAlN)	INOX (TiCN)	h7							L1	L3 Ref.		
			dec.	frac.	mm								
D Ø18.00 to Ø19.99	YD1A1800	YD2C1800	.7087	-	18.00	ZH18003025				3D	54	140.3	TX1819T15
	YD1A1826	YD2C1826	.7188	23/32	18.26	ZH18005025	25	56	32	5D	90	176.3	
	YD1A1850	YD2C1850	.7283	-	18.50	ZH18007025				7D	126	212.3	
	YD1A1865	YD2C1865	.7344	47/64	18.65	ZH18503025				3D	55.5	141.3	
	YD1A1880	YD2C1880	.7402	-	18.80	ZH18505025	25	56	32	5D	92.5	178.3	
	YD1A1900	YD2C1900	.7480	-	19.00	ZH18507025				7D	129.5	215.3	
	YD1A1905	YD2C1905	.7500	3/4	19.05	ZH19003025				3D	57	144.3	
	YD1A1927	YD2C1927	.7587	-	19.27	ZH19005025	25	56	32	5D	95	182.3	
	YD1A1945	YD2C1945	.7656	49/64	19.45	ZH19007025				7D	133	220.3	
	YD1A1950	YD2C1950	.7677	-	19.50	ZH19503025				3D	58.5	145.3	
TX1920T15	YD1A1980	YD2C1980	.7795	-	19.80	ZH19505025	25	56	32	5D	97.5	184.3	
	YD1A1984	YD2C1984	.7812	25/32	19.84	ZH19507025				7D	136.5	223.3	

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	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YD1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YD2C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
YD1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YD2C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○







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YG2C SERIES

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Series Range (mm)	Insert EDP No.		Insert O.D.			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
	General (TiAlN)	INOX (TiCN)	h7							L1	L3 Ref.		
			dec.	frac.	mm								
G Ø24.00 to Ø25.99	YG1A2400	YG2C2400	.9449	-	24.00	ZH24003032	32	60	37	3D	72	164.8	TX2425T20
	YG1A2421	YG2C2421	.9531	61/64	24.21	ZH24005032				5D	120	212.8	
	YG1A2450	YG2C2450	.9646	-	24.50	ZH24503032				3D	73.5	165.8	
	YG1A2461	YG2C2461	.9688	31/32	24.61	ZH24505032				5D	122.5	214.8	
	YG1A2470	YG2C2470	.9724	-	24.70	ZH24507032				7D	171.5	263.8	
	YG1A2500	YG2C2500	.9843	63/64	25.00	ZH25003032				3D	75	167.8	
	YG1A2540	YG2C2540	1.0000	1	25.40	ZH25005032				5D	125	217.8	
	YG1A2550	YG2C2550	1.0039	-	25.50	ZH25007032				7D	175	267.8	
	YG1A2550	YG2C2550	1.0039	-	25.50	ZH25503032				3D	76.5	170.8	
	YG1A2567	YG2C2567	1.0106	-	25.67	ZH25505032				5D	127.5	221.8	
YG1A2570	YG2C2570	1.0118	-	25.70	ZH25507032	7D	178.5	272.8					
YG1A2580	YG2C2580	1.0156	1-1/64	25.80	ZH25507032	7D	178.5	272.8	TX2526T20				

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel	Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YG1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YG2C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
YG1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎											
YG2C	○	○	○	○	○	○	○	○	○	○											



YH1A SERIES

YH2C SERIES

**i-DREAM DRILL INSERTS & HOLDERS**

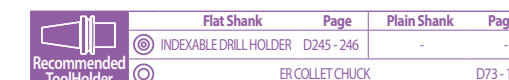
- **i-DREAM DRILL EINSÄTZE UND HALTER**
- **PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX**
- **INSERTI & PORTAINSERTI i-DREAM DRILL**

**- Features of i-Dream Drill Inserts-  
Merkmale des i-Dream Drill Einsätze**

- ▶ Secure and accurate seating resulting in accurate repeatability and concentricity.  
Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.
- i-Dream Drill General / i-Dream Drill allgemeinen**
- ▶ For most steels materials / In den meisten Stahlsorten
- i-Dream Drill INOX / i-Dream Drill INOX**
- ▶ For tough, ductile materials and stainless steels  
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- ▶ Light, sharp cutting edge / Scharfe Schneidkante
- ▶ Soft cutting action / Weicher Schnitt
- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung

**- Features of i-Dream Drill Holders-  
Merkmale des i-Dream Drill Halters-**

- ▶ Special Alloy Steels maintain its hardness and toughness under high temperatures.  
Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- ▶ Innovative surface treatment improves wear resistance and reduces corrosion.  
Innovative Oberflächenbehandlung, die die Verschleissfestigkeit erhöht und die Korrosion vermindert.
- ▶ High Performance flute design allows maximum chip evacuation and minimum interference.  
Optimierte Nutenform für maximale Spanabfuhr.



Series Range (mm)	Insert EDP No.		Insert O.D.			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
	General (TiAlN)	INOX (TiCN)	h7							L1	L3 Ref.		
			dec.	frac.	mm								
H Ø26.00 to Ø27.99	YH1A2600	YH2C2600	1.0236	-	26.00	ZH26003032	32	60	37	3D	78	171.2	TX2627T25
	YH1A2619	YH2C2619	1.0312	1-1/32	26.19	ZH26005032				5D	130	223.2	
	YH1A2650	YH2C2650	1.0433	-	26.50	ZH26007032				7D	182	275.2	
	YH1A2650	YH2C2650	1.0433	-	26.50	ZH26503032				3D	79.5	172.2	
	YH1A2659	YH2C2659	1.0469	1-3/64	26.59	ZH26505032				5D	132.5	225.2	
	YH1A2699	YH2C2699	1.0625	1-1/16	26.99	ZH26507032				7D	185.5	278.2	
	YH1A2700	YH2C2700	1.0630	-	27.00	ZH27003032				3D	81	174.2	
	YH1A2700	YH2C2700	1.0630	-	27.00	ZH27005032				5D	135	228.2	
	YH1A2750	YH2C2750	1.0827	-	27.50	ZH27007032				7D	189	282.2	
	YH1A2778	YH2C2778	1.0938	1-3/32	27.78	ZH27503032				3D	82.5	175.2	
YH1A2778	YH2C2778	1.0938	1-3/32	27.78	ZH27505032	5D	137.5	230.2					
YH1A2778	YH2C2778	1.0938	1-3/32	27.78	ZH27507032	7D	192.5	285.2	TX2728T25				

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel	Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YH1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YH2C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
YH1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎											
YH2C	○	○	○	○	○	○	○	○	○	○											

**i-DREAM DRILL INSERTS & HOLDERS**

- **i-DREAM DRILL EINSÄTZE UND HALTER**
- **PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX**
- **INSERTI & PORTAINSERTI i-DREAM DRILL**

**- Features of i-Dream Drill Inserts-  
Merkmale des i-Dream Drill Einsätze**

- ▶ Secure and accurate seating resulting in accurate repeatability and concentricity.  
Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.
- i-Dream Drill General / i-Dream Drill allgemeinen**
- ▶ For most steels materials / In den meisten Stahlsorten
- i-Dream Drill INOX / i-Dream Drill INOX**
- ▶ For tough, ductile materials and stainless steels  
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- ▶ Light, sharp cutting edge / Scharfe Schneidkante
- ▶ Soft cutting action / Weicher Schnitt
- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung

**- Features of i-Dream Drill Holders-  
Merkmale des i-Dream Drill Halters-**

- ▶ Special Alloy Steels maintain its hardness and toughness under high temperatures.  
Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- ▶ Innovative surface treatment improves wear resistance and reduces corrosion.  
Innovative Oberflächenbehandlung, die die Verschleissfestigkeit erhöht und die Korrosion vermindert.
- ▶ High Performance flute design allows maximum chip evacuation and minimum interference.  
Optimierte Nutenform für maximale Spanabfuhr.



CARBIDE ISO 9766 h7 140° TiAIN TiCN p.A54, 55

Recommended ToolHolder INDEXABLE DRILL HOLDER D245-246 Flat Shank Page Plain Shank Page ER COLLET CHUCK D73-115

Series Range (mm)	Insert EDP No.		Insert O.D.			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.	
	General (TiAIN)	INOX (TiCN)	h7							L1	L3 Ref.			
			dec.	frac.	mm									
Ø28.00 to Ø29.99	Y11A2800	Y12C2800	1.1024	-	28.00	ZH28003032	32	60	37	3D	84	178.2	TX2829T25	
	Y11A2818	Y12C2818	1.1094	1-7/64	28.18	ZH28005032				5D	140	234.2		
						ZH28007032				7D	196	290.2		
	Y11A2850	Y12C2850	1.1220	-	28.50	ZH28503032	32	60	37	3D	85.5	179.2		
	Y11A2858	Y12C2858	1.1250	1-1/8	28.58	ZH28505032				5D	142.5	236.2		
						ZH28507032				7D	199.5	293.2		
	Y11A2900	Y12C2900	1.1417	-	29.00	ZH29003032	32	60	37	3D	87	182.2		TX2930T25
	Y11A2937	Y12C2937	1.1562	1-5/32	29.37	ZH29005032				5D	145	240.2		
						ZH29007032				7D	203	298.2		
	Y11A2950	Y12C2950	1.1614	-	29.50	ZH29503032	32	60	37	3D	88.5	183.2		
Y11A2977	Y12C2977	1.1719	1-11/64	29.77	ZH29505032	5D				147.5	242.2			
					ZH29507032	7D				206.5	301.2			

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO Material Description	P										M			K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Y11A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Y12C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Y11A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎											
Y12C	○	○	○	○	○	○	○	○	○	○											



**i-DREAM DRILL INSERTS & HOLDERS**

- **i-DREAM DRILL EINSÄTZE UND HALTER**
- **PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX**
- **INSERTI & PORTAINSERTI i-DREAM DRILL**

**- Features of i-Dream Drill Inserts-  
Merkmale des i-Dream Drill Einsätze**

- ▶ Secure and accurate seating resulting in accurate repeatability and concentricity.  
Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.
- i-Dream Drill General / i-Dream Drill allgemeinen**
- ▶ For most steels materials / In den meisten Stahlsorten
- i-Dream Drill INOX / i-Dream Drill INOX**
- ▶ For tough, ductile materials and stainless steels  
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- ▶ Light, sharp cutting edge / Scharfe Schneidkante
- ▶ Soft cutting action / Weicher Schnitt
- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung

**- Features of i-Dream Drill Holders-  
Merkmale des i-Dream Drill Halters-**

- ▶ Special Alloy Steels maintain its hardness and toughness under high temperatures.  
Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- ▶ Innovative surface treatment improves wear resistance and reduces corrosion.  
Innovative Oberflächenbehandlung, die die Verschleissfestigkeit erhöht und die Korrosion vermindert.
- ▶ High Performance flute design allows maximum chip evacuation and minimum interference.  
Optimierte Nutenform für maximale Spanabfuhr.



CARBIDE ISO 9766 h7 140° TiAIN TiCN p.A54, 55

Recommended ToolHolder INDEXABLE DRILL HOLDER D245-246 Flat Shank Page Plain Shank Page ER COLLET CHUCK D73-115

Series Range (mm)	Insert EDP No.		Insert O.D.			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.	
	General (TiAIN)	INOX (TiCN)	h7							L1	L3 Ref.			
			dec.	frac.	mm									
Ø30.00 to Ø31.99	YJ1A3000	YJ2C3000	1.1811	-	30.00	ZH30003032	32	60	37	3D	90	186.0	TX3031T25	
	YJ1A3016	YJ2C3016	1.1875	1-3/16	30.16	ZH30005032				5D	150	246.0		
						ZH30007032				7D	210	306.0		
	YJ1A3050	YJ2C3050	1.2008	-	30.50	ZH30503032	32	60	37	3D	91.5	187.0		
	YJ1A3056	YJ2C3056	1.2031	1-13/64	30.56	ZH30505032				5D	152.5	248.0		
	YJ1A3096	YJ2C3096	1.2188	1-7/32	30.96	ZH30507032				7D	213.5	309.0		
	YJ1A3100	YJ2C3100	1.2205	-	31.00	ZH31003032	32	60	37	3D	93	188.0		TX3132T25
	YJ1A3150	YJ2C3150	1.2402	-	31.50	ZH31005032				5D	155	250.0		
						ZH31007032				7D	217	312.0		
	YJ1A3175	YJ2C3175	1.2500	1-1/4	31.75	ZH31503032	32	60	37	3D	94.5	191.0		
					ZH31505032	5D				157.5	254.0			
					ZH31507032	7D				220.5	317.0			

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO Material Description	P										M			K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YJ1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YJ2C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
YJ1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎											
YJ2C	○	○	○	○	○	○	○	○	○	○											





RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER



RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

YA1A, YB1A, YC1A, YD1A, YE1A, YF1A, YG1A, YH1A, YI1A, YJ1A SERIES

**i-DREAM DRILLS - GENERAL**

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

YA2C, YB2C, YC2C, YD2C, YE2C, YF2C, YG2C, YH2C, YI2C, YJ2C SERIES

**i-DREAM DRILLS - INOX**

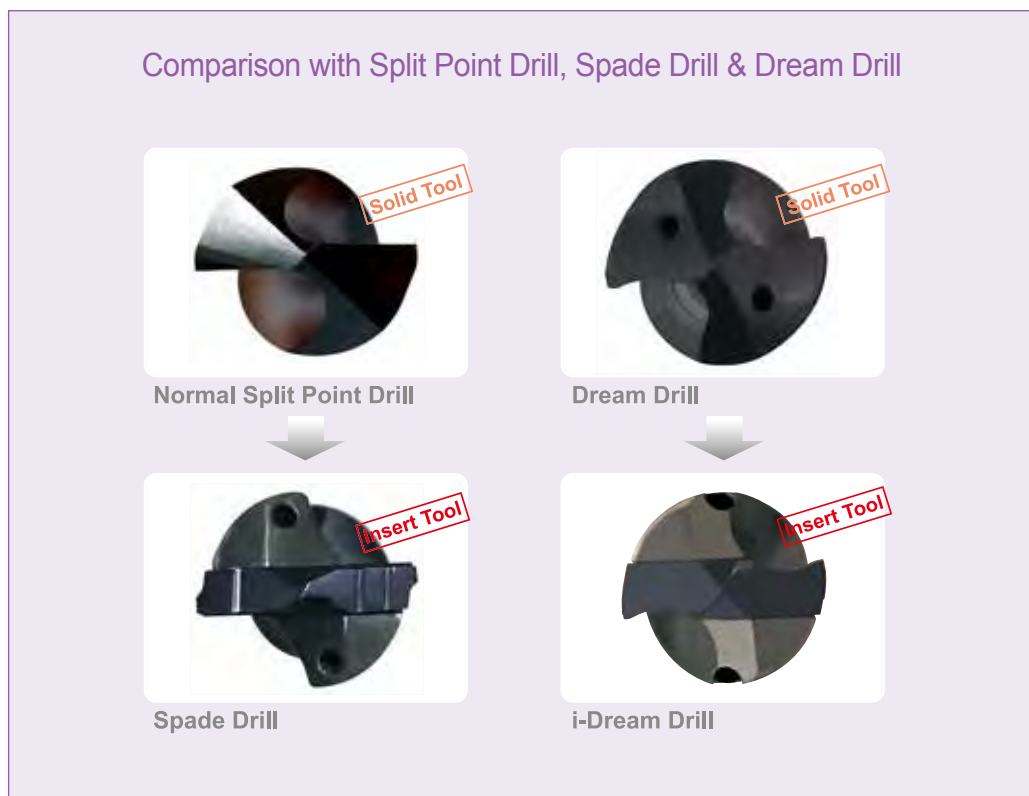
VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev)				
				Ø12.00-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.00-26.99	Ø27.00-31.99
<b>P</b>	1	Non-alloy steel	<b>95-120</b>	0.16-0.28	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	2		<b>80-105</b>	0.14-0.24	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	3		<b>60-80</b>	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
	4		<b>55-70</b>	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	5		<b>55-70</b>	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	6	Low alloy steel	<b>70-90</b>	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.34-0.50
	7		<b>60-80</b>	0.12-0.20	0.15-0.25	0.22-0.32	0.30-0.46	0.34-0.50
	8		<b>55-70</b>	0.10-0.16	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
	9		<b>45-60</b>	0.08-0.12	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
	10		High alloyed steel, and tool steel	<b>50-65</b>	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31
	11	<b>40-55</b>		0.10-0.16	0.11-0.18	0.21-0.30	0.20-0.31	0.24-0.35
<b>K</b>	15	Grey cast iron	<b>100-125</b>	0.15-0.26	0.20-0.37	0.27-0.42	0.36-0.51	0.40-0.55
	16		<b>75-95</b>	0.11-0.20	0.16-0.29	0.20-0.30	0.25-0.35	0.29-0.40
	17	Nodular cast iron	<b>95-120</b>	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
	18		<b>75-95</b>	0.11-0.20	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40
	19		<b>100-125</b>	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
	20	Malleable cast iron	<b>75-95</b>	0.11-0.18	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev)				
				Ø12.00-14.99	Ø15.00-17.99	Ø18.00-21.90	Ø22.00-26.99	Ø27.00-31.99
<b>P</b>	1	Non-alloy steel	<b>95-120</b>	0.16-0.28	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	2		<b>80-105</b>	0.14-0.24	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	3		<b>60-80</b>	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
	4		<b>55-70</b>	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	6		Low alloy steel	<b>70-90</b>	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46
	7	<b>60-80</b>		0.12-0.20	0.15-0.25	0.22-0.32	0.30-0.46	0.34-0.50
	10	High alloyed steel, and tool steel	<b>50-65</b>	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31	0.24-0.35
<b>M</b>	12	Stainless steel	<b>30-45</b>	0.08-0.14	0.09-0.15	0.10-0.16	0.12-0.20	0.14-0.22
	13		<b>30-45</b>	0.08-0.14	0.09-0.15	0.10-0.16	0.12-0.20	0.14-0.22
	14		<b>45-60</b>	0.10-0.16	0.12-0.18	0.14-0.20	0.15-0.26	0.18-0.28
<b>N</b>	21	Aluminum-wrought alloy	<b>250-330</b>	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
	22		<b>200-250</b>	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
	23	Aluminum-cast, alloyed	<b>200-250</b>	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
	24		<b>150-220</b>	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
	25		<b>100-200</b>	0.20-0.30	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50
	26		<b>115-145</b>	0.16-0.28	0.23-0.36	0.29-0.36	0.37-0.45	0.41-0.48
	27	Copper and Copper Alloys (Bronze / Brass)	<b>145-185</b>	0.17-0.29	0.24-0.37	0.30-0.38	0.38-0.46	0.42-0.49
	28		<b>95-120</b>	0.06-0.09	0.09-0.13	0.11-0.13	0.15-0.18	0.19-0.22

- ▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
- ▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 7xD holders.
- ▶ For use of 7xD holder, we recommend to use a pilot drill with equal to or larger than 140° point angle (0.5xD - 1.5xD). The use of the centering pre-hole improves hole location, roundness and surface finish.

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**ASSEMBLY OF *i*-DREAM DRILLS**  
**MONTAGE DES *i*-DREAM DRILLS**





Make sure to clean the insert and insert seat.  
Schneideinsatz und Haltersitz sorgfältig reinigen.



Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.  
Schneideinsatz in den Haltersitz einführen und den Schneideinsatz fest auf den Grund des Haltersitzes pressen.

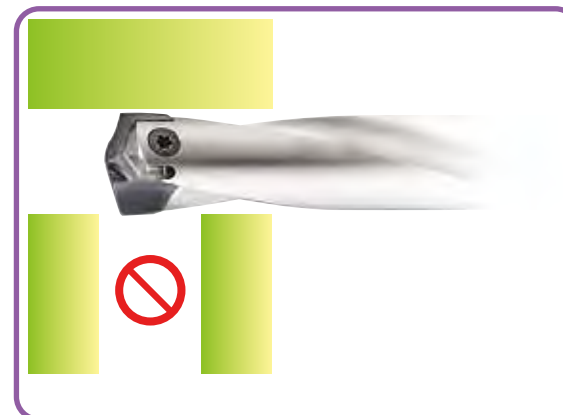


After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.  
Wenn der Schneideinsatz fest auf den Grund des Haltersitzes gepresst ist, die Schraube fest anziehen und dabei Spezialfett verwenden.

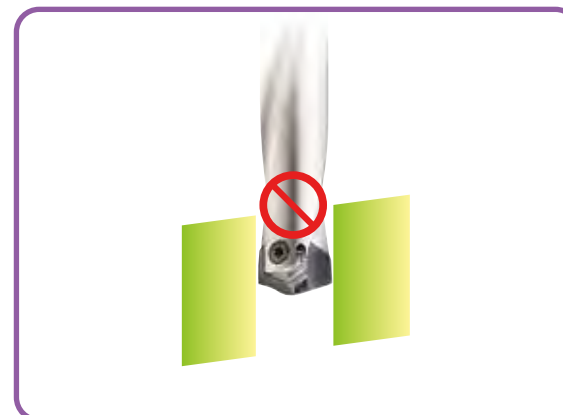
WRENCH TYPE	PRODUCT NO.	T-HANDLE No.	SERIES (SIZE)	
 WING TYPE	TWWT08	—	A (Ø12.00-Ø13.99)	
			B (Ø14.00-Ø15.99)	
			C (Ø16.00-Ø17.99)	
 TORX BIT TYPE	TWBT15	TWH600	D (Ø18.00-Ø19.99)	
			TWBT20	E, F, G (Ø20.00-Ø25.99)
			TWBT25	H, I, J (Ø26.00-Ø31.99)

- Use the wing type or T-type wrench.  
Benutzen Sie den Winkeldreher oder T - Schlüsse
- ▶ Need to use appropriate wrenches and screws as indicated.  
Unbedingt die angegebenen Schrauben und Dreher verwenden.
  - ▶ It's important to tighten up the screw properly.  
Es ist wichtig, die Schraube korrekt und fest anzuziehen.

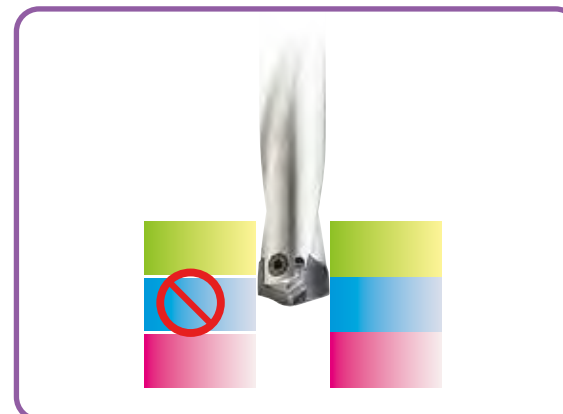
**CAUTION-NOT RECOMMENDABLE APPLICATION**  
**ACHTUNG - NICHT EMPFOHLENE ANWENDUNG**



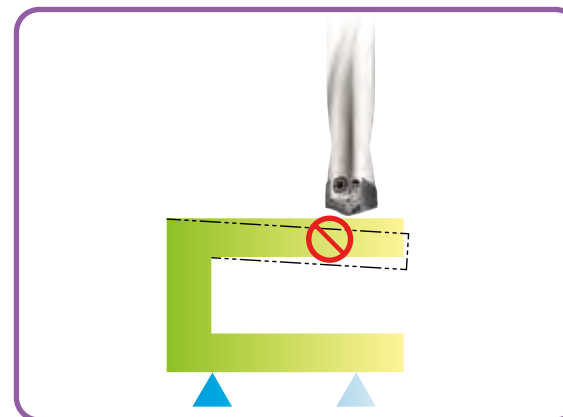
Intersecting cross hole is bigger than the drill insert's Margin Length.  
Der Haltersitz ist größer als die Breite des Schneideinsatzes.



Material with slanting entrance and exit over 7 degrees. (If drilling 7 degrees or under slanting surface, reduce the feed about 30-50%)  
Werkstücke mit schrägem Anschnitt oder Austritt von über 7°. (Zum Bohren von bis zu 7° Schräge den Vorschub um ca. 30-50% reduzieren).

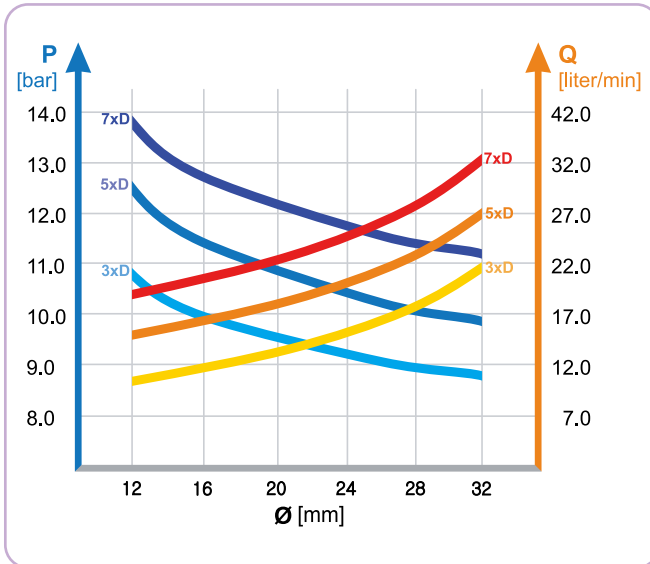


For drilling stacked plates, minimize the space between the plates.  
Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.  
The space between stacked plates can cause insert breakage or poor chip control.  
Freiraum in Blechpaketen kann den Bruch des Schneideinsatzes oder schlechte Entspannung verursachen.



The material needs to be fixtured securely before drilling.  
Das Werkstück muss fest und sicher aufgespannt sein

**RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING**  
**EMPFOHLENE KÜHLMITTELDRUCK UND - MENGE BEIM VERTIKALEN BOHREN**



- Recommended emulsion mix is 6 - 8%.  
Empfohlene Emulsionsmischung 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.  
Beim Bohren in rostfreie und hochfeste Stähle werden 10% empfohlen.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.  
Beim horizontalen Bohren können Kühlmitteldruck und - menge um 30% gemindert werden.
- Dry drilling is possible for 1-2xD drilling.  
(But not recommended.)  
Trocken Bohren ist möglich bei 1-2xD.  
(Aber nicht empfohlen.)

**TROUBLE SHOOTING**  
**PROBLEMLÖSUNGEN**



- 1) Heavy flank wear / Fast flank wear**
- Reduce cutting speed
  - Increase feed



- 2) Chipping on cutting edge**
- Reduce feed
  - Check the rigidity of spindle and chuck
  - Rigid clamping of workpiece



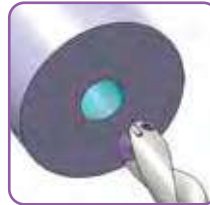
- 3) Build-up on cutting edge**
- Increase cutting speed
  - Use a coated insert



- 4) Chipping or break down on outer corner**
- Reduce feed
  - Rigid clamping of workpiece



- 5) Wear of land margin**
- Rigid clamping of workpiece
  - Reduce cutting speed
  - Increase coolant flow



- 6) Unsatisfactory positioning of the hole**
- Rigid clamping of workpiece
  - Reduce feed during entrance or exit



- 7) Scratching on holder**
- Rigid clamping of workpiece
  - Reduce feed
  - Increase coolant flow



- 8) Unsatisfactory surface finish**
- Rigid clamping of workpiece
  - Increase coolant flow and pressure





Leading Through Innovation

SOLID CARBIDE

# DREAM DRILLS PRO

## VHM DREAM DRILLS PRO BOHRER

- For General Purpose (HRc30 to HRc50)
- Extremely High hardness and Heat resistance due to YG-1 special Z-Coating technology
- Für allgemeine Zwecke (HRc30 bis HRc50)
- Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1







DGN523 SERIES



DGN523 SERIES

**CARBIDE, DREAM DRILLS PRO**

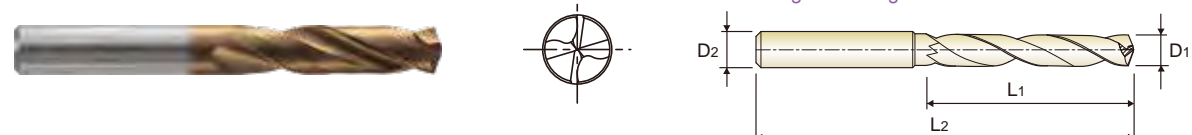
**SHORT**

- VHM DREAM DRILLS PRO BOHRER
- FORETS DREAM DRILLS CARBURE MONOBLOC – PRO
- MD, DREAM DRILLS PRO

**KURZ  
COURTE  
CORTA**

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DIN 6537 CARBIDE 30° h6 m7 140° Coating p.A74 3 x D

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DGN523030	3.0	6	20	62
DGN523031	3.1	6	20	62
DGN523032	3.2	6	20	62
DGN523033	3.3	6	20	62
DGN523034	3.4	6	20	62
DGN523035	3.5	6	20	62
DGN523036	3.6	6	20	62
DGN523037	3.7	6	20	62
DGN523038	3.8	6	24	66
DGN523039	3.9	6	24	66
DGN523040	4.0	6	24	66
DGN523041	4.1	6	24	66
DGN523042	4.2	6	24	66
DGN523043	4.3	6	24	66
DGN523044	4.4	6	24	66
DGN523045	4.5	6	24	66
DGN523046	4.6	6	24	66
DGN523047	4.7	6	24	66
DGN523048	4.8	6	28	66
DGN523049	4.9	6	28	66
DGN523050	5.0	6	28	66
DGN523051	5.1	6	28	66
DGN523052	5.2	6	28	66
DGN523053	5.3	6	28	66

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DGN523054	5.4	6	28	66
DGN523055	5.5	6	28	66
DGN523056	5.6	6	28	66
DGN523057	5.7	6	28	66
DGN523058	5.8	6	28	66
DGN523059	5.9	6	28	66
DGN523060	6.0	6	28	66
DGN523061	6.1	8	34	79
DGN523062	6.2	8	34	79
DGN523063	6.3	8	34	79
DGN523064	6.4	8	34	79
DGN523065	6.5	8	34	79
DGN523066	6.6	8	34	79
DGN523067	6.7	8	34	79
DGN523068	6.8	8	34	79
DGN523069	6.9	8	34	79
DGN523070	7.0	8	34	79
DGN523071	7.1	8	41	79
DGN523072	7.2	8	41	79
DGN523073	7.3	8	41	79
DGN523074	7.4	8	41	79
DGN523075	7.5	8	41	79
DGN523076	7.6	8	41	79
DGN523077	7.7	8	41	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**CARBIDE, DREAM DRILLS PRO**

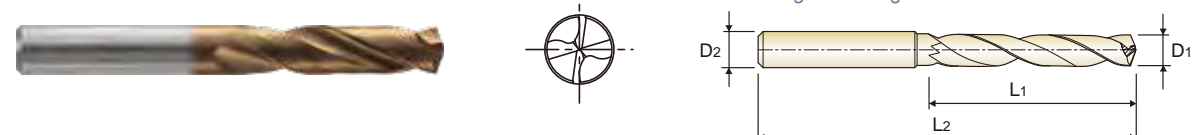
**SHORT**

- VHM DREAM DRILLS PRO BOHRER
- FORETS DREAM DRILLS CARBURE MONOBLOC – PRO
- MD, DREAM DRILLS PRO

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DIN 6537 CARBIDE 30° h6 m7 140° Coating p.A74 3 x D

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DGN523078	7.8	8	41	79
DGN523079	7.9	8	41	79
DGN523080	8.0	8	41	79
DGN523081	8.1	10	47	89
DGN523082	8.2	10	47	89
DGN523083	8.3	10	47	89
DGN523084	8.4	10	47	89
DGN523085	8.5	10	47	89
DGN523086	8.6	10	47	89
DGN523087	8.7	10	47	89
DGN523088	8.8	10	47	89
DGN523089	8.9	10	47	89
DGN523090	9.0	10	47	89
DGN523091	9.1	10	47	89
DGN523092	9.2	10	47	89
DGN523093	9.3	10	47	89
DGN523094	9.4	10	47	89
DGN523095	9.5	10	47	89
DGN523096	9.6	10	47	89
DGN523097	9.7	10	47	89
DGN523098	9.8	10	47	89
DGN523099	9.9	10	47	89
DGN523100	10.0	10	47	89
DGN523101	10.1	12	55	102

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DGN523102	10.2	12	55	102
DGN523103	10.3	12	55	102
DGN523104	10.4	12	55	102
DGN523105	10.5	12	55	102
DGN523106	10.6	12	55	102
DGN523107	10.7	12	55	102
DGN523108	10.8	12	55	102
DGN523109	10.9	12	55	102
DGN523110	11.0	12	55	102
DGN523111	11.1	12	55	102
DGN523112	11.2	12	55	102
DGN523113	11.3	12	55	102
DGN523114	11.4	12	55	102
DGN523115	11.5	12	55	102
DGN523116	11.6	12	55	102
DGN523117	11.7	12	55	102
DGN523118	11.8	12	55	102
DGN523119	11.9	12	55	102
DGN523120	12.0	12	55	102
DGN523123	12.3	14	60	107
DGN523125	12.5	14	60	107
DGN523128	12.8	14	60	107
DGN523130	13.0	14	60	107
DGN523135	13.5	14	60	107

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

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HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
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HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





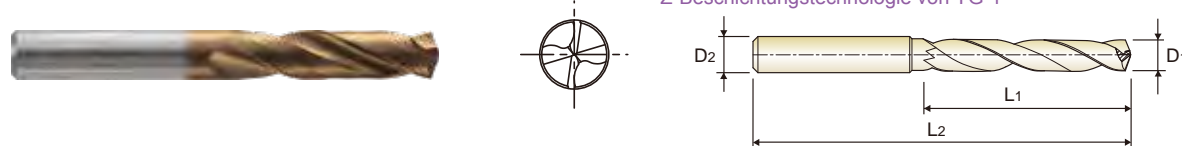
CARBIDE, DREAM DRILLS PRO

SHORT

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FORETS DREAM DRILLS CARBURE MONOBLOC - PRO
MD, DREAM DRILLS PRO

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DIN 6537 CARBIDE 30° h6 m7 140° Z Coating p.A74

Plain Shank Page
SHRINK FIT HOLDER D47-72
HYDRAULIC CHUCK D15-46
ER COLLET CHUCK D73-115

Table with 5 columns: EDP No., Drill Diameter, Shank Diameter, Flute Length, Overall Length. Lists models DGN523138 to DGN523168.

Table with 5 columns: EDP No., Drill Diameter, Shank Diameter, Flute Length, Overall Length. Lists models DGN523170 to DGN523200.

Other shank types are available on your request.

ISO material compatibility chart for DGN523 series, showing suitability for various materials like Non-alloy steel, Low alloy steel, High alloyed steel, etc.



CARBIDE, DREAM DRILLS PRO

LONG

- VHM DREAM DRILLS PRO BOHRER
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DIN 6537 CARBIDE 30° h6 m7 140° Z Coating p.A74

Plain Shank Page
SHRINK FIT HOLDER D47-72
HYDRAULIC CHUCK D15-46
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Table with 5 columns: EDP No., Drill Diameter, Shank Diameter, Flute Length, Overall Length. Lists models DGN526010 to DGN526033.

Table with 5 columns: EDP No., Drill Diameter, Shank Diameter, Flute Length, Overall Length. Lists models DGN526034 to DGN526057.

Other shank types are available on your request.

NEXT PAGE

ISO material compatibility chart for DGN526 series, showing suitability for various materials like Non-alloy steel, Low alloy steel, High alloyed steel, etc.



DGN526 SERIES

CARBIDE, DREAM DRILLS PRO

LONG

- VHM DREAM DRILLS PRO BOHRER
FORETS DREAM DRILLS CARBURE MONOBLOC - PRO
MD, DREAM DRILLS PRO

LANG
LONGUE
LUNGA

- Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRC30-50), Cast Iron
Wave shape cutting edge to improve chip formation for low cutting force
Helical thinning for low thrust, stable torque and good chip breakage
Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

- Bohren für Kohlenstoffstähle, legierte Stähle (HB225-325), vorvergütete Stähle (HRC30-50), Gusseisen
Wellenförmige Schneidkante zur Verbesserung der Spanbildung und für geringe Schnittkräfte
Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1



DIN 6537 CARBIDE 30° h6 m7 140° Coating p.A74 5 x D

Plain Shank Page
SHRINK FIT HOLDER D47-72
HYDRAULIC CHUCK D15-46
ER COLLET CHUCK D73-115

Table with 5 columns: EDP No., Drill Diameter, Shank Diameter, Flute Length, Overall Length. Lists various drill bit models and their specifications.

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NEXT PAGE

ISO chart showing material compatibility for different drill bit grades (P, M, K, S, H) across various materials like Non-alloy steel, Low alloy steel, High alloyed steel, etc.



DGN526 SERIES

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ISO chart showing material compatibility for different drill bit grades (P, M, K, S, H) across various materials like Non-alloy steel, Low alloy steel, High alloyed steel, etc.



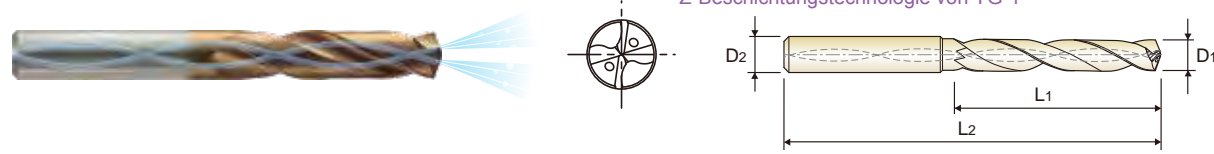
**CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES**

SHORT

- VHM DREAM DRILLS PRO BOHRER MIT INNENKÜHLUNG
- FORETS DREAM DRILLS CARBURE MONOBLOC – PRO, AVEC ARROSAGE CENTRAL
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DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Z Coating p.A75 3 x D Recommended ToolHolder

Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
DGN506030	3.0	6	20	62	DGN506054	5.4	6	28	66
DGN506031	3.1	6	20	62	DGN506055	5.5	6	28	66
DGN506032	3.2	6	20	62	DGN506056	5.6	6	28	66
DGN506033	3.3	6	20	62	DGN506057	5.7	6	28	66
DGN506034	3.4	6	20	62	DGN506058	5.8	6	28	66
DGN506035	3.5	6	20	62	DGN506059	5.9	6	28	66
DGN506036	3.6	6	20	62	DGN506060	6.0	6	28	66
DGN506037	3.7	6	20	62	DGN506061	6.1	8	34	79
DGN506038	3.8	6	24	66	DGN506062	6.2	8	34	79
DGN506039	3.9	6	24	66	DGN506063	6.3	8	34	79
DGN506040	4.0	6	24	66	DGN506064	6.4	8	34	79
DGN506041	4.1	6	24	66	DGN506065	6.5	8	34	79
DGN506042	4.2	6	24	66	DGN506066	6.6	8	34	79
DGN506043	4.3	6	24	66	DGN506067	6.7	8	34	79
DGN506044	4.4	6	24	66	DGN506068	6.8	8	34	79
DGN506045	4.5	6	24	66	DGN506069	6.9	8	34	79
DGN506046	4.6	6	24	66	DGN506070	7.0	8	34	79
DGN506047	4.7	6	24	66	DGN506071	7.1	8	41	79
DGN506048	4.8	6	28	66	DGN506072	7.2	8	41	79
DGN506049	4.9	6	28	66	DGN506073	7.3	8	41	79
DGN506050	5.0	6	28	66	DGN506074	7.4	8	41	79
DGN506051	5.1	6	28	66	DGN506075	7.5	8	41	79
DGN506052	5.2	6	28	66	DGN506076	7.6	8	41	79
DGN506053	5.3	6	28	66	DGN506077	7.7	8	41	79

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◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



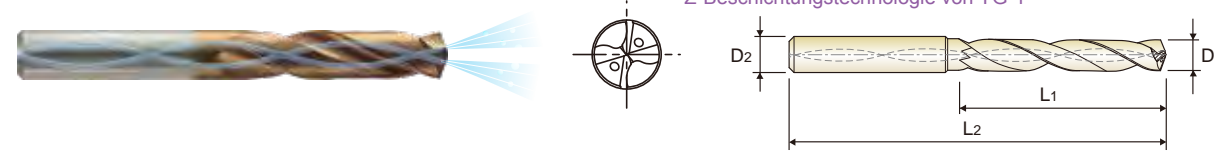
**CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES**

SHORT

- VHM DREAM DRILLS PRO BOHRER MIT INNENKÜHLUNG
- FORETS DREAM DRILLS CARBURE MONOBLOC – PRO, AVEC ARROSAGE CENTRAL
- MD, DREAM DRILL PRO CON FORI DI REFRIGERAZIONE

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DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Z Coating p.A75 3 x D Recommended ToolHolder

Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
DGN506078	7.8	8	41	79	DGN506102	10.2	12	55	102
DGN506079	7.9	8	41	79	DGN506103	10.3	12	55	102
DGN506080	8.0	8	41	79	DGN506104	10.4	12	55	102
DGN506081	8.1	10	47	89	DGN506105	10.5	12	55	102
DGN506082	8.2	10	47	89	DGN506106	10.6	12	55	102
DGN506083	8.3	10	47	89	DGN506107	10.7	12	55	102
DGN506084	8.4	10	47	89	DGN506108	10.8	12	55	102
DGN506085	8.5	10	47	89	DGN506109	10.9	12	55	102
DGN506086	8.6	10	47	89	DGN506110	11.0	12	55	102
DGN506087	8.7	10	47	89	DGN506111	11.1	12	55	102
DGN506088	8.8	10	47	89	DGN506112	11.2	12	55	102
DGN506089	8.9	10	47	89	DGN506113	11.3	12	55	102
DGN506090	9.0	10	47	89	DGN506114	11.4	12	55	102
DGN506091	9.1	10	47	89	DGN506115	11.5	12	55	102
DGN506092	9.2	10	47	89	DGN506116	11.6	12	55	102
DGN506093	9.3	10	47	89	DGN506117	11.7	12	55	102
DGN506094	9.4	10	47	89	DGN506118	11.8	12	55	102
DGN506095	9.5	10	47	89	DGN506119	11.9	12	55	102
DGN506096	9.6	10	47	89	DGN506120	12.0	12	55	102
DGN506097	9.7	10	47	89	DGN506125	12.5	14	60	107
DGN506098	9.8	10	47	89	DGN506130	13.0	14	60	107
DGN506099	9.9	10	47	89	DGN506135	13.5	14	60	107
DGN506100	10.0	10	47	89	DGN506140	14.0	14	60	107
DGN506101	10.1	12	55	102	DGN506145	14.5	16	65	115

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





DGN506 SERIES

**CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES**

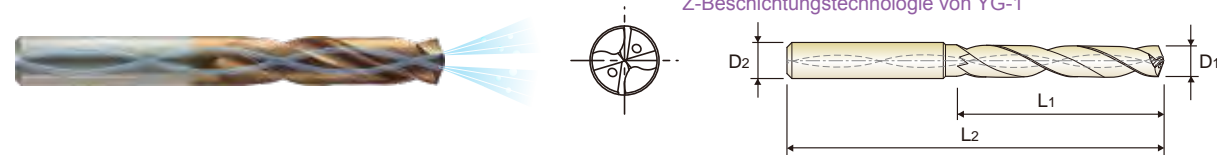
**SHORT**

- VHM DREAM DRILLS PRO BOHRER MIT INNENKÜHLUNG
- FORETS DREAM DRILLS CARBURE MONOBLOC – PRO, AVEC ARROSAGE CENTRAL
- MD, DREAM DRILL PRO CON FORI DI REFRIGERAZIONE

**KURZ  
COURTE  
CORTA**

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DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Z Coating p.A75 3 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	
				L1	L2
Z-Coating	D1	D2	L1	L2	
DGN506150	15.0	16	65	115	
DGN506155	15.5	16	65	115	
DGN506160	16.0	16	65	115	
DGN506165	16.5	18	73	123	
DGN506170	17.0	18	73	123	
DGN506175	17.5	18	73	123	

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○



DGN508 SERIES

**CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES**

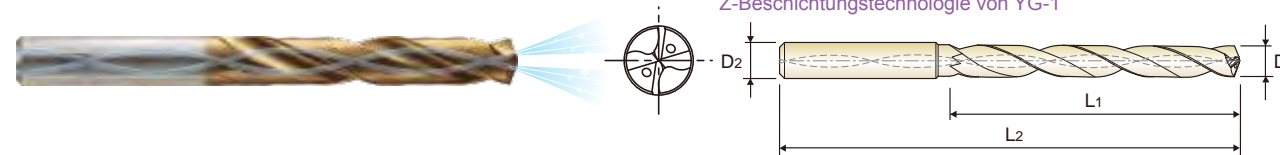
**LONG**

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- FORETS DREAM DRILLS CARBURE MONOBLOC – PRO, AVEC ARROSAGE CENTRAL
- MD, DREAM DRILL PRO CON FORI DI REFRIGERAZIONE

**LANG  
LONGUE  
LUNGA**

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DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Z Coating p.A75 5 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	
				L1	L2
Z-Coating	D1	D2	L1	L2	
DGN508010	1.0	3	8	55	
DGN508011	1.1	3	12	55	
DGN508012	1.2	3	12	55	
DGN508013	1.3	3	12	55	
DGN508014	1.4	3	12	55	
DGN508015	1.5	3	16	55	
DGN508016	1.6	3	16	55	
DGN508017	1.7	3	16	55	
DGN508018	1.8	3	16	55	
DGN508019	1.9	3	16	55	
DGN508020	2.0	4	21	57	
DGN508021	2.1	4	21	57	
DGN508022	2.2	4	21	57	
DGN508023	2.3	4	21	57	
DGN508024	2.4	4	21	57	
DGN508025	2.5	4	21	57	
DGN508026	2.6	4	21	57	
DGN508027	2.7	4	21	57	
DGN508028	2.8	4	21	57	
DGN508029	2.9	4	21	57	
DGN508030	3.0	6	28	66	
DGN508031	3.1	6	28	66	
DGN508032	3.2	6	28	66	
DGN508033	3.3	6	28	66	

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▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○





DGN508 SERIES



DGN508 SERIES

**CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES**

LONG

**CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES**

LONG

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- ▶ Wellenförmige Schneidkante zur Verbesserung der Spanbildung und für geringe Schnittkräfte
- ▶ Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
- ▶ Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Z Coating p.A75 5 x D  
 Recommended ToolHolder: Plain Shank (Page D47-72), SHRINK FIT HOLDER (D15-46), HYDRAULIC CHUCK (D73-115), ER COLLET CHUCK

DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Z Coating p.A75 5 x D  
 Recommended ToolHolder: Plain Shank (Page D47-72), SHRINK FIT HOLDER (D15-46), HYDRAULIC CHUCK (D73-115), ER COLLET CHUCK

Z-Coating					Z-Coating				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
	D1	D2	L1	L2		D1	D2	L1	L2
DGN508058	5.8	6	44	82	DGN508082	8.2	10	61	103
DGN508059	5.9	6	44	82	DGN508083	8.3	10	61	103
DGN508060	6.0	6	44	82	DGN508084	8.4	10	61	103
DGN508061	6.1	8	53	91	DGN508085	8.5	10	61	103
DGN508062	6.2	8	53	91	DGN508086	8.6	10	61	103
DGN508063	6.3	8	53	91	DGN508087	8.7	10	61	103
DGN508064	6.4	8	53	91	DGN508088	8.8	10	61	103
DGN508065	6.5	8	53	91	DGN508089	8.9	10	61	103
DGN508066	6.6	8	53	91	DGN508090	9.0	10	61	103
DGN508067	6.7	8	53	91	DGN508091	9.1	10	61	103
DGN508068	6.8	8	53	91	DGN508092	9.2	10	61	103
DGN508069	6.9	8	53	91	DGN508093	9.3	10	61	103
DGN508070	7.0	8	53	91	DGN508094	9.4	10	61	103
DGN508071	7.1	8	53	91	DGN508095	9.5	10	61	103
DGN508072	7.2	8	53	91	DGN508096	9.6	10	61	103
DGN508073	7.3	8	53	91	DGN508097	9.7	10	61	103
DGN508074	7.4	8	53	91	DGN508098	9.8	10	61	103
DGN508075	7.5	8	53	91	DGN508099	9.9	10	61	103
DGN508076	7.6	8	53	91	DGN508100	10.0	10	61	103
DGN508077	7.7	8	53	91	DGN508101	10.1	12	71	118
DGN508078	7.8	8	53	91	DGN508102	10.2	12	71	118
DGN508079	7.9	8	53	91	DGN508103	10.3	12	71	118
DGN508080	8.0	8	53	91	DGN508104	10.4	12	71	118
DGN508081	8.1	10	61	103	DGN508105	10.5	12	71	118

Z-Coating					Z-Coating				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
	D1	D2	L1	L2		D1	D2	L1	L2
DGN508106	10.6	12	71	118	DGN508170	17.0	18	93	143
DGN508107	10.7	12	71	118	DGN508175	17.5	18	93	143
DGN508108	10.8	12	71	118	DGN508180	18.0	18	93	143
DGN508109	10.9	12	71	118	DGN508185	18.5	20	101	153
DGN508110	11.0	12	71	118	DGN508190	19.0	20	101	153
DGN508111	11.1	12	71	118	DGN508195	19.5	20	101	153
DGN508112	11.2	12	71	118	DGN508200	20.0	20	101	153
DGN508113	11.3	12	71	118					
DGN508114	11.4	12	71	118					
DGN508115	11.5	12	71	118					
DGN508116	11.6	12	71	118					
DGN508117	11.7	12	71	118					
DGN508118	11.8	12	71	118					
DGN508119	11.9	12	71	118					
DGN508120	12.0	12	71	118					
DGN508125	12.5	14	77	124					
DGN508130	13.0	14	77	124					
DGN508135	13.5	14	77	124					
DGN508140	14.0	14	77	124					
DGN508145	14.5	16	83	133					
DGN508150	15.0	16	83	133					
DGN508155	15.5	16	83	133					
DGN508160	16.0	16	83	133					
DGN508165	16.5	18	93	143					

▶ Other shank types are available on your request.

▶ NEXT PAGE

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	◎	○	○	◎	○	○	○	◎	○	◎	○	◎	○

ISO	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	○	○	◎	◎	◎	○	○	◎	○	○	○	◎	○	◎	○	◎	○

ISO	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

DGN523, DGN526 SERIES without COOLANT HOLES

RPM = rev./min.  
FEED = mm/rev.

Table with columns: ISO, VDI 3323, Material Description, Vc, Parameter, Drill Diameter (mm) [1.0, 2.0, 3.0, 4.0, 5.0, 6.0]. Rows include Non-alloy steel, Low alloy steel, High alloyed steel, Stainless steel, Grey cast iron, Nodular cast iron, Malleable cast iron, and Hardened steel.

Table with columns: ISO, VDI 3323, Material Description, Vc, Parameter, Drill Diameter (mm) [8.0, 10.0, 12.0, 14.0, 16.0, 18.0, 20.0]. Rows include Non-alloy steel, Low alloy steel, High alloyed steel, Stainless steel, Grey cast iron, Nodular cast iron, Malleable cast iron, and Hardened steel.

Recommend to reduce the feed rate as following Feed 100% : DGN523(3xD), DGN526(5xD)



RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

DGN506, DGN508 SERIES with COOLANT HOLES

RPM = rev./min.  
FEED = mm/rev.

Table with columns: ISO, VDI 3323, Material Description, Vc, Parameter, Drill Diameter (mm) [1.0, 2.0, 3.0, 4.0, 5.0, 6.0]. Rows include Non-alloy steel, Low alloy steel, High alloyed steel, Stainless steel, Grey cast iron, Nodular cast iron, Malleable cast iron, and Hardened steel.

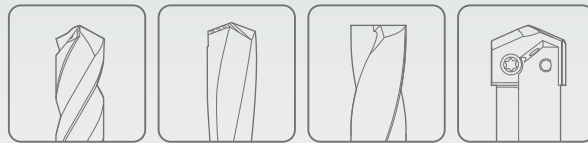
Table with columns: ISO, VDI 3323, Material Description, Vc, Parameter, Drill Diameter (mm) [8.0, 10.0, 12.0, 14.0, 16.0, 18.0, 20.0]. Rows include Non-alloy steel, Low alloy steel, High alloyed steel, Stainless steel, Grey cast iron, Nodular cast iron, Malleable cast iron, and Hardened steel.

Recommend to reduce the feed rate as following Feed 100% : DGN506(3xD), DGN508(5xD)





Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

SOLID CARBIDE

# DREAM DRILLS -GENERAL DREAM DRILLS - UNIVERSAL

- For General Purpose (HRc30 to HRc50)
- Für allgemeine Anwendungen (HRc30 bis HRc50)



SELECTION GUIDE



SERIES	DH404	DH423 DH443
DRILLING DEPTH	3XD	3XD
LENGTH	STUB	SHORT
SIZE MIN	D3.0	D3.0
SIZE MAX	D20.0	D20.0
PAGE	A80	A82
SURFACE TREATMENT	TiAlN	

# SOLID CARBIDE DREAM DRILLS GENERAL

For General Purpose (HRc30 to HRc50)

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

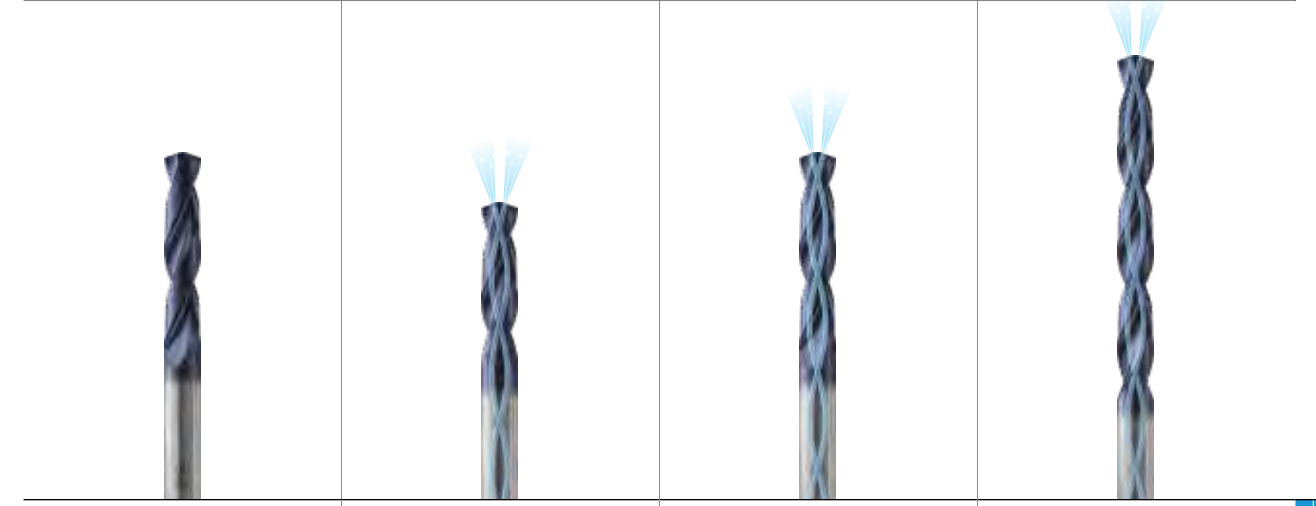
Recommended cutting conditions : P.94



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
P	1	Non-alloy steel	About 0.15% C Annealed	125	
	2		About 0.45% C Annealed	190	13
	3		About 0.45% C Quenched & Tempered	250	25
	4		About 0.75% C Annealed	270	28
	5		About 0.75% C Quenched & Tempered	300	32
	6	Low alloy steel	Annealed	180	10
	7		Quenched & Tempered	275	29
	8		Quenched & Tempered	300	32
	9		Quenched & Tempered	350	38
	10		High alloyed steel, and tool steel	Annealed	200
	11	Quenched & Tempered		325	35
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15
	13		Martensitic Quenched & Tempered	240	23
	14		Austenitic	180	10
K	15	Grey cast iron	Pearlitic / ferritic	180	10
	16		Pearlitic (Martensitic)	260	26
	17	Nodular cast iron	Ferritic	160	3
	18		Pearlitic	250	25
	19	Malleable cast iron	Ferritic	130	
	20		Pearlitic	230	21
N	21	Aluminum-wrought alloy	Not Curable	60	
	22		Curable Hardened	100	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	
	24		≤ 12% Si, Curable Hardened	90	
	25		> 12% Si, Not Curable	130	
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	
	27		CuZn, CuSnZn (Brass)	90	
	28		CuSn, lead-free copper and electrolytic copper	100	
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic		
	30		Rubber, Wood, etc.		
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15
	32		Cured	280	30
	33		Annealed	250	25
	34	Titanium Alloys	Ni or Co Based Cured	350	38
	35		Cast	320	34
	36		Pure Titanium	400 Rm	
37	Alpha + Beta Alloys Hardened	1050 Rm			
H	38	Hardened steel	Hardened	550	55
	39		Hardened	630	60
	40		Chilled Cast Iron	400	42
	41		Hardened Cast Iron	550	55



DH424 DH444	DH406 DH446	DH408 DH448	DH421
5XD	3XD	5XD	8XD
LONG	SHORT	LONG	EXTRA LONG
D1.0	D3.0	D1.0	D3.0
D20.0	D20.0	D20.0	D14.0
A85	A88	A91	A94
TiAlN			



◎	◎	◎	◎	1
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				41

HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA





DH404 SERIES



DH404 SERIES

**CARBIDE, DREAM DRILLS**

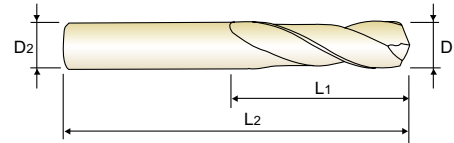
STUB

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série extra-courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation

- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6539 CARBIDE 30° h6 h7 140° TiAlN p.A96

D<sub>1</sub>=D<sub>2</sub>  
3 × D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

Unit : mm				Unit : mm			
EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	TiAlN	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>
DH404030	3.0	16	46	DH404054	5.4	28	66
DH404031	3.1	18	49	DH404055	5.5	28	66
DH404032	3.2	18	49	DH404056	5.6	28	66
DH404033	3.3	18	49	DH404057	5.7	28	66
DH404034	3.4	20	52	DH404058	5.8	28	66
DH404035	3.5	20	52	DH404059	5.9	28	66
DH404036	3.6	20	52	DH404060	6.0	28	66
DH404037	3.7	20	52	DH404061	6.1	31	70
DH404038	3.8	22	55	DH404062	6.2	31	70
DH404039	3.9	22	55	DH404063	6.3	31	70
DH404040	4.0	22	55	DH404064	6.4	31	70
DH404041	4.1	22	55	DH404065	6.5	31	70
DH404042	4.2	22	55	DH404066	6.6	31	70
DH404043	4.3	24	58	DH404067	6.7	31	70
DH404044	4.4	24	58	DH404068	6.8	34	74
DH404045	4.5	24	58	DH404069	6.9	34	74
DH404046	4.6	24	58	DH404070	7.0	34	74
DH404047	4.7	24	58	DH404071	7.1	34	74
DH404048	4.8	26	62	DH404072	7.2	34	74
DH404049	4.9	26	62	DH404073	7.3	34	74
DH404050	5.0	26	62	DH404074	7.4	34	74
DH404051	5.1	26	62	DH404075	7.5	34	74
DH404052	5.2	26	62	DH404076	7.6	37	79
DH404053	5.3	26	62	DH404077	7.7	37	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

**CARBIDE, DREAM DRILLS**

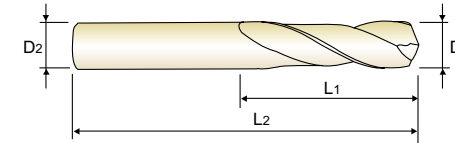
STUB

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série extra-courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

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DIN 6539 CARBIDE 30° h6 h7 140° TiAlN p.A96

D<sub>1</sub>=D<sub>2</sub>  
3 × D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

Unit : mm				Unit : mm			
EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	TiAlN	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>
DH404078	7.8	37	79	DH404100	10.0	43	89
DH404079	7.9	37	79	DH404102	10.2	43	89
DH404080	8.0	37	79	DH404105	10.5	43	89
DH404081	8.1	37	79	DH404110	11.0	47	95
DH404082	8.2	37	79	DH404115	11.5	47	95
DH404083	8.3	37	79	DH404120	12.0	51	102
DH404084	8.4	37	79	DH404130	13.0	51	102
DH404085	8.5	37	79	DH404135	13.5	54	107
DH404086	8.6	40	84	DH404140	14.0	54	107
DH404087	8.7	40	84	DH404145	14.5	56	111
DH404088	8.8	40	84	DH404150	15.0	56	111
DH404089	8.9	40	84	DH404155	15.5	58	115
DH404090	9.0	40	84	DH404160	16.0	58	115
DH404091	9.1	40	84	DH404165	16.5	60	119
DH404092	9.2	40	84	DH404170	17.0	60	119
DH404093	9.3	40	84	DH404175	17.5	62	123
DH404094	9.4	40	84	DH404180	18.0	62	123
DH404095	9.5	40	84	DH404185	18.5	64	127
DH404096	9.6	43	89	DH404190	19.0	64	127
DH404097	9.7	43	89	DH404195	19.5	66	131
DH404098	9.8	43	89	DH404200	20.0	66	131
DH404099	9.9	43	89				

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	◎	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	◎	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





PLAIN SHANK DH423 SERIES  
FLAT SHANK DH443 SERIES

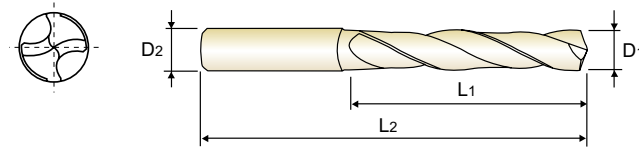
**CARBIDE, DREAM DRILLS**

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

**SHORT**  
**KURZ**  
**COURTE**  
**CORTA**

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- Self centering and chip breaking by R-thinning
- Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- Optimized flute shape for strength of drilling and smooth chip evacuation

- Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6539 CARBIDE 30° h6 h7 140° TiAlN p.A96 3 x D

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH423030	DH443030	3.0	6	20	62
DH423031	DH443031	3.1	6	20	62
DH423032	DH443032	3.2	6	20	62
DH423033	DH443033	3.3	6	20	62
DH423034	DH443034	3.4	6	20	62
DH423035	DH443035	3.5	6	20	62
DH423036	DH443036	3.6	6	20	62
DH423037	DH443037	3.7	6	20	62
DH423038	DH443038	3.8	6	24	66
DH423039	DH443039	3.9	6	24	66
DH423040	DH443040	4.0	6	24	66
DH423041	DH443041	4.1	6	24	66
DH423042	DH443042	4.2	6	24	66
DH423043	DH443043	4.3	6	24	66
DH423044	DH443044	4.4	6	24	66
DH423045	DH443045	4.5	6	24	66
DH423046	DH443046	4.6	6	24	66
DH423047	DH443047	4.7	6	24	66
DH423048	DH443048	4.8	6	28	66
DH423049	DH443049	4.9	6	28	66
DH423050	DH443050	5.0	6	28	66
DH423051	DH443051	5.1	6	28	66
DH423052	DH443052	5.2	6	28	66
DH423053	DH443053	5.3	6	28	66

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH423054	DH443054	5.4	6	28	66
DH423055	DH443055	5.5	6	28	66
DH423056	DH443056	5.6	6	28	66
DH423057	DH443057	5.7	6	28	66
DH423058	DH443058	5.8	6	28	66
DH423059	DH443059	5.9	6	28	66
DH423060	DH443060	6.0	6	28	66
DH423061	DH443061	6.1	8	34	79
DH423062	DH443062	6.2	8	34	79
DH423063	DH443063	6.3	8	34	79
DH423064	DH443064	6.4	8	34	79
DH423065	DH443065	6.5	8	34	79
DH423066	DH443066	6.6	8	34	79
DH423067	DH443067	6.7	8	34	79
DH423068	DH443068	6.8	8	34	79
DH423069	DH443069	6.9	8	34	79
DH423070	DH443070	7.0	8	34	79
DH423071	DH443071	7.1	8	41	79
DH423072	DH443072	7.2	8	41	79
DH423073	DH443073	7.3	8	41	79
DH423074	DH443074	7.4	8	41	79
DH423075	DH443075	7.5	8	41	79
DH423076	DH443076	7.6	8	41	79
DH423077	DH443077	7.7	8	41	79

Other shank types are available on your request.

NEXT PAGE

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ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



PLAIN SHANK DH423 SERIES  
FLAT SHANK DH443 SERIES

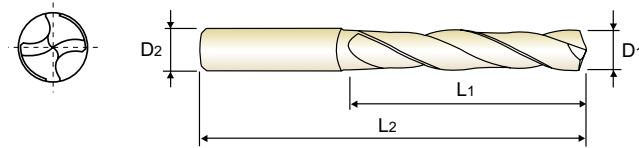
**CARBIDE, DREAM DRILLS**

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

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**CORTA**

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DIN 6539 CARBIDE 30° h6 h7 140° TiAlN p.A96 3 x D

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH423078	DH443078	7.8	8	41	79
DH423079	DH443079	7.9	8	41	79
DH423080	DH443080	8.0	8	41	79
DH423081	DH443081	8.1	10	47	89
DH423082	DH443082	8.2	10	47	89
DH423083	DH443083	8.3	10	47	89
DH423084	DH443084	8.4	10	47	89
DH423085	DH443085	8.5	10	47	89
DH423086	DH443086	8.6	10	47	89
DH423087	DH443087	8.7	10	47	89
DH423088	DH443088	8.8	10	47	89
DH423089	DH443089	8.9	10	47	89
DH423090	DH443090	9.0	10	47	89
DH423091	DH443091	9.1	10	47	89
DH423092	DH443092	9.2	10	47	89
DH423093	DH443093	9.3	10	47	89
DH423094	DH443094	9.4	10	47	89
DH423095	DH443095	9.5	10	47	89
DH423096	DH443096	9.6	10	47	89
DH423097	DH443097	9.7	10	47	89
DH423098	DH443098	9.8	10	47	89
DH423099	DH443099	9.9	10	47	89
DH423100	DH443100	10.0	10	47	89
DH423101	DH443101	10.1	12	55	102

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH423102	DH443102	10.2	12	55	102
DH423103	DH443103	10.3	12	55	102
DH423104	DH443104	10.4	12	55	102
DH423105	DH443105	10.5	12	55	102
DH423106	DH443106	10.6	12	55	102
DH423107	DH443107	10.7	12	55	102
DH423108	DH443108	10.8	12	55	102
DH423109	DH443109	10.9	12	55	102
DH423110	DH443110	11.0	12	55	102
DH423111	DH443111	11.1	12	55	102
DH423112	DH443112	11.2	12	55	102
DH423113	DH443113	11.3	12	55	102
DH423114	DH443114	11.4	12	55	102
DH423115	DH443115	11.5	12	55	102
DH423116	DH443116	11.6	12	55	102
DH423117	DH443117	11.7	12	55	102
DH423118	DH443118	11.8	12	55	102
DH423119	DH443119	11.9	12	55	102
DH423120	DH443120	12.0	12	55	102
DH423123	DH443123	12.3	14	60	107
DH423125	DH443125	12.5	14	60	107
DH423128	DH443128	12.8	14	60	107
DH423130	DH443130	13.0	14	60	107
DH423135	DH443135	13.5	14	60	107

Other shank types are available on your request.

NEXT PAGE

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ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



PLAIN SHANK DH423 SERIES  
FLAT SHANK DH443 SERIES



PLAIN SHANK DH424 SERIES  
FLAT SHANK DH444 SERIES

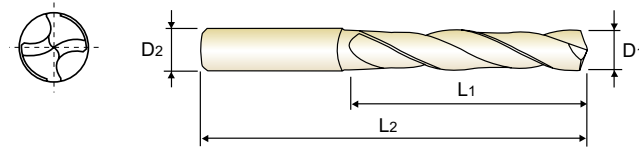
**CARBIDE, DREAM DRILLS**

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

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**COURTE**  
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DIN 6539 CARBIDE 30° h6 h7 140° TiAlN p.A96 3 x D

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH423138	DH443138	13.8	14	60	107
DH423140	DH443140	14.0	14	60	107
DH423145	DH443145	14.5	16	65	115
DH423148	DH443148	14.8	16	65	115
DH423150	DH443150	15.0	16	65	115
DH423155	DH443155	15.5	16	65	115
DH423158	DH443158	15.8	16	65	115
DH423160	DH443160	16.0	16	65	115
DH423165	DH443165	16.5	18	73	123
DH423168	DH443168	16.8	18	73	123

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH423170	DH443170	17.0	18	73	123
DH423175	DH443175	17.5	18	73	123
DH423178	DH443178	17.8	18	73	123
DH423180	DH443180	18.0	18	73	123
DH423185	DH443185	18.5	20	79	131
DH423190	DH443190	19.0	20	79	131
DH423195	DH443195	19.5	20	79	131
DH423198	DH443198	19.8	20	79	131
DH423200	DH443200	20.0	20	79	131

Other shank types are available on your request.

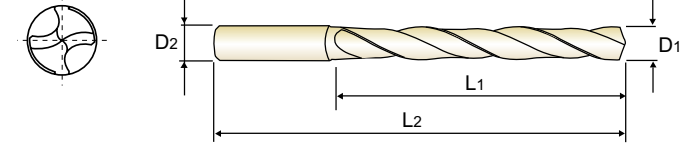
**CARBIDE, DREAM DRILLS**

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série longue
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

**LONG**  
**LANG**  
**LONGUE**  
**LUNGA**

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
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DIN 6539 CARBIDE 30° h6 h7 140° TiAlN p.A96 5 x D

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH424010	-	1.0	3	8	55
DH424011	-	1.1	3	12	55
DH424012	-	1.2	3	12	55
DH424013	-	1.3	3	12	55
DH424014	-	1.4	3	12	55
DH424015	-	1.5	3	16	55
DH424016	-	1.6	3	16	55
DH424017	-	1.7	3	16	55
DH424018	-	1.8	3	16	55
DH424019	-	1.9	3	16	55
DH424020	-	2.0	4	21	57
DH424021	-	2.1	4	21	57
DH424022	-	2.2	4	21	57
DH424023	-	2.3	4	21	57
DH424024	-	2.4	4	21	57
DH424025	-	2.5	4	21	57
DH424026	-	2.6	4	21	57
DH424027	-	2.7	4	21	57
DH424028	-	2.8	4	21	57
DH424029	-	2.9	4	21	57
DH424030	DH444030	3.0	6	28	66
DH424031	DH444031	3.1	6	28	66
DH424032	DH444032	3.2	6	28	66
DH424033	DH444033	3.3	6	28	66

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2
DH424034	DH444034	3.4	6	28	66
DH424035	DH444035	3.5	6	28	66
DH424036	DH444036	3.6	6	28	66
DH424037	DH444037	3.7	6	28	66
DH424038	DH444038	3.8	6	36	74
DH424039	DH444039	3.9	6	36	74
DH424040	DH444040	4.0	6	36	74
DH424041	DH444041	4.1	6	36	74
DH424042	DH444042	4.2	6	36	74
DH424043	DH444043	4.3	6	36	74
DH424044	DH444044	4.4	6	36	74
DH424045	DH444045	4.5	6	36	74
DH424046	DH444046	4.6	6	36	74
DH424047	DH444047	4.7	6	36	74
DH424048	DH444048	4.8	6	44	82
DH424049	DH444049	4.9	6	44	82
DH424050	DH444050	5.0	6	44	82
DH424051	DH444051	5.1	6	44	82
DH424052	DH444052	5.2	6	44	82
DH424053	DH444053	5.3	6	44	82
DH424054	DH444054	5.4	6	44	82
DH424055	DH444055	5.5	6	44	82
DH424056	DH444056	5.6	6	44	82
DH424057	DH444057	5.7	6	44	82

Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					







PLAIN SHANK DH424 SERIES  
FLAT SHANK DH444 SERIES



PLAIN SHANK DH424 SERIES  
FLAT SHANK DH444 SERIES

**CARBIDE, DREAM DRILLS**

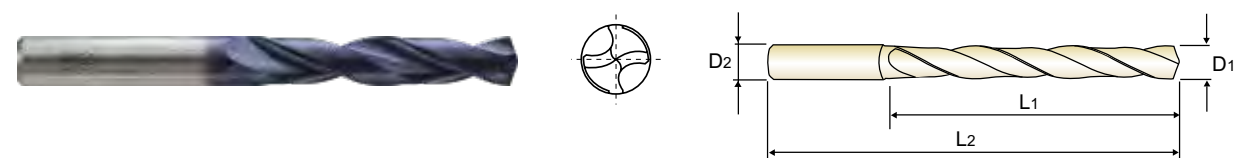
LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série longue
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

LANG  
LONGUE  
LUNGA

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- Self centering and chip breaking by R-thinning
- Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- Optimized flute shape for strength of drilling and smooth chip evacuation

- Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2	Plain	Flat	D1	D2	L1	L2
DH424058	DH444058	5.8	6	44	82	DH424082	DH444082	8.2	10	61	103
DH424059	DH444059	5.9	6	44	82	DH424083	DH444083	8.3	10	61	103
DH424060	DH444060	6.0	6	44	82	DH424084	DH444084	8.4	10	61	103
DH424061	DH444061	6.1	8	53	91	DH424085	DH444085	8.5	10	61	103
DH424062	DH444062	6.2	8	53	91	DH424086	DH444086	8.6	10	61	103
DH424063	DH444063	6.3	8	53	91	DH424087	DH444087	8.7	10	61	103
DH424064	DH444064	6.4	8	53	91	DH424088	DH444088	8.8	10	61	103
DH424065	DH444065	6.5	8	53	91	DH424089	DH444089	8.9	10	61	103
DH424066	DH444066	6.6	8	53	91	DH424090	DH444090	9.0	10	61	103
DH424067	DH444067	6.7	8	53	91	DH424091	DH444091	9.1	10	61	103
DH424068	DH444068	6.8	8	53	91	DH424092	DH444092	9.2	10	61	103
DH424069	DH444069	6.9	8	53	91	DH424093	DH444093	9.3	10	61	103
DH424070	DH444070	7.0	8	53	91	DH424094	DH444094	9.4	10	61	103
DH424071	DH444071	7.1	8	53	91	DH424095	DH444095	9.5	10	61	103
DH424072	DH444072	7.2	8	53	91	DH424096	DH444096	9.6	10	61	103
DH424073	DH444073	7.3	8	53	91	DH424097	DH444097	9.7	10	61	103
DH424074	DH444074	7.4	8	53	91	DH424098	DH444098	9.8	10	61	103
DH424075	DH444075	7.5	8	53	91	DH424099	DH444099	9.9	10	61	103
DH424076	DH444076	7.6	8	53	91	DH424100	DH444100	10.0	10	61	103
DH424077	DH444077	7.7	8	53	91	DH424101	DH444101	10.1	12	71	118
DH424078	DH444078	7.8	8	53	91	DH424102	DH444102	10.2	12	71	118
DH424079	DH444079	7.9	8	53	91	DH424103	DH444103	10.3	12	71	118
DH424080	DH444080	8.0	8	53	91	DH424104	DH444104	10.4	12	71	118
DH424081	DH444081	8.1	10	61	103	DH424105	DH444105	10.5	12	71	118

Other shank types are available on your request.

NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		○			

**CARBIDE, DREAM DRILLS**

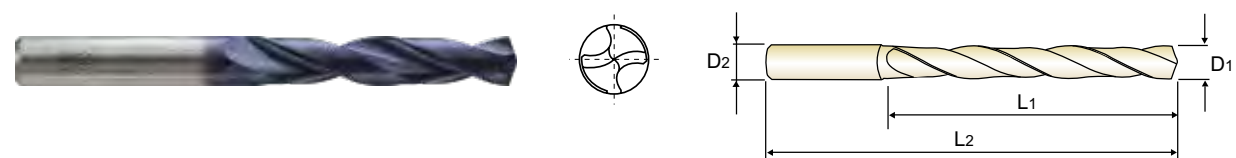
LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER
- Forets DREAM DRILLS carbure, série longue
- PUNTE ELICOIDALI IN MD - DREAM DRILLS

LANG  
LONGUE  
LUNGA

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- Self centering and chip breaking by R-thinning
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- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2	Plain	Flat	D1	D2	L1	L2
DH424106	DH444106	10.6	12	71	118	DH424170	DH444170	17.0	18	93	143
DH424107	DH444107	10.7	12	71	118	DH424175	DH444175	17.5	18	93	143
DH424108	DH444108	10.8	12	71	118	DH424180	DH444180	18.0	18	93	143
DH424109	DH444109	10.9	12	71	118	DH424185	DH444185	18.5	20	101	153
DH424110	DH444110	11.0	12	71	118	DH424190	DH444190	19.0	20	101	153
DH424111	DH444111	11.1	12	71	118	DH424195	DH444195	19.5	20	101	153
DH424112	DH444112	11.2	12	71	118	DH424200	DH444200	20.0	20	101	153
DH424113	DH444113	11.3	12	71	118						
DH424114	DH444114	11.4	12	71	118						
DH424115	DH444115	11.5	12	71	118						
DH424116	DH444116	11.6	12	71	118						
DH424117	DH444117	11.7	12	71	118						
DH424118	DH444118	11.8	12	71	118						
DH424119	DH444119	11.9	12	71	118						
DH424120	DH444120	12.0	12	71	118						
DH424125	DH444125	12.5	14	77	124						
DH424130	DH444130	13.0	14	77	124						
DH424135	DH444135	13.5	14	77	124						
DH424140	DH444140	14.0	14	77	124						
DH424145	DH444145	14.5	16	83	133						
DH424150	DH444150	15.0	16	83	133						
DH424155	DH444155	15.5	16	83	133						
DH424160	DH444160	16.0	16	83	133						
DH424165	DH444165	16.5	18	93	143						

Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		○			





PLAIN SHANK DH406 SERIES  
FLAT SHANK DH446 SERIES

**CARBIDE, DREAM DRILLS with COOLANT HOLES**

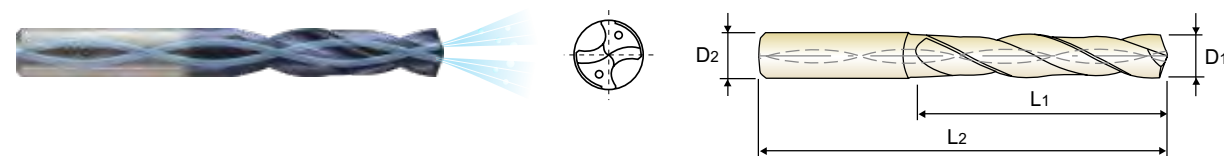
SHORT

- VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL
- Forets DREAM DRILLS carbure, avec arrosage central, série courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione)

KURZ  
COURTE  
CORTA

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
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- Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
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- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A97 3 x D

Recommended ToolHolder: SHRINK FIT HOLDER (D47-72), HYDRAULIC CHUCK (D15-46), ER COLLET CHUCK (D73-115)

EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2	Plain	Flat	D1	D2	L1	L2
DH406030	DH446030	3.0	6	20	62	DH406054	DH446054	5.4	6	28	66
DH406031	DH446031	3.1	6	20	62	DH406055	DH446055	5.5	6	28	66
DH406032	DH446032	3.2	6	20	62	DH406056	DH446056	5.6	6	28	66
DH406033	DH446033	3.3	6	20	62	DH406057	DH446057	5.7	6	28	66
DH406034	DH446034	3.4	6	20	62	DH406058	DH446058	5.8	6	28	66
DH406035	DH446035	3.5	6	20	62	DH406059	DH446059	5.9	6	28	66
DH406036	DH446036	3.6	6	20	62	DH406060	DH446060	6.0	6	28	66
DH406037	DH446037	3.7	6	20	62	DH406061	DH446061	6.1	8	34	79
DH406038	DH446038	3.8	6	24	66	DH406062	DH446062	6.2	8	34	79
DH406039	DH446039	3.9	6	24	66	DH406063	DH446063	6.3	8	34	79
DH406040	DH446040	4.0	6	24	66	DH406064	DH446064	6.4	8	34	79
DH406041	DH446041	4.1	6	24	66	DH406065	DH446065	6.5	8	34	79
DH406042	DH446042	4.2	6	24	66	DH406066	DH446066	6.6	8	34	79
DH406043	DH446043	4.3	6	24	66	DH406067	DH446067	6.7	8	34	79
DH406044	DH446044	4.4	6	24	66	DH406068	DH446068	6.8	8	34	79
DH406045	DH446045	4.5	6	24	66	DH406069	DH446069	6.9	8	34	79
DH406046	DH446046	4.6	6	24	66	DH406070	DH446070	7.0	8	34	79
DH406047	DH446047	4.7	6	24	66	DH406071	DH446071	7.1	8	41	79
DH406048	DH446048	4.8	6	28	66	DH406072	DH446072	7.2	8	41	79
DH406049	DH446049	4.9	6	28	66	DH406073	DH446073	7.3	8	41	79
DH406050	DH446050	5.0	6	28	66	DH406074	DH446074	7.4	8	41	79
DH406051	DH446051	5.1	6	28	66	DH406075	DH446075	7.5	8	41	79
DH406052	DH446052	5.2	6	28	66	DH406076	DH446076	7.6	8	41	79
DH406053	DH446053	5.3	6	28	66	DH406077	DH446077	7.7	8	41	79

Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N							S					H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	550	630	400	550	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK DH406 SERIES  
FLAT SHANK DH446 SERIES

**CARBIDE, DREAM DRILLS with COOLANT HOLES**

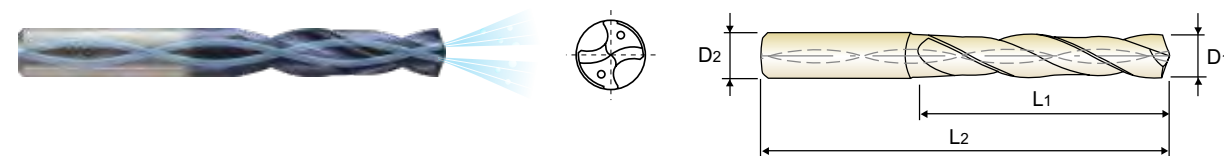
SHORT

- VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL
- Forets DREAM DRILLS carbure, avec arrosage central, série courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione)

KURZ  
COURTE  
CORTA

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
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- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A97 3 x D

Recommended ToolHolder: SHRINK FIT HOLDER (D47-72), HYDRAULIC CHUCK (D15-46), ER COLLET CHUCK (D73-115)

EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No. (TiAIN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2	Plain	Flat	D1	D2	L1	L2
DH406078	DH446078	7.8	8	41	79	DH406102	DH446102	10.2	12	55	102
DH406079	DH446079	7.9	8	41	79	DH406103	DH446103	10.3	12	55	102
DH406080	DH446080	8.0	8	41	79	DH406104	DH446104	10.4	12	55	102
DH406081	DH446081	8.1	10	47	89	DH406105	DH446105	10.5	12	55	102
DH406082	DH446082	8.2	10	47	89	DH406106	DH446106	10.6	12	55	102
DH406083	DH446083	8.3	10	47	89	DH406107	DH446107	10.7	12	55	102
DH406084	DH446084	8.4	10	47	89	DH406108	DH446108	10.8	12	55	102
DH406085	DH446085	8.5	10	47	89	DH406109	DH446109	10.9	12	55	102
DH406086	DH446086	8.6	10	47	89	DH406110	DH446110	11.0	12	55	102
DH406087	DH446087	8.7	10	47	89	DH406111	DH446111	11.1	12	55	102
DH406088	DH446088	8.8	10	47	89	DH406112	DH446112	11.2	12	55	102
DH406089	DH446089	8.9	10	47	89	DH406113	DH446113	11.3	12	55	102
DH406090	DH446090	9.0	10	47	89	DH406114	DH446114	11.4	12	55	102
DH406091	DH446091	9.1	10	47	89	DH406115	DH446115	11.5	12	55	102
DH406092	DH446092	9.2	10	47	89	DH406116	DH446116	11.6	12	55	102
DH406093	DH446093	9.3	10	47	89	DH406117	DH446117	11.7	12	55	102
DH406094	DH446094	9.4	10	47	89	DH406118	DH446118	11.8	12	55	102
DH406095	DH446095	9.5	10	47	89	DH406119	DH446119	11.9	12	55	102
DH406096	DH446096	9.6	10	47	89	DH406120	DH446120	12.0	12	55	102
DH406097	DH446097	9.7	10	47	89	DH406125	DH446125	12.5	14	60	107
DH406098	DH446098	9.8	10	47	89	DH406130	DH446130	13.0	14	60	107
DH406099	DH446099	9.9	10	47	89	DH406135	DH446135	13.5	14	60	107
DH406100	DH446100	10.0	10	47	89	DH406140	DH446140	14.0	14	60	107
DH406101	DH446101	10.1	12	55	102	DH406145	DH446145	14.5	16	65	115

Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N							S					H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	550	630	400	550	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK DH406 SERIES  
FLAT SHANK DH446 SERIES

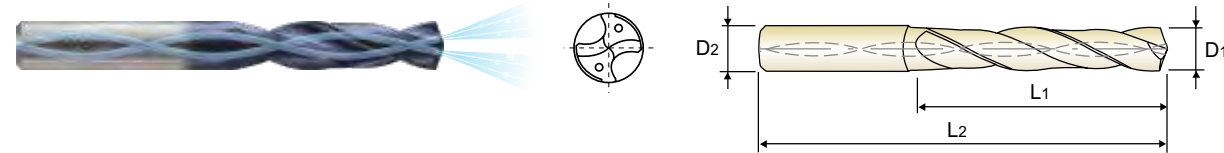
**CARBIDE, DREAM DRILLS with COOLANT HOLES**

SHORT  
KURZ  
COURTE  
CORTA

- VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL
- Forets DREAM DRILLS carbure, avec arrosage central, série courte
- PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione)

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- Self centering and chip breaking by R-thinning
- Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- Optimized flute shape for strength of drilling and smooth chip evacuation

- Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A97 3 x D

Recommended ToolHolder: SHRINK FIT HOLDER (D47-72), HYDRAULIC CHUCK (D15-46), ER COLLET CHUCK (D73-115)

EDP No. (TiAIN)	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2	
					Plain
DH406150	DH446150	15.0	16	65	115
DH406155	DH446155	15.5	16	65	115
DH406160	DH446160	16.0	16	65	115
DH406165	DH446165	16.5	18	73	123
DH406170	DH446170	17.0	18	73	123
DH406175	DH446175	17.5	18	73	123

EDP No. (TiAIN)	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2	
					Plain
DH406180	DH446180	18.0	18	73	123
DH406185	DH446185	18.5	20	79	131
DH406190	DH446190	19.0	20	79	131
DH406195	DH446195	19.5	20	79	131
DH406200	DH446200	20.0	20	79	131

Other shank types are available on your request.



PLAIN SHANK DH408 SERIES  
FLAT SHANK DH448 SERIES

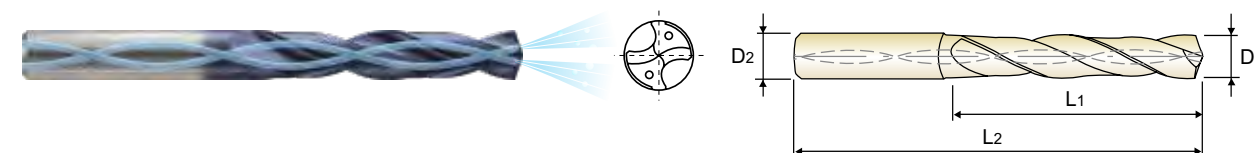
**CARBIDE, DREAM DRILLS with COOLANT HOLES**

LONG  
LANG  
LONGUE  
LUNGA

- VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL
- Forets DREAM DRILLS carbure, avec arrosage central, série longue
- PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione)

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- Self centering and chip breaking by R-thinning
- Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- Optimized flute shape for strength of drilling and smooth chip evacuation

- Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A97 5 x D

Recommended ToolHolder: SHRINK FIT HOLDER (D47-72), HYDRAULIC CHUCK (D15-46), ER COLLET CHUCK (D73-115)

EDP No. (TiAIN)	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2	
					Plain
DH408010	-	1.0	3	8	55
DH408011	-	1.1	3	12	55
DH408012	-	1.2	3	12	55
DH408013	-	1.3	3	12	55
DH408014	-	1.4	3	12	55
DH408015	-	1.5	3	16	55
DH408016	-	1.6	3	16	55
DH408017	-	1.7	3	16	55
DH408018	-	1.8	3	16	55
DH408019	-	1.9	3	16	55
DH408020	-	2.0	4	21	57
DH408021	-	2.1	4	21	57
DH408022	-	2.2	4	21	57
DH408023	-	2.3	4	21	57
DH408024	-	2.4	4	21	57
DH408025	-	2.5	4	21	57
DH408026	-	2.6	4	21	57
DH408027	-	2.7	4	21	57
DH408028	-	2.8	4	21	57
DH408029	-	2.9	4	21	57
DH408030	DH448030	3.0	6	28	66
DH408031	DH448031	3.1	6	28	66
DH408032	DH448032	3.2	6	28	66
DH408033	DH448033	3.3	6	28	66

EDP No. (TiAIN)	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2	
					Plain
DH408034	DH448034	3.4	6	28	66
DH408035	DH448035	3.5	6	28	66
DH408036	DH448036	3.6	6	28	66
DH408037	DH448037	3.7	6	28	66
DH408038	DH448038	3.8	6	36	74
DH408039	DH448039	3.9	6	36	74
DH408040	DH448040	4.0	6	36	74
DH408041	DH448041	4.1	6	36	74
DH408042	DH448042	4.2	6	36	74
DH408043	DH448043	4.3	6	36	74
DH408044	DH448044	4.4	6	36	74
DH408045	DH448045	4.5	6	36	74
DH408046	DH448046	4.6	6	36	74
DH408047	DH448047	4.7	6	36	74
DH408048	DH448048	4.8	6	44	82
DH408049	DH448049	4.9	6	44	82
DH408050	DH448050	5.0	6	44	82
DH408051	DH448051	5.1	6	44	82
DH408052	DH448052	5.2	6	44	82
DH408053	DH448053	5.3	6	44	82
DH408054	DH448054	5.4	6	44	82
DH408055	DH448055	5.5	6	44	82
DH408056	DH448056	5.6	6	44	82
DH408057	DH448057	5.7	6	44	82

Other shank types are available on your request.

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© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S						H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S						H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					







PLAIN SHANK DH408 SERIES  
FLAT SHANK DH448 SERIES



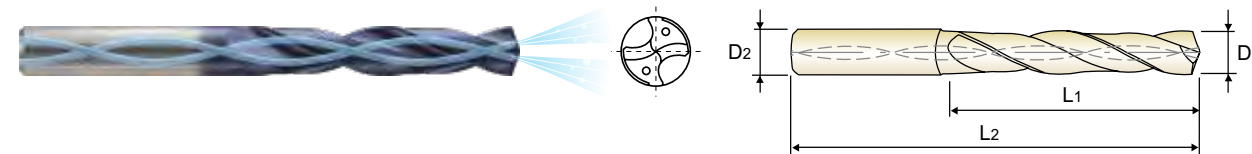
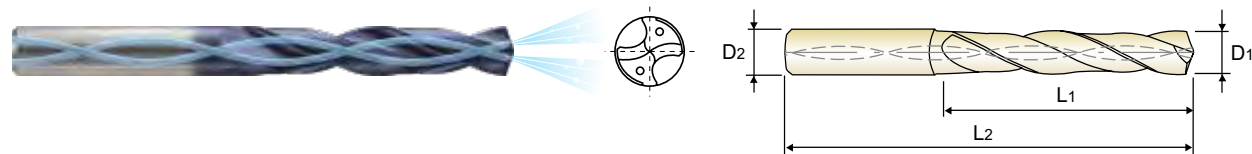
PLAIN SHANK DH408 SERIES  
FLAT SHANK DH448 SERIES

**CARBIDE, DREAM DRILLS with COOLANT HOLES** LONG  
 VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL LANG  
 Forets DREAM DRILLS carbure, avec arrosage central, série longue LONGUE  
 PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) LUNGA

**CARBIDE, DREAM DRILLS with COOLANT HOLES** LONG  
 VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL LANG  
 Forets DREAM DRILLS carbure, avec arrosage central, série longue LONGUE  
 PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) LUNGA

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
  - ▶ Self centering and chip breaking by R-thinning
  - ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
  - ▶ Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
  - ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
  - ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
  - ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
  - ▶ Self centering and chip breaking by R-thinning
  - ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
  - ▶ Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
  - ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
  - ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
  - ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAlN p.A97 5 x D

Recommended ToolHolder: SHRINK FIT HOLDER (D47-72), HYDRAULIC CHUCK (D15-46), ER COLLET CHUCK (D73-115)

DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAlN p.A97 5 x D

Recommended ToolHolder: SHRINK FIT HOLDER (D47-72), HYDRAULIC CHUCK (D15-46), ER COLLET CHUCK (D73-115)

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2	Plain	Flat	D1	D2	L1	L2
DH408058	DH448058	5.8	6	44	82	DH408082	DH448082	8.2	10	61	103
DH408059	DH448059	5.9	6	44	82	DH408083	DH448083	8.3	10	61	103
DH408060	DH448060	6.0	6	44	82	DH408084	DH448084	8.4	10	61	103
DH408061	DH448061	6.1	8	53	91	DH408085	DH448085	8.5	10	61	103
DH408062	DH448062	6.2	8	53	91	DH408086	DH448086	8.6	10	61	103
DH408063	DH448063	6.3	8	53	91	DH408087	DH448087	8.7	10	61	103
DH408064	DH448064	6.4	8	53	91	DH408088	DH448088	8.8	10	61	103
DH408065	DH448065	6.5	8	53	91	DH408089	DH448089	8.9	10	61	103
DH408066	DH448066	6.6	8	53	91	DH408090	DH448090	9.0	10	61	103
DH408067	DH448067	6.7	8	53	91	DH408091	DH448091	9.1	10	61	103
DH408068	DH448068	6.8	8	53	91	DH408092	DH448092	9.2	10	61	103
DH408069	DH448069	6.9	8	53	91	DH408093	DH448093	9.3	10	61	103
DH408070	DH448070	7.0	8	53	91	DH408094	DH448094	9.4	10	61	103
DH408071	DH448071	7.1	8	53	91	DH408095	DH448095	9.5	10	61	103
DH408072	DH448072	7.2	8	53	91	DH408096	DH448096	9.6	10	61	103
DH408073	DH448073	7.3	8	53	91	DH408097	DH448097	9.7	10	61	103
DH408074	DH448074	7.4	8	53	91	DH408098	DH448098	9.8	10	61	103
DH408075	DH448075	7.5	8	53	91	DH408099	DH448099	9.9	10	61	103
DH408076	DH448076	7.6	8	53	91	DH448100	DH448100	10.0	10	61	103
DH408077	DH448077	7.7	8	53	91	DH408101	DH448101	10.1	12	71	118
DH408078	DH448078	7.8	8	53	91	DH408102	DH448102	10.2	12	71	118
DH408079	DH448079	7.9	8	53	91	DH408103	DH448103	10.3	12	71	118
DH408080	DH448080	8.0	8	53	91	DH408104	DH448104	10.4	12	71	118
DH408081	DH448081	8.1	10	61	103	DH408105	DH448105	10.5	12	71	118

EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No. (TiAlN)		Drill Diameter	Shank Diameter	Flute Length	Overall Length
Plain	Flat	D1	D2	L1	L2	Plain	Flat	D1	D2	L1	L2
DH408106	DH448106	10.6	12	71	118	DH408170	DH448170	17.0	18	93	143
DH408107	DH448107	10.7	12	71	118	DH408175	DH448175	17.5	18	93	143
DH408108	DH448108	10.8	12	71	118	DH408180	DH448180	18.0	18	93	143
DH408109	DH448109	10.9	12	71	118	DH408185	DH448185	18.5	20	101	153
DH408110	DH448110	11.0	12	71	118	DH408190	DH448190	19.0	20	101	153
DH408111	DH448111	11.1	12	71	118	DH408195	DH448195	19.5	20	101	153
DH408112	DH448112	11.2	12	71	118	DH408200	DH448200	20.0	20	101	153
DH408113	DH448113	11.3	12	71	118						
DH408114	DH448114	11.4	12	71	118						
DH408115	DH448115	11.5	12	71	118						
DH408116	DH448116	11.6	12	71	118						
DH408117	DH448117	11.7	12	71	118						
DH408118	DH448118	11.8	12	71	118						
DH408119	DH448119	11.9	12	71	118						
DH408120	DH448120	12.0	12	71	118						
DH408125	DH448125	12.5	14	77	124						
DH408130	DH448130	13.0	14	77	124						
DH408135	DH448135	13.5	14	77	124						
DH408140	DH448140	14.0	14	77	124						
DH408145	DH448145	14.5	16	83	133						
DH408150	DH448150	15.0	16	83	133						
DH408155	DH448155	15.5	16	83	133						
DH408160	DH448160	16.0	16	83	133						
DH408165	DH448165	16.5	18	93	143						

▶ Other shank types are available on your request. ▶ NEXT PAGE

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	550	600	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○	◎	○	◎	○	◎	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	550	600	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



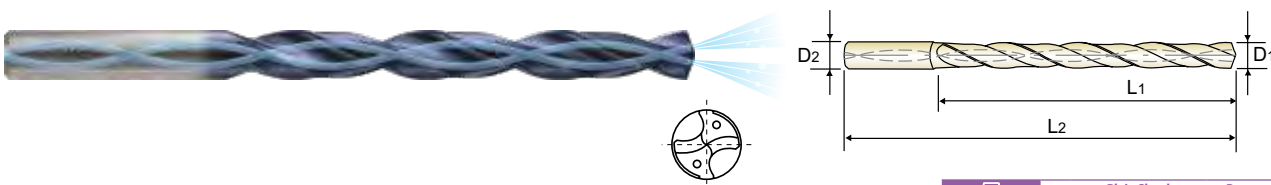
**CARBIDE, DREAM DRILLS with COOLANT HOLES**

**EXTRA LONG**

- VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL
- Forets DREAM DRILLS carbure, avec arrosage central, série extra-longue
- PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione)

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation

- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A97 8 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

Unit : mm					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH421030	3.0	6	34	72	DH421054	5.4	6	57	95
DH421031	3.1	6	34	72	DH421055	5.5	6	57	95
DH421032	3.2	6	34	72	DH421056	5.6	6	57	95
DH421033	3.3	6	34	72	DH421057	5.7	6	57	95
DH421034	3.4	6	34	72	DH421058	5.8	6	57	95
DH421035	3.5	6	34	72	DH421059	5.9	6	57	95
DH421036	3.6	6	34	72	DH421060	6.0	6	57	95
DH421037	3.7	6	34	72	DH421061	6.1	8	76	114
DH421038	3.8	6	43	81	DH421062	6.2	8	76	114
DH421039	3.9	6	43	81	DH421063	6.3	8	76	114
DH421040	4.0	6	43	81	DH421064	6.4	8	76	114
DH421041	4.1	6	43	81	DH421065	6.5	8	76	114
DH421042	4.2	6	43	81	DH421066	6.6	8	76	114
DH421043	4.3	6	43	81	DH421067	6.7	8	76	114
DH421044	4.4	6	43	81	DH421068	6.8	8	76	114
DH421045	4.5	6	43	81	DH421069	6.9	8	76	114
DH421046	4.6	6	43	81	DH421070	7.0	8	76	114
DH421047	4.7	6	43	81	DH421071	7.1	8	76	114
DH421048	4.8	6	57	95	DH421072	7.2	8	76	114
DH421049	4.9	6	57	95	DH421073	7.3	8	76	114
DH421050	5.0	6	57	95	DH421074	7.4	8	76	114
DH421051	5.1	6	57	95	DH421075	7.5	8	76	114
DH421052	5.2	6	57	95	DH421076	7.6	8	76	114
DH421053	5.3	6	57	95	DH421077	7.7	8	76	114

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		○			



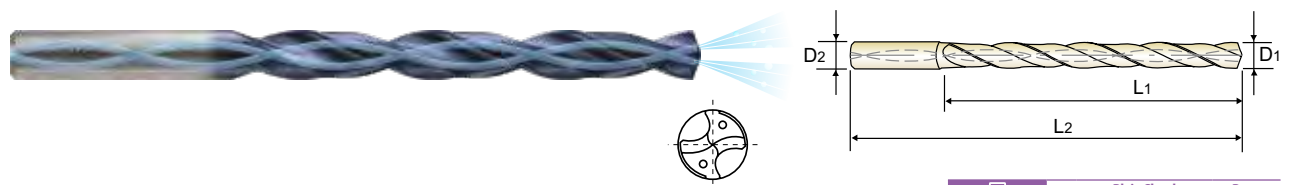
**CARBIDE, DREAM DRILLS with COOLANT HOLES**

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- VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL
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- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
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DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A97 8 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

Unit : mm					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH421078	7.8	8	76	114	DH421102	10.2	12	114	162
DH421079	7.9	8	76	114	DH421103	10.3	12	114	162
DH421080	8.0	8	76	114	DH421104	10.4	12	114	162
DH421081	8.1	10	95	142	DH421105	10.5	12	114	162
DH421082	8.2	10	95	142	DH421106	10.6	12	114	162
DH421083	8.3	10	95	142	DH421107	10.7	12	114	162
DH421084	8.4	10	95	142	DH421108	10.8	12	114	162
DH421085	8.5	10	95	142	DH421109	10.9	12	114	162
DH421086	8.6	10	95	142	DH421110	11.0	12	114	162
DH421087	8.7	10	95	142	DH421111	11.1	12	114	162
DH421088	8.8	10	95	142	DH421112	11.2	12	114	162
DH421089	8.9	10	95	142	DH421113	11.3	12	114	162
DH421090	9.0	10	95	142	DH421114	11.4	12	114	162
DH421091	9.1	10	95	142	DH421115	11.5	12	114	162
DH421092	9.2	10	95	142	DH421116	11.6	12	114	162
DH421093	9.3	10	95	142	DH421117	11.7	12	114	162
DH421094	9.4	10	95	142	DH421118	11.8	12	114	162
DH421095	9.5	10	95	142	DH421119	11.9	12	114	162
DH421096	9.6	10	95	142	DH421120	12.0	12	114	162
DH421097	9.7	10	95	142	DH421125	12.5	14	133	178
DH421098	9.8	10	95	142	DH421130	13.0	14	133	178
DH421099	9.9	10	95	142	DH421135	13.5	14	133	178
DH421100	10.0	10	95	142	DH421140	14.0	14	133	178
DH421101	10.1	12	114	162					

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	○	○	○	◎	○	◎	○	◎	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		○			



RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

DH404, DH423, DH443, DH424, DH444 SERIES

without COOLANT HOLES

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)					
					1.0	2.0	3.0	4.0	5.0	6.0
P	2	Non-alloy steel	70	RPM	22280	11140	10610	7960	6370	5310
				FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
			70	RPM	22280	11140	10610	7960	6370	5310
				FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
			70	RPM	22280	11140	10610	7960	6370	5310
	FEED	0.03-0.05		0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22		
	6	Low alloy steel	60	RPM	19100	9550	8490	6370	5090	4240
				FEED	0.03-0.05	0.05-0.07	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
			60	RPM	22280	11140	10610	7960	6370	5310
				FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
			60	RPM	19100	9550	8490	6370	5090	4240
FEED				0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22	
60	RPM	19100	9550	8490	6370	5090	4240			
	FEED	0.02-0.04	0.03-0.05	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18			
30	RPM	9550	4770	4240	3180	2550	2120			
	FEED	0.02-0.04	0.03-0.05	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16			
50	RPM	15920	7960	7430	5570	4460	3710			
	FEED	0.03-0.05	0.05-0.07	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18			
40	RPM	9550	4770	4240	3180	2550	2120			
	FEED	0.02-0.04	0.03-0.05	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16			
50	RPM	15920	7960	7430	5570	4460	3710			
	FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22			
45	RPM	11140	5570	4770	3580	2860	2390			
	FEED	0.02-0.04	0.03-0.05	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18			
100	RPM	22280	11140	10610	7960	6370	5310			
	FEED	0.04-0.06	0.04-0.06	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26			
80	RPM	20690	10350	8490	6370	5090	4240			
	FEED	0.04-0.06	0.04-0.06	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22			
100	RPM	22280	11140	10610	7960	6370	5310			
	FEED	0.04-0.06	0.04-0.06	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26			
70	RPM	15920	7960	7430	5570	4460	3710			
	FEED	0.04-0.06	0.04-0.06	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22			
80	RPM	19100	9550	8490	6370	5090	4240			
	FEED	0.04-0.06	0.04-0.06	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26			
70	RPM	15920	7960	7430	5570	4460	3710			
	FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22			
25	RPM	6370	3180	2650	1990	1590	1330			
	FEED	0.01-0.02	0.01-0.03	0.01-0.03	0.01-0.04	0.02-0.05	0.03-0.06			

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)							
					8.0	10.0	12.0	14.0	16.0	18.0	20.0	
P	2	Non-alloy steel	100	RPM	3980	3180	2650	2270	1990	1770	1590	
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40	
			100	RPM	3980	3180	2650	2270	1990	1770	1590	
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40	
			100	RPM	3980	3180	2650	2270	1990	1770	1590	
	FEED	0.14-0.20		0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32			
	6	Low alloy steel	80	RPM	3180	2550	2120	1820	1590	1410	1270	
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32	
			100	RPM	3980	3180	2650	2270	1990	1770	1590	
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40	
			80	RPM	3180	2550	2120	1820	1590	1410	1270	
FEED				0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40		
80	RPM	3180	2550	2120	1820	1590	1410	1270				
	FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32				
40	RPM	1590	1270	1060	910	800	710	640				
	FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28				
70	RPM	2790	2230	1860	1590	1390	1240	1110				
	FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32				
40	RPM	1590	1270	1060	910	800	710	640				
	FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28				
70	RPM	2790	2230	1860	1590	1390	1240	1110				
	FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32				
45	RPM	1790	1430	1190	1020	900	800	720				
	FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28				
70	RPM	2790	2230	1860	1590	1390	1240	1110				
	FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40				
80	RPM	3180	2550	2120	1820	1590	1410	1270				
	FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40				
100	RPM	3980	3180	2650	2270	1990	1770	1590				
	FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44				
80	RPM	3180	2550	2120	1820	1590	1410	1270				
	FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40				
100	RPM	3980	3180	2650	2270	1990	1770	1590				
	FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44				
70	RPM	2790	2230	1860	1590	1390	1240	1110				
	FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40				
80	RPM	3180	2550	2120	1820	1590	1410	1270				
	FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44				
70	RPM	2790	2230	1860	1590	1390	1240	1110				
	FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40				
25	RPM	990	800	660	570	500	440	400				
	FEED	0.03-0.06	0.04-0.07	0.04-0.08	0.05-0.09	0.05-0.09	0.05-0.10	0.05-0.10				

▶ Recommend to reduce the feed rate as following **Feed 100%** : DH404(3×D), DH423(3×D), DH424(5×D)



RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

DH406, DH446, DH408, DH448, DH421 SERIES

with COOLANT HOLES

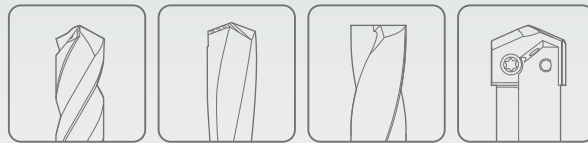
VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)					
					1.0	2.0	3.0	4.0	5.0	6.0
P	2	Non-alloy steel	80	RPM	25460	12730	11670	8750	7000	5840
				FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
			80	RPM	25460	12730	11670	8750	7000	5840
				FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
			80	RPM	25460	12730	11670	8750	7000	5840
	FEED	0.03-0.05		0.05-0.07	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18		
	6	Low alloy steel	70	RPM	22280	11140	9550	7160	5730	4770
				FEED	0.03-0.05	0.05-0.07	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
			70	RPM	25460	12730	11670	8750	7000	5840
				FEED	0.03-0.05	0.05-0.07	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
			70	RPM	22280	11140	19100	9550	7160	5730
FEED				0.03-0.05	0.05-0.07	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18	
70	RPM	22280	11140	19100	9550	7160	5730			
	FEED	0.02-0.04	0.03-0.05	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18			
40	RPM	12730	6370	5310	3980	3180	2650			
	FEED	0.02-0.04	0.03-0.05	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16			
60	RPM	19100	9550	8490	6370	5090	4240			





Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

SOLID CARBIDE

# DREAM DRILLS -HIGH FEED DREAM DRILLS - HIGH FEED

- 1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill  
For Carbon Steels, Alloy Steels(up to HRc35) and Cast Iron
- 1,5 bis 2 mal höhere Vorschubgeschwindigkeit als Bohrer mit 2 Schneiden,  
für Kohlenstoffstähle, legierte Stähle (bis HRc35) und Grauguss



SELECTION GUIDE



SERIES	DGR493	DGR495
DRILLING DEPTH	3XD	5XD
LENGTH	SHORT	LONG
SIZE MIN	D5.0	D5.0
SIZE MAX	D20.0	D20.0
PAGE	A101	A103
SURFACE TREATMENT	H-Coating	

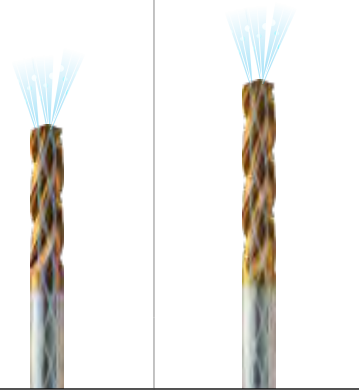
# SOLID CARBIDE DREAM DRILLS HIGH FEED

1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill for Carbon Steels, Alloy Steels(up to HRC35) and Cast Iron

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A105



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	Hrc
P	1	Non-alloy steel	About 0.15% C Annealed	125	
	2		About 0.45% C Annealed	190	13
	3		About 0.45% C Quenched & Tempered	250	25
	4		About 0.75% C Annealed	270	28
	5		About 0.75% C Quenched & Tempered	300	32
	6	Low alloy steel	Annealed	180	10
	7		Quenched & Tempered	275	29
	8		Quenched & Tempered	300	32
	9		Quenched & Tempered	350	38
	10		High alloyed steel, and tool steel	Annealed	200
	11	Quenched & Tempered	325	35	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15
	13		Martensitic Quenched & Tempered	240	23
	14		Austenitic	180	10
K	15	Grey cast iron	Pearlitic / ferritic	180	10
	16		Pearlitic (Martensitic)	260	26
	17	Nodular cast iron	Ferritic	160	3
	18		Pearlitic	250	25
	19	Malleable cast iron	Ferritic	130	
	20		Pearlitic	230	21
N	21	Aluminum-wrought alloy	Not Curable	60	
	22		Curable Hardened	100	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	
	24		≤ 12% Si, Curable Hardened	90	
	25		> 12% Si, Not Curable	130	
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	
	27		CuZn, CuSnZn (Brass)	90	
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100	
	29		Duroplastic, Fiber Reinforced Plastic		
	30	Rubber, Wood, etc.			
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15
	32		Cured	280	30
	33		Annealed	250	25
	34		Ni or Co Based Cured	350	38
	35		Cast	320	34
	36		Titanium Alloys	Pure Titanium 400 Rm	
H	37	Alpha + Beta Alloys Hardened	1050 Rm		
	38	Hardened steel	Hardened	550	55
	39		Hardened	630	60
	40	Chilled Cast Iron	Cast	400	42
	41	Hardened Cast Iron	Hardened	550	55



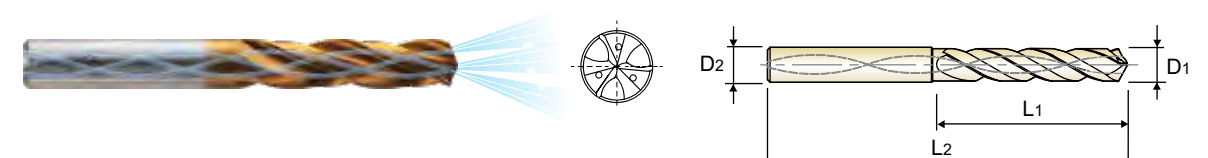
DGR493 SERIES

## CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES

● DREAM DRILLS HIGH FEED mit KÜHLKANAL **SHORT**  
● Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série courte **KURZ**  
● PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione) **COURTE** **CORTA**

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRC35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes

- ▶ Bohren von Kohlenstoff-Stählen, legierten Stählen(-HRC35) und Gusseisen
- ▶ Höhere Produktivität durch den 1,5 bis 2-fach höheren Vorschub gegenüber herkömmlichen zweischneidigen Bohrern
- ▶ Die Multi-Layer Beschichtung ermöglicht eine bessere Produktivität und Zuverlässigkeit
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar H Coating p.A105 3 x D  
 Recommended ToolHolder: Plain Shank, SHRINK FIT HOLDER D47-72, HYDRAULIC CHUCK D15-46, ER COLLET CHUCK D73-115

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DGR493050	5.0	6	28	66	DGR493074	7.4	8	41	79
DGR493051	5.1	6	28	66	DGR493075	7.5	8	41	79
DGR493052	5.2	6	28	66	DGR493076	7.6	8	41	79
DGR493053	5.3	6	28	66	DGR493077	7.7	8	41	79
DGR493054	5.4	6	28	66	DGR493078	7.8	8	41	79
DGR493055	5.5	6	28	66	DGR493079	7.9	8	41	79
DGR493056	5.6	6	28	66	DGR493080	8.0	8	41	79
DGR493057	5.7	6	28	66	DGR493081	8.1	10	47	89
DGR493058	5.8	6	28	66	DGR493082	8.2	10	47	89
DGR493059	5.9	6	28	66	DGR493083	8.3	10	47	89
DGR493060	6.0	6	28	66	DGR493084	8.4	10	47	89
DGR493061	6.1	8	34	79	DGR493085	8.5	10	47	89
DGR493062	6.2	8	34	79	DGR493086	8.6	10	47	89
DGR493063	6.3	8	34	79	DGR493087	8.7	10	47	89
DGR493064	6.4	8	34	79	DGR493088	8.8	10	47	89
DGR493065	6.5	8	34	79	DGR493089	8.9	10	47	89
DGR493066	6.6	8	34	79	DGR493090	9.0	10	47	89
DGR493067	6.7	8	34	79	DGR493091	9.1	10	47	89
DGR493068	6.8	8	34	79	DGR493092	9.2	10	47	89
DGR493069	6.9	8	34	79	DGR493093	9.3	10	47	89
DGR493070	7.0	8	34	79	DGR493094	9.4	10	47	89
DGR493071	7.1	8	41	79	DGR493095	9.5	10	47	89
DGR493072	7.2	8	41	79	DGR493096	9.6	10	47	89
DGR493073	7.3	8	41	79	DGR493097	9.7	10	47	89

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323																				
Hrc																				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	◎	◎	○	○	◎	○	○	◎	◎	◎	○	◎	○	◎	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
Hrc																					
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended																					

HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA



# YG DREAM DRILLS - HIGH FEED

DGR493 SERIES

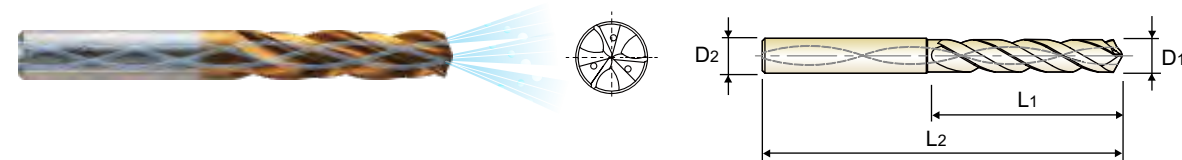
# YG DREAM DRILLS - HIGH FEED

DGR495 SERIES

## CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES SHORT

- DREAM DRILLS HIGH FEED mit KÜHLKANAL **KURZ**
- Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série courte **COURTE**
- PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione) **CORTA**

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes
- ▶ Bohren von Kohlenstoff-Stählen, legierten Stählen(-HRc35) und Gusseisen
- ▶ Höhere Produktivität durch den 1,5 bis 2-fach höheren Vorschub gegenüber herkömmlichen zweischneidigen Bohrern
- ▶ Die Multi-Layer Beschichtung ermöglicht eine bessere Produktivität und Zuverlässigkeit
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Coating p.A105 3 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2	H-Coating	D1	D2	L1	L2
DGR493098	9.8	10	47	89	DGR493118	11.8	12	55	102
DGR493099	9.9	10	47	89	DGR493119	11.9	12	55	102
DGR493100	10.0	10	47	89	DGR493120	12.0	12	55	102
DGR493101	10.1	12	55	102	DGR493125	12.5	14	60	107
DGR493102	10.2	12	55	102	DGR493130	13.0	14	60	107
DGR493103	10.3	12	55	102	DGR493135	13.5	14	60	107
DGR493104	10.4	12	55	102	DGR493140	14.0	14	60	107
DGR493105	10.5	12	55	102	DGR493145	14.5	16	65	115
DGR493106	10.6	12	55	102	DGR493150	15.0	16	65	115
DGR493107	10.7	12	55	102	DGR493155	15.5	16	65	115
DGR493108	10.8	12	55	102	DGR493160	16.0	16	65	115
DGR493109	10.9	12	55	102	DGR493165	16.5	18	73	123
DGR493110	11.0	12	55	102	DGR493170	17.0	18	73	123
DGR493111	11.1	12	55	102	DGR493175	17.5	18	73	123
DGR493112	11.2	12	55	102	DGR493180	18.0	18	73	123
DGR493113	11.3	12	55	102	DGR493185	18.5	20	79	131
DGR493114	11.4	12	55	102	DGR493190	19.0	20	79	131
DGR493115	11.5	12	55	102	DGR493195	19.5	20	79	131
DGR493116	11.6	12	55	102	DGR493200	20.0	20	79	131
DGR493117	11.7	12	55	102					

▶ Other shank types are available on your request.

## CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES LONG

- DREAM DRILLS HIGH FEED mit KÜHLKANAL **KURZ**
- Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série longue **LONGUE**
- PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione) **LUNGA**

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes
- ▶ Bohren von Kohlenstoff-Stählen, legierten Stählen(-HRc35) und Gusseisen
- ▶ Höhere Produktivität durch den 1,5 bis 2-fach höheren Vorschub gegenüber herkömmlichen zweischneidigen Bohrern
- ▶ Die Multi-Layer Beschichtung ermöglicht eine bessere Produktivität und Zuverlässigkeit
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar Coating p.A105 5 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2	H-Coating	D1	D2	L1	L2
DGR495050	5.0	6	44	82	DGR495074	7.4	8	53	91
DGR495051	5.1	6	44	82	DGR495075	7.5	8	53	91
DGR495052	5.2	6	44	82	DGR495076	7.6	8	53	91
DGR495053	5.3	6	44	82	DGR495077	7.7	8	53	91
DGR495054	5.4	6	44	82	DGR495078	7.8	8	53	91
DGR495055	5.5	6	44	82	DGR495079	7.9	8	53	91
DGR495056	5.6	6	44	82	DGR495080	8.0	8	53	91
DGR495057	5.7	6	44	82	DGR495081	8.1	10	61	103
DGR495058	5.8	6	44	82	DGR495082	8.2	10	61	103
DGR495059	5.9	6	44	82	DGR495083	8.3	10	61	103
DGR495060	6.0	6	44	82	DGR495084	8.4	10	61	103
DGR495061	6.1	8	53	91	DGR495085	8.5	10	61	103
DGR495062	6.2	8	53	91	DGR495086	8.6	10	61	103
DGR495063	6.3	8	53	91	DGR495087	8.7	10	61	103
DGR495064	6.4	8	53	91	DGR495088	8.8	10	61	103
DGR495065	6.5	8	53	91	DGR495089	8.9	10	61	103
DGR495066	6.6	8	53	91	DGR495090	9.0	10	61	103
DGR495067	6.7	8	53	91	DGR495091	9.1	10	61	103
DGR495068	6.8	8	53	91	DGR495092	9.2	10	61	103
DGR495069	6.9	8	53	91	DGR495093	9.3	10	61	103
DGR495070	7.0	8	53	91	DGR495094	9.4	10	61	103
DGR495071	7.1	8	53	91	DGR495095	9.5	10	61	103
DGR495072	7.2	8	53	91	DGR495096	9.6	10	61	103
DGR495073	7.3	8	53	91	DGR495097	9.7	10	61	103

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	◎	○	○	◎	○	◎	○	◎	○

ISO	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○	○	◎	○	◎	○	○	◎	○	◎	○	◎	○

ISO	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



**CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES** LONG

**DREAM DRILLS HIGH FEED mit KÜHLKANAL** KURZ  
**Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série longue** LONGUE  
**PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione)** LUNGA

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRC35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes

- ▶ Bohren von Kohlenstoff-Stählen, legierten Stählen(-HRC35) und Gusseisen
- ▶ Höhere Produktivität durch den 1,5 bis 2-fach höheren Vorschub gegenüber herkömmlichen zweischneidigen Bohrern
- ▶ Die Multi-Layer Beschichtung ermöglicht eine bessere Produktivität und Zuverlässigkeit
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung



**DIN 6537** **CARBIDE** **30°** **h6** **m7** **140°** **20 bar** **H Coating** **p.A105** **5 x D**

Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DGR495098	9.8	10	61	103	DGR495118	11.8	12	71	118
DGR495099	9.9	10	61	103	DGR495119	11.9	12	71	118
DGR495100	10.0	10	61	103	DGR495120	12.0	12	71	118
DGR495101	10.1	12	71	118	DGR495125	12.5	14	77	124
DGR495102	10.2	12	71	118	DGR495130	13.0	14	77	124
DGR495103	10.3	12	71	118	DGR495135	13.5	14	77	124
DGR495104	10.4	12	71	118	DGR495140	14.0	14	77	124
DGR495105	10.5	12	71	118	DGR495145	14.5	16	83	133
DGR495106	10.6	12	71	118	DGR495150	15.0	16	83	133
DGR495107	10.7	12	71	118	DGR495155	15.5	16	83	133
DGR495108	10.8	12	71	118	DGR495160	16.0	16	83	133
DGR495109	10.9	12	71	118	DGR495165	16.5	18	93	143
DGR495110	11.0	12	71	118	DGR495170	17.0	18	93	143
DGR495111	11.1	12	71	118	DGR495175	17.5	18	93	143
DGR495112	11.2	12	71	118	DGR495180	18.0	18	93	143
DGR495113	11.3	12	71	118	DGR495185	18.5	20	101	153
DGR495114	11.4	12	71	118	DGR495190	19.0	20	101	153
DGR495115	11.5	12	71	118	DGR495195	19.5	20	101	153
DGR495116	11.6	12	71	118	DGR495200	20.0	20	101	153
DGR495117	11.7	12	71	118					

▶ Other shank types are available on your request.

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	◎	◎	○	○	◎	○	○	◎	○	◎	○	◎	○	◎	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**DGR493, DGR495 SERIES with COOLANT HOLES**

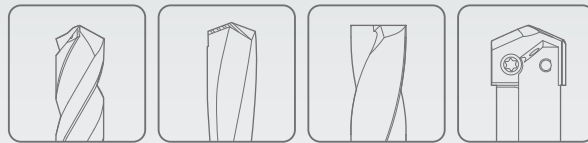
VC = M/MIN  
 RPM = rev./min.  
 FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)										
					5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0		
P	2	Non-alloy steel	100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590		
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.6	0.56-0.7	0.56-0.72	0.63-0.81	0.7-0.88		
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.6	0.56-0.7	0.56-0.72	0.63-0.81	0.7-0.88		
	3		100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590		
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.6	0.56-0.7	0.56-0.72	0.63-0.81	0.7-0.88		
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.6	0.56-0.7	0.56-0.72	0.63-0.81	0.7-0.88		
	4		100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590		
				FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67		
				FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67		
	5		80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270		
				FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67		
FEED		0.16-0.21		0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67				
6	100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590				
		FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.54	0.56-0.63	0.56-0.64	0.63-0.72	0.68-0.81				
		FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.54	0.56-0.63	0.56-0.64	0.63-0.72	0.68-0.81				
7	80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270				
		FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.54	0.56-0.63	0.56-0.64	0.63-0.72	0.68-0.81				
		FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.54	0.56-0.63	0.56-0.64	0.63-0.72	0.68-0.81				
8	80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270				
		FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67				
		FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67				
9	40	RPM	2550	2120	1590	1270	1060	910	800	710	640				
		FEED	0.13-0.18	0.16-0.22	0.21-0.29	0.26-0.36	0.32-0.38	0.36-0.43	0.36-0.45	0.38-0.47	0.41-0.54				
		FEED	0.13-0.18	0.16-0.22	0.21-0.29	0.26-0.36	0.32-0.38	0.36-0.43	0.36-0.45	0.38-0.47	0.41-0.54				
10	70	RPM	4460	3710	2790	2230	1860	1590	1390	1240	1110				
		FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67				
		FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67				
11	40	RPM	2550	2120	1590	1270	1060	910	800	710	640				
		FEED	0.13-0.18	0.16-0.22	0.21-0.29	0.26-0.36	0.32-0.38	0.36-0.43	0.36-0.45	0.38-0.47	0.41-0.54				
		FEED	0.13-0.18	0.16-0.22	0.21-0.29	0.26-0.36	0.32-0.38	0.36-0.43	0.36-0.45	0.38-0.47	0.41-0.54				
K	15	Grey cast iron	100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590		
				FEED	0.23-0.30	0.27-0.36	0.36-0.48	0.45-0.60	0.54-0.72	0.63-0.84	0.64-0.80	0.72-0.90	0.80-0.98		
	80		80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270		
				FEED	0.20-0.25	0.24-0.30	0.32-0.40	0.40-0.50	0.48-0.60	0.56-0.70	0.56-0.72	0.63-0.81	0.70-0.90		
	17		100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590		
				FEED	0.23-0.30	0.27-0.36	0.36-0.48	0.45-0.60	0.54-0.72	0.63-0.84	0.64-0.80	0.72-0.90	0.80-0.98		
18	70	RPM	4460	3710	2790	2230	1860	1590	1390	1240	1110				
		FEED	0.20-0.25	0.24-0.30	0.32-0.40	0.40-0.50	0.48-0.60	0.56-0.70	0.56-0.72	0.63-0.81	0.70-0.90				
19	80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270				
		FEED	0.23-0.30	0.27-0.36	0.36-0.48	0.45-0.60	0.54-0.72	0.63-0.84	0.64-0.80	0.72-0.90	0.80-0.98				
20	70	RPM	4460	3710	2790	2230	1860	1590	1390	1240	1110				
		FEED	0.20-0.25	0.24-0.30	0.32-0.40	0.40-0.50	0.48-0.60	0.56-0.70	0.56-0.72	0.63-0.81	0.70-0.90				





Global Cutting Tool Leader **YG-1**



# HOLEMAKING





Leading Through Innovation

SOLID CARBIDE

# DREAM DRILLS -FLAT BOTTOM DREAM DRILLS - FLACHBOHRER

- For Holes on Various Angled Surfaces
- Für Bohrungen auf verschiedenen abgewinkelten Oberflächen



SELECTION GUIDE



SERIES	DPP447	DH450
DRILLING DEPTH	2XD	5XD
LENGTH	SHORT	LONG
SIZE MIN	D3.0	D3.0
SIZE MAX	D20.0	D20.0
PAGE	A110	A112
SURFACE TREATMENT	X-Coating	TiAIN

# SOLID CARBIDE DREAM DRILLS FLAT BOTTOM

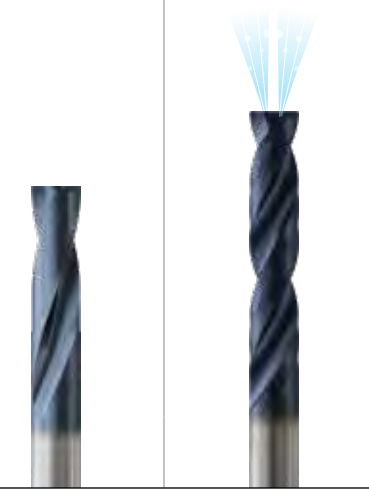
For Holes on Various Angled Surfaces



◎ : Excellent ○ : Good

Recommended cutting conditions : p.A114

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	
	4		About 0.75% C Annealed	270	28	○	○	
	5		About 0.75% C Quenched & Tempered	300	32	○	○	
	6	Low alloy steel	Annealed	180	10	◎	◎	
	7		Quenched & Tempered	275	29	○	○	
	8		Quenched & Tempered	300	32	○	○	
	9		Quenched & Tempered	350	38	○	○	
	10	High alloyed steel, and tool steel	Annealed	200	15			
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	
	13		Martensitic Quenched & Tempered	240	23			
	14	Austenitic	180	10				
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	
	16		Pearlitic (Martensitic)	260	26	○	○	
	17	Nodular cast iron	Ferritic	160	3			
	18		Pearlitic	250	25			
	19	Malleable cast iron	Ferritic	130				
20	Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	
	22		Curable Hardened	100		○	○	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110				
	27		CuZn, CuSnZn (Brass)	90				
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100				
	29		Duroplastic, Fiber Reinforced Plastic					
	30	Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Annealed	250	25			
	34		Cured	350	38			
	35	Ni or Co Based	Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40	Chilled Cast Iron	Cast	400	42			
41	Hardened Cast Iron	Hardened	550	55				



### Only One Operation for Angled Surface

**For angled surfaces, two operations are required to drill in a conventional process**

**1st operation (End mill)**  
Counter boring to make flat surface and guide hole

**2nd operation (Drill)**  
Drilling to required depth of hole

**For angled surfaces, only one operation can complete the drilling with Dream Drill Flat Bottom**

**One operation (Dream Drill Flat Bottom)**  
One Drill does it all without using both an end mill and a drill

### Pilot Drilling for 5 X D

**1. FLAT SURFACE**

Pilot Drill (Flat Bottom 2xD) → Dream Drill Flat Bottom (5xD)

**2. INCLINED SURFACE**

Pilot Drill (Flat Bottom 2xD or End Mill) → Dream Drill Flat Bottom (5xD)

- ▶ For Flat bottom 5xD drilling depth, Slope surface needs Pilot Drilling with YG-1 Flat Bottom Drill (2XD) and Flat surface needs Pilot Drilling with YG-1 Dream Drill General.
- ▶ Pilot Drilling Depth : around 1XD
- ▶ Pilot Drilling Diameter : same size diameter



# YG DREAM DRILLS - FLAT BOTTOM

DPP447 SERIES

## CARBIDE, DREAM DRILLS - FLAT BOTTOM

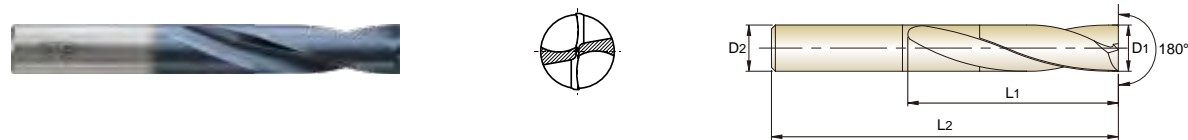
SHORT

- VHM, DREAM DRILLS - FLACHBOHRER
- DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC
- PUNTE IN MD DREAM DRILLS, TESTA PIANA

KURZ  
COURTE  
CORTA

- For holes on various angled surfaces.
- 180 degree point angle enables drilling of flat, inclined and curved surfaces.
- Optimized flute shape for excellent chip evacuation.
- High strength cutting edge to improve tool life and versatility drilling.
- For through holes, minimized burrs at entrance and exit when drilling thin plate.

- Für Bohrungen auf verschiedenen abgewinkelten Flächen.
- Der 180-Grad-Spitzenwinkel ermöglicht das Bohren von flachen, geneigten und gekrümmten Oberflächen.
- Optimierte Nutenform für hervorragende Spanabfuhr.
- Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
- Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.



CARBIDE 20° h6 h7 180° Coating p.A114

2 x D

Recommended ToolHolder  
Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DPP447030	3.0	6	16	50
DPP447031	3.1	6	16	50
DPP447032	3.2	6	16	50
DPP447033	3.3	6	16	50
DPP447034	3.4	6	18	50
DPP447035	3.5	6	18	50
DPP447036	3.6	6	18	50
DPP447037	3.7	6	18	50
DPP447038	3.8	6	18	50
DPP447039	3.9	6	18	50
DPP447040	4.0	6	18	50
DPP447041	4.1	6	20	60
DPP447042	4.2	6	20	60
DPP447043	4.3	6	20	60
DPP447044	4.4	6	20	60
DPP447045	4.5	6	22	60
DPP447046	4.6	6	22	60
DPP447047	4.7	6	22	60
DPP447048	4.8	6	22	60
DPP447049	4.9	6	22	60
DPP447050	5.0	6	22	60
DPP447051	5.1	6	24	60
DPP447052	5.2	6	24	60
DPP447053	5.3	6	24	60
DPP447054	5.4	6	24	60
DPP447055	5.5	6	24	60
DPP447056	5.6	6	24	60
DPP447057	5.7	6	26	60

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DPP447058	5.8	6	26	60
DPP447059	5.9	6	26	60
DPP447060	6.0	6	26	60
DPP447061	6.1	8	28	70
DPP447062	6.2	8	28	70
DPP447063	6.3	8	28	70
DPP447064	6.4	8	30	70
DPP447065	6.5	8	30	70
DPP447066	6.6	8	30	70
DPP447067	6.7	8	30	70
DPP447068	6.8	8	30	70
DPP447069	6.9	8	30	70
DPP447070	7.0	8	30	70
DPP447071	7.1	8	34	70
DPP447072	7.2	8	34	70
DPP447073	7.3	8	34	70
DPP447074	7.4	8	34	70
DPP447075	7.5	8	34	70
DPP447076	7.6	8	34	70
DPP447077	7.7	8	34	70
DPP447078	7.8	8	34	70
DPP447079	7.9	8	34	70
DPP447080	8.0	8	34	70
DPP447081	8.1	10	38	80
DPP447082	8.2	10	38	80
DPP447083	8.3	10	38	80

Other diameters and shank types are available upon request. NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M					K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron			Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21					
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230					
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	◎	○									

ISO Material Description	N										S					H																			
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55														
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550														
Recommended	○	○																																	



# YG DREAM DRILLS - FLAT BOTTOM

DPP447 SERIES

## CARBIDE, DREAM DRILLS - FLAT BOTTOM

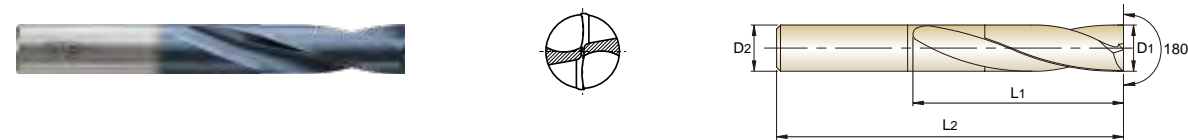
SHORT

- VHM, DREAM DRILLS - FLACHBOHRER
- DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC
- PUNTE IN MD DREAM DRILLS, TESTA PIANA

KURZ  
COURTE  
CORTA

- For holes on various angled surfaces.
- 180 degree point angle enables drilling of flat, inclined and curved surfaces.
- Optimized flute shape for excellent chip evacuation.
- High strength cutting edge to improve tool life and versatility drilling.
- For through holes, minimized burrs at entrance and exit when drilling thin plate.

- Für Bohrungen auf verschiedenen abgewinkelten Flächen.
- Der 180-Grad-Spitzenwinkel ermöglicht das Bohren von flachen, geneigten und gekrümmten Oberflächen.
- Optimierte Nutenform für hervorragende Spanabfuhr.
- Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
- Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.



CARBIDE 20° h6 h7 180° Coating p.A114

2 x D

Recommended ToolHolder  
Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DPP447084	8.4	10	38	80
DPP447085	8.5	10	38	80
DPP447086	8.6	10	38	80
DPP447087	8.7	10	40	80
DPP447088	8.8	10	40	80
DPP447089	8.9	10	40	80
DPP447090	9.0	10	40	80
DPP447091	9.1	10	42	80
DPP447092	9.2	10	42	80
DPP447093	9.3	10	42	80
DPP447094	9.4	10	42	80
DPP447095	9.5	10	42	80
DPP447096	9.6	10	42	80
DPP447097	9.7	10	45	80
DPP447098	9.8	10	45	80
DPP447099	9.9	10	45	80
DPP447100	10.0	10	45	80
DPP447101	10.1	12	46	90
DPP447102	10.2	12	46	90
DPP447103	10.3	12	46	90
DPP447104	10.4	12	48	90
DPP447105	10.5	12	48	90
DPP447106	10.6	12	48	90
DPP447107	10.7	12	48	90
DPP447108	10.8	12	48	90
DPP447109	10.9	12	48	90
DPP447110	11.0	12	48	90
DPP447111	11.1	12	50	90

Other diameters and shank types are available upon request.

◎ : Excellent ○ : Good

ISO Material Description	P										M					K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron			Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21					
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230					
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	◎	○									

ISO Material Description	N										S					H																			
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55														
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550														
Recommended	○	○																																	



# YIG DREAM DRILLS - FLAT BOTTOM

DH450 SERIES

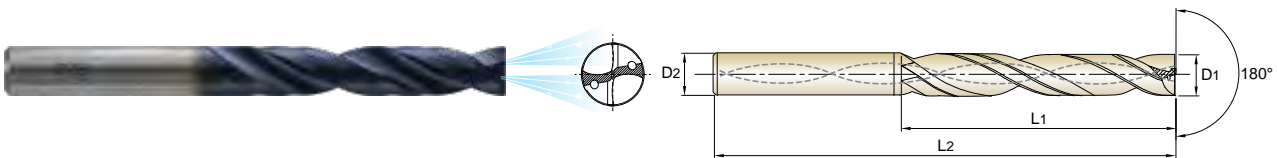
## CARBIDE, DREAM DRILLS - FLAT BOTTOM with COOLANT HOLES LONG

- VHM, DREAM DRILLS - FLACHBOHRER
- DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC
- PUNTE IN MD DREAM DRILLS, TESTA PIANA

KURZ  
LONGUE  
LUNGA

- For holes on various angled surfaces.
- 180 degree point angle enables drilling of flat, inclined and curved surfaces.
- Optimized flute shape for excellent chip evacuation.
- High strength cutting edge to improve tool life and versatility drilling.
- For through holes, minimized burrs at entrance and exit when drilling thin plate.
- Pilot Drilling for 5XD

- Für Bohrungen auf verschiedenen abgewinkelten Flächen.
- Der 180-Grad-Spitzenwinkel ermöglicht das Bohren von flachen, geneigten und gekrümmten Oberflächen.
- Optimierte Nutenform für hervorragende Spanabfuhr.
- Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
- Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.
- Pilotbohren 5XD



CARBIDE
30°
h6
h7
180°
20 bar
TiAIN
p.A115
5 x D
Recommended ToolHolder

Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

Unit : mm					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH450030	3.0	6	28	66	DH450058	5.8	6	44	82
DH450031	3.1	6	28	66	DH450059	5.9	6	44	82
DH450032	3.2	6	28	66	DH450060	6.0	6	44	82
DH450033	3.3	6	28	66	DH450061	6.1	8	53	91
DH450034	3.4	6	28	66	DH450062	6.2	8	53	91
DH450035	3.5	6	28	66	DH450063	6.3	8	53	91
DH450036	3.6	6	28	66	DH450064	6.4	8	53	91
DH450037	3.7	6	28	66	DH450065	6.5	8	53	91
DH450038	3.8	6	36	74	DH450066	6.6	8	53	91
DH450039	3.9	6	36	74	DH450067	6.7	8	53	91
DH450040	4.0	6	36	74	DH450068	6.8	8	53	91
DH450041	4.1	6	36	74	DH450069	6.9	8	53	91
DH450042	4.2	6	36	74	DH450070	7.0	8	53	91
DH450043	4.3	6	36	74	DH450071	7.1	8	53	91
DH450044	4.4	6	36	74	DH450072	7.2	8	53	91
DH450045	4.5	6	36	74	DH450073	7.3	8	53	91
DH450046	4.6	6	36	74	DH450074	7.4	8	53	91
DH450047	4.7	6	36	74	DH450075	7.5	8	53	91
DH450048	4.8	6	44	82	DH450076	7.6	8	53	91
DH450049	4.9	6	44	82	DH450077	7.7	8	53	91
DH450050	5.0	6	44	82	DH450078	7.8	8	53	91
DH450051	5.1	6	44	82	DH450079	7.9	8	53	91
DH450052	5.2	6	44	82	DH450080	8.0	8	53	91
DH450053	5.3	6	44	82	DH450081	8.1	10	61	103
DH450054	5.4	6	44	82	DH450082	8.2	10	61	103
DH450055	5.5	6	44	82	DH450083	8.3	10	61	103
DH450056	5.6	6	44	82					
DH450057	5.7	6	44	82					

Other diameters and shank types are available upon request. **NEXT PAGE**

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	◎	○				

ISO	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			



# YIG DREAM DRILLS - FLAT BOTTOM

DH450 SERIES

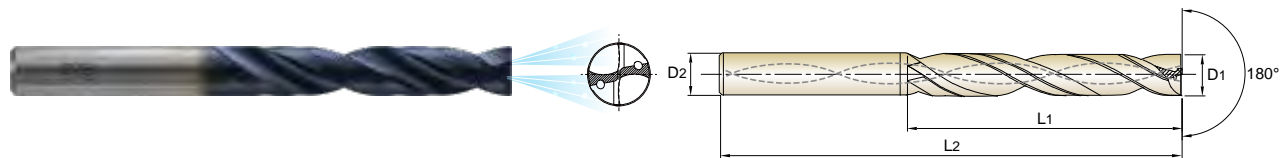
## CARBIDE, DREAM DRILLS - FLAT BOTTOM with COOLANT HOLES LONG

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- Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
- Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.
- Pilotbohren 5XD



CARBIDE
30°
h6
h7
180°
20 bar
TiAIN
p.A115
5 x D
Recommended ToolHolder

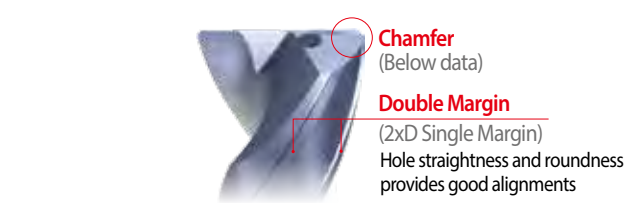
Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

Unit : mm					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH450084	8.4	10	61	103	DH450140	14.0	14	77	124
DH450085	8.5	10	61	103	DH450145	14.5	16	83	133
DH450086	8.6	10	61	103	DH450150	15.0	16	83	133
DH450087	8.7	10	61	103	DH450155	15.5	16	83	133
DH450088	8.8	10	61	103	DH450160	16.0	16	83	133
DH450089	8.9	10	61	103	DH450165	16.5	18	93	143
DH450090	9.0	10	61	103	DH450170	17.0	18	93	143
DH450091	9.1	10	61	103	DH450175	17.5	18	93	143
DH450092	9.2	10	61	103	DH450180	18.0	18	93	143
DH450093	9.3	10	61	103	DH450185	18.5	20	101	153
DH450094	9.4	10	61	103	DH450190	19.0	20	101	153
DH450095	9.5	10	61	103	DH450195	19.5	20	101	153
DH450096	9.6	10	61	103	DH450200	20.0	20	101	153
DH450097	9.7	10	61	103					
DH450098	9.8	10	61	103					
DH450099	9.9	10	61	103					
DH450100	10.0	10	61	103					
DH450102	10.2	12	71	118					
DH450105	10.5	12	71	118					
DH450108	10.8	12	71	118					
DH450110	11.0	12	71	118					
DH450115	11.5	12	71	118					
DH450118	11.8	12	71	118					
DH450119	11.9	12	71	118					
DH450120	12.0	12	71	118					
DH450125	12.5	14	77	124					
DH450130	13.0	14	77	124					
DH450135	13.5	14	77	124					

Other diameters and shank types are available upon request.

Drill Diameter (mm)	Corner Chamfer (mm)
Ø3.0 ~ Ø6.0	0.06
Ø6.1 ~ Ø10.0	0.12
Ø10.1 ~ Ø14.0	0.18
Ø14.1 ~ Ø20.0	0.26

Other diameters and shank types are available upon request.



Drill Diameter (mm)	Corner Chamfer (mm)
Ø3.0 ~ Ø6.0	0.06
Ø6.1 ~ Ø10.0	0.12
Ø10.1 ~ Ø14.0	0.18
Ø14.1 ~ Ø20.0	0.26

◎ : Excellent ○ : Good

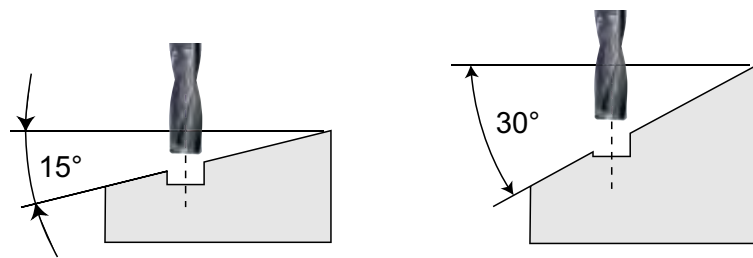
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	◎	○				

ISO	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

**DPP447 SERIES without COOLANT HOLES (2XD)**

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

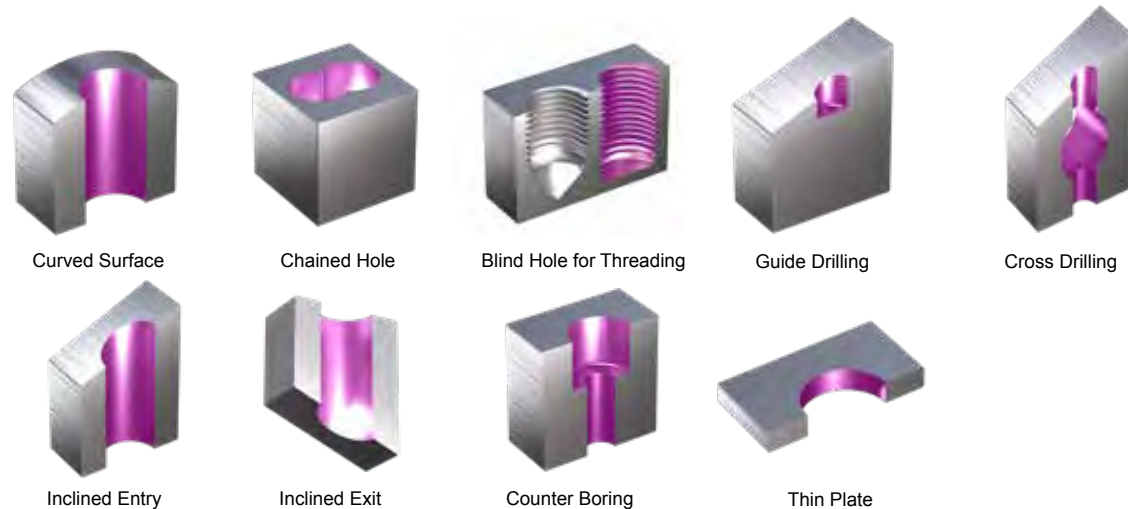
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)										
					3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0		
P	1	Non-alloy steel	80	RPM	8490	6370	5090	4240	3180	2550	2120	1590	1270		
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.08-0.14	0.11-0.17	0.11-0.21	0.18-0.28	0.28-0.38		
				80	RPM	8490	6370	5090	4240	3180	2550	2120	1590	1270	
	2		FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.08-0.14	0.11-0.17	0.11-0.21	0.18-0.28	0.28-0.38			
			3	RPM	7430	5570	4460	3710	2790	2230	1860	1390	1110		
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34		
	4			RPM	4240	3180	2550	2120	1590	1270	1060	800	640		
			FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34			
			5	RPM	4030	3020	2420	2020	1510	1210	1010	760	600		
FEED	0.02-0.05	0.02-0.06		0.03-0.08	0.03-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.21-0.31					
6	RPM	4770		3580	2860	2390	1790	1430	1190	900	720				
	FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34					
	7	RPM	4240	3180	2550	2120	1590	1270	1060	800	640				
FEED		0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34					
8		RPM	4030	3020	2420	2020	1510	1210	1010	760	600				
	FEED	0.02-0.05	0.02-0.06	0.03-0.08	0.03-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.21-0.31					
	9	RPM	2650	1990	1590	1330	990	800	660	500	400				
FEED		0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.08	0.05-0.10	0.06-0.12	0.06-0.16	0.10-0.20					
M 12		Stainless steel	30	RPM	3180	2390	1910	1590	1190	950	800	600	480		
	FEED			0.01-0.03	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.08	0.05-0.10	0.06-0.12	0.09-0.15			
	RPM			7430	5570	4460	3710	2790	2230	1860	1390	1110			
K 15	Grey cast iron	70	FEED	0.02-0.05	0.02-0.06	0.03-0.08	0.03-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30			
			RPM	6370	4770	3820	3180	2390	1910	1590	1190	950			
			FEED	0.02-0.05	0.02-0.05	0.03-0.06	0.03-0.07	0.04-0.10	0.07-0.13	0.06-0.16	0.11-0.21	0.15-0.25			
K 16	Grey cast iron	60	RPM	17510	13130	10500	8750	6570	5250	4380	3280	2630			
			FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40			
			RPM	17510	13130	10500	8750	6570	5250	4380	3280	2630			
N 21	Aluminum-wrought alloy	165	RPM	17510	13130	10500	8750	6570	5250	4380	3280	2630			
			FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40			
			RPM	17510	13130	10500	8750	6570	5250	4380	3280	2630			
N 22	Aluminum-wrought alloy	165	FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40			
			RPM	17510	13130	10500	8750	6570	5250	4380	3280	2630			
			FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40			



Surface Angle	Cutting Conditions	
	RPM	FEED
0° - 15°	100%	100%
15° - 30°	100%	50%
30° -	70%	30%

- ▶ The cutting conditions are for 2xD.
- ▶ The rigid and precise machine and holder are required.
- ▶ The recommended depth of hole is measured from the highest point of the hole on drilling in inclined and angled surfaces.
- ▶ The recommended cutting conditions are those for drilling on flat and horizontal surfaces.
- ▶ Please adjust feed rate according to the above surface angle when drilling on an inclined surface.
  - The recommended feed rate 50% or lower, in case of 15°-30° of the incline angle.
  - The recommended feed rate 30% or lower and RPM 70%, in case of 30° - of the incline angle.
- ▶ Please decrease cutting speed as material hardness increases.
- ▶ Only use drilling tool. Side milling, traversing, helical milling are not usable.

**VARIETY OF DRILLING**

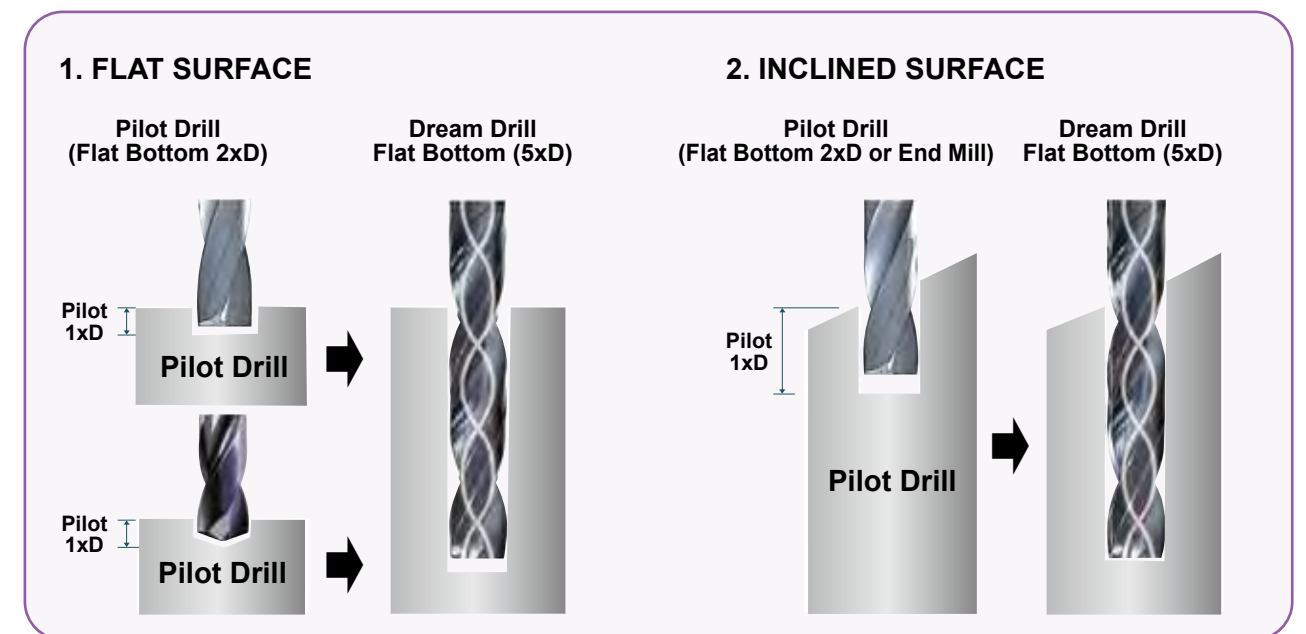


**DH450 SERIES with COOLANT HOLES (5XD)**

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)										
					3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0		
P	1	Non-alloy steel	100	RPM	10610	7960	6370	5310	3980	3180	2650	1990	1590		
				FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60		
				90	RPM	9550	7160	5730	4770	3580	2860	2390	1790	1430	
	2		FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40			
			3	RPM	9550	7160	5730	4770	3580	2860	2390	1790	1430		
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40		
	4			RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190		
			FEED	0.02-0.04	0.03-0.06	0.05-0.08	0.06-0.12	0.09-0.15	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30			
			5	RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190		
FEED	0.02-0.04	0.03-0.06		0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30					
6	RPM	9020		6760	5410	4510	3380	2710	2250	1690	1350				
	FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40					
	7	RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190				
FEED		0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40					
8		RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190				
	FEED	0.02-0.04	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30					
	9	RPM	5310	3980	3180	2650	1990	1590	1330	990	800				
FEED		0.02-0.04	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30					
M 12		Stainless steel	60	RPM	6370	4770	3820	3180	2390	1910	1590	1190	950		
	FEED			0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40			
	RPM			9550	7160	5730	4770	3580	2860	2390	1790	1430			
K 15	Grey cast iron	90	FEED	0.02-0.05	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30			
			RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190			
			FEED	0.02-0.05	0.02-0.05	0.03-0.06	0.03-0.07	0.04-0.10	0.07-0.13	0.06-0.16	0.11-0.21	0.15-0.25			
K 16	Grey cast iron	75	RPM	16980	12730	10190	8490	6370	5090	4240	3180	2550			
			FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60			
			RPM	16980	12730	10190	8490	6370	5090	4240	3180	2550			
N 21	Aluminum-wrought alloy	160	FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60			
			RPM	16980	12730	10190	8490	6370	5090	4240	3180	2550			
			FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60			
N 22	Aluminum-wrought alloy	160	RPM	16980	12730	10190	8490	6370	5090	4240	3180	2550			
			FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60			
			RPM	16980	12730	10190	8490	6370	5090	4240	3180	2550			

- ▶ Required pilot hole of the same diameter before using the 5xD Flat bottom Drills.
- ▶ The above table values is for under 5xD depth with pilot drilling operation.

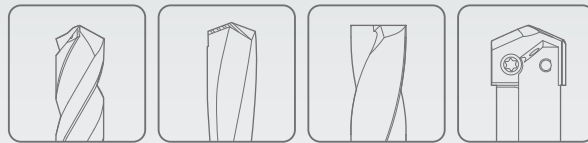
**DREAM DRILLS FLAT BOTTOM - Pilot Drilling for 5 X D**



- ▶ For Flat bottom 5xD drilling depth, Slope surface needs Pilot Drilling with YG-1 Flat Bottom Drill (2XD) and Flat surface needs Pilot Drilling with YG-1 Dream Drill General.
- ▶ Pilot Drilling Depth : around 1XD
- ▶ Pilot Drilling Diameter : same size diameter



Global Cutting Tool Leader **YG-1**



# HOLEMAKING





Leading Through Innovation



SOLID CARBIDE

# DREAM DRILLS -INOX

## DREAM DRILLS - INOX

- For Tough Materials like Stainless Steels
- Für schwierig zerspanbare Materialien wie Edelstahl



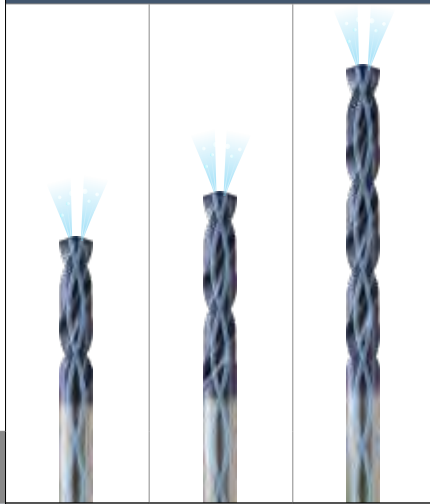
SELECTION GUIDE



SERIES	DH451	DH452	DH453
DRILLING DEPTH	3XD	5XD	8XD
LENGTH	SHORT	LONG	EXTRA LONG
SIZE MIN	D3.0	D1.0	D3.0
SIZE MAX	D20.0	D20.0	D14.0
PAGE	A119	A122	A125
SURFACE TREATMENT	TiAIN		

# SOLID CARBIDE DREAM DRILLS INOX

For Tough Materials like Stainless Steels



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A127

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	○	○
	4		About 0.75% C Annealed	270	28			
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	○	○	○
	8		Quenched & Tempered	300	32			
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15		
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎
	14		Austenitic	180	10	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10			
	16		Pearlitic (Martensitic)	260	26			
	17	Nodular cast iron	Ferritic	160	3			
	18		Pearlitic	250	25			
	19		Ferritic	130				
20	Malleable cast iron	Pearlitic	230	21				
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎	◎
	22		Curable Hardened	100		◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○
	24		≤ 12% Si, Curable Hardened	90		○	○	○
	25		> 12% Si, Not Curable	130		○	○	○
	26		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110			
	27	Non Metallic Materials	CuZn, CuSnZn (Brass)	90				
	28		CuSn, lead-free copper and electrolytic copper	100				
	29		Duroplastic, Fiber Reinforced Plastic					
	30	Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Cured	350	38			
	35	Cast	320	34				
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys Hardened	1050 Rm		○	○	○
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40		Cast	400	42			
41	Hardened Cast Iron	Hardened	550	55				



DH451 SERIES

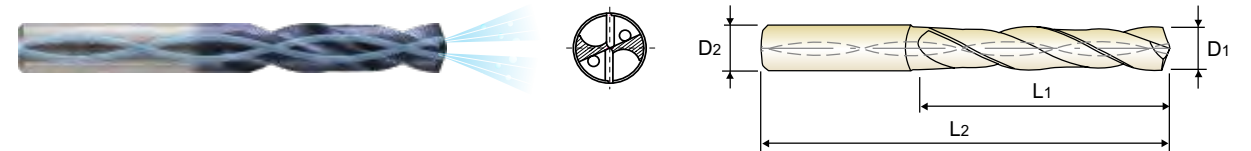
## CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES

- VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL
- Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série courte
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione)

SHORT  
KURZ  
COURTE  
CORTA

- ▶ Special flute shape and geometry suitable for machining stainless steel
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- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
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DIN 6537
CARBIDE
30°
h6
m7
140°
20 bar
TiAIN
p.A127
3 x D
Recommended ToolHolder

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DH451030	3.0	6	20	62
DH451031	3.1	6	20	62
DH451032	3.2	6	20	62
DH451033	3.3	6	20	62
DH451034	3.4	6	20	62
DH451035	3.5	6	20	62
DH451036	3.6	6	20	62
DH451037	3.7	6	20	62
DH451038	3.8	6	24	66
DH451039	3.9	6	24	66
DH451040	4.0	6	24	66
DH451041	4.1	6	24	66
DH451042	4.2	6	24	66
DH451043	4.3	6	24	66
DH451044	4.4	6	24	66
DH451045	4.5	6	24	66
DH451046	4.6	6	24	66
DH451047	4.7	6	24	66
DH451048	4.8	6	28	66
DH451049	4.9	6	28	66
DH451050	5.0	6	28	66
DH451051	5.1	6	28	66
DH451052	5.2	6	28	66
DH451053	5.3	6	28	66

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DH451054	5.4	6	28	66
DH451055	5.5	6	28	66
DH451056	5.6	6	28	66
DH451057	5.7	6	28	66
DH451058	5.8	6	28	66
DH451059	5.9	6	28	66
DH451060	6.0	6	28	66
DH451061	6.1	8	34	79
DH451062	6.2	8	34	79
DH451063	6.3	8	34	79
DH451064	6.4	8	34	79
DH451065	6.5	8	34	79
DH451066	6.6	8	34	79
DH451067	6.7	8	34	79
DH451068	6.8	8	34	79
DH451069	6.9	8	34	79
DH451070	7.0	8	34	79
DH451071	7.1	8	41	79
DH451072	7.2	8	41	79
DH451073	7.3	8	41	79
DH451074	7.4	8	41	79
DH451075	7.5	8	41	79
DH451076	7.6	8	41	79
DH451077	7.7	8	41	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	○				◎	○				◎	◎	◎								
ISO	N									S						H					
Material Description	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

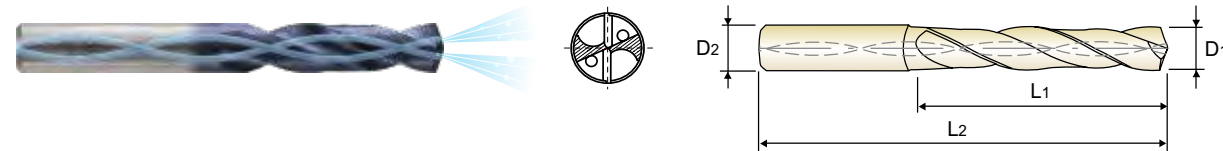


DH451 SERIES

**CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES** *SHORT*

- VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL *KURZ*
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- ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537
CARBIDE
30°
h6
m7
140°
20 bar
TiAlN
p.A127
3 x D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH451078	7.8	8	41	79	DH451102	10.2	12	55	102
DH451079	7.9	8	41	79	DH451103	10.3	12	55	102
DH451080	8.0	8	41	79	DH451104	10.4	12	55	102
DH451081	8.1	10	47	89	DH451105	10.5	12	55	102
DH451082	8.2	10	47	89	DH451106	10.6	12	55	102
DH451083	8.3	10	47	89	DH451107	10.7	12	55	102
DH451084	8.4	10	47	89	DH451108	10.8	12	55	102
DH451085	8.5	10	47	89	DH451109	10.9	12	55	102
DH451086	8.6	10	47	89	DH451110	11.0	12	55	102
DH451087	8.7	10	47	89	DH451111	11.1	12	55	102
DH451088	8.8	10	47	89	DH451112	11.2	12	55	102
DH451089	8.9	10	47	89	DH451113	11.3	12	55	102
DH451090	9.0	10	47	89	DH451114	11.4	12	55	102
DH451091	9.1	10	47	89	DH451115	11.5	12	55	102
DH451092	9.2	10	47	89	DH451116	11.6	12	55	102
DH451093	9.3	10	47	89	DH451117	11.7	12	55	102
DH451094	9.4	10	47	89	DH451118	11.8	12	55	102
DH451095	9.5	10	47	89	DH451119	11.9	12	55	102
DH451096	9.6	10	47	89	DH451120	12.0	12	55	102
DH451097	9.7	10	47	89	DH451125	12.5	14	60	107
DH451098	9.8	10	47	89	DH451130	13.0	14	60	107
DH451099	9.9	10	47	89	DH451135	13.5	14	60	107
DH451100	10.0	10	47	89	DH451140	14.0	14	60	107
DH451101	10.1	12	55	102	DH451145	14.5	16	65	115

▶ Other shank types are available on your request. ▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm					550	630	400	550
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

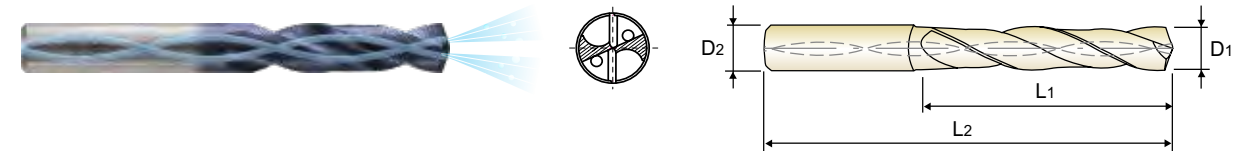


DH451 SERIES

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DIN 6537
CARBIDE
30°
h6
m7
140°
20 bar
TiAlN
p.A127
3 x D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH451150	15.0	16	65	115	DH451180	18.0	18	73	123
DH451155	15.5	16	65	115	DH451185	18.5	20	79	131
DH451160	16.0	16	65	115	DH451190	19.0	20	79	131
DH451165	16.5	18	73	123	DH451195	19.5	20	79	131
DH451170	17.0	18	73	123	DH451200	20.0	20	79	131
DH451175	17.5	18	73	123					

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm					550	630	400	550
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



HSS

HSS



DH452 SERIES

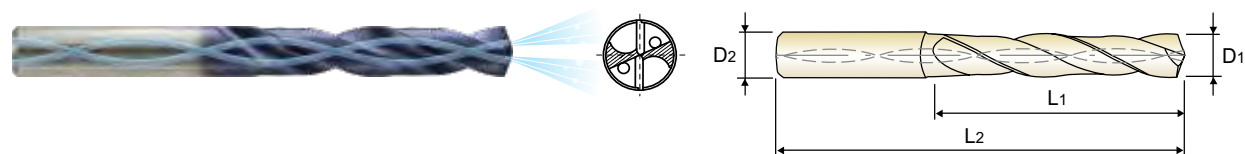


DH452 SERIES

**CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES** LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL LANG
- Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série longue LONGUE
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  - ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
  - ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
  - ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAlN p.A127 5 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH452010	1.0	3	8	55	DH452034	3.4	6	28	66
DH452011	1.1	3	12	55	DH452035	3.5	6	28	66
DH452012	1.2	3	12	55	DH452036	3.6	6	28	66
DH452013	1.3	3	12	55	DH452037	3.7	6	28	66
DH452014	1.4	3	12	55	DH452038	3.8	6	36	74
DH452015	1.5	3	16	55	DH452039	3.9	6	36	74
DH452016	1.6	3	16	55	DH452040	4.0	6	36	74
DH452017	1.7	3	16	55	DH452041	4.1	6	36	74
DH452018	1.8	3	16	55	DH452042	4.2	6	36	74
DH452019	1.9	3	16	55	DH452043	4.3	6	36	74
DH452020	2.0	4	21	57	DH452044	4.4	6	36	74
DH452021	2.1	4	21	57	DH452045	4.5	6	36	74
DH452022	2.2	4	21	57	DH452046	4.6	6	36	74
DH452023	2.3	4	21	57	DH452047	4.7	6	36	74
DH452024	2.4	4	21	57	DH452048	4.8	6	44	82
DH452025	2.5	4	21	57	DH452049	4.9	6	44	82
DH452026	2.6	4	21	57	DH452050	5.0	6	44	82
DH452027	2.7	4	21	57	DH452051	5.1	6	44	82
DH452028	2.8	4	21	57	DH452052	5.2	6	44	82
DH452029	2.9	4	21	57	DH452053	5.3	6	44	82
DH452030	3.0	6	28	66	DH452054	5.4	6	44	82
DH452031	3.1	6	28	66	DH452055	5.5	6	44	82
DH452032	3.2	6	28	66	DH452056	5.6	6	44	82
DH452033	3.3	6	28	66	DH452057	5.7	6	44	82

▶ Other shank types are available on your request. ▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

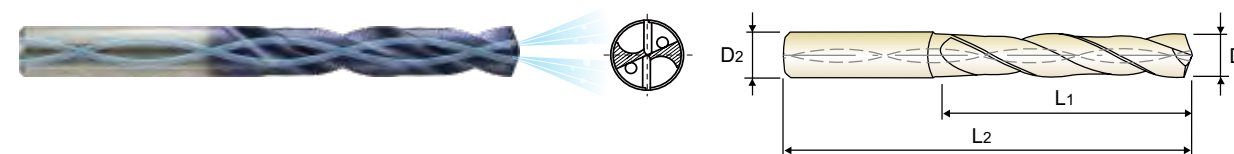
ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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**CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES** LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL LANG
- Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série longue LONGUE
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) LUNGA

- ▶ Special flute shape and geometry suitable for machining stainless steel
  - ▶ Excellent chip evacuation from better surface treatment
  - ▶ Point R-thinning achieves superior centering and chip curling
  - ▶ TiAlN coating for better surface finishes and longer tool life
- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
  - ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
  - ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
  - ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAlN p.A127 5 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH452058	5.8	6	44	82	DH452082	8.2	10	61	103
DH452059	5.9	6	44	82	DH452083	8.3	10	61	103
DH452060	6.0	6	44	82	DH452084	8.4	10	61	103
DH452061	6.1	8	53	91	DH452085	8.5	10	61	103
DH452062	6.2	8	53	91	DH452086	8.6	10	61	103
DH452063	6.3	8	53	91	DH452087	8.7	10	61	103
DH452064	6.4	8	53	91	DH452088	8.8	10	61	103
DH452065	6.5	8	53	91	DH452089	8.9	10	61	103
DH452066	6.6	8	53	91	DH452090	9.0	10	61	103
DH452067	6.7	8	53	91	DH452091	9.1	10	61	103
DH452068	6.8	8	53	91	DH452092	9.2	10	61	103
DH452069	6.9	8	53	91	DH452093	9.3	10	61	103
DH452070	7.0	8	53	91	DH452094	9.4	10	61	103
DH452071	7.1	8	53	91	DH452095	9.5	10	61	103
DH452072	7.2	8	53	91	DH452096	9.6	10	61	103
DH452073	7.3	8	53	91	DH452097	9.7	10	61	103
DH452074	7.4	8	53	91	DH452098	9.8	10	61	103
DH452075	7.5	8	53	91	DH452099	9.9	10	61	103
DH452076	7.6	8	53	91	DH452100	10.0	10	61	103
DH452077	7.7	8	53	91	DH452101	10.1	12	71	118
DH452078	7.8	8	53	91	DH452102	10.2	12	71	118
DH452079	7.9	8	53	91	DH452103	10.3	12	71	118
DH452080	8.0	8	53	91	DH452104	10.4	12	71	118
DH452081	8.1	10	61	103	DH452105	10.5	12	71	118

▶ Other shank types are available on your request. ▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

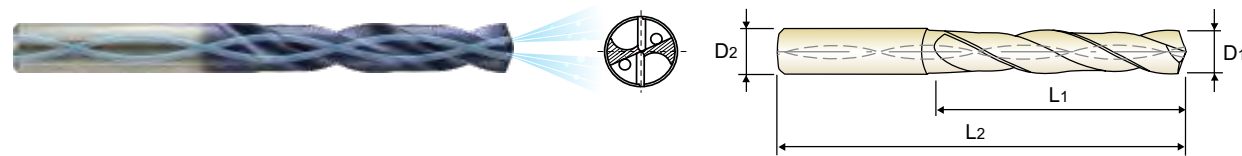
COUNTER BORES

TECHNICAL DATA

**CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES** **LONG**

- VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL **LANG**
- Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série longue **LONGUE**
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) **LUNGA**

- Special flute shape and geometry suitable for machining stainless steel
- Excellent chip evacuation from better surface treatment
- Point R-thinning achieves superior centering and chip curling
- TiAIN coating for better surface finishes and longer tool life
- Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- TiAIN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A127 5 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DH452106	10.6	12	71	118
DH452107	10.7	12	71	118
DH452108	10.8	12	71	118
DH452109	10.9	12	71	118
DH452110	11.0	12	71	118
DH452111	11.1	12	71	118
DH452112	11.2	12	71	118
DH452113	11.3	12	71	118
DH452114	11.4	12	71	118
DH452115	11.5	12	71	118
DH452116	11.6	12	71	118
DH452117	11.7	12	71	118
DH452118	11.8	12	71	118
DH452119	11.9	12	71	118
DH452120	12.0	12	71	118
DH452125	12.5	14	77	124
DH452130	13.0	14	77	124
DH452135	13.5	14	77	124
DH452140	14.0	14	77	124
DH452145	14.5	16	83	133
DH452150	15.0	16	83	133
DH452155	15.5	16	83	133
DH452160	16.0	16	83	133
DH452165	16.5	18	93	143

► Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	◎	○	○	◎	◎	◎	◎	◎	○	○	○	○	○	○

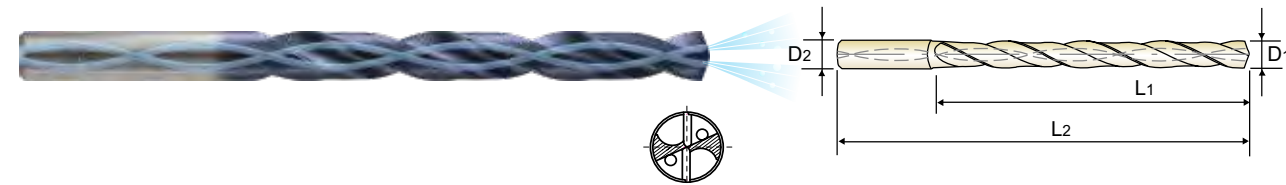
ISO Material Description	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES** **EXTRA LONG**

- VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL **ÜBERLANG**
- Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série extra-longue **EXTRA-LONGUE**
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) **EXTRA LUNGA**

- Special flute shape and geometry suitable for machining stainless steel
- Excellent chip evacuation from better surface treatment
- Point R-thinning achieves superior centering and chip curling
- TiAIN coating for better surface finishes and longer tool life
- Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- TiAIN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAIN p.A127 8 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DH453030	3.0	6	34	72
DH453031	3.1	6	34	72
DH453032	3.2	6	34	72
DH453033	3.3	6	34	72
DH453034	3.4	6	34	72
DH453035	3.5	6	34	72
DH453036	3.6	6	34	72
DH453037	3.7	6	34	72
DH453038	3.8	6	43	81
DH453039	3.9	6	43	81
DH453040	4.0	6	43	81
DH453041	4.1	6	43	81
DH453042	4.2	6	43	81
DH453043	4.3	6	43	81
DH453044	4.4	6	43	81
DH453045	4.5	6	43	81
DH453046	4.6	6	43	81
DH453047	4.7	6	43	81
DH453048	4.8	6	57	95
DH453049	4.9	6	57	95
DH453050	5.0	6	57	95
DH453051	5.1	6	57	95
DH453052	5.2	6	57	95
DH453053	5.3	6	57	95
DH453054	5.4	6	57	95
DH453055	5.5	6	57	95
DH453056	5.6	6	57	95
DH453057	5.7	6	57	95
DH453058	5.8	6	57	95
DH453059	5.9	6	57	95
DH453060	6.0	6	57	95
DH453061	6.1	8	76	114
DH453062	6.2	8	76	114
DH453063	6.3	8	76	114
DH453064	6.4	8	76	114
DH453065	6.5	8	76	114
DH453066	6.6	8	76	114
DH453067	6.7	8	76	114
DH453068	6.8	8	76	114
DH453069	6.9	8	76	114
DH453070	7.0	8	76	114
DH453071	7.1	8	76	114
DH453072	7.2	8	76	114
DH453073	7.3	8	76	114
DH453074	7.4	8	76	114
DH453075	7.5	8	76	114
DH453076	7.6	8	76	114
DH453077	7.7	8	76	114

► Other shank types are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	◎	○	○	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO Material Description	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





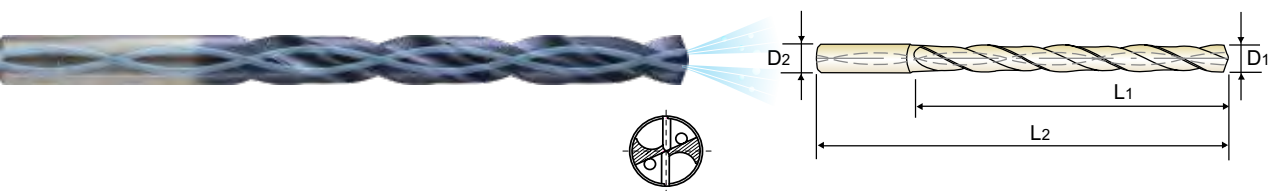
DH453 SERIES

**CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES** EXTRA LONG

● VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL **ÜBERLANG**  
● Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série extra-longue **EXTRA-LONGUE**  
● PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) **EXTRA LUNGA**

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAlN coating for better surface finishes and longer tool life

- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 CARBIDE 30° h6 m7 140° 20 bar TiAlN p.A127 8 x D  
 Plain Shank Page SHRINK FIT HOLDER D47-72 HYDRAULIC CHUCK D15-46 ER COLLET CHUCK D73-115

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH453078	7.8	8	76	114	DH453102	10.2	12	114	162
DH453079	7.9	8	76	114	DH453103	10.3	12	114	162
DH453080	8.0	8	76	114	DH453104	10.4	12	114	162
DH453081	8.1	10	95	142	DH453105	10.5	12	114	162
DH453082	8.2	10	95	142	DH453106	10.6	12	114	162
DH453083	8.3	10	95	142	DH453107	10.7	12	114	162
DH453084	8.4	10	95	142	DH453108	10.8	12	114	162
DH453085	8.5	10	95	142	DH453109	10.9	12	114	162
DH453086	8.6	10	95	142	DH453110	11.0	12	114	162
DH453087	8.7	10	95	142	DH453111	11.1	12	114	162
DH453088	8.8	10	95	142	DH453112	11.2	12	114	162
DH453089	8.9	10	95	142	DH453113	11.3	12	114	162
DH453090	9.0	10	95	142	DH453114	11.4	12	114	162
DH453091	9.1	10	95	142	DH453115	11.5	12	114	162
DH453092	9.2	10	95	142	DH453116	11.6	12	114	162
DH453093	9.3	10	95	142	DH453117	11.7	12	114	162
DH453094	9.4	10	95	142	DH453118	11.8	12	114	162
DH453095	9.5	10	95	142	DH453119	11.9	12	114	162
DH453096	9.6	10	95	142	DH453120	12.0	12	114	162
DH453097	9.7	10	95	142	DH453125	12.5	14	133	178
DH453098	9.8	10	95	142	DH453130	13.0	14	133	178
DH453099	9.9	10	95	142	DH453135	13.5	14	133	178
DH453100	10.0	10	95	142	DH453140	14.0	14	133	178
DH453101	10.1	12	114	162					

▶ Other shank types are available on your request.

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

ISO	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙



RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDPARAMETER

**DH451, DH452, DH453 SERIES with COOLANT HOLES**

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)		Vc	Parameter	Drill Diameter (mm)			
					1.0	2.0			3.0	4.0	5.0	6.0
P	2	Non-alloy steel	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
			FEED	0.02-0.04	0.04-0.06	FEED		0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20	
	3	Non-alloy steel	70	RPM	22280	11140	100	RPM	7430	5570	4460	3710
			FEED	0.02-0.04	0.04-0.06	FEED		0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20	
6	Low alloy steel	70	RPM	22280	11140	100	RPM	7430	5570	4460	3710	
		FEED	0.02-0.04	0.04-0.06	FEED		0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20		
7	Low alloy steel	50	RPM	15920	7960	70	RPM	5310	3980	3180	2650	
		FEED	0.02-0.04	0.04-0.06	FEED		0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20		
M	12	Stainless steel	40	RPM	12730	6370	50	RPM	5310	3980	3180	2650
			FEED	0.02-0.04	0.02-0.04	FEED		0.03-0.05	0.05-0.09	0.07-0.11	0.08-0.12	
	13	Stainless steel	25	RPM	7960	3980	40	RPM	4240	3180	2550	2120
			FEED	0.02-0.04	0.02-0.04	FEED		0.03-0.05	0.05-0.09	0.07-0.11	0.08-0.12	
14	Stainless steel	45	RPM	14320	7160	60	RPM	6370	4770	3820	3180	
		FEED	0.02-0.04	0.02-0.04	FEED		0.04-0.06	0.06-0.10	0.08-0.12	0.09-0.13		
N	21	Aluminum-wrought alloy	130	RPM	41380	20690	180	RPM	19100	14320	11460	9550
			FEED	0.04-0.10	0.08-0.14	FEED		0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28	
	22	Aluminum-wrought alloy	130	RPM	41380	20690	180	RPM	19100	14320	11460	9550
			FEED	0.04-0.10	0.08-0.14	FEED		0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28	
	23	Aluminum-cast, alloyed	110	RPM	35010	17510	160	RPM	16980	12730	10190	8490
			FEED	0.04-0.10	0.08-0.14	FEED		0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28	
	24	Aluminum-cast, alloyed	110	RPM	35010	17510	160	RPM	16980	12730	10190	8490
			FEED	0.04-0.10	0.08-0.14	FEED		0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28	
25	Aluminum-cast, alloyed	90	RPM	28650	14320	130	RPM	13790	10350	8280	6900	
		FEED	0.04-0.08	0.06-0.10	FEED		0.12-0.18	0.16-0.22	0.17-0.23	0.19-0.25		
37	Titanium Alloys	25	RPM	7960	3980	40	RPM	4240	3180	2550	2120	
		FEED	0.01-0.03	0.01-0.03	FEED		0.02-0.04	0.04-0.08	0.06-0.10	0.07-0.11		

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)							
					8.0	10.0	12.0	14.0	16.0	18.0	20.0	
P	2	Non-alloy steel	100	RPM	3980	3180	2650	2270	1990	1770	1590	
			FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38		
	3	Non-alloy steel	100	RPM	2790	2230	1860	1590	1390	1240	1110	
			FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38		
6	Low alloy steel	100	RPM	2790	2230	1860	1590	1390	1240	1110		
		FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38			
7	Low alloy steel	70	RPM	1990	1590	1330	1140	990	880	800		
		FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38			
M	12	Stainless steel	50	RPM	1990	1590	1330	1140	990	880	800	
			FEED	0.09-0.13	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20		
	13	Stainless steel	40	RPM	1590	1270	1060	910	800	710	640	
			FEED	0.09-0.13	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20		
14	Stainless steel	60	RPM	2390	1910	1590	1360	1190	1060	950		
		FEED	0.10-0.14	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20	0.16-0.21			
N	21	Aluminum-wrought alloy	180	RPM	7160	5730	4770	4090	3580	3180	2860	
			FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45		
	22	Aluminum-wrought alloy	180	RPM	7160	5730	4770	4090	3580	3180	2860	
			FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45		
	23	Aluminum-cast, alloyed	160	RPM	6370	5090	4240	3640	3180	2830	2550	
			FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45		
	24	Aluminum-cast, alloyed	160	RPM	6370	5090	4240	3640	3180	2830	2550	
			FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45		
25	Aluminum-cast, alloyed	130	RPM	5170	4140	3450	2960	2590	2300	2070		
		FEED	0.21-0.27	0.23-0.29	0.25-0.31	0.27-0.33	0.28-0.34	0.28-0.38	0.30-0.40			
37	Titanium Alloys	40	RPM	1590	1270	1060	910	800	710	640		
		FEED	0.08-0.12	0.09-0.14	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19			

▶ Recommend to reduce the feed rate as following  
**Feed 100% :** DH451(3xD), DH452(5xD) **Feed 85% :** DH453(8xD)







Leading Through Innovation



Global Cutting Tool Leader YG-1



# HOLEMAKING



SOLID CARBIDE

# DREAM DRILLS -ALU

## DREAM DRILLS - ALU

- For Aluminum and Aluminum Alloys

- Für Aluminium und Aluminiumlegierungen





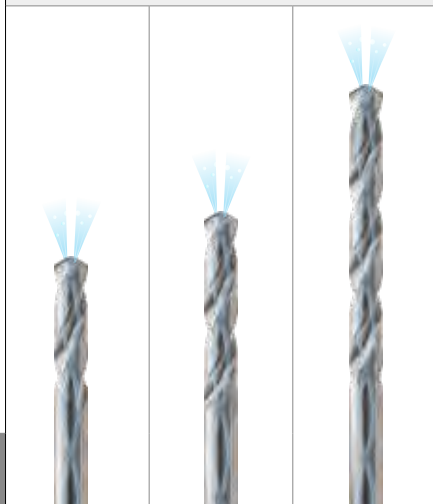
SERIES	D5432	D5433	D5434
DRILLING DEPTH	3XD	5XD	8XD
LENGTH	SHORT	LONG	EXTRA LONG
SIZE MIN	D3.0	D3.0	D3.0
SIZE MAX	D20.0	D20.0	D14.0
PAGE	A131	A134	A137

SURFACE TREATMENT

Bright

# SOLID CARBIDE DREAM DRILLS ALU

For Aluminum and Aluminum Alloys



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A139

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc				
P	1	Non-alloy steel	About 0.15% C	Annealed	125				
	2		About 0.45% C	Annealed	190	13			
	3		About 0.45% C	Quenched & Tempered	250	25			
	4		About 0.75% C	Annealed	270	28			
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10			
	7		Quenched & Tempered	275	29				
	8		Quenched & Tempered	300	32				
	9		Quenched & Tempered	350	38				
	10		High alloyed steel, and tool steel	Annealed	200	15			
	11	Quenched & Tempered	325	35					
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10			
	16		Pearlitic (Martensitic)		260	26			
	17	Nodular cast iron	Ferritic		160	3			
	18		Pearlitic		250	25			
	19		Ferritic		130				
20	Malleable cast iron	Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎	◎
	22		Curable	Hardened	100		◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎	◎
	25		> 12% Si, Not Curable		130				
	26		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33			Annealed	250	25			
	34		Ni or Co Based	Cured	350	38			
	35			Cast	320	34			
	36			Pure Titanium	400 Rm				
37	Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened Cast Iron	Hardened		550	55			
	39				630	60			
	40			Cast	400	42			
	41				550	55			



D5432 SERIES

## CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES

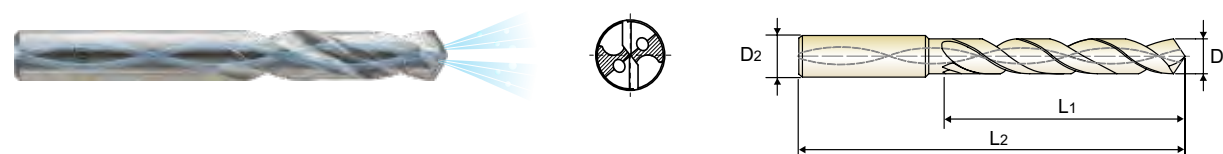
SHORT

- VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
- Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série courte
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)

KURZ  
COURTE  
CORTA

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminiumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschnittenbildung und verbessern die Oberflächen



DIN 6537
CARBIDE
30°
h6
m7
118°
20 bar
Bright
p.A139
3 x D
Recommended ToolHolder
Plain Shank Page
SHRINK FIT HOLDER D47-72
HYDRAULIC CHUCK D15-46
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length	Overall Length	EDP No.	Drill Diameter		Flute Length	Overall Length
	D1	D2				D1	D2		
D5432030	3.0	6	20	62	D5432054	5.4	6	28	66
D5432031	3.1	6	20	62	D5432055	5.5	6	28	66
D5432032	3.2	6	20	62	D5432056	5.6	6	28	66
D5432033	3.3	6	20	62	D5432057	5.7	6	28	66
D5432034	3.4	6	20	62	D5432058	5.8	6	28	66
D5432035	3.5	6	20	62	D5432059	5.9	6	28	66
D5432036	3.6	6	20	62	D5432060	6.0	6	28	66
D5432037	3.7	6	20	62	D5432061	6.1	8	34	79
D5432038	3.8	6	24	66	D5432062	6.2	8	34	79
D5432039	3.9	6	24	66	D5432063	6.3	8	34	79
D5432040	4.0	6	24	66	D5432064	6.4	8	34	79
D5432041	4.1	6	24	66	D5432065	6.5	8	34	79
D5432042	4.2	6	24	66	D5432066	6.6	8	34	79
D5432043	4.3	6	24	66	D5432067	6.7	8	34	79
D5432044	4.4	6	24	66	D5432068	6.8	8	34	79
D5432045	4.5	6	24	66	D5432069	6.9	8	34	79
D5432046	4.6	6	24	66	D5432070	7.0	8	34	79
D5432047	4.7	6	24	66	D5432071	7.1	8	41	79
D5432048	4.8	6	28	66	D5432072	7.2	8	41	79
D5432049	4.9	6	28	66	D5432073	7.3	8	41	79
D5432050	5.0	6	28	66	D5432074	7.4	8	41	79
D5432051	5.1	6	28	66	D5432075	7.5	8	41	79
D5432052	5.2	6	28	66	D5432076	7.6	8	41	79
D5432053	5.3	6	28	66	D5432077	7.7	8	41	79

- ▶ DLC coating is available on your request.
- ▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323																					
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended																					
ISO	N									S						H					
	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
HB											200	280	250	350	320						
Recommended	◎	◎	◎	◎																	

HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

HSS

HSS



D5432 SERIES



D5432 SERIES

**CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES**

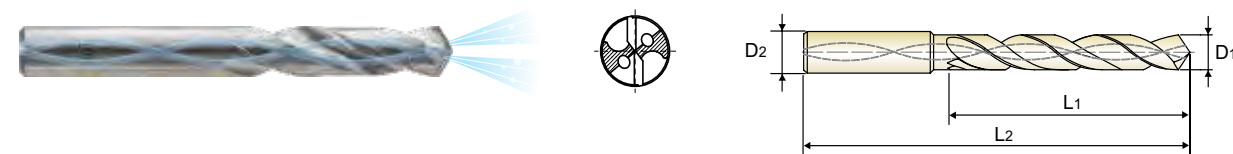
SHORT

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- Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série courte
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)

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DIN 6537 CARBIDE 30° h6 m7 118° 20 bar Bright p.A139 3 x D Recommended ToolHolder

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2	EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2				D1	D2		
D5432078	7.8	8	41	79	D5432102	10.2	12	55	102
D5432079	7.9	8	41	79	D5432103	10.3	12	55	102
D5432080	8.0	8	41	79	D5432104	10.4	12	55	102
D5432081	8.1	10	47	89	D5432105	10.5	12	55	102
D5432082	8.2	10	47	89	D5432106	10.6	12	55	102
D5432083	8.3	10	47	89	D5432107	10.7	12	55	102
D5432084	8.4	10	47	89	D5432108	10.8	12	55	102
D5432085	8.5	10	47	89	D5432109	10.9	12	55	102
D5432086	8.6	10	47	89	D5432110	11.0	12	55	102
D5432087	8.7	10	47	89	D5432111	11.1	12	55	102
D5432088	8.8	10	47	89	D5432112	11.2	12	55	102
D5432089	8.9	10	47	89	D5432113	11.3	12	55	102
D5432090	9.0	10	47	89	D5432114	11.4	12	55	102
D5432091	9.1	10	47	89	D5432115	11.5	12	55	102
D5432092	9.2	10	47	89	D5432116	11.6	12	55	102
D5432093	9.3	10	47	89	D5432117	11.7	12	55	102
D5432094	9.4	10	47	89	D5432118	11.8	12	55	102
D5432095	9.5	10	47	89	D5432119	11.9	12	55	102
D5432096	9.6	10	47	89	D5432120	12.0	12	55	102
D5432097	9.7	10	47	89	D5432125	12.5	14	60	107
D5432098	9.8	10	47	89	D5432130	13.0	14	60	107
D5432099	9.9	10	47	89	D5432135	13.5	14	60	107
D5432100	10.0	10	47	89	D5432140	14.0	14	60	107
D5432101	10.1	12	55	102	D5432145	14.5	16	65	115

- ▶ DLC coating is available on your request.
- ▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

**CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES**

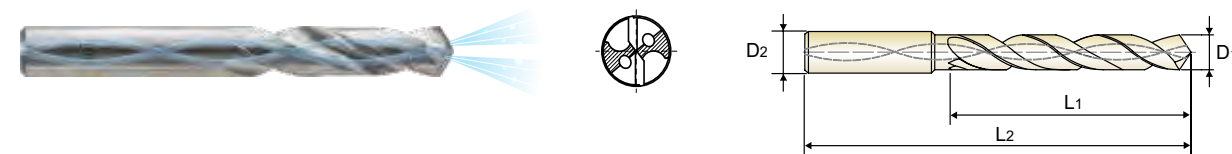
SHORT

- VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
- Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série courte
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)

KURZ  
COURTE  
CORTA

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminiumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 CARBIDE 30° h6 m7 118° 20 bar Bright p.A139 3 x D Recommended ToolHolder

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2	EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2				D1	D2		
D5432150	15.0	16	65	115	D5432190	19.0	20	79	131
D5432155	15.5	16	65	115	D5432195	19.5	20	79	131
D5432160	16.0	16	65	115	D5432200	20.0	20	79	131
D5432165	16.5	18	73	123					
D5432170	17.0	18	73	123					
D5432175	17.5	18	73	123					
D5432180	18.0	18	73	123					
D5432185	18.5	20	79	131					

- ▶ DLC coating is available on your request.
- ▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	





**CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES**

LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
- Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série longue
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (CON FORI DI REFRIGERAZIONE)

LANG

LONGUE

LUNGA

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminiumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 CARBIDE 30° h6 m7 118° 20 bar Bright p.A139 5 x D Recommended ToolHolder

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2	EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2				D1	D2		
D5433030	3.0	6	28	66	D5433054	5.4	6	44	82
D5433031	3.1	6	28	66	D5433055	5.5	6	44	82
D5433032	3.2	6	28	66	D5433056	5.6	6	44	82
D5433033	3.3	6	28	66	D5433057	5.7	6	44	82
D5433034	3.4	6	28	66	D5433058	5.8	6	44	82
D5433035	3.5	6	28	66	D5433059	5.9	6	44	82
D5433036	3.6	6	28	66	D5433060	6.0	6	44	82
D5433037	3.7	6	28	66	D5433061	6.1	8	53	91
D5433038	3.8	6	36	74	D5433062	6.2	8	53	91
D5433039	3.9	6	36	74	D5433063	6.3	8	53	91
D5433040	4.0	6	36	74	D5433064	6.4	8	53	91
D5433041	4.1	6	36	74	D5433065	6.5	8	53	91
D5433042	4.2	6	36	74	D5433066	6.6	8	53	91
D5433043	4.3	6	36	74	D5433067	6.7	8	53	91
D5433044	4.4	6	36	74	D5433068	6.8	8	53	91
D5433045	4.5	6	36	74	D5433069	6.9	8	53	91
D5433046	4.6	6	36	74	D5433070	7.0	8	53	91
D5433047	4.7	6	36	74	D5433071	7.1	8	53	91
D5433048	4.8	6	44	82	D5433072	7.2	8	53	91
D5433049	4.9	6	44	82	D5433073	7.3	8	53	91
D5433050	5.0	6	44	82	D5433074	7.4	8	53	91
D5433051	5.1	6	44	82	D5433075	7.5	8	53	91
D5433052	5.2	6	44	82	D5433076	7.6	8	53	91
D5433053	5.3	6	44	82	D5433077	7.7	8	53	91

▶ DLC coating is available on your request. ▶ NEXT PAGE  
 ▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended																					

ISO Material Description	N										S							H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55			
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550			
Recommended	◎	◎	◎	◎																				



**CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES**

LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
- Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série longue
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (CON FORI DI REFRIGERAZIONE)

LANG

LONGUE

LUNGA

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminiumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 CARBIDE 30° h6 m7 118° 20 bar Bright p.A139 5 x D Recommended ToolHolder

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2	EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2				D1	D2		
D5433078	7.8	8	53	91	D5433102	10.2	12	71	118
D5433079	7.9	8	53	91	D5433103	10.3	12	71	118
D5433080	8.0	8	53	91	D5433104	10.4	12	71	118
D5433081	8.1	10	61	103	D5433105	10.5	12	71	118
D5433082	8.2	10	61	103	D5433106	10.6	12	71	118
D5433083	8.3	10	61	103	D5433107	10.7	12	71	118
D5433084	8.4	10	61	103	D5433108	10.8	12	71	118
D5433085	8.5	10	61	103	D5433109	10.9	12	71	118
D5433086	8.6	10	61	103	D5433110	11.0	12	71	118
D5433087	8.7	10	61	103	D5433111	11.1	12	71	118
D5433088	8.8	10	61	103	D5433112	11.2	12	71	118
D5433089	8.9	10	61	103	D5433113	11.3	12	71	118
D5433090	9.0	10	61	103	D5433114	11.4	12	71	118
D5433091	9.1	10	61	103	D5433115	11.5	12	71	118
D5433092	9.2	10	61	103	D5433116	11.6	12	71	118
D5433093	9.3	10	61	103	D5433117	11.7	12	71	118
D5433094	9.4	10	61	103	D5433118	11.8	12	71	118
D5433095	9.5	10	61	103	D5433119	11.9	12	71	118
D5433096	9.6	10	61	103	D5433120	12.0	12	71	118
D5433097	9.7	10	61	103	D5433125	12.5	14	77	124
D5433098	9.8	10	61	103	D5433130	13.0	14	77	124
D5433099	9.9	10	61	103	D5433135	13.5	14	77	124
D5433100	10.0	10	61	103	D5433140	14.0	14	77	124
D5433101	10.1	12	71	118	D5433145	14.5	16	83	133

▶ DLC coating is available on your request. ▶ NEXT PAGE  
 ▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended																					

ISO Material Description	N										S							H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55			
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550			
Recommended	◎	◎	◎	◎																				

**YG DREAM DRILLS - ALU**

D5433 SERIES

**CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES**

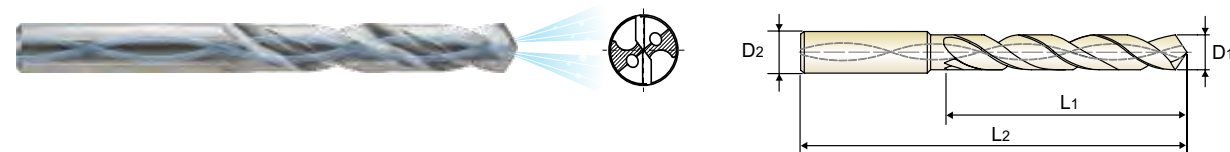
LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
- Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série longue
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (CON FORI DI REFRIGERAZIONE)

LANG  
LONGUE  
LUNGA

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminiumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 CARBIDE 30° h6 m7 118° 20 bar Bright p.A139 5 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2		
D5433150	15.0	16	83	133
D5433155	15.5	16	83	133
D5433160	16.0	16	83	133
D5433165	16.5	18	93	143
D5433170	17.0	18	93	143
D5433175	17.5	18	93	143
D5433180	18.0	18	93	143
D5433185	18.5	20	101	153

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2		
D5433190	19.0	20	101	153
D5433195	19.5	20	101	153
D5433200	20.0	20	101	153

- ▶ DLC coating is available on your request.
- ▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	



**YG DREAM DRILLS - ALU**

D5434 SERIES

**CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES**

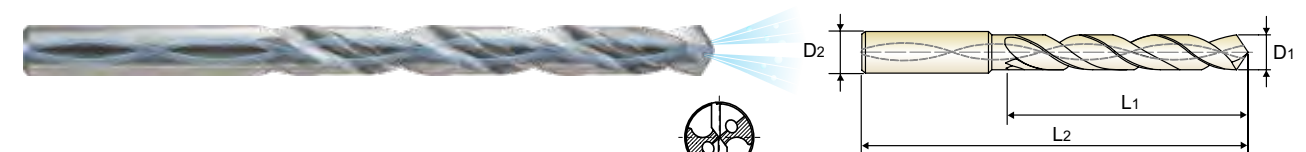
EXTRA LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
- Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série extra-longue
- PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)

ÜBERLANG  
EXTRA-LONGUE  
EXTRA LUNGA

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminiumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 CARBIDE 30° h6 m7 118° 20 bar Bright p.A139 8 x D

Plain Shank Page  
 ◎ SHRINK FIT HOLDER D47-72  
 ◎ HYDRAULIC CHUCK D15-46  
 ○ ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2		
D5434030	3.0	6	34	72
D5434031	3.1	6	34	72
D5434032	3.2	6	34	72
D5434033	3.3	6	34	72
D5434034	3.4	6	34	72
D5434035	3.5	6	34	72
D5434036	3.6	6	34	72
D5434037	3.7	6	34	72
D5434038	3.8	6	43	81
D5434039	3.9	6	43	81
D5434040	4.0	6	43	81
D5434041	4.1	6	43	81
D5434042	4.2	6	43	81
D5434043	4.3	6	43	81
D5434044	4.4	6	43	81
D5434045	4.5	6	43	81
D5434046	4.6	6	43	81
D5434047	4.7	6	43	81
D5434048	4.8	6	57	95
D5434049	4.9	6	57	95
D5434050	5.0	6	57	95
D5434051	5.1	6	57	95
D5434052	5.2	6	57	95
D5434053	5.3	6	57	95
D5434054	5.4	6	57	95

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2		
D5434055	5.5	6	57	95
D5434056	5.6	6	57	95
D5434057	5.7	6	57	95
D5434058	5.8	6	57	95
D5434059	5.9	6	57	95
D5434060	6.0	6	57	95
D5434061	6.1	8	76	114
D5434062	6.2	8	76	114
D5434063	6.3	8	76	114
D5434064	6.4	8	76	114
D5434065	6.5	8	76	114
D5434066	6.6	8	76	114
D5434067	6.7	8	76	114
D5434068	6.8	8	76	114
D5434069	6.9	8	76	114
D5434070	7.0	8	76	114
D5434071	7.1	8	76	114
D5434072	7.2	8	76	114
D5434073	7.3	8	76	114
D5434074	7.4	8	76	114
D5434075	7.5	8	76	114
D5434076	7.6	8	76	114
D5434077	7.7	8	76	114
D5434078	7.8	8	76	114
D5434079	7.9	8	76	114

- ▶ DLC coating is available on your request.
- ▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	



D5434 SERIES

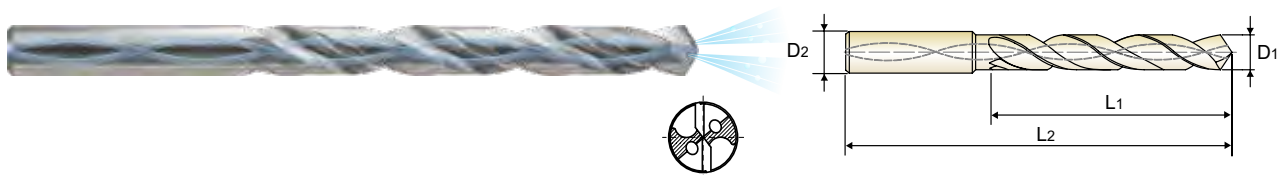


RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDPARAMETER

**CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES** *EXTRA LONG*  
**VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL** *ÜBERLANG*  
**Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série extra-longue** *EXTRA-LONGUE*  
**PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)** *EXTRA LUNGA*

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminiumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 CARBIDE 30° h6 m7 118° 20 bar Bright p.A139 8 x D

Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length L1	Overall Length L2	EDP No.	Drill Diameter		Flute Length L1	Overall Length L2
	D1	D2				D1	D2		
D5434080	8.0	8	76	114	D5434105	10.5	12	114	162
D5434081	8.1	10	95	142	D5434106	10.6	12	114	162
D5434082	8.2	10	95	142	D5434107	10.7	12	114	162
D5434083	8.3	10	95	142	D5434108	10.8	12	114	162
D5434084	8.4	10	95	142	D5434109	10.9	12	114	162
D5434085	8.5	10	95	142	D5434110	11.0	12	114	162
D5434086	8.6	10	95	142	D5434111	11.1	12	114	162
D5434087	8.7	10	95	142	D5434112	11.2	12	114	162
D5434088	8.8	10	95	142	D5434113	11.3	12	114	162
D5434089	8.9	10	95	142	D5434114	11.4	12	114	162
D5434090	9.0	10	95	142	D5434115	11.5	12	114	162
D5434091	9.1	10	95	142	D5434116	11.6	12	114	162
D5434092	9.2	10	95	142	D5434117	11.7	12	114	162
D5434093	9.3	10	95	142	D5434118	11.8	12	114	162
D5434094	9.4	10	95	142	D5434119	11.9	12	114	162
D5434095	9.5	10	95	142	D5434120	12.0	12	114	162
D5434096	9.6	10	95	142	D5434125	12.5	14	133	178
D5434097	9.7	10	95	142	D5434130	13.0	14	133	178
D5434098	9.8	10	95	142	D5434135	13.5	14	133	178
D5434099	9.9	10	95	142	D5434140	14.0	14	133	178
D5434100	10.0	10	95	142					
D5434101	10.1	12	114	162					
D5434102	10.2	12	114	162					
D5434103	10.3	12	114	162					
D5434104	10.4	12	114	162					

- ▶ DLC coating is available on your request.
- ▶ Other shank types are available on your request.

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550

D5432, D5433, D5434 SERIES with COOLANT HOLES

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

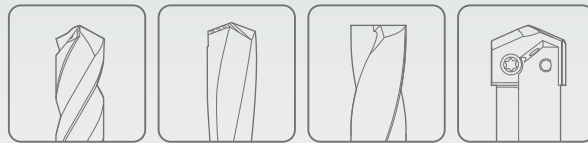
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)										
					3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21	Aluminum-wrought alloy	200	RPM	21220	15920	12730	10610	7960	6370	5310	4550	3980	3540	3180
			FEED	0.12-0.18	0.14-0.22	0.15-0.23	0.17-0.25	0.21-0.28	0.24-0.30	0.24-0.30	0.25-0.35	0.25-0.35	0.28-0.38	0.30-0.40	
	160		RPM	16980	12730	10190	8490	6370	5090	4240	3640	3180	2830	2550	
	FEED		0.12-0.18	0.14-0.22	0.15-0.23	0.17-0.25	0.21-0.28	0.24-0.30	0.24-0.30	0.25-0.35	0.25-0.35	0.28-0.38	0.30-0.40		
	23	Aluminum-cast, alloyed	150	RPM	15920	11940	9550	7960	5970	4770	3980	3410	2980	2650	2390
			FEED	0.15-0.21	0.17-0.25	0.19-0.27	0.21-0.28	0.24-0.31	0.29-0.45	0.33-0.55	0.35-0.60	0.35-0.60	0.39-0.73	0.39-0.85	
	140		RPM	14850	11140	8910	7430	5570	4460	3710	3180	2790	2480	2230	
	FEED		0.15-0.21	0.17-0.25	0.19-0.27	0.21-0.28	0.24-0.31	0.29-0.45	0.33-0.55	0.35-0.60	0.35-0.60	0.39-0.73	0.39-0.85		







Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

SOLID CARBIDE

# DREAM DRILLS -MQL TYPE

## DREAM DRILLS - MQL TYPE

- Minimum Quantity Lubrication Drilling Deep Holes (10×D ~ 40×D)
- Minimalmengenschmierung Tieflochbohren (10×D ~ 40×D)



SELECTION GUIDE



SERIES	DH510	DH515	DH520
DRILLING DEPTH	10XD	15XD	20XD
LENGTH	EXTRA LONG	EXTRA LONG	EXTRA LONG
SIZE MIN	D3.0	D3.0	D3.0
SIZE MAX	D14.0	D12.0	D12.0
PAGE	A144	A145	

SURFACE TREATMENT

TiAIN

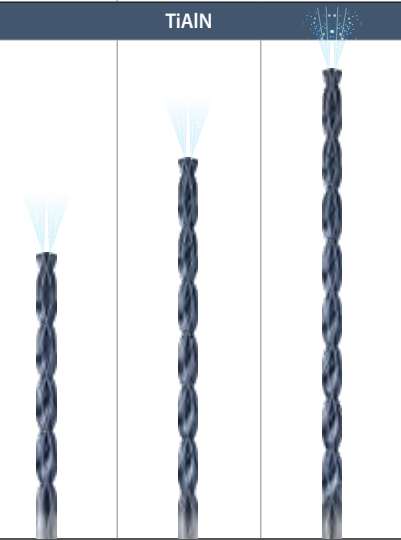
# SOLID CARBIDE DREAM DRILLS MQL TYPE

Minimum Quantity Lubrication  
Drilling Deep Holes (10×D ~ 40×D)

Please visit [globaly1.com/mat](http://globaly1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. A148



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	○	○
	4		About 0.75% C Annealed	270	28			
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	○	○	○
	8		Quenched & Tempered	300	32	○	○	○
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○
	11		Quenched & Tempered	325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15			
	13		Martensitic Quenched & Tempered	240	23			
	14		Austenitic	180	10			
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎
	16		Pearlitic (Martensitic)	260	26	○	○	○
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎
	18		Pearlitic	250	25	○	○	○
	19		Ferritic	130		◎	◎	◎
20	Malleable cast iron	Pearlitic	230	21	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable	60				
	22		Curable Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110				
	27		CuZn, CuSnZn (Brass)	90				
28		CuSn, lead-free copper and electrolytic copper	100					
29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Annealed	250	25			
	34		Cured	350	38			
	35		Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm				
37	Alpha + Beta Alloys		Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55		
	39		Hardened	630	60			
	40		Cast	400	42			
41	Hardened Cast Iron	Hardened	550	55				



HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

TECHNICAL DATA



HSS

HSS

i-ONE DRILLS

i-ONE DRILLS

i-DREAM DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

MULTI-1 DRILLS

HPD DRILLS

HPD DRILLS

GOLD-P DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

CENTER DRILLS

SPADE DRILLS

SPADE DRILLS

REAMERS

REAMERS

COUNTER SINKS

COUNTER SINKS

COUNTER BORES

COUNTER BORES

TECHNICAL DATA

TECHNICAL DATA

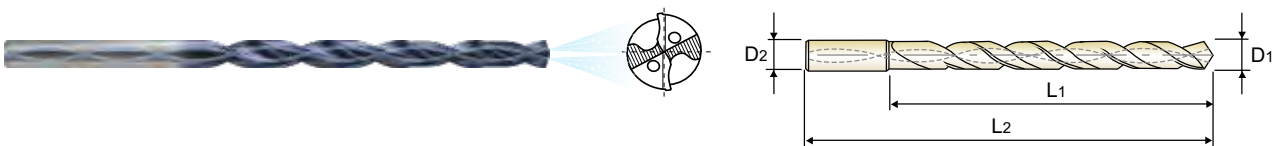
**YIG DREAM DRILLS - MQL TYPE**

DH510 SERIES

**CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES EXTRA LONG**

- VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL in GERADZÄHLIGER SCHAFTAUSFÜHRUNG **ÜBERLANG**
- Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue **EXTRA-LONGUE**
- PUNTE ELICOIDALI IN MD, DREAM DRILLS MQL (con fori di refrigerazione) **EXTRA LUNGA**

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)
- ▶ 4-Facetten-Spitze für gute Zentrierfähigkeit
- ▶ Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
- ▶ Verbesserte Spanabfuhr durch hochglanzpolierte TiAIN-Nano-Vollbeschichtung
- ▶ MMS geeignet



CARBIDE
30°
h6
h7
140°
20 bar
TiAIN
p.A148
10 × D
Recommended ToolHolder

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

Unit : mm					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH510030	3.0	3	39	90	DH510080	8.0	8	104	161
DH510033	3.3	4	46	97	DH510085	8.5	9	111	169
DH510035	3.5	4	46	97	DH510090	9.0	9	117	175
DH510040	4.0	4	52	103	DH510095	9.5	10	124	182
DH510042	4.2	5	59	112	DH510100	10.0	10	130	188
DH510045	4.5	5	59	112	DH510105	10.5	11	137	201
DH510050	5.0	5	65	118	DH510110	11.0	11	143	207
DH510055	5.5	6	72	127	DH510115	11.5	12	150	215
DH510060	6.0	6	78	133	DH510120	12.0	12	156	221
DH510065	6.5	7	85	141	DH510125	12.5	13	163	229
DH510068	6.8	7	91	147	DH510130	13.0	13	169	235
DH510070	7.0	7	91	147	DH510135	13.5	14	176	243
DH510075	7.5	8	98	155	DH510140	14.0	14	182	249

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	○	◎	○	◎	○	◎	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**YIG DREAM DRILLS - MQL TYPE**

DH515 SERIES

DH520 SERIES

**CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES EXTRA LONG**

- VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL in GERADZÄHLIGER SCHAFTAUSFÜHRUNG **ÜBERLANG**
- Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue **EXTRA-LONGUE**
- PUNTE ELICOIDALI IN MD, DREAM DRILLS MQL (con fori di refrigerazione) **EXTRA LUNGA**

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)
- ▶ 4-Facetten-Spitze für gute Zentrierfähigkeit
- ▶ Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
- ▶ Verbesserte Spanabfuhr durch hochglanzpolierte TiAIN-Nano-Vollbeschichtung
- ▶ MMS geeignet



CARBIDE
30°
h6
h7
140°
20 bar
TiAIN
p.A148
15 × D (DH515)
20 × D (DH520)
Recommended ToolHolder

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

DH515

Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DH515030	3.0	3	54	105
DH515035	3.5	4	63	114
DH515040	4.0	4	72	123
DH515045	4.5	5	81	134
DH515050	5.0	5	90	143
DH515055	5.5	6	99	154
DH515060	6.0	6	108	163
DH515070	7.0	7	126	182
DH515080	8.0	8	144	201
DH515090	9.0	9	162	220
DH515100	10.0	10	180	238
DH515110	11.0	11	198	262
DH515120	12.0	12	216	281

DH520

Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DH520030	3.0	3	69	120
DH520035	3.5	4	81	132
DH520040	4.0	4	92	143
DH520045	4.5	5	104	157
DH520050	5.0	5	115	168
DH520055	5.5	6	127	182
DH520060	6.0	6	138	193
DH520070	7.0	7	161	217
DH520080	8.0	8	184	241
DH520090	9.0	9	207	265
DH520100	10.0	10	230	288
DH520120	12.0	12	276	341

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	○	◎	○	◎	○	◎	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

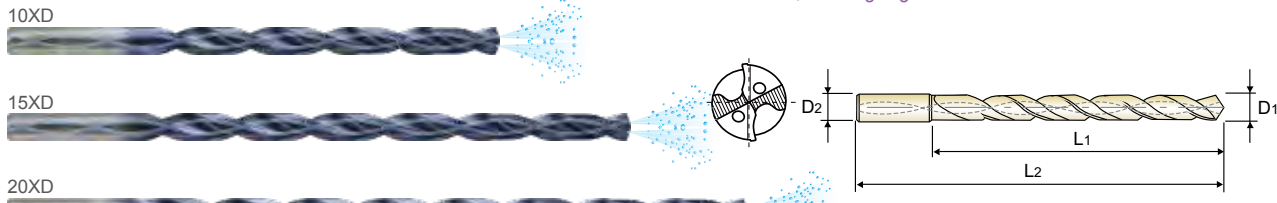


**YG DREAM DRILLS - MQL TYPE**

**DHM10 SERIES** **DHM15 SERIES** **DHM20 SERIES**

**CARBIDE, DREAM DRILL MQL TYPE END MILL SHANK with COOLANT HOLE** *EXTRA LONG*  
**VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE MIT KÜHLKANAL** *ÜBERLANG*  
**Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue** *EXTRA-LONGUE*  
**PUNTE MD, DREAM DRILLS MQL GAMBO RINFORZATO (con fori di ferigrazione)** *EXTRA LUNGA*

- ▶ 4-Facet Point for good centering capability
  - ▶ Optimized special flutes are ideal for removing chips and for productive drilling
  - ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
  - ▶ MQL system compatible (Minimum Quantity Lubrication)
- ▶ 4-Facetten-Spitze für gute Zentrierfähigkeit
  - ▶ Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
  - ▶ Verbesserte Spanabfuhr durch hochglanzpolierte TiAIN-Nano-Vollbeschichtung
  - ▶ MMS geeignet



10 × D (DHM10) 15 × D (DHM15) 20 × D (DHM20)

Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

Recommended Toolholder

CARBIDE 30° h6 h7 140° 20 bar 45 bar TiAIN p.A148

**DHM10** Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DHM10030	3.0	6	40	80
DHM10033	3.3	6	47	87
DHM10035	3.5	6	47	87
DHM10040	4.0	6	53	93
DHM10042	4.2	6	60	100
DHM10045	4.5	6	60	100
DHM10050	5.0	6	66	106
DHM10055	5.5	6	73	113
DHM10060	6.0	6	79	119
DHM10065	6.5	8	86	126
DHM10068	6.8	8	92	132
DHM10070	7.0	8	92	132
DHM10075	7.5	8	99	139
DHM10080	8.0	8	105	145
DHM10085	8.5	10	112	156
DHM10090	9.0	10	118	162
DHM10095	9.5	10	126	170
DHM10100	10.0	10	132	176
DHM10105	10.5	12	139	188
DHM10110	11.0	12	145	194
DHM10115	11.5	12	152	201
DHM10120	12.0	12	158	207
DHM10125	12.5	14	165	214
DHM10130	13.0	14	171	220
DHM10135	13.5	14	178	227
DHM10140	14.0	14	184	233

**DHM15** Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DHM15030	3.0	6	55	95
DHM15035	3.5	6	64	104
DHM15040	4.0	6	73	113
DHM15045	4.5	6	82	122
DHM15050	5.0	6	91	131
DHM15055	5.5	6	100	140
DHM15060	6.0	6	109	149
DHM15070	7.0	8	127	167
DHM15080	8.0	8	145	185
DHM15090	9.0	10	163	207
DHM15100	10.0	10	182	226
DHM15110	11.0	12	200	249
DHM15120	12.0	12	218	267

**DHM20** Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DHM20030	3.0	6	70	110
DHM20035	3.5	6	82	122
DHM20040	4.0	6	93	133
DHM20045	4.5	6	105	145
DHM20050	5.0	6	116	156
DHM20055	5.5	6	128	168
DHM20060	6.0	6	139	179
DHM20070	7.0	8	162	202
DHM20080	8.0	8	185	225
DHM20090	9.0	10	208	252
DHM20100	10.0	10	232	276
DHM20110	11.0	12	255	304
DHM20120	12.0	12	278	327

◎ : Excellent ○ : Good

ISO Material Description	P										M					K																													
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel					Grey cast iron					Nodular cast iron					Malleable cast iron														
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
HB	125	190	250	270	300	180	275	300	350	350	200	325	200	240	180	180	260	160	250	130	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230					
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					

**YG DREAM DRILLS - MQL TYPE**

**DHM25 SERIES** **DHM30 SERIES**

**CARBIDE, DREAM DRILL MQL TYPE END MILL SHANK with COOLANT HOLE** *EXTRA LONG*  
**VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE MIT KÜHLKANAL** *ÜBERLANG*  
**Forets DREAM DRILLS carbure Type MQL avec arrosage central, attacheement type fraise, série extra-longue** *EXTRA-LONGUE*  
**PUNTE MD, DREAM DRILLS MQL GAMBO RINFORZATO (con fori di ferigrazione)** *EXTRA LUNGA*

- ▶ 4-Facet Point for good centering capability
  - ▶ Optimized special flutes are ideal for removing chips and for productive drilling
  - ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
  - ▶ MQL system compatible (Minimum Quantity Lubrication)
- ▶ 4-Facetten-Spitze für gute Zentrierfähigkeit
  - ▶ Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
  - ▶ Verbesserte Spanabfuhr durch hochglanzpolierte TiAIN-Nano-Vollbeschichtung
  - ▶ MMS geeignet



25 × D (DHM25) 30 × D (DHM30)

Plain Shank Page  
 SHRINK FIT HOLDER D47-72  
 HYDRAULIC CHUCK D15-46  
 ER COLLET CHUCK D73-115

Recommended Toolholder

CARBIDE 30° h6 h7 140° 45 bar TiAIN p.A148

**DHM25** Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DHM25030	3.0	6.0	85	125
DHM25035	3.5	6.0	99	139
DHM25040	4.0	6.0	113	153
DHM25045	4.5	6.0	127	167
DHM25050	5.0	6.0	141	181
DHM25055	5.5	6.0	155	195
DHM25060	6.0	6.0	169	209
DHM25070	7.0	8.0	197	237
DHM25080	8.0	8.0	225	265
DHM25090	9.0	10.0	253	297
DHM25100	10.0	10.0	282	326

**DHM30** Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
DHM30030	3.0	6.0	100	140
DHM30035	3.5	6.0	117	157
DHM30040	4.0	6.0	133	173
DHM30045	4.5	6.0	150	190
DHM30050	5.0	6.0	166	206
DHM30055	5.5	6.0	183	223
DHM30060	6.0	6.0	199	239
DHM30070	7.0	8.0	232	272
DHM30080	8.0	8.0	265	305

▶ Made to order in depth 35 & 40D(3-6mm)

◎ : Excellent ○ : Good

ISO Material Description	P										M					K																													
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel					Grey cast iron					Nodular cast iron					Malleable cast iron														
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
HB	125	190	250	270	300	180	275	300	350	350	200	325	200	240	180	180	260	160	250	130	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230					
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					



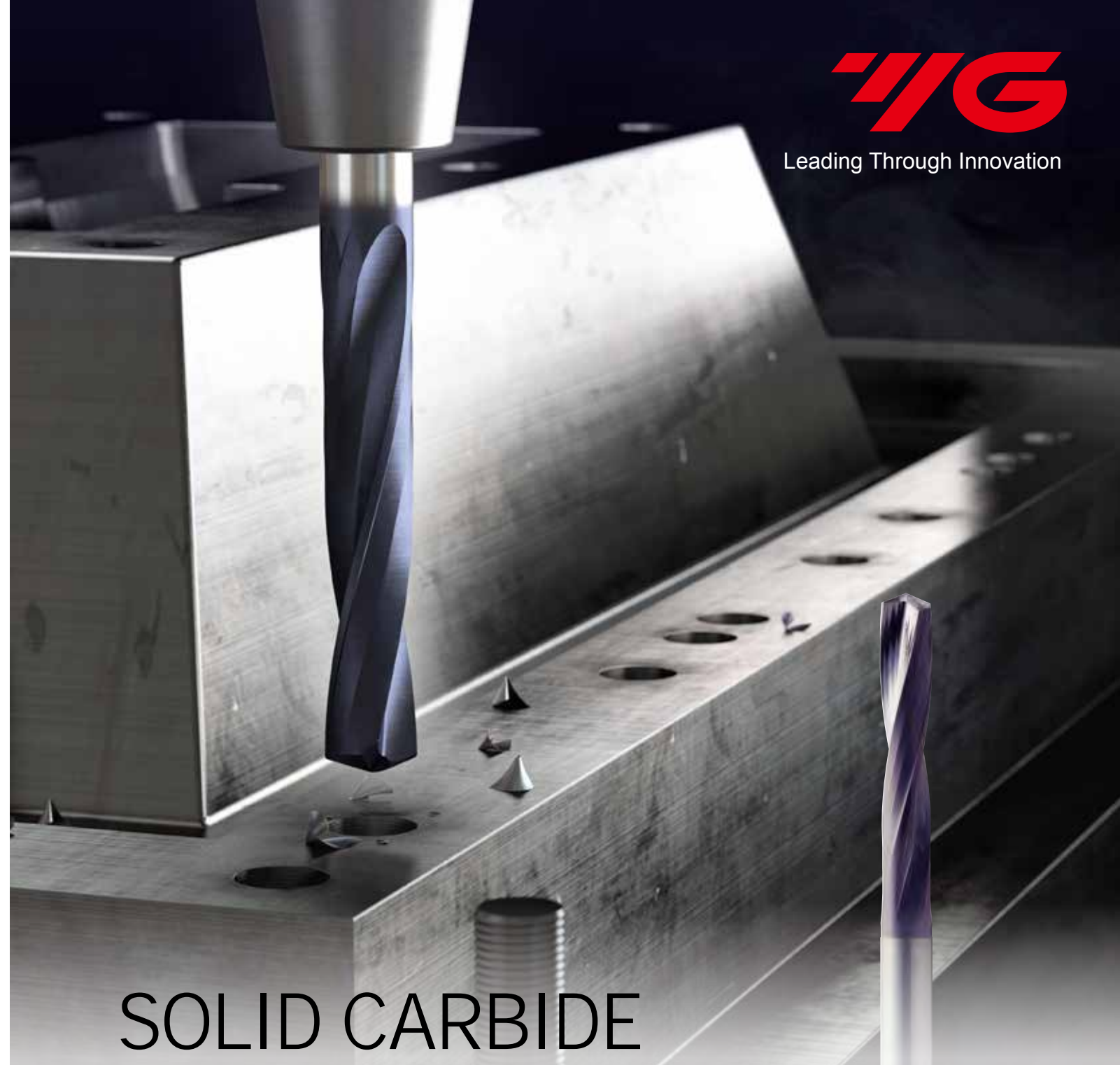
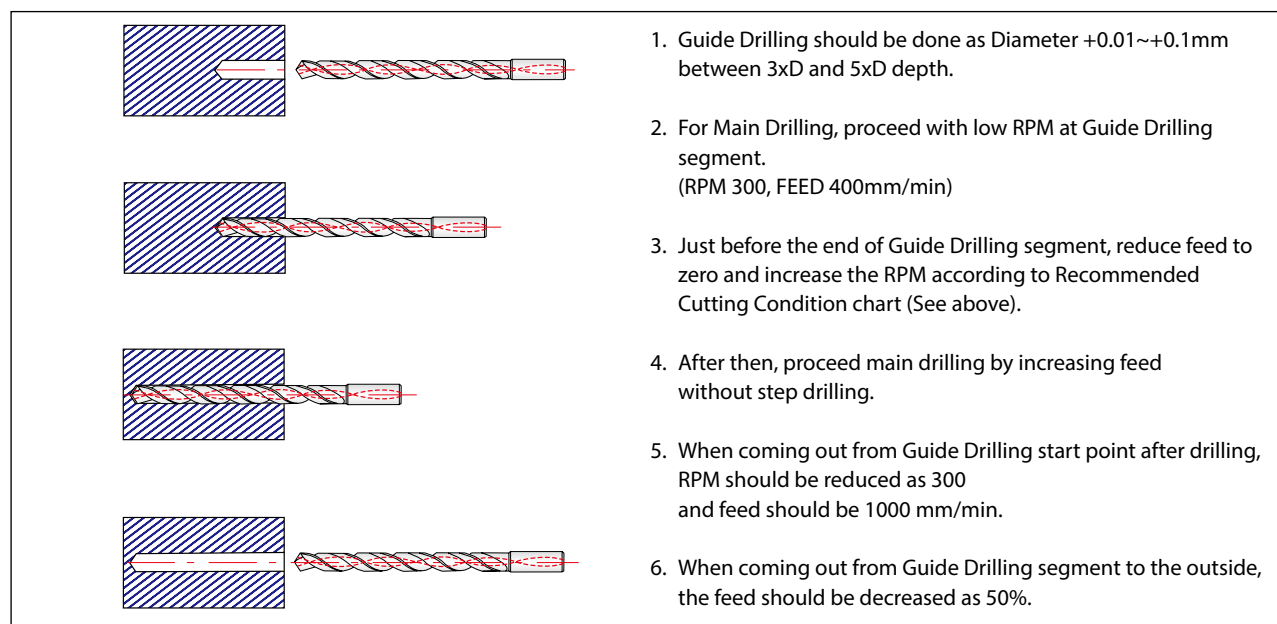


DH510, DH515, DH520, DHM10, DHM15, DHM20, DHM25, DHM30 SERIES

with COOLANT HOLES

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc		Parameter	Drill Diameter (mm)							
			10xD 20xD	25xD 30xD		3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0
P	1	Non-alloy steel	120	100	RPM(10xD-20xD)	12730	9550	7640	6370	4770	3820	3180	2730
					RPM(25xD-30xD)	10610	7960	6370	5310	3980	3180	2650	2270
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31
	2		100	80	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270
					RPM(25xD-30xD)	8490	6370	5090	4240	3180	2550	2120	1820
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31
	3		80	65	RPM(10xD-20xD)	8490	6370	5090	4240	3180	2550	2120	1820
					RPM(25xD-30xD)	6900	5170	4140	3450	2590	2070	1720	1480
					FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26
	6		100	100	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270
					RPM(25xD-30xD)	10610	7960	6370	5310	3980	3180	2650	2270
FEED		0.08-0.12			0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31		
7	70	60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590		
			RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360		
			FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26		
8	55	50	RPM(10xD-20xD)	5840	4380	3500	2920	2190	1750	1460	1250		
			RPM(25xD-30xD)	5310	3980	3180	2650	1990	1590	1330	1140		
			FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26		
10	60	50	RPM(10xD-20xD)	6370	4770	3820	3180	2390	1910	1590	1360		
			RPM(25xD-30xD)	5310	3980	3180	2650	1990	1590	1330	1140		
			FEED	0.05-0.09	0.07-0.11	0.08-0.14	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24		
11	50	45	RPM(10xD-20xD)	5310	3980	3180	2650	1990	1590	1330	1140		
			RPM(25xD-30xD)	4770	3580	2860	2390	1790	1430	1190	1020		
			FEED	0.04-0.08	0.06-0.10	0.07-0.13	0.08-0.14	0.10-0.16	0.12-0.18	0.13-0.19	0.15-0.21		
15	90	75	RPM(10xD-20xD)	9550	7160	5730	4770	3580	2860	2390	2050		
			RPM(25xD-30xD)	7960	5970	4770	3980	2980	2390	1990	1710		
			FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36		
16	70	60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590		
			RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360		
			FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36		
17	100	80	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270		
			RPM(25xD-30xD)	8490	6370	5090	4240	3180	2550	2120	1820		
			FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36		
18	70	60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590		
			RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360		
			FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31		
19	80	65	RPM(10xD-20xD)	8490	6370	5090	4240	3180	2550	2120	1820		
			RPM(25xD-30xD)	6900	5170	4140	3450	2590	2070	1720	1480		
			FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36		
20	70	55	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590		
			RPM(25xD-30xD)	5840	4380	3500	2920	2190	1750	1460	1250		
			FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31		



SOLID CARBIDE

**DREAM DRILLS**  
- for HIGH HARDENED STEELS  
**DREAM DRILLS - FÜR HOCHGEHÄRTETE STÄHLE**

- For High Hardened Steels (HRc50 to HRc70)

- Für hochgehärtete Stähle (HRc50 bis HRc70)



SELECTION GUIDE



SERIES	DH500
DRILLING DEPTH	3XD
LENGTH	SHORT
SIZE MIN	D2.6
SIZE MAX	D14.0
PAGE	A151
SURFACE TREATMENT	TiAIN

# SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS

For High Hardened Steels (HRc50 to HRc70)



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A151

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	
P	1	Non-alloy steel	About 0.15% C Annealed	125		
	2		About 0.45% C Annealed	190	13	
	3		About 0.45% C Quenched & Tempered	250	25	
	4		About 0.75% C Annealed	270	28	
	5		About 0.75% C Quenched & Tempered	300	32	
	6	Low alloy steel	Annealed	180	10	
	7		Quenched & Tempered	275	29	
	8		Quenched & Tempered	300	32	
	9		Quenched & Tempered	350	38	
	10		High alloyed steel, and tool steel	Annealed	200	15
	11		Quenched & Tempered	325	35	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	
	13		Martensitic Quenched & Tempered	240	23	
	14		Austenitic	180	10	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	
	16		Pearlitic (Martensitic)	260	26	
	17	Nodular cast iron	Ferritic	160	3	
	18		Pearlitic	250	25	
	19	Malleable cast iron	Ferritic	130		
	20		Pearlitic	230	21	
N	21	Aluminum-wrought alloy	Not Curable	60		
	22		Curable Hardened	100		
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		
	24		≤ 12% Si, Curable Hardened	90		
	25		> 12% Si, Not Curable	130		
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		
	27		CuZn, CuSnZn (Brass)	90		
	28		CuSn, lead-free copper and electrolytic copper	100		
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			
	30		Rubber, Wood, etc.			
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	
	32		Cured	280	30	
	33		Annealed	250	25	
	34		Ni or Co Based Cured	350	38	
	35	Cast	320	34		
	36	Titanium Alloys	Pure Titanium	400 Rm		
	37		Alpha + Beta Alloys Hardened	1050 Rm		
H	38	Hardened steel	Hardened	550	55	◎
	39.1		Hardened	630	60	◎
	39.3		Hardened	70		◎
	40		Chilled Cast Iron	Cast	400	42
41	Hardened Cast Iron	Hardened	550	55		



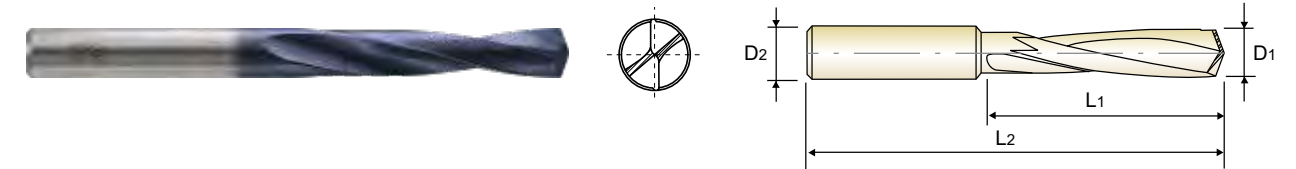
## DREAM DRILLS for HIGH HARDENED STEELS

DH500 SERIES

**CARBIDE, DREAM DRILLS for HIGH HARDENED STEELS (HRc50~HRc70)** **SHORT**  
 ● VOLLHARTMETALL DREAM SPIRALBOHRER FÜR HOCHGEHARTETE STAHL  
 ● Forets DREAM DRILLS carbure pour Aciers Trempés (50 HRc ~ 70 HRc)  
 ● PUNTE ELICOIDALI IN MD, DREAM DRILL - ACCIAI HRC 50 - 70 **KURZ COURTE CORTA**

- ▶ Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
- ▶ Special geometry design for Hardened Steels
- ▶ Minimum of cutting load through special thinning
- ▶ Performing good chip removal and powerful drilling

- ▶ Bohren von hoch gehärteten Stählen, Vergütungsstähle, angelassenen Stählen bis HRc 70
- ▶ Spezielle Bohrergeometrie für gehärtete Stähle
- ▶ Minimaler Schnedendruck durch spezielle Ausspitzung
- ▶ Gute Spanabfuhr und Hochleistungsbohren



3 x D

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
DH500026	2.6	3	14	44	DH500070	7.0	8	45	85
DH500030	3.0	3	16	46	DH500075	7.5	8	45	85
DH500033	3.3	4	18	48	DH500080	8.0	8	50	98
DH500034	3.4	4	20	50	DH500085	8.5	10	50	98
DH500035	3.5	4	20	50	DH500086	8.6	10	57	105
DH500040	4.0	4	22	52	DH500088	8.8	10	57	105
DH500042	4.2	6	25	65	DH500090	9.0	10	57	105
DH500043	4.3	6	28	68	DH500095	9.5	10	57	105
DH500044	4.4	6	28	68	DH500100	10.0	10	63	111
DH500045	4.5	6	28	68	DH500102	10.2	12	63	111
DH500050	5.0	6	32	72	DH500103	10.3	12	63	111
DH500051	5.1	6	32	72	DH500105	10.5	12	63	111
DH500052	5.2	6	32	72	DH500108	10.8	12	71	119
DH500055	5.5	6	35	75	DH500110	11.0	12	71	119
DH500060	6.0	6	35	75	DH500115	11.5	12	71	119
DH500065	6.5	8	40	80	DH500120	12.0	12	71	119
DH500068	6.8	8	45	85	DH500140	14.0	14	77	125
DH500069	6.9	8	45	85					

CUTTING CONDITIONS

DH500 SERIES DREAM DRILLS for HIGH HARDENED STEELS

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)											
					2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0			
H	38	Hardened steel	20	RPM	2550	2120	1590	1270	1060	800	640	530	450			
	FEED			0.01~0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06				
	39.1			RPM	1910	1590	1190	950	800	600	480	400	340			
	39.3		12	FEED	0.01~0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06			

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	23
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

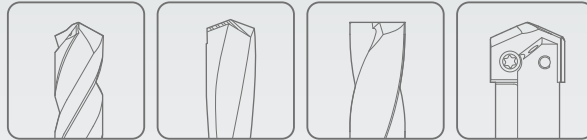
COUNTER SINKS

COUNTER BORES

TECHNICAL DATA



Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

SOLID CARBIDE

# GENERAL CARBIDE DRILLS

UNIVERSELLE VHM - BOHRER

- For General Purpose, DIN338 & DIN6539
- Für allgemeine Anwendungen, DIN 338 & DIN 6539





SELECTION GUIDE



SERIES	D5405	D5407
STANDARD	DIN6539	DIN338
LENGTH	STUB	JOBBER
SIZE MIN	D1.0	D1.0
SIZE MAX	D13.0	D13.0
PAGE	A155	A157

SURFACE TREATMENT

Bright

# SOLID CARBIDE GENERAL CARBIDE DRILLS

For General Purpose, DIN338 & DIN6539



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A159

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	
	2		About 0.45% C Annealed	190	13	○	○	
	3		About 0.45% C Quenched & Tempered	250	25			
	4		About 0.75% C Annealed	270	28			
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	○	○	
	7		Quenched & Tempered	275	29			
	8		Quenched & Tempered	300	32			
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15		
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	
	13		Martensitic Quenched & Tempered	240	23			
	14		Austenitic	180	10			
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	
	16		Pearlitic (Martensitic)	260	26			
	17	Nodular cast iron	Ferritic	160	3			
	18		Pearlitic	250	25			
	19		Ferritic	130				
20	Malleable cast iron	Pearlitic	230	21				
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎	
	22		Curable Hardened	100		◎	◎	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	◎	
	24		≤ 12% Si, Curable Hardened	90		◎	◎	
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110				
	27		CuZn, CuSnZn (Brass)	90				
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100				
	29		Duroplastic, Fiber Reinforced Plastic					
	30	Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
36	Titanium Alloys	Pure Titanium	400 Rm		○	○		
37		Alpha + Beta Alloys Hardened	1050 Rm					
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
40	Chilled Cast Iron	Cast	400	42				
41	Hardened Cast Iron	Hardened	550	55				



## GENERAL CARBIDE DRILLS

D5405 SERIES

### CARBIDE DRILLS

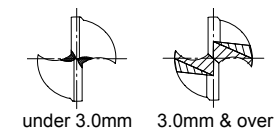
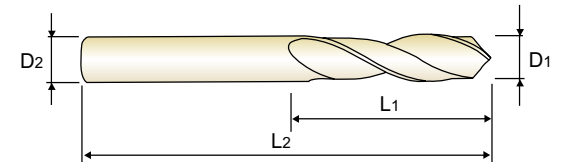
- VOLLHARTMETALL-SPIRALBOHRER
- Forets carbure, série extra-courte
- PUNTE IN METALLO DURO

STUB

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

Application : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

Verwendung : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



Recommended Toolholder	Plain Shank	Page
◎ SHRINK FIT HOLDER		D47-72
◎ HYDRAULIC CHUCK		D15-46
○ ER COLLET CHUCK		D73-115

Unit : mm

EDP No.	Drill Diameter			EDP No.	Drill Diameter		
	D1	Flute Length L1	Overall Length L2		D1	Flute Length L1	Overall Length L2
D5405010	1.0	6	26	D5405034	3.4	20	52
D5405011	1.1	7	28	D5405035	3.5	20	52
D5405012	1.2	8	30	D5405036	3.6	20	52
D5405013	1.3	8	30	D5405037	3.7	20	52
D5405014	1.4	9	32	D5405038	3.8	22	55
D5405015	1.5	9	32	D5405039	3.9	22	55
D5405016	1.6	10	34	D5405040	4.0	22	55
D5405017	1.7	10	34	D5405041	4.1	22	55
D5405018	1.8	11	36	D5405042	4.2	22	55
D5405019	1.9	11	36	D5405043	4.3	24	58
D5405020	2.0	12	38	D5405044	4.4	24	58
D5405021	2.1	12	38	D5405045	4.5	24	58
D5405022	2.2	13	40	D5405046	4.6	24	58
D5405023	2.3	13	40	D5405047	4.7	24	58
D5405024	2.4	14	43	D5405048	4.8	26	62
D5405025	2.5	14	43	D5405049	4.9	26	62
D5405026	2.6	14	43	D5405050	5.0	26	62
D5405027	2.7	16	46	D5405051	5.1	26	62
D5405028	2.8	16	46	D5405052	5.2	26	62
D5405029	2.9	16	46	D5405053	5.3	26	62
D5405030	3.0	16	46	D5405054	5.4	28	66
D5405031	3.1	18	49	D5405055	5.5	28	66
D5405032	3.2	18	49	D5405056	5.6	28	66
D5405033	3.3	18	49	D5405057	5.7	28	66

TIN(D6405), TICN(DG405) and TiAIN(DH405) are available on your request.

NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323																				
HRc	125	130	250	270	300	180	275	300	350	200	15	35	23	10	10	26	3	25	21	
HB	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	160	130	230	
Recommended	◎	○				○					○				○					

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320						
Recommended	◎	◎	◎	◎												○					

HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

**CARBIDE DRILLS**

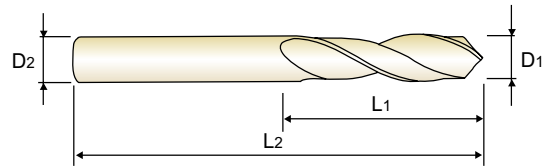
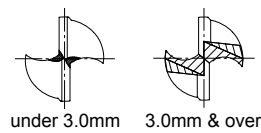
- VOLLHARTMETALL-SPIRALBOHRER
- Forets carbure, série extra-courte
- PUNTE IN METALLO DURO

STUB

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

►Application : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

►Verwendung : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



D1=D2

DIN 6539 CARBIDE 30° h6 h7 118° p.A159

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D5405058	5.8	28	66
D5405059	5.9	28	66
D5405060	6.0	28	66
D5405061	6.1	31	70
D5405062	6.2	31	70
D5405063	6.3	31	70
D5405064	6.4	31	70
D5405065	6.5	31	70
D5405066	6.6	31	70
D5405067	6.7	31	70
D5405068	6.8	34	74
D5405069	6.9	34	74
D5405070	7.0	34	74
D5405071	7.1	34	74
D5405072	7.2	34	74
D5405073	7.3	34	74
D5405074	7.4	34	74
D5405075	7.5	34	74
D5405076	7.6	37	79
D5405077	7.7	37	79
D5405078	7.8	37	79
D5405079	7.9	37	79
D5405080	8.0	37	79
D5405081	8.1	37	79
D5405082	8.2	37	79

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D5405083	8.3	37	79
D5405084	8.4	37	79
D5405085	8.5	37	79
D5405086	8.6	40	84
D5405087	8.7	40	84
D5405088	8.8	40	84
D5405089	8.9	40	84
D5405090	9.0	40	84
D5405091	9.1	40	84
D5405092	9.2	40	84
D5405093	9.3	40	84
D5405094	9.4	40	84
D5405095	9.5	40	84
D5405096	9.6	43	89
D5405097	9.7	43	89
D5405098	9.8	43	89
D5405099	9.9	43	89
D5405100	10.0	43	89
D5405102	10.2	43	89
D5405105	10.5	43	89
D5405110	11.0	47	95
D5405115	11.5	47	95
D5405120	12.0	51	102
D5405130	13.0	51	102

► TiN(D6405), TiCN(DG405) and TiAlN(DH405) are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○				○					○					

ISO Material Description	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎							○					○					



**CARBIDE DRILLS**

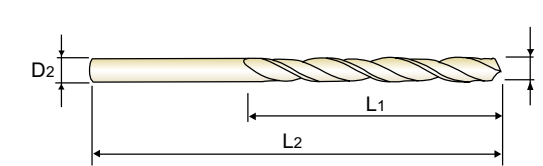
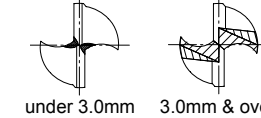
- VOLLHARTMETALL-SPIRALBOHRER
- Forets carbure, série courte
- PUNTE IN METALLO DURO

JOBBER

KURZ  
COURTE  
CORTA

►Application : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

►Verwendung : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



D1=D2

DIN 338 CARBIDE 30° h6 h7 118° p.A159

Plain Shank Page  
SHRINK FIT HOLDER D47-72  
HYDRAULIC CHUCK D15-46  
ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D5407010	1.0	12	34
D5407011	1.1	14	36
D5407012	1.2	16	38
D5407013	1.3	16	38
D5407014	1.4	18	40
D5407015	1.5	18	40
D5407016	1.6	20	43
D5407017	1.7	20	43
D5407018	1.8	22	46
D5407019	1.9	22	46
D5407020	2.0	24	49
D5407021	2.1	24	49
D5407022	2.2	27	53
D5407023	2.3	27	53
D5407024	2.4	30	57
D5407025	2.5	30	57
D5407026	2.6	30	57
D5407027	2.7	33	61
D5407028	2.8	33	61
D5407029	2.9	33	61
D5407030	3.0	33	61
D5407031	3.1	36	65

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D5407032	3.2	36	65
D5407033	3.3	36	65
D5407034	3.4	39	70
D5407035	3.5	39	70
D5407036	3.6	39	70
D5407037	3.7	39	70
D5407038	3.8	43	75
D5407039	3.9	43	75
D5407040	4.0	43	75
D5407041	4.1	43	75
D5407042	4.2	43	75
D5407043	4.3	47	80
D5407044	4.4	47	80
D5407045	4.5	47	80
D5407046	4.6	47	80
D5407047	4.7	47	80
D5407048	4.8	52	86
D5407049	4.9	52	86
D5407050	5.0	52	86
D5407051	5.1	52	86
D5407052	5.2	52	86
D5407053	5.3	52	86

► TiN(D6407), TiCN(DG407) and TiAlN(DH407) are available on your request.

► NEXT PAGE

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○				○					○					

ISO Material Description	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎							○					○					

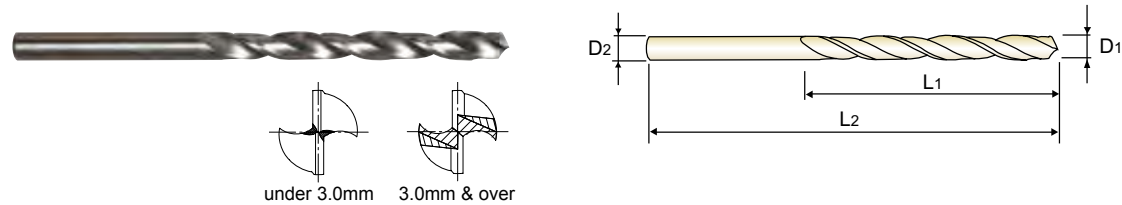
**CARBIDE DRILLS**

- VOLLHARTMETALL-SPIRALBOHRER
- Forets carbure, série courte
- MPUNTE IN METALLO DURO

**JOBBER**  
**KURZ**  
**COURTE**  
**CORTA**

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



D1=D2

**DIN 338** **CARBIDE** **30°** **h6** **h7** **118°** p.A159

Plain Shank		Page
SHRINK FIT HOLDER		D47 - 72
HYDRAULIC CHUCK		D15 - 46
ER COLLET CHUCK		D73 - 115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D5407054	5.4	57	93	D5407070	7.0	69	109
D5407055	5.5	57	93	D5407075	7.5	69	109
D5407056	5.6	57	93	D5407080	8.0	75	117
D5407057	5.7	57	93	D5407085	8.5	75	117
D5407058	5.8	57	93	D5407090	9.0	81	125
D5407059	5.9	57	93	D5407095	9.5	81	125
D5407060	6.0	57	93	D5407100	10.0	87	133
D5407061	6.1	63	101	D5407102	10.2	87	133
D5407062	6.2	63	101	D5407105	10.5	87	133
D5407063	6.3	63	101	D5407110	11.0	94	142
D5407064	6.4	63	101	D5407115	11.5	94	142
D5407065	6.5	63	101	D5407120	12.0	101	151
D5407068	6.8	69	109	D5407130	13.0	101	151

► TiN(D6407), TiCN(DG407) and TiAlN(DH407) are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○				○					○					

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					



**D5405, D5407 SERIES GENERAL CARBIDE DRILLS**

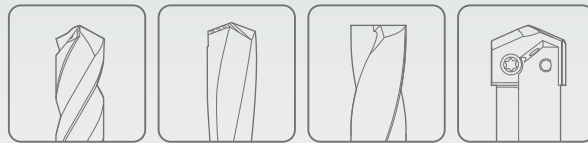
VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)		Vc	Parameter	Drill Diameter (mm)											
					1.0	2.0			3.0	4.0	5.0	6.0	8.0	10.0	12.0	13.0				
P	1	Non-alloy steel	55	RPM	17510	8750	70	RPM	7430	5570	4460	3710	2790	2230	1860	1710				
			FEED	0.02-0.03	0.02-0.04	FEED			0.03-0.05	0.03-0.06	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.10-0.14	0.12-0.16				
	2	45	RPM	14320	7160	60	RPM	6370	4770	3820	3180	2390	1910	1590	1470					
M	6	Low alloy steel	35	RPM	11140	5570	50	RPM	5310	3980	3180	2650	1990	1590	1330	1220				
			FEED	0.02-0.03	0.02-0.04	FEED			0.03-0.05	0.03-0.06	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.10-0.14	0.12-0.16				
	12	15	RPM	4770	2390	25	RPM	2650	1990	1590	1330	990	800	660	610					
K	15	Grey cast iron	25	RPM	7960	3980	45	RPM	4770	3580	2860	2390	1790	1430	1190	1100				
			FEED	0.03-0.04	0.03-0.05	FEED			0.04-0.06	0.04-0.07	0.05-0.08	0.06-0.09	0.09-0.12	0.12-0.16	0.14-0.18	0.16-0.20				
	21	90	RPM	31830	15920	140	RPM	14850	11140	8910	7430	5570	4460	3710	3430					
N	22	Aluminum-wrought alloy	90	RPM	28650	14320	120	RPM	12730	9550	7640	6370	4770	3820	3180	2940				
			FEED	0.04-0.05	0.04-0.06	FEED			0.05-0.07	0.05-0.08	0.06-0.09	0.08-0.11	0.12-0.15	0.15-0.19	0.19-0.23	0.21-0.25				
	23	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310	3980	3180	2650	2450					
S	24	Aluminum-cast, alloyed	60	RPM	19100	9550	80	RPM	8490	6370	5090	4240	3180	2550	2120	1960				
			FEED	0.04-0.05	0.04-0.06	FEED			0.05-0.07	0.05-0.08	0.06-0.09	0.08-0.11	0.12-0.15	0.15-0.19	0.19-0.23	0.21-0.25				
	36	10	RPM	3180	1590	20	RPM	2120	1590	1270	1060	800	640	530	490					





Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

HSS-PM

# MULTI-1 DRILLS

## MULTI-1 BOHRER

- Premium HSS-PM Drills  
For Wide Range of Applications Particularly Stainless Steels and Titanium
- HSS-PM Bohrer  
Für ein breites Anwendungsspektrum, insbesondere Edelstahl und Titan



SELECTION GUIDE



SERIES	CDRA03	CDRA04
TOOL MATERIAL	HSS-PM	
LENGTH	STUB	JOBBER
SIZE MIN	D1.0	D2.0
SIZE MAX	D13.0	D13.0
PAGE	A163	A166
SURFACE TREATMENT	TiAIN	

# HSS-PM MULTI-1 DRILLS

Premium HSS-PM Drills for Wide Range of Applications Particularly Stainless Steels and Titanium



◎ : Excellent ○ : Good

Recommended cutting conditions : p.A169

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	CDRA03	CDRA04
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	○
	4		About 0.75% C Annealed	270	28		
	5		About 0.75% C Quenched & Tempered	300	32		
	6	Low alloy steel	Annealed	180	10	◎	◎
	7		Quenched & Tempered	275	29	○	○
	8		Quenched & Tempered	300	32	○	○
	9		Quenched & Tempered	350	38	○	○
	10		High alloyed steel, and tool steel	Annealed	200	15	
	11		Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○
	13		Martensitic Quenched & Tempered	240	23		
	14		Austenitic	180	10	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○
	16		Pearlitic (Martensitic)	260	26		
	17	Nodular cast iron	Ferritic	160	3		
	18		Pearlitic	250	25		
	19	Malleable cast iron	Ferritic	130			
	20		Pearlitic	230	21		
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎
	22		Curable Hardened	100		◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○
	24		≤ 12% Si, Curable Hardened	90		○	○
	25		> 12% Si, Not Curable	130			
	26		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90		
	27	Non Metallic Materials	Cutting Alloys, PB>1%	110			
	28		CuSn, lead-free copper and electrolytic copper	100			
	29		Duroplastic, Fiber Reinforced Plastic				
	30	Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		
	32		Cured	280	30		
	33		Annealed	250	25		
	34		Ni or Co Based Cured	350	38		
	35		Cast	320	34		
	36		Titanium Alloys	Pure Titanium	400 Rm		○
H	37	Hardened Cast Iron	Alpha + Beta Alloys Hardened	1050 Rm			
	38		Hardened	550	55		
	39		Hardened	630	60		
	40		Cast	400	42		
	41		Hardened	550	55		



## YG MULTI-1 DRILLS

CDRA03 SERIES

### HSS-PM, MULTI-1 DRILLS

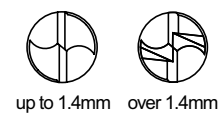
- HSS-PM MULTI-1 BOHRER
- Forets MULTI-1 HSS-PM Premium, série extra-courte
- PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

STUB

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

- Application : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
- Advantage : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

- Anwendung : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.
- Vorteile : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



HSS PM
30°
h6
h7
118°
135°
TiAIN

up to 1.9mm over 1.9mm

Plain Shank
ER COLLET CHUCK
Page D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
CDRA03010	1.0	3	6	38
CDRA03011	1.1	3	7	39
CDRA03012	1.2	3	8	40
CDRA03013	1.3	3	8	40
CDRA03014	1.4	3	9	41
CDRA03015	1.5	3	9	41
CDRA03016	1.6	3	10	42
CDRA03017	1.7	3	10	42
CDRA03018	1.8	3	11	43
CDRA03019	1.9	3	11	43
CDRA03020	2.0	3	12	44
CDRA03021	2.1	3	12	44
CDRA03022	2.2	3	13	45
CDRA03023	2.3	3	13	45
CDRA03024	2.4	3	14	46
CDRA03025	2.5	3	14	46
CDRA03026	2.6	3	14	46
CDRA03027	2.7	3	16	48
CDRA03028	2.8	3	16	48
CDRA03029	2.9	3	16	48
CDRA03030	3.0	3	16	48
CDRA03031	3.1	4	18	50
CDRA03032	3.2	4	18	50
CDRA03033	3.3	4	18	50

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2
CDRA03034	3.4	4	20	52
CDRA03035	3.5	4	20	52
CDRA03036	3.6	4	20	52
CDRA03037	3.7	4	20	52
CDRA03038	3.8	4	22	54
CDRA03039	3.9	4	22	54
CDRA03040	4.0	4	22	54
CDRA03041	4.1	6	22	66
CDRA03042	4.2	6	22	66
CDRA03043	4.3	6	24	68
CDRA03044	4.4	6	24	68
CDRA03045	4.5	6	24	68
CDRA03046	4.6	6	24	68
CDRA03047	4.7	6	24	68
CDRA03048	4.8	6	26	70
CDRA03049	4.9	6	26	70
CDRA03050	5.0	6	26	70
CDRA03051	5.1	6	26	70
CDRA03052	5.2	6	26	70
CDRA03053	5.3	6	26	70
CDRA03054	5.4	6	28	72
CDRA03055	5.5	6	28	72
CDRA03056	5.6	6	28	72
CDRA03057	5.7	6	28	72

► NEXT PAGE

ISO	P										M						K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	○			◎	○	○	○		○	◎			○							

ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320			550	630	400	550
Recommended	◎	◎	○	○												○					



HSS  
i-ONE DRILLS  
i-DREAM DRILLS  
DREAM DRILLS -PRO  
DREAM DRILLS -GENERAL  
DREAM DRILLS -HIGH FEED  
DREAM DRILLS -FLAT BOTTOM  
DREAM DRILLS -INOX  
DREAM DRILLS -ALU  
DREAM DRILLS -MQL  
DREAM DRILLS for HIGH HARDENED STEELS  
GENERAL CARBIDE DRILLS  
MULTI-1 DRILLS  
HPD DRILLS  
GOLD-P DRILLS  
SUPER-GP DRILLS  
STRAIGHT SHANK DRILLS  
TAPER SHANK DRILLS  
NC-SPOTTING DRILLS  
CENTER DRILLS  
SPADE DRILLS  
REAMERS  
COUNTER SINKS  
COUNTER BORES  
TECHNICAL DATA

HSS  
i-ONE DRILLS  
i-DREAM DRILLS  
DREAM DRILLS -PRO  
DREAM DRILLS -GENERAL  
DREAM DRILLS -HIGH FEED  
DREAM DRILLS -FLAT BOTTOM  
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DREAM DRILLS for HIGH HARDENED STEELS  
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HPD DRILLS  
GOLD-P DRILLS  
SUPER-GP DRILLS  
STRAIGHT SHANK DRILLS  
TAPER SHANK DRILLS  
NC-SPOTTING DRILLS  
CENTER DRILLS  
SPADE DRILLS  
REAMERS  
COUNTER SINKS  
COUNTER BORES  
TECHNICAL DATA



# YIG MULTI-1 DRILLS

CDRA03 SERIES

## HSS-PM, MULTI-1 DRILLS

STUB

- HSS-PM MULTI-1 BOHRER
- Forets MULTI-1 HSS-PM Premium, série extra-courte
- PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

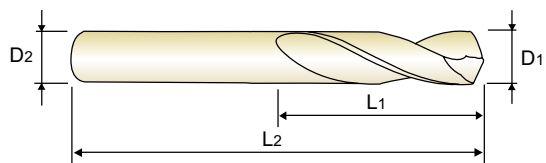
► **Advantage** : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

► **Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.

► **Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



up to 1.4mm over 1.4mm



up to 1.9mm over 1.9mm

p.A169



Plain Shank Page  
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03058	5.8	6	28	72
CDRA03059	5.9	6	28	72
CDRA03060	6.0	6	28	72
CDRA03061	6.1	8	31	75
CDRA03062	6.2	8	31	75
CDRA03063	6.3	8	31	75
CDRA03064	6.4	8	31	75
CDRA03065	6.5	8	31	75
CDRA03066	6.6	8	31	75
CDRA03067	6.7	8	31	75
CDRA03068	6.8	8	34	78
CDRA03069	6.9	8	34	78
CDRA03070	7.0	8	34	78
CDRA03071	7.1	8	34	78
CDRA03072	7.2	8	34	78
CDRA03073	7.3	8	34	78
CDRA03074	7.4	8	34	78
CDRA03075	7.5	8	34	78
CDRA03076	7.6	8	37	81
CDRA03077	7.7	8	37	81
CDRA03078	7.8	8	37	81
CDRA03079	7.9	8	37	81
CDRA03080	8.0	8	37	81
CDRA03081	8.1	10	37	87

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03082	8.2	10	37	87
CDRA03083	8.3	10	37	87
CDRA03084	8.4	10	37	87
CDRA03085	8.5	10	37	87
CDRA03086	8.6	10	40	90
CDRA03087	8.7	10	40	90
CDRA03088	8.8	10	40	90
CDRA03089	8.9	10	40	90
CDRA03090	9.0	10	40	90
CDRA03091	9.1	10	40	90
CDRA03092	9.2	10	40	90
CDRA03093	9.3	10	40	90
CDRA03094	9.4	10	40	90
CDRA03095	9.5	10	40	90
CDRA03096	9.6	10	43	93
CDRA03097	9.7	10	43	93
CDRA03098	9.8	10	43	93
CDRA03099	9.9	10	43	93
CDRA03100	10.0	10	43	93
CDRA03101	10.1	12	43	100
CDRA03102	10.2	12	43	100
CDRA03103	10.3	12	43	100
CDRA03104	10.4	12	43	100
CDRA03105	10.5	12	43	100

Unit : mm

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	◎	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



# YIG MULTI-1 DRILLS

CDRA03 SERIES

## HSS-PM, MULTI-1 DRILLS

STUB

- HSS-PM MULTI-1 BOHRER
- Forets MULTI-1 HSS-PM Premium, série extra-courte
- PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

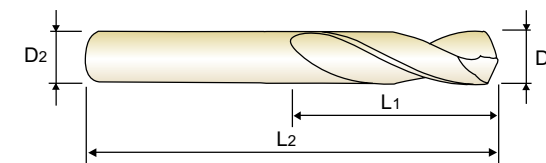
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up to 1.4mm over 1.4mm



up to 1.9mm over 1.9mm

p.A169



Plain Shank Page  
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03106	10.6	12	43	100
CDRA03107	10.7	12	47	104
CDRA03108	10.8	12	47	104
CDRA03109	10.9	12	47	104
CDRA03110	11.0	12	47	104
CDRA03111	11.1	12	47	104
CDRA03112	11.2	12	47	104
CDRA03113	11.3	12	47	104
CDRA03114	11.4	12	47	104
CDRA03115	11.5	12	47	104
CDRA03116	11.6	12	47	104
CDRA03117	11.7	12	47	104
CDRA03118	11.8	12	47	104
CDRA03119	11.9	12	51	108
CDRA03120	12.0	12	51	108
CDRA03121	12.1	12	51	108
CDRA03122	12.2	12	51	108
CDRA03123	12.3	12	51	108
CDRA03124	12.4	12	51	108
CDRA03125	12.5	12	51	108

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03126	12.6	12	51	108
CDRA03127	12.7	12	51	108
CDRA03128	12.8	12	51	108
CDRA03129	12.9	12	51	108
CDRA03130	13.0	12	51	108

Unit : mm

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	◎	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

STUB

- HSS-PM MULTI-1 BOHRER
- Forets MULTI-1 HSS-PM Premium, série extra-courte
- PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA



up to 1.4mm over 1.4mm



up to 1.9mm over 1.9mm

p.A169



Plain Shank Page  
ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03106	10.6	12	43	100
CDRA03107	10.7	12	47	104
CDRA03108	10.8	12	47	104
CDRA03109	10.9	12	47	104
CDRA03110	11.0	12	47	104
CDRA03111	11.1	12	47	104
CDRA03112	11.2	12	47	104
CDRA03113	11.3	12	47	104
CDRA03114	11.4	12	47	104
CDRA03115	11.5	12	47	104
CDRA03116	11.6	12	47	104
CDRA03117	11.7	12	47	104
CDRA03118	11.8	12	47	104
CDRA03119	11.9	12	51	108
CDRA03120	12.0	12	51	108
CDRA03121	12.1	12	51	108
CDRA03122	12.2	12	51	108
CDRA03123	12.3	12	51	108
CDRA03124	12.4	12	51	108
CDRA03125	12.5	12	51	108

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03126	12.6	12	51	108
CDRA03127	12.7	12	51	108
CDRA03128	12.8	12	51	108
CDRA03129	12.9	12	51	108
CDRA03130	13.0	12	51	108

Unit : mm

◎ : Excellent ○ : Good

# YG MULTI-1 DRILLS

CDRA04 SERIES

## HSS-PM, MULTI-1 DRILLS

- HSS-PM MULTI-1 BOHRER
- Forets MULTI-1 HSS-PM Premium, série courte
- PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

JOBBER

KURZ  
COURTE  
CORTA

**Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

**Advantage** : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

**Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.

**Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04020	2.0	3	24	56
CDRA04021	2.1	3	24	56
CDRA04022	2.2	3	25	56
CDRA04023	2.3	3	25	56
CDRA04024	2.4	3	30	61
CDRA04025	2.5	3	30	61
CDRA04026	2.6	3	30	61
CDRA04027	2.7	3	33	64
CDRA04028	2.8	3	33	64
CDRA04029	2.9	3	33	64
CDRA04030	3.0	3	33	64
CDRA04031	3.1	4	36	68
CDRA04032	3.2	4	36	68
CDRA04033	3.3	4	36	68
CDRA04034	3.4	4	39	71
CDRA04035	3.5	4	39	71
CDRA04036	3.6	4	39	71
CDRA04037	3.7	4	39	71
CDRA04038	3.8	4	43	75
CDRA04039	3.9	4	43	75
CDRA04040	4.0	4	43	75
CDRA04041	4.1	6	43	85
CDRA04042	4.2	6	43	85
CDRA04043	4.3	6	47	89

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04044	4.4	6	47	89
CDRA04045	4.5	6	47	89
CDRA04046	4.6	6	47	89
CDRA04047	4.7	6	47	89
CDRA04048	4.8	6	52	94
CDRA04049	4.9	6	52	94
CDRA04050	5.0	6	52	94
CDRA04051	5.1	6	52	94
CDRA04052	5.2	6	52	94
CDRA04053	5.3	6	52	94
CDRA04054	5.4	6	57	99
CDRA04055	5.5	6	57	99
CDRA04056	5.6	6	57	99
CDRA04057	5.7	6	57	99
CDRA04058	5.8	6	57	99
CDRA04059	5.9	6	57	99
CDRA04060	6.0	6	57	99
CDRA04061	6.1	8	63	107
CDRA04062	6.2	8	63	107
CDRA04063	6.3	8	63	107
CDRA04064	6.4	8	63	107
CDRA04065	6.5	8	63	107
CDRA04066	6.6	8	63	107
CDRA04067	6.7	8	63	107

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	◎	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



# YG MULTI-1 DRILLS

CDRA04 SERIES

## HSS-PM, MULTI-1 DRILLS

- HSS-PM MULTI-1 BOHRER
- Forets MULTI-1 HSS-PM Premium, série courte
- PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

JOBBER

KURZ  
COURTE  
CORTA

**Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

**Advantage** : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

**Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.

**Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04068	6.8	8	69	113
CDRA04069	6.9	8	69	113
CDRA04070	7.0	8	69	113
CDRA04071	7.1	8	69	113
CDRA04072	7.2	8	69	113
CDRA04073	7.3	8	69	113
CDRA04074	7.4	8	69	113
CDRA04075	7.5	8	69	113
CDRA04076	7.6	8	75	119
CDRA04077	7.7	8	75	119
CDRA04078	7.8	8	75	119
CDRA04079	7.9	8	75	119
CDRA04080	8.0	8	75	119
CDRA04081	8.1	10	75	125
CDRA04082	8.2	10	75	125
CDRA04083	8.3	10	75	125
CDRA04084	8.4	10	75	125
CDRA04085	8.5	10	75	125
CDRA04086	8.6	10	81	131
CDRA04087	8.7	10	81	131
CDRA04088	8.8	10	81	131
CDRA04089	8.9	10	81	131
CDRA04090	9.0	10	81	131
CDRA04091	9.1	10	81	131

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04092	9.2	10	81	131
CDRA04093	9.3	10	81	131
CDRA04094	9.4	10	81	131
CDRA04095	9.5	10	81	131
CDRA04096	9.6	10	87	137
CDRA04097	9.7	10	87	137
CDRA04098	9.8	10	87	137
CDRA04099	9.9	10	87	137
CDRA04100	10.0	10	87	137
CDRA04101	10.1	12	87	144
CDRA04102	10.2	12	87	144
CDRA04103	10.3	12	87	144
CDRA04104	10.4	12	87	144
CDRA04105	10.5	12	87	144
CDRA04106	10.6	12	87	144
CDRA04107	10.7	12	94	151
CDRA04108	10.8	12	94	151
CDRA04109	10.9	12	94	151
CDRA04110	11.0	12	94	151
CDRA04111	11.1	12	94	151
CDRA04112	11.2	12	94	151
CDRA04113	11.3	12	94	151
CDRA04114	11.4	12	94	151
CDRA04115	11.5	12	94	151

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◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	◎	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

# YG MULTI-1 DRILLS

CDRA04 SERIES

## HSS-PM, MULTI-1 DRILLS

JOBBER

- HSS-PM MULTI-1 BOHRER
- Forets MULTI-1 HSS-PM Premium, série courte
- PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

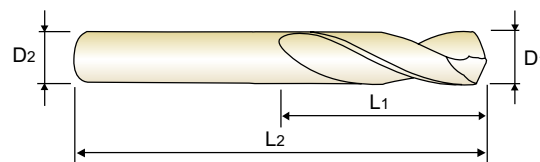
KURZ  
COURTE  
CORTA

**Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRC30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

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**Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04116	11.6	12	94	151
CDRA04117	11.7	12	94	151
CDRA04118	11.8	12	94	151
CDRA04119	11.9	12	101	158
CDRA04120	12.0	12	101	158
CDRA04121	12.1	12	101	158
CDRA04122	12.2	12	101	158
CDRA04123	12.3	12	101	158

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04124	12.4	12	101	158
CDRA04125	12.5	12	101	158
CDRA04126	12.6	12	101	158
CDRA04127	12.7	12	101	158
CDRA04128	12.8	12	101	158
CDRA04129	12.9	12	101	158
CDRA04130	13.0	12	101	158

◎ : Excellent ○ : Good

ISO	P										M					K																													
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel					Grey cast iron					Nodular cast iron					Malleable cast iron														
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230																									
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230																									
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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YG-1 CO., LTD.



# YG MULTI-1 DRILLS

RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

## CDRA03, CDRA04 SERIES MULTI-1 DRILLS

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)							
					1.0	2.0	3.0	4.0	5.0			
P	1	Non-alloy steel	30	RPM	9550	40	RPM	6370	4240	3180	2550	
	2		FEED	0.01-0.03	FEED	0.03-0.06	0.08-0.12	0.09-0.15	0.12-0.18			
	3		RPM	8910	35	RPM	5570	3710	2790	2230		
	6	Low alloy steel	28	FEED	0.01-0.03	35	FEED	0.03-0.06	0.08-0.12	0.09-0.15	0.12-0.18	
	7		RPM	8910	35	RPM	5570	3710	2790	2230		
	8		FEED	0.01-0.03	35	FEED	0.03-0.06	0.08-0.12	0.09-0.15	0.12-0.18		
	9		RPM	8910	35	RPM	5570	3710	2790	2230		
	12		Stainless steel	23	FEED	0.01-0.03	30	FEED	0.03-0.05	0.06-0.10	0.07-0.13	0.10-0.16
	14			RPM	7320	30	RPM	4770	3180	2390	1910	
M	15	Grey cast iron	20	FEED	0.01-0.02	25	FEED	0.02-0.05	0.03-0.07	0.04-0.10	0.06-0.12	
			15	RPM	4770	20	RPM	3180	2120	1590	1270	
N	21	Aluminum-wrought alloy	20	FEED	0.02-0.04	15	FEED	0.02-0.05	0.03-0.07	0.04-0.10	0.06-0.12	
			40	RPM	9550	40	RPM	6370	4240	3180	2550	
			90	FEED	0.09-0.13	90	FEED	0.13-0.17	0.23-0.27	0.27-0.33	0.33-0.39	
		22	Aluminum-cast, alloyed	68	RPM	21650	90	RPM	14320	9550	7160	5730
				68	FEED	0.09-0.13	90	FEED	0.13-0.17	0.23-0.27	0.27-0.33	0.33-0.39
				60	RPM	19100	80	RPM	12730	8490	6370	5090
S	36	Titanium Alloys	55	FEED	0.06-0.10	70	FEED	0.10-0.14	0.15-0.19	0.20-0.26	0.24-0.30	
			5	RPM	1590	5	RPM	800	530	400	320	

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)					
					6.0	8.0	10.0	12.0	13.0	
P	1	Non-alloy steel	40	RPM	2120	1590	1270	1060	980	
	2		FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30		
	3		RPM	1860	1390	1110	930	860		
	6	Low alloy steel	35	FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30	
	7		RPM	1860	1390	1110	930	860		
	8		FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30		
	9		RPM	1860	1390	1110	930	860		
	12		Stainless steel	30	FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30
	14			RPM	1590	1190	950	800	730	
M	15	Grey cast iron	25	FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14-0.24	0.14-0.24	
			20	RPM	1060	800	640	530	490	
N	21	Aluminum-wrought alloy	20	FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14-0.24	0.14-0.24	
			40	RPM	1060	800	640	530	490	
			90	FEED	0.12-0.18	0.18-0.24	0.20-0.30	0.26-0.36	0.26-0.36	
		22	Aluminum-cast, alloyed	15	FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14-0.24	0.14-0.24
				40	RPM	2120	1590	1270	1060	980
				90	FEED	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32	0.22-0.32
23	Aluminum-cast, alloyed	90	RPM	4770	3580	2860	2390	2200		
		90	FEED	0.40-0.46	0.45-0.51	0.51-0.61	0.63-0.73	0.63-0.73		
		80	RPM	4770	3580	2860	2390	2200		
S	36	Titanium Alloys	80	FEED	0.40-0.46	0.45-0.51	0.51-0.61	0.63-0.73	0.63-0.73	
			70	RPM	4240	3180	2550	2120	1960	

YG-1 CO., LTD.

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A169

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)					
					6.0	8.0	10.0	12.0	13.0	
P	1	Non-alloy steel	40	RPM	2120	1590	1270	1060	980	
	2		FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30		
	3		RPM	1860	1390	1110	930	860		
	6	Low alloy steel	35	FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30	
	7		RPM	1860	1390	1110	930	860		
	8		FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30		
	9		RPM	1860	1390	1110	930	860		
	12		Stainless steel	30	FEED	0.14-0.20	0.18-0.24	0.18-0.28	0.20-0.30	0.20-0.30
	14			RPM	1590	1190	950	800	730	
M	15	Grey cast iron	25	FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14-0.24	0.14-0.24	
			20	RPM	1060	800	640	530	490	
N	21	Aluminum-wrought alloy	20	FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14-0.24	0.14-0.24	
			40	RPM	1060	800	640	530	490	
			90	FEED	0.12-0.18	0.18-0.24	0.20-0.30	0.26-0.36	0.26-0.36	
		22	Aluminum-cast, alloyed	15	FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14-0.24	0.14-0.24
				40	RPM	2120	1590	1270	1060	980
				90	FEED	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32	0.22-0.32
23	Aluminum-cast, alloyed	90	RPM	4770	3580	2860	2390	2200		
		90	FEED	0.40-0.46	0.45-0.51	0.51-0.61	0.63-0.73	0.63-0.73		
		80	RPM	4770	3580	2860	2390	2200		
S	36	Titanium Alloys	80	FEED	0.40-0.46	0.45-0.51	0.51-0.61	0.63-0.73	0.63-0.73	
			70	RPM	4240	3180	2550	2120	1960	

YG-1 CO., LTD.

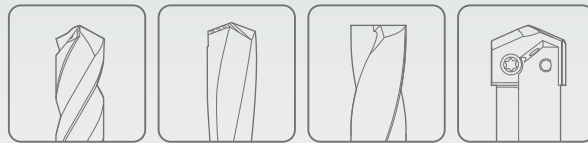
phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

A169





Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation



HSSCo8 & HSS-E

# HPD STRAIGHT SHANK DRILLS

## HPD BOHRER

- High Precision Drilling for General Steels & Stainless Steels
- Hochpräzises Bohren für allgemeine Stähle und rostfreie Stähle





SERIES	D4541	D4542	DJ543	DJ544
TOOL MATERIAL	HSSCo8		HSS-E	
LENGTH	STUB	JOBBER	STUB	JOBBER
SIZE MIN	D2.0	D2.0	D2.0	D2.0
SIZE MAX	D13.0	D32.0	D13.0	D20.0
PAGE	A173	A177	A183	A186

SURFACE TREATMENT

TiN

# HSSCo8 & HSS-E HPD STRAIGHT SHANK DRILLS

High Precision Drilling for General Steels & Stainless Steels



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.198

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC				
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	○	○
	2		About 0.45% C Annealed	190	13	◎	◎		
	3		About 0.45% C Quenched & Tempered	250	25	○	○		
	4		About 0.75% C Annealed	270	28				
	5		About 0.75% C Quenched & Tempered	300	32				
	6	Low alloy steel	Annealed	180	10	◎	◎		
	7		Quenched & Tempered	275	29	○	○		
	8		Quenched & Tempered	300	32				
	9		Quenched & Tempered	350	38				
	10	High alloyed steel, and tool steel	Annealed	200	15	○	○		
	11		Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15			◎	◎
	13		Martensitic Quenched & Tempered	240	23			○	○
	14		Austenitic	180	10			◎	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎		
	16		Pearlitic (Martensitic)	260	26				
	17	Nodular cast iron	Ferritic	160	3				
	18		Pearlitic	250	25				
	19		Ferritic	130					
20	Malleable cast iron	Pearlitic	230	21					
N	21	Aluminum-wrought alloy	Not Curable	60				◎	◎
	22		Curable Hardened	100				◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75					
	24		≤ 12% Si, Curable Hardened	90					
	25		> 12% Si, Not Curable	130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110					
	27		CuZn, CuSnZn (Brass)	90					
	28		CuSn, lead-free copper and electrolytic copper	100					
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15				
	32		Cured	280	30				
	33		Annealed	250	25				
	34		Ni or Co Based Cured	350	38				
	35		Cast	320	34				
36	Titanium Alloys	Pure Titanium	400 Rm						
37		Alpha + Beta Alloys Hardened	1050 Rm						
H	38	Hardened steel	Hardened	550	55				
	39		Hardened	630	60				
40	Chilled Cast Iron	Cast	400	42					
41	Hardened Cast Iron	Hardened	550	55					



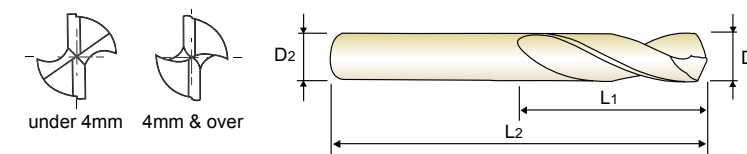
D4541 SERIES

## HSSCo8, HPD TWIST DRILLS for STEELS

- PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
- Forets HPD HSSCo Premium pour Aciers, série extra-courte
- PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI

- Application** : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.
- Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity

- Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541020	2.00	12	44
D4541920	2.05	12	44
D4541021	2.10	12	44
D4541921	2.15	13	45
D4541022	2.20	13	45
D4541922	2.25	13	45
D4541023	2.30	13	45
D4541923	2.35	13	45
D4541024	2.40	14	46
D4541924	2.45	14	46
D4541025	2.50	14	46
D4541925	2.55	14	46
D4541026	2.60	14	46
D4541926	2.65	14	46
D4541027	2.70	16	48
D4541927	2.75	16	48
D4541028	2.80	16	48
D4541928	2.85	16	48
D4541029	2.90	16	48
D4541929	2.95	16	48
D4541030	3.00	16	48
D4541930	3.05	18	50

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541031	3.10	18	50
D4541931	3.15	18	50
D4541032	3.20	18	50
D4541932	3.25	18	50
D4541033	3.30	18	50
D4541933	3.35	18	50
D4541034	3.40	20	52
D4541934	3.45	20	52
D4541035	3.50	20	52
D4541935	3.55	20	52
D4541036	3.60	20	52
D4541936	3.65	20	52
D4541037	3.70	20	52
D4541937	3.75	20	52
D4541038	3.80	22	54
D4541938	3.85	22	54
D4541039	3.90	22	54
D4541939	3.95	22	54
D4541040	4.00	22	54
D4541940	4.05	22	66
D4541041	4.10	22	66
D4541941	4.15	22	66

TiCN(D7541), TiAlN(DQ541) are available on your request.

NEXT PAGE

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	20
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S					H					
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	15	30	25	38	34						15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA



**HSSCo8, HPD TWIST DRILLS for STEELS**

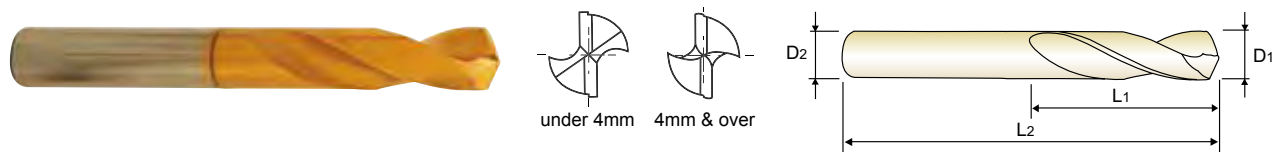
STUB

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EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

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EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541042	4.20	22	66
D4541942	4.25	22	66
D4541043	4.30	24	68
D4541943	4.35	24	68
D4541044	4.40	24	68
D4541944	4.45	24	68
D4541045	4.50	24	68
D4541945	4.55	24	68
D4541046	4.60	24	68
D4541946	4.65	24	68
D4541047	4.70	24	68
D4541947	4.75	24	68
D4541048	4.80	26	70
D4541948	4.85	26	70
D4541049	4.90	26	70
D4541949	4.95	26	70
D4541050	5.00	26	70
D4541950	5.05	26	70
D4541051	5.10	26	70
D4541951	5.15	26	70
D4541052	5.20	26	70
D4541952	5.25	26	70

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541053	5.30	26	70
D4541953	5.35	28	72
D4541054	5.40	28	72
D4541954	5.45	28	72
D4541055	5.50	28	72
D4541955	5.55	28	72
D4541056	5.60	28	72
D4541956	5.65	28	72
D4541057	5.70	28	72
D4541957	5.75	28	72
D4541058	5.80	28	72
D4541958	5.85	28	72
D4541059	5.90	28	72
D4541959	5.95	28	72
D4541060	6.00	28	72
D4541061	6.10	31	75
D4541062	6.20	31	75
D4541063	6.30	31	75
D4541064	6.40	31	75
D4541065	6.50	31	75
D4541965	6.55	31	75
D4541066	6.60	31	75

► TiCN(D7541), TiAlN(DQ541) are available on your request.

► NEXT PAGE

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ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**HSSCo8, HPD TWIST DRILLS for STEELS**

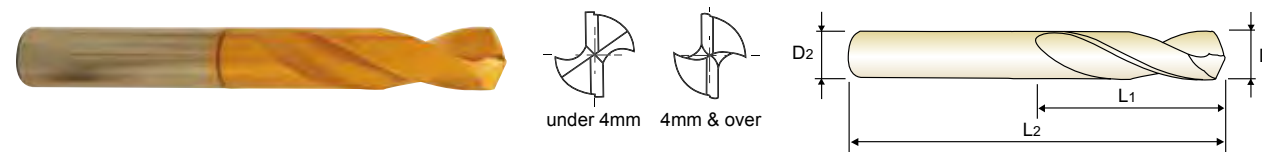
STUB

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- Forets HPD HSSCo Premium pour Aciers, série extra-courte
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EXTRA CORTA

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EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541966	6.65	31	75
D4541067	6.70	31	75
D4541068	6.80	34	78
D4541069	6.90	34	78
D4541070	7.00	34	78
D4541071	7.10	34	78
D4541072	7.20	34	78
D4541073	7.30	34	78
D4541973	7.35	34	78
D4541074	7.40	34	78
D4541075	7.50	34	78
D4541975	7.55	37	81
D4541076	7.60	37	81
D4541976	7.65	37	81
D4541077	7.70	37	81
D4541078	7.80	37	81
D4541079	7.90	37	81
D4541080	8.00	37	81
D4541081	8.10	37	87
D4541082	8.20	37	87
D4541083	8.30	37	87
D4541983	8.35	37	87

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541084	8.40	37	87
D4541085	8.50	37	87
D4541985	8.55	40	90
D4541086	8.60	40	90
D4541986	8.65	40	90
D4541087	8.70	40	90
D4541088	8.80	40	90
D4541089	8.90	40	90
D4541090	9.00	40	90
D4541091	9.10	40	90
D4541092	9.20	40	90
D4541992	9.25	40	90
D4541093	9.30	40	90
D4541993	9.35	40	90
D4541094	9.40	40	90
D4541994	9.45	40	90
D4541095	9.50	40	90
D4541995	9.55	43	93
D4541096	9.60	43	93
D4541996	9.65	43	93
D4541097	9.70	43	93
D4541098	9.80	43	93

► TiCN(D7541), TiAlN(DQ541) are available on your request.

► NEXT PAGE

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ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

STUB

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- Forets HPD HSSCo Premium pour Aciers, série extra-courte
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EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541099	9.90	40	90
D4541100	10.00	40	90
D4541101	10.10	40	90
D4541102	10.20	40	90
D4541103	10.30	40	90
D4541104	10.40	40	90
D4541105	10.50	40	90
D4541106	10.60	40	90
D4541107	10.70	40	90
D4541108	10.80	40	90
D4541109	10.90	40	90
D4541110	11.00	40	90
D4541111	11.10	40	90
D4541112	11.20	40	90
D4541113	11.30	40	90
D4541114	11.40	40	90
D4541115	11.50	40	90
D4541116	11.60	40	90
D4541117	11.70	40	90
D4541118	11.80	40	90
D4541119	11.90	40	90
D4541120	12.00	40	90

► TiCN(D7541), TiAlN(DQ541) are available on your request.

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ISO	P										M				K		
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron
Material Description	1	2	3	4	5	6											

**HSSCo8, HPD TWIST DRILLS for STEELS**

STUB

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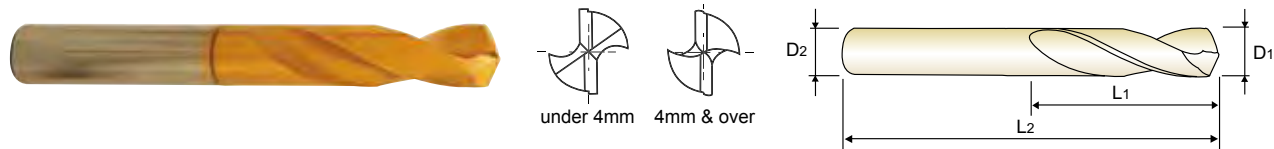
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**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity

**Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.

**Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung. Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



HSS Co8, 25°, h7, h8, 130°, TiN, p.A189

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
TiN			
D4541099	9.90	43	93
D4541999	9.95	43	93
D4541100	10.00	43	93
D4541101	10.10	43	100
D4541102	10.20	43	100
D4541802	10.25	43	100
D4541103	10.30	43	100
D4541803	10.35	43	100
D4541104	10.40	43	100
D4541105	10.50	43	100
D4541805	10.55	43	100
D4541106	10.60	43	100
D4541806	10.65	47	104
D4541107	10.70	47	104
D4541108	10.80	47	104
D4541109	10.90	47	104
D4541809	10.95	47	104
D4541110	11.00	47	104
D4541111	11.10	47	104
D4541112	11.20	47	104
D4541812	11.25	47	104
D4541113	11.30	47	104

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
TiN			
D4541813	11.35	47	104
D4541114	11.40	47	104
D4541115	11.50	47	104
D4541815	11.55	47	104
D4541116	11.60	47	104
D4541117	11.70	47	104
D4541118	11.80	47	104
D4541119	11.90	51	108
D4541120	12.00	51	108
D4541121	12.10	51	108
D4541122	12.20	51	108
D4541123	12.30	51	108
D4541124	12.40	51	108
D4541125	12.50	51	108
D4541126	12.60	51	108
D4541127	12.70	51	108
D4541128	12.80	51	108
D4541129	12.90	51	108
D4541130	13.00	51	108

TICN(D7541), TiAIN(DQ541) are available on your request.

© : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



**HSSCo8, HPD TWIST DRILLS for STEELS**

JOBBER

- PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
- Forets HPD HSSCo Premium pour Aciers, série courte
- PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI

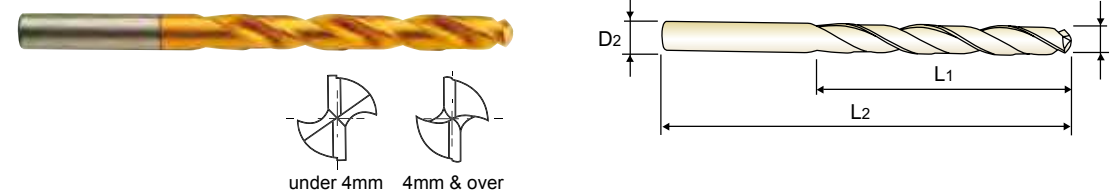
KURZ  
COURTE  
CORTA

**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



HSS Co8, 30°, h7, h6, h8, 130°, TiN, p.A189

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

up to 13mm over 13mm

D1=D2

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
TiN			
D4542020	2.00	24	56
D4542920	2.05	24	56
D4542021	2.10	24	56
D4542921	2.15	27	59
D4542022	2.20	27	59
D4542922	2.25	27	59
D4542023	2.30	27	59
D4542923	2.35	27	59
D4542024	2.40	30	62
D4542924	2.45	30	62
D4542025	2.50	30	62
D4542925	2.55	30	62
D4542026	2.60	30	62
D4542926	2.65	30	62
D4542027	2.70	33	65
D4542927	2.75	33	65
D4542028	2.80	33	65
D4542928	2.85	33	65
D4542029	2.90	33	65
D4542929	2.95	33	65
D4542030	3.00	33	65
D4542930	3.05	36	68

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
TiN			
D4542031	3.10	36	68
D4542931	3.15	36	68
D4542032	3.20	36	68
D4542932	3.25	36	68
D4542033	3.30	36	68
D4542933	3.35	36	68
D4542034	3.40	39	71
D4542934	3.45	39	71
D4542035	3.50	39	71
D4542935	3.55	39	71
D4542036	3.60	39	71
D4542936	3.65	39	71
D4542037	3.70	39	71
D4542937	3.75	39	71
D4542038	3.80	43	75
D4542938	3.85	43	75
D4542039	3.90	43	75
D4542939	3.95	43	75
D4542040	4.00	43	75
D4542940	4.05	43	87
D4542041	4.10	43	87
D4542941	4.15	43	87

TICN(D7542), TiAIN(DQ542) are available on your request.

NEXT PAGE

© : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**HSSCo8, HPD TWIST DRILLS for STEELS**

JOBBER

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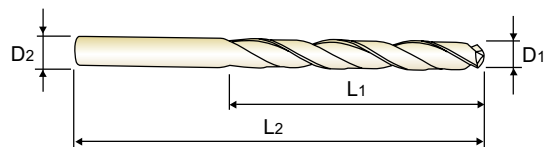
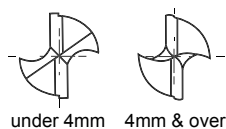
KURZ  
COURTE  
CORTA

**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2



p.A189



up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542042	4.20	43	87	⊙	⊙	⊙	⊙
D4542942	4.25	43	87	⊙	⊙	⊙	⊙
D4542043	4.30	47	91	⊙	⊙	⊙	⊙
D4542943	4.35	47	91	⊙	⊙	⊙	⊙
D4542044	4.40	47	91	⊙	⊙	⊙	⊙
D4542944	4.45	47	91	⊙	⊙	⊙	⊙
D4542045	4.50	47	91	⊙	⊙	⊙	⊙
D4542945	4.55	47	91	⊙	⊙	⊙	⊙
D4542046	4.60	47	91	⊙	⊙	⊙	⊙
D4542946	4.65	47	91	⊙	⊙	⊙	⊙
D4542047	4.70	47	91	⊙	⊙	⊙	⊙
D4542947	4.75	47	91	⊙	⊙	⊙	⊙
D4542048	4.80	52	96	⊙	⊙	⊙	⊙
D4542948	4.85	52	96	⊙	⊙	⊙	⊙
D4542049	4.90	52	96	⊙	⊙	⊙	⊙
D4542949	4.95	52	96	⊙	⊙	⊙	⊙
D4542050	5.00	52	96	⊙	⊙	⊙	⊙
D4542950	5.05	52	96	⊙	⊙	⊙	⊙
D4542051	5.10	52	96	⊙	⊙	⊙	⊙
D4542951	5.15	52	96	⊙	⊙	⊙	⊙
D4542052	5.20	52	96	⊙	⊙	⊙	⊙
D4542952	5.25	52	96	⊙	⊙	⊙	⊙

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542053	5.30	52	96	⊙	⊙	⊙	⊙
D4542953	5.35	57	101	⊙	⊙	⊙	⊙
D4542054	5.40	57	101	⊙	⊙	⊙	⊙
D4542954	5.45	57	101	⊙	⊙	⊙	⊙
D4542055	5.50	57	101	⊙	⊙	⊙	⊙
D4542955	5.55	57	101	⊙	⊙	⊙	⊙
D4542056	5.60	57	101	⊙	⊙	⊙	⊙
D4542956	5.65	57	101	⊙	⊙	⊙	⊙
D4542057	5.70	57	101	⊙	⊙	⊙	⊙
D4542957	5.75	57	101	⊙	⊙	⊙	⊙
D4542058	5.80	57	101	⊙	⊙	⊙	⊙
D4542958	5.85	57	101	⊙	⊙	⊙	⊙
D4542059	5.90	57	101	⊙	⊙	⊙	⊙
D4542959	5.95	57	101	⊙	⊙	⊙	⊙
D4542060	6.00	57	101	⊙	⊙	⊙	⊙
D4542960	6.05	63	107	⊙	⊙	⊙	⊙
D4542061	6.10	63	107	⊙	⊙	⊙	⊙
D4542961	6.15	63	107	⊙	⊙	⊙	⊙
D4542062	6.20	63	107	⊙	⊙	⊙	⊙
D4542962	6.25	63	107	⊙	⊙	⊙	⊙
D4542063	6.30	63	107	⊙	⊙	⊙	⊙
D4542963	6.35	63	107	⊙	⊙	⊙	⊙

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.

▶ NEXT PAGE

⊙ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	⊙	⊙	○	○	○	⊙	○	○	○	○	○	○	○	○	⊙	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**HSSCo8, HPD TWIST DRILLS for STEELS**

JOBBER

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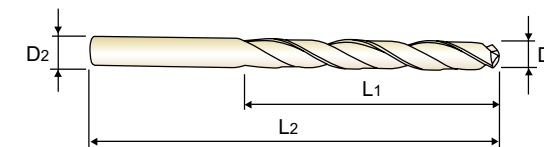
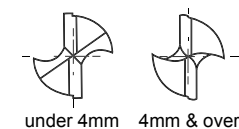
KURZ  
COURTE  
CORTA

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D1=D2



p.A189



up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542064	6.40	63	107	⊙	⊙	⊙	⊙
D4542964	6.45	63	107	⊙	⊙	⊙	⊙
D4542065	6.50	63	107	⊙	⊙	⊙	⊙
D4542965	6.55	63	107	⊙	⊙	⊙	⊙
D4542066	6.60	63	107	⊙	⊙	⊙	⊙
D4542966	6.65	63	107	⊙	⊙	⊙	⊙
D4542067	6.70	63	107	⊙	⊙	⊙	⊙
D4542967	6.75	69	113	⊙	⊙	⊙	⊙
D4542068	6.80	69	113	⊙	⊙	⊙	⊙
D4542968	6.85	69	113	⊙	⊙	⊙	⊙
D4542069	6.90	69	113	⊙	⊙	⊙	⊙
D4542969	6.95	69	113	⊙	⊙	⊙	⊙
D4542070	7.00	69	113	⊙	⊙	⊙	⊙
D4542970	7.05	69	113	⊙	⊙	⊙	⊙
D4542071	7.10	69	113	⊙	⊙	⊙	⊙
D4542971	7.15	69	113	⊙	⊙	⊙	⊙
D4542072	7.20	69	113	⊙	⊙	⊙	⊙
D4542972	7.25	69	113	⊙	⊙	⊙	⊙
D4542073	7.30	69	113	⊙	⊙	⊙	⊙
D4542973	7.35	69	113	⊙	⊙	⊙	⊙
D4542074	7.40	69	113	⊙	⊙	⊙	⊙
D4542974	7.45	69	113	⊙	⊙	⊙	⊙

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542075	7.50	69	113	⊙	⊙	⊙	⊙
D4542975	7.55	75	119	⊙	⊙	⊙	⊙
D4542076	7.60	75	119	⊙	⊙	⊙	⊙
D4542976	7.65	75	119	⊙	⊙	⊙	⊙
D4542077	7.70	75	119	⊙	⊙	⊙	⊙
D4542977	7.75	75	119	⊙	⊙	⊙	⊙
D4542078	7.80	75	119	⊙	⊙	⊙	⊙
D4542978	7.85	75	119	⊙	⊙	⊙	⊙
D4542079	7.90	75	119	⊙	⊙	⊙	⊙
D4542979	7.95	75	119	⊙	⊙	⊙	⊙
D4542080	8.00	75	119	⊙	⊙	⊙	⊙
D4542980	8.05	75	125	⊙	⊙	⊙	⊙
D4542081	8.10	75	125	⊙	⊙	⊙	⊙
D4542981	8.15	75	125	⊙	⊙	⊙	⊙
D4542082	8.20	75	125	⊙	⊙	⊙	⊙
D4542982	8.25	75	125	⊙	⊙	⊙	⊙
D4542083	8.30	75	125	⊙	⊙	⊙	⊙
D4542983	8.35	75	125	⊙	⊙	⊙	⊙
D4542084	8.40	75	125	⊙	⊙	⊙	⊙
D4542984	8.45	75	125	⊙	⊙	⊙	⊙
D4542085	8.50	75	125	⊙	⊙	⊙	⊙
D4542985	8.55	81	131	⊙	⊙	⊙	⊙

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.

▶ NEXT PAGE

⊙ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32												



**HSSCo8, HPD TWIST DRILLS for STEELS**

JOBBER

- PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
- Forets HPD HSSCo Premium pour Aciers, série courte
- PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI

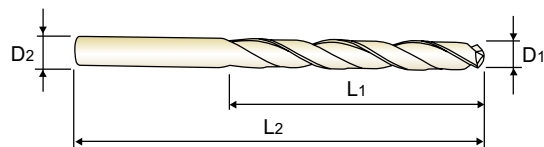
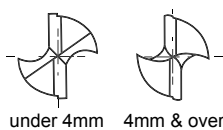
KURZ  
COURTE  
CORTA

**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2



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up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542086	8.60	81	131	○	○	○	○
D4542986	8.65	81	131	○	○	○	○
D4542087	8.70	81	131	○	○	○	○
D4542987	8.75	81	131	○	○	○	○
D4542088	8.80	81	131	○	○	○	○
D4542988	8.85	81	131	○	○	○	○
D4542089	8.90	81	131	○	○	○	○
D4542989	8.95	81	131	○	○	○	○
D4542090	9.00	81	131	○	○	○	○
D4542990	9.05	81	131	○	○	○	○
D4542091	9.10	81	131	○	○	○	○
D4542991	9.15	81	131	○	○	○	○
D4542092	9.20	81	131	○	○	○	○
D4542992	9.25	81	131	○	○	○	○
D4542093	9.30	81	131	○	○	○	○
D4542993	9.35	81	131	○	○	○	○
D4542094	9.40	81	131	○	○	○	○
D4542994	9.45	81	131	○	○	○	○
D4542095	9.50	81	131	○	○	○	○
D4542995	9.55	87	137	○	○	○	○
D4542096	9.60	87	137	○	○	○	○
D4542996	9.65	87	137	○	○	○	○

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542097	9.70	87	137	○	○	○	○
D4542997	9.75	87	137	○	○	○	○
D4542098	9.80	87	137	○	○	○	○
D4542998	9.85	87	137	○	○	○	○
D4542099	9.90	87	137	○	○	○	○
D4542999	9.95	87	137	○	○	○	○
D4542100	10.00	87	137	○	○	○	○
D4542800	10.05	87	144	○	○	○	○
D4542101	10.10	87	144	○	○	○	○
D4542801	10.15	87	144	○	○	○	○
D4542102	10.20	87	144	○	○	○	○
D4542802	10.25	87	144	○	○	○	○
D4542103	10.30	87	144	○	○	○	○
D4542803	10.35	87	144	○	○	○	○
D4542104	10.40	87	144	○	○	○	○
D4542804	10.45	87	144	○	○	○	○
D4542105	10.50	87	144	○	○	○	○
D4542805	10.55	87	144	○	○	○	○
D4542106	10.60	87	144	○	○	○	○
D4542806	10.65	94	151	○	○	○	○
D4542107	10.70	94	151	○	○	○	○
D4542807	10.75	94	151	○	○	○	○

TiCN(D7542), TiAlN(DQ542) are available on your request.

NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**HSSCo8, HPD TWIST DRILLS for STEELS**

JOBBER

- PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
- Forets HPD HSSCo Premium pour Aciers, série courte
- PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI

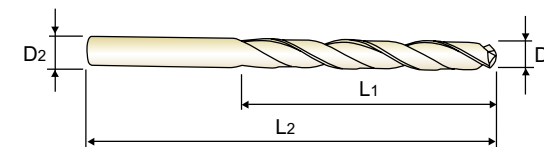
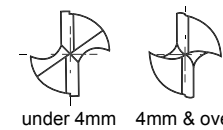
KURZ  
COURTE  
CORTA

**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2



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up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542108	10.80	94	151	○	○	○	○
D4542808	10.85	94	151	○	○	○	○
D4542109	10.90	94	151	○	○	○	○
D4542809	10.95	94	151	○	○	○	○
D4542110	11.00	94	151	○	○	○	○
D4542810	11.05	94	151	○	○	○	○
D4542111	11.10	94	151	○	○	○	○
D4542811	11.15	94	151	○	○	○	○
D4542112	11.20	94	151	○	○	○	○
D4542812	11.25	94	151	○	○	○	○
D4542113	11.30	94	151	○	○	○	○
D4542813	11.35	94	151	○	○	○	○
D4542114	11.40	94	151	○	○	○	○
D4542814	11.45	94	151	○	○	○	○
D4542115	11.50	94	151	○	○	○	○
D4542815	11.55	94	151	○	○	○	○
D4542116	11.60	94	151	○	○	○	○
D4542816	11.65	94	151	○	○	○	○
D4542117	11.70	94	151	○	○	○	○
D4542817	11.75	94	151	○	○	○	○
D4542118	11.80	94	151	○	○	○	○
D4542818	11.85	101	158	○	○	○	○

TiCN(D7542), TiAlN(DQ542) are available on your request.

NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

JOBBER

KURZ  
COURTE  
CORTA

**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.



D1=D2



p.A189

up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Material			
				TiN	h7	h6	h8
D4542119	11.90	101	158	○	○	○	○
D4542819	11.95	101	158	○	○	○	○
D4542120	12.00	101	158	○	○	○	○
D4542820	12.05	101	158	○	○	○	○
D4542121	12.10	101	158	○	○	○	○
D4542821	12.15	101	158	○	○	○	○
D4542122	12.20	101	158	○	○	○	○
D4542822	12.25	101	158	○	○	○	○

**HSSCo8, HPD TWIST DRILLS for STEELS**

**JOBBER**

- PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
- Forets HPD HSSCo Premium pour Aciers, série courte
- PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI

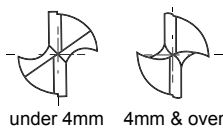
**KURZ  
COURTE  
CORTA**

**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

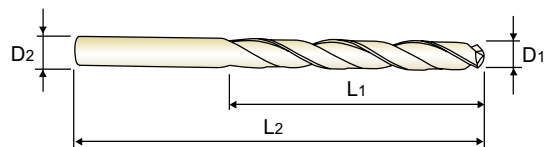
**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



under 4mm 4mm & over



D1=D2



up to 13mm over 13mm

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EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Unit : mm			
				TiN	D1	L1	L2
D4542170	17.00	106	172				
D4542175	17.50	112	178				
D4542176	17.60	112	178				
D4542180	18.00	112	178				
D4542185	18.50	118	184				
D4542190	19.00	118	194				
D4542195	19.50	125	201				
D4542196	19.60	125	201				
D4542200	20.00	125	201				
D4542205	20.50	128	204				
D4542210	21.00	128	204				
D4542211	21.10	128	204				
D4542215	21.50	132	208				
D4542220	22.00	132	208				
D4542225	22.50	136	212				

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Unit : mm			
				TiN	D1	L1	L2
D4542230	23.00	136	212				
D4542235	23.50	136	212				
D4542240	24.00	140	220				
D4542245	24.50	140	220				
D4542250	25.00	140	220				
D4542255	25.50	145	225				
D4542260	26.00	145	225				
D4542265	26.50	145	225				
D4542270	27.00	150	230				
D4542280	28.00	150	230				
D4542290	29.00	155	235				
D4542300	30.00	155	235				
D4542310	31.00	160	240				
D4542320	32.00	165	245				

TiCN(D7542), TiAlN(DQ542) are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	○	○	◎	○	○	○	○	○

**HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS**

**STUB**

- HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
- Forets HPD-SUS HSS-E pour INOX, série extra-courte
- PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

**EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA**

**Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

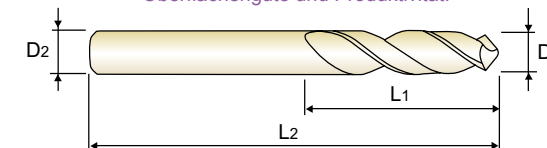
**Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling. Wide flute and stub length-increasing chip removal and reducing vibration and deflection. High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

**Anwendung** : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.

**Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



four facet



D1=D2



up to 4mm over 4mm

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EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Unit : mm			
				TiN	D1	L1	L2
DJ543020	2.00	12	44				
DJ543021	2.10	12	44				
DJ543022	2.20	13	45				
DJ543023	2.30	13	45				
DJ543024	2.40	14	46				
DJ543025	2.50	14	46				
DJ543026	2.60	14	46				
DJ543027	2.70	16	48				
DJ543028	2.80	16	48				
DJ543029	2.90	16	48				
DJ543030	3.00	16	48				
DJ543031	3.10	18	50				
DJ543032	3.20	18	50				
DJ543033	3.30	18	50				
DJ543034	3.40	20	52				
DJ543035	3.50	20	52				
DJ543036	3.60	20	52				
DJ543037	3.70	20	52				
DJ543038	3.80	22	54				
DJ543039	3.90	22	54				
DJ543040	4.00	22	54				
DJ543041	4.10	22	66				

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Unit : mm			
				TiN	D1	L1	L2
DJ543042	4.20	22	66				
DJ543043	4.30	24	68				
DJ543044	4.40	24	68				
DJ543045	4.50	24	68				
DJ543046	4.60	24	68				
DJ543047	4.70	24	68				
DJ543048	4.80	26	70				
DJ543049	4.90	26	70				
DJ543050	5.00	26	70				
DJ543051	5.10	26	70				
DJ543052	5.20	26	70				
DJ543053	5.30	26	70				
DJ543054	5.40	28	72				
DJ543055	5.50	28	72				
DJ543056	5.60	28	72				
DJ543057	5.70	28	72				
DJ543058	5.80	28	72				
DJ543059	5.90	28	72				
DJ543060	6.00	28	72				
DJ543061	6.10	31	75				
DJ543062	6.20	31	75				
DJ543063	6.30	31	75				

TiCN(DW543), TiAlN(DY543) are available on your request.

NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	◎	○	○	○	◎	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	○	○	◎	○	○	○	○	○



i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

**HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS**

STUB

- HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
- Forets HPD-SUS HSS-E pour INOX, série extra-courte
- PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

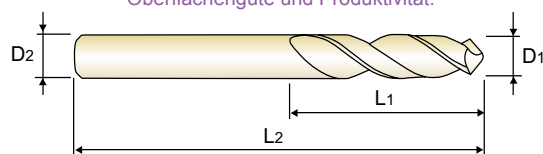
EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

► **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling  
Wide flute and stub length-increasing chip removal and reducing vibration and deflection.  
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life  
High quality & good surface finish, high productivity.

► **Anwendung** : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.

► **Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



four facet

D1=D2

for STAINLESS STEELS  
für rostfreier Stäle

HSS-E 38° h7 h8 130° 120° TiN

p.A189

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

up to 4mm over 4mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	TiN			
				D1	L1	L2	
DJ543064	6.40	31	75				
DJ543065	6.50	31	75				
DJ543066	6.60	31	75				
DJ543067	6.70	31	75				
DJ543068	6.80	34	78				
DJ543069	6.90	34	78				
DJ543070	7.00	34	78				
DJ543071	7.10	34	78				
DJ543072	7.20	34	78				
DJ543073	7.30	34	78				
DJ543074	7.40	34	78				
DJ543075	7.50	34	78				
DJ543076	7.60	37	81				
DJ543077	7.70	37	81				
DJ543078	7.80	37	81				
DJ543079	7.90	37	81				
DJ543080	8.00	37	81				
DJ543081	8.10	37	87				
DJ543082	8.20	37	87				
DJ543083	8.30	37	87				
DJ543084	8.40	37	87				
DJ543085	8.50	37	87				

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	TiN			
				D1	L1	L2	
DJ543086	8.60	40	90				
DJ543087	8.70	40	90				
DJ543088	8.80	40	90				
DJ543089	8.90	40	90				
DJ543090	9.00	40	90				
DJ543091	9.10	40	90				
DJ543092	9.20	40	90				
DJ543093	9.30	40	90				
DJ543094	9.40	40	90				
DJ543095	9.50	40	90				
DJ543096	9.60	43	93				
DJ543097	9.70	43	93				
DJ543098	9.80	43	93				
DJ543099	9.90	43	93				
DJ543100	10.00	43	93				
DJ543101	10.10	43	100				
DJ543102	10.20	43	100				
DJ543103	10.30	43	100				
DJ543104	10.40	43	100				
DJ543105	10.50	43	100				
DJ543106	10.60	43	100				
DJ543107	10.70	47	104				

► TiCN(DW543), TiAlN(DY543) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎									◎	◎	◎								

ISO	N					S							H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎															



**HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS**

STUB

- HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
- Forets HPD-SUS HSS-E pour INOX, série extra-courte
- PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

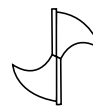
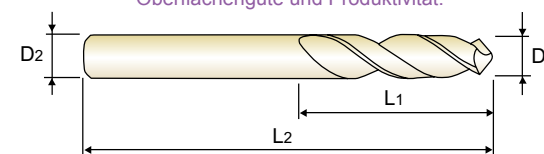
EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

► **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling  
Wide flute and stub length-increasing chip removal and reducing vibration and deflection.  
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life  
High quality & good surface finish, high productivity.

► **Anwendung** : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.

► **Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



four facet

D1=D2

for STAINLESS STEELS  
für rostfreier Stäle

HSS-E 38° h7 h8 130° 120° TiN

p.A189

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

up to 4mm over 4mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	TiN			
				D1	L1	L2	
DJ543108	10.80	47	104				
DJ543109	10.90	47	104				
DJ543110	11.00	47	104				
DJ543111	11.10	47	104				
DJ543112	11.20	47	104				
DJ543113	11.30	47	104				
DJ543114	11.40	47	104				
DJ543115	11.50	47	104				
DJ543116	11.60	47	104				
DJ543117	11.70	47	104				
DJ543118	11.80	47	104				
DJ543119	11.90	51	108				

► TiCN(DW543), TiAlN(DY543) are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎									◎	◎	◎								

ISO	N					S							H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎															

STUB

- HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
- Forets HPD-SUS HSS-E pour INOX, série extra-courte
- PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

► **Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

► **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling  
Wide flute and stub length-increasing chip removal and reducing vibration and deflection.  
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life  
High quality & good surface finish, high productivity.



four facet

D1=D2

for STAINLESS STEELS  
für rostfreier Stäle

HSS-E 38° h7 h8 130° 120° TiN

p.A189

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

up to 4mm over 4mm

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	TiN			
				D1	L1	L2	
DJ543120	12.00	51	108				
DJ543121	12.10	51	108				
DJ543122	12.20	51	108				
DJ543123	12.30	51	108				
DJ543124	12.40	51	108				
DJ543125	12.50	51	108				
DJ543126	12.60	51	108				
DJ543127	12.70	51	108				
DJ543128	12.80	51	108				
DJ543129	12.90	51	108				
DJ543130	13.00	51	108				

► TiCN(DW543), TiAlN(DY543) are available on your request.

◎ : Excellent ○ : Good



**HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS**

JOBBER

- HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
- Forets HPD-SUS HSS-E pour INOX, série courte
- PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

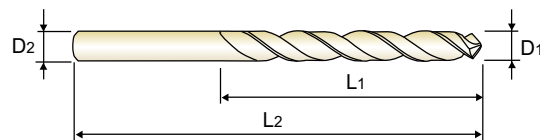
KURZ  
COURTE  
CORTA

► **Application** : Designed for 4D~5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

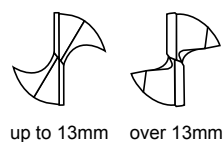
► **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling  
Reinforced web and jobbers length-increasing rigidity and suitable for 4D~5D drilling.  
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life  
High quality & good surface finish, high productivity.

► **Anwendung** : Für 4D~5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.

► **Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



for STAINLESS STEELS  
für rostfreier Stäle



up to 13mm over 13mm



up to 4mm over 4mm

p.A189



D1=D2

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
DJ544020	2.00	24	56	DJ544042	4.20	43	87
DJ544021	2.10	24	56	DJ544043	4.30	47	91
DJ544022	2.20	27	59	DJ544044	4.40	47	91
DJ544023	2.30	27	59	DJ544045	4.50	47	91
DJ544024	2.40	30	62	DJ544046	4.60	47	91
DJ544025	2.50	30	62	DJ544047	4.70	47	91
DJ544026	2.60	30	62	DJ544048	4.80	52	96
DJ544027	2.70	33	65	DJ544049	4.90	52	96
DJ544028	2.80	33	65	DJ544050	5.00	52	96
DJ544029	2.90	33	65	DJ544051	5.10	52	96
DJ544030	3.00	33	65	DJ544052	5.20	52	96
DJ544031	3.10	36	68	DJ544053	5.30	52	96
DJ544032	3.20	36	68	DJ544054	5.40	57	101
DJ544033	3.30	36	68	DJ544055	5.50	57	101
DJ544034	3.40	39	71	DJ544056	5.60	57	101
DJ544035	3.50	39	71	DJ544057	5.70	57	101
DJ544036	3.60	39	71	DJ544058	5.80	57	101
DJ544037	3.70	39	71	DJ544059	5.90	57	101
DJ544038	3.80	43	75	DJ544060	6.00	57	101
DJ544039	3.90	43	75	DJ544061	6.10	63	107
DJ544040	4.00	43	75	DJ544062	6.20	63	107
DJ544041	4.10	43	87	DJ544063	6.30	63	107

Unit : mm

► TiCN(DW544), TiAlN(DY544) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○									◎	○	◎								

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															



**HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS**

JOBBER

- HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
- Forets HPD-SUS HSS-E pour INOX, série courte
- PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

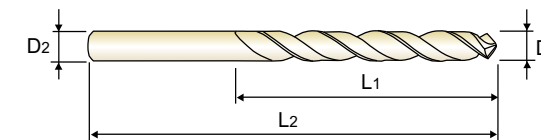
KURZ  
COURTE  
CORTA

► **Application** : Designed for 4D~5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

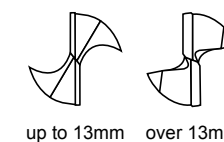
► **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling  
Reinforced web and jobbers length-increasing rigidity and suitable for 4D~5D drilling.  
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life  
High quality & good surface finish, high productivity.

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for STAINLESS STEELS  
für rostfreier Stäle



up to 13mm over 13mm



up to 4mm over 4mm

p.A189



D1=D2

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
DJ544064	6.40	63	107	DJ544086	8.60	81	131
DJ544065	6.50	63	107	DJ544087	8.70	81	131
DJ544066	6.60	63	107	DJ544088	8.80	81	131
DJ544067	6.70	63	107	DJ544089	8.90	81	131
DJ544068	6.80	69	113	DJ544090	9.00	81	131
DJ544069	6.90	69	113	DJ544091	9.10	81	131
DJ544070	7.00	69	113	DJ544092	9.20	81	131
DJ544071	7.10	69	113	DJ544093	9.30	81	131
DJ544072	7.20	69	113	DJ544094	9.40	81	131
DJ544073	7.30	69	113	DJ544095	9.50	81	131
DJ544074	7.40	69	113	DJ544096	9.60	87	137
DJ544075	7.50	69	113	DJ544097	9.70	87	137
DJ544076	7.60	75	119	DJ544098	9.80	87	137
DJ544077	7.70	75	119	DJ544099	9.90	87	137
DJ544078	7.80	75	119	DJ544100	10.00	87	137
DJ544079	7.90	75	119	DJ544101	10.10	87	144
DJ544080	8.00	75	119	DJ544102	10.20	87	144
DJ544081	8.10	75	125	DJ544103	10.30	87	144
DJ544082	8.20	75	125	DJ544104	10.40	87	144
DJ544083	8.30	75	125	DJ544105	10.50	87	144
DJ544084	8.40	75	125	DJ544106	10.60	87	144
DJ544085	8.50	75	125	DJ544107	10.70	94	151

Unit : mm

► TiCN(DW544), TiAlN(DY544) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○									◎	○	◎								

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															

JOBBER

KURZ  
COURTE  
CORTA

► **Application** : Designed for 4D~5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

► **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling  
Reinforced web and jobbers length-increasing rigidity and suitable for 4D~5D drilling.  
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life  
High quality & good surface finish, high productivity.



for STAINLESS STEELS  
für rostfreier Stäle



Unit : mm

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○									◎	○	◎								

**HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS**

JOBBER

- HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
- Forets HPD-SUS HSS-E pour INOX, série courte
- PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

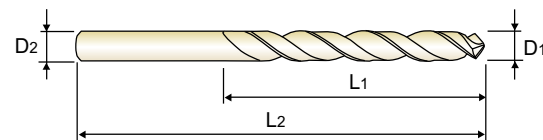
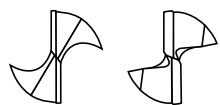
KURZ  
COURTE  
CORTA

► **Application** : Designed for 4D~5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

► **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling  
Reinforced web and jobbers length-increasing rigidity and suitable for 4D~5D drilling.  
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life  
High quality & good surface finish, high productivity.

► **Anwendung** : Für 4D~5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.

► **Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



for STAINLESS STEELS  
für rostfreier Stähle

up to 13mm over 13mm

D1=D2



p.A189



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
DJ544108	10.80	94	151
DJ544109	10.90	94	151
DJ544110	11.00	94	151
DJ544111	11.10	94	151
DJ544112	11.20	94	151
DJ544113	11.30	94	151
DJ544114	11.40	94	151
DJ544115	11.50	94	151
DJ544116	11.60	94	151
DJ544117	11.70	94	151
DJ544118	11.80	94	151
DJ544119	11.90	101	158
DJ544120	12.00	101	158
DJ544121	12.10	101	158
DJ544122	12.20	101	158
DJ544123	12.30	101	158
DJ544124	12.40	101	158
DJ544125	12.50	101	158
DJ544126	12.60	101	158
DJ544127	12.70	101	158
DJ544128	12.80	101	158
DJ544129	12.90	101	158

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
DJ544130	13.00	101	158
DJ544135	13.50	106	166
DJ544140	14.00	106	166
DJ544141	14.10	109	169
DJ544145	14.50	109	169
DJ544150	15.00	109	169
DJ544155	15.50	112	172
DJ544156	15.60	112	172
DJ544160	16.00	112	172
DJ544165	16.50	115	181
DJ544170	17.00	115	181
DJ544175	17.50	118	184
DJ544176	17.60	118	184
DJ544180	18.00	118	184
DJ544185	18.50	122	188
DJ544190	19.00	122	188
DJ544195	19.50	125	191
DJ544196	19.60	125	191
DJ544200	20.00	125	191

► TiCN(DW544), TiAlN(DY544) are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○									◎	○	◎								

ISO	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															



**D4541, D4542 SERIES HPD DRILLS for STEELS**

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)									
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0		
P	1	Non-alloy steel	35	RPM	5570	3710	2790	2230	1860	1390	1110	930		
			FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32			
	2	Non-alloy steel	25	RPM	3980	2650	1990	1590	1330	990	800	660		
			FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32			
	3	Non-alloy steel	25	RPM	3980	2650	1990	1590	1330	990	800	660		
			FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32			
	6	Low alloy steel	30	RPM	4770	3180	2390	1910	1590	1190	950	800		
			FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32			
	7	Low alloy steel	25	RPM	3980	2650	1990	1590	1330	990	800	660		
			FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32			
10	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	950	800	600	480	400			
		FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32				
K	15	Grey cast iron	40	RPM	6370	4240	3180	2550	2120	1590	1270	1060		
			FEED	0.06-0.12	0.09-0.15	0.12-0.18	0.15-0.21	0.16-0.22	0.22-0.28	0.26-0.36	0.28-0.38			

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)									
					14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0
P	1	Non-alloy steel	35	RPM	800	700	620	560	510	460	430	400	370	350
			FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70	
	2	Non-alloy steel	25	RPM	570	500	440	400	360	330	310	280	270	250
			FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70	
	3	Non-alloy steel	25	RPM	570	500	440	400	360	330	310	280	270	250
			FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70	
	6	Low alloy steel	30	RPM	680	600	530	480	430	400	370	340	320	300
			FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70	
	7	Low alloy steel	25	RPM	570	500	440	400	360	330	310	280	270	250
			FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70	
10	High alloyed steel, and tool steel	15	RPM	340	300	270	240	220	200	180	170	160	150	
		FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70		
K	15	Grey cast iron	40	RPM	910	800	710	640	580	530	490	450	420	400
			FEED	0.32-0.42	0.35-0.45	0.42-0.52	0.44-0.54	0.50-0.60	0.54-0.64	0.59-0.69	0.64-0.74	0.69-0.79	0.74-0.84	

Please decrease the feed rate (15~20%) in D4542 SERIES HPD drills.  
Den Vorschub in der D4542 Gruppe HPD Bohrer bitte verringern.

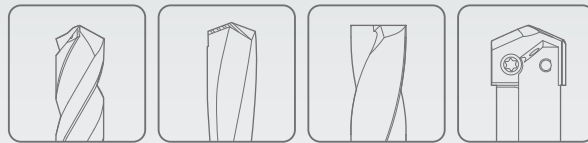
**DJ543, DJ544 SERIES HPD-SUS DRILLS for STAINLESS STEELS**

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)				
					2.0	3.0	4.0	5.0	6.0
P	1	Non-alloy steel	35	RPM	5570	3710	2790	2230	1860
			FEED	0.04-0.1	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	
M	12	Stainless steel	20	RPM	3180	2120	1590	1270	1060
			FEED	0.03-0.07	0.05-0.09	0.06-0.12	0.09-0.15	0.12-0.18	
	13	Stainless steel	18	RPM	2860	1910	1430	1150	950
			FEED	0.03-0.07	0.05-0.09	0.06-0.12	0.09-0.15	0.12-0.18	
14	Stainless steel	15	RPM	2390	1590	1190	950	800	
		FEED	0.02-0.05	0.03-0.07	0.04-0.10	0.06-0.12	0.07-0.13		
N	21	Aluminum-wrought alloy	90	RPM	14320	9550	7160	5730	4770
			FEED	0.05-0.12	0.10-0.18	0.12-0.22	0.15-0.25	0.17-0.27	
	22	Aluminum-wrought alloy	90	RPM	14320	9550	7160	5730	4770
			FEED	0.05-0.12	0.10-0.18	0.12-0.22	0.15-0.25	0.17-0.27	
26	Copper and Copper Alloys (Bronze / Brass)	35	RPM	5570	3710	2790	2230	1860	
		FEED	0.03-0.06	0.05-0.09	0.05-0.11	0.08-0.14	0.11-0.17		

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)						
					8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	1	Non-alloy steel	35	RPM	1390	1110	930	800	700	620	560
			FEED	0.18-0.24	0.20-0.30	0.22-0.32	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	
M	12	Stainless steel	20	RPM	800	640	530	450	400	350	320
			FEED	0.18-0.24	0.20-0.30	0.26-0.36	0.34-0.44	0.38-0.48	0.40-0.50	0.43-0.53	
	13	Stainless steel	18	RPM	720	570	480	410	360	320	290
			FEED	0.18-0.24	0.20-0.30	0.26-0.36	0.34-0.44	0.38-0.48	0.40-0.50	0.43-0.53	
14	Stainless steel	15	RPM	600	480	400	340	300	270	240	
		FEED	0.10-0.160	0.12-0.22	0.14-0.24	0.24-0.34	0.28-0.38	0.30-0.40	0.33-0.43		
N	21	Aluminum-wrought alloy	90	RPM	3580						



Global Cutting Tool Leader **YG-1**



# HOLEMAKING





Leading Through Innovation



HSS & HSS-E

# GOLD-P DRILLS

## GOLD-P BOHRER

- Same Performance as Full TiN-coated Drills
- Gleiche Leistung, wie bei voll TiN-beschichteten Bohrern



SELECTION GUIDE



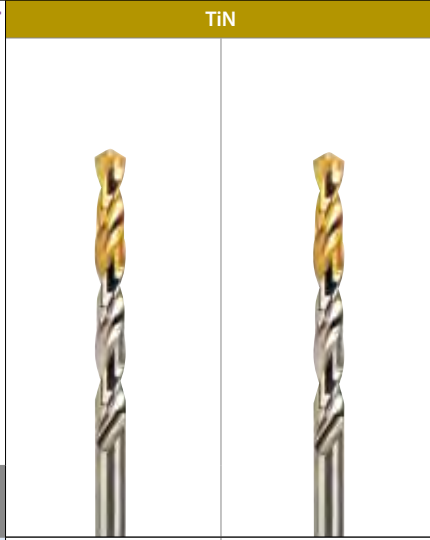
SERIES	D1GP125	D1GP165
STANDARD	DIN338	DIN338
LENGTH	JOBBER	JOBBER
SIZE MIN	D1.0	D1.6
SIZE MAX	D13.0	D13.0
PAGE	A194	A197

SERIES	DLGP195	DLGP506
STANDARD	DIN338	DIN338
LENGTH	JOBBER	JOBBER
SIZE MIN	D1.0	D2.0
SIZE MAX	D13.0	D13.0
PAGE	A200	A203

GOLD-P DRILL SETS			
SET1	SET2	SET3	SET4
19pcs	25pcs	24pcs	91pcs
1.0mm ~ 10.0mm ×0.5mm step	1.0mm ~ 13.0mm ×0.5mm step	1.0mm ~ 10.5mm ×0.5mm step +3.3 +4.2 +6.8 +10.2	1.0mm ~ 10.0mm ×0.1mm step
p. A206			

# HSS & HSS-E GOLD-P DRILLS

Same Performance as Full TiN-coated Drills



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A207

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	
P	1	Non-alloy steel	About 0.15% C Annealed	125	◎	
	2		About 0.45% C Annealed	190	13	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎
	4		About 0.75% C Annealed	270	28	○
	5		About 0.75% C Quenched & Tempered	300	32	○
	6	Low alloy steel	Annealed	180	10	◎
	7		Quenched & Tempered	275	29	○
	8		Quenched & Tempered	300	32	○
	9		Quenched & Tempered	350	38	○
	10		High alloyed steel, and tool steel	Annealed	200	15
	11	Quenched & Tempered		325	35	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎
	13		Martensitic Quenched & Tempered	240	23	○
	14		Austenitic	180	10	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○
	16		Pearlitic (Martensitic)	260	26	○
	17	Nodular cast iron	Ferritic	160	3	○
	18		Pearlitic	250	25	○
	19		Ferritic	130	○	○
20	Malleable cast iron	Pearlitic	230	21	○	
N	21	Aluminum-wrought alloy	Not Curable	60	○	○
	22		Curable Hardened	100	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	○	○
	24		≤ 12% Si, Curable Hardened	90	○	○
	25		> 12% Si, Not Curable	130	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	○	○
	27		CuZn, CuSnZn (Brass)	90	○	○
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100	○	○
	29		Duroplastic, Fiber Reinforced Plastic	○	○	○
	30	Rubber, Wood, etc.	○	○	○	
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○
	32		Cured	280	30	○
	33		Annealed	250	25	○
	34		Ni or Co Based Cured	350	38	○
	35		Cast	320	34	○
	36	Titanium Alloys	Pure Titanium	400 Rm	○	○
	37		Alpha + Beta Alloys Hardened	1050 Rm	○	○
H	38	Hardened steel	Hardened	550	55	○
	39		Hardened	630	60	○
	40		Cast	400	42	○
41	Hardened Cast Iron	Hardened	550	55	○	

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	
P	1	Non-alloy steel	About 0.15% C Annealed	125	◎	
	2		About 0.45% C Annealed	190	13	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎
	4		About 0.75% C Annealed	270	28	○
	5		About 0.75% C Quenched & Tempered	300	32	○
	6	Low alloy steel	Annealed	180	10	◎
	7		Quenched & Tempered	275	29	○
	8		Quenched & Tempered	300	32	○
	9		Quenched & Tempered	350	38	○
	10		High alloyed steel, and tool steel	Annealed	200	15
	11	Quenched & Tempered		325	35	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎
	13		Martensitic Quenched & Tempered	240	23	○
	14		Austenitic	180	10	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○
	16		Pearlitic (Martensitic)	260	26	○
	17	Nodular cast iron	Ferritic	160	3	○
	18		Pearlitic	250	25	○
	19		Ferritic	130	○	○
20	Malleable cast iron	Pearlitic	230	21	○	
N	21	Aluminum-wrought alloy	Not Curable	60	○	○
	22		Curable Hardened	100	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	○	○
	24		≤ 12% Si, Curable Hardened	90	○	○
	25		> 12% Si, Not Curable	130	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	○	○
	27		CuZn, CuSnZn (Brass)	90	○	○
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100	○	○
	29		Duroplastic, Fiber Reinforced Plastic	○	○	○
	30	Rubber, Wood, etc.	○	○	○	
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○
	32		Cured	280	30	○
	33		Annealed	250	25	○
	34		Ni or Co Based Cured	350	38	○
	35		Cast	320	34	○
	36	Titanium Alloys	Pure Titanium	400 Rm	○	○
	37		Alpha + Beta Alloys Hardened	1050 Rm	○	○
H	38	Hardened steel	Hardened	550	55	○
	39		Hardened	630	60	○
	40		Cast	400	42	○
41	Hardened Cast Iron	Hardened	550	55	○	

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	
P	1	Non-alloy steel	About 0.15% C Annealed	125	◎	
	2		About 0.45% C Annealed	190	13	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎
	4		About 0.75% C Annealed	270	28	○
	5		About 0.75% C Quenched & Tempered	300	32	○
	6	Low alloy steel	Annealed	180	10	◎
	7		Quenched & Tempered	275	29	○
	8		Quenched & Tempered	300	32	○
	9		Quenched & Tempered	350	38	○
	10		High alloyed steel, and tool steel	Annealed	200	15
	11	Quenched & Tempered		325	35	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎
	13		Martensitic Quenched & Tempered	240	23	○
	14		Austenitic	180	10	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○
	16		Pearlitic (Martensitic)	260	26	○
	17	Nodular cast iron	Ferritic	160	3	○
	18		Pearlitic	250	25	○
	19		Ferritic	130	○	○
20	Malleable cast iron	Pearlitic	230	21	○	
N	21	Aluminum-wrought alloy	Not Curable	60	○	○
	22		Curable Hardened	100	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	○	○
	24		≤ 12% Si, Curable Hardened	90	○	○
	25		> 12% Si, Not Curable	130	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	○	○
	27		CuZn, CuSnZn (Brass)	90	○	○
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100	○	○
	29		Duroplastic, Fiber Reinforced Plastic	○	○	○
	30	Rubber, Wood, etc.	○	○	○	
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○
	32		Cured	280	30	○
	33		Annealed	250	25	○
	34		Ni or Co Based Cured	350	38	○
	35		Cast	320	34	○
	36	Titanium Alloys	Pure Titanium	400 Rm	○	○
	37		Alpha + Beta Alloys Hardened	1050 Rm	○	○
H	38	Hardened steel	Hardened	550	55	○
	39		Hardened	630	60	○
	40		Cast	400	42	○
41	Hardened Cast Iron	Hardened	550	55	○	





D1GP125 SERIES

**HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED**

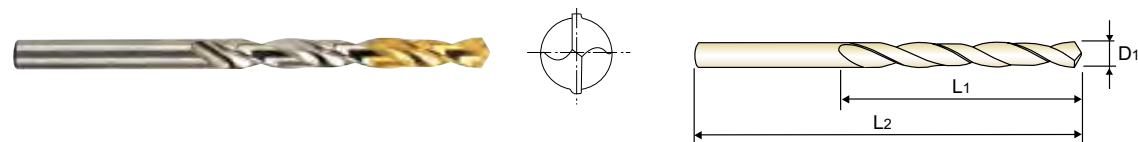
**JOBBER**

- HSS SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS queue cylindrique revêtus, série courte
- PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

**KURZ**  
**COURTE**  
**CORTA**

- **Flute Geometry** : Right hand helix
- **Point Angle** : 118°, Normal point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 118° Normalanschliff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1GP125010	1.0	12	34	D1GP125036	3.6	39	70
D1GP125011	1.1	14	36	D1GP125037	3.7	39	70
D1GP125012	1.2	16	38	D1GP125038	3.8	43	75
D1GP125013	1.3	16	38	D1GP125039	3.9	43	75
D1GP125014	1.4	18	40	D1GP125040	4.0	43	75
D1GP125015	1.5	18	40	D1GP125041	4.1	43	75
D1GP125016	1.6	20	43	D1GP125042	4.2	43	75
D1GP125017	1.7	20	43	D1GP125043	4.3	47	80
D1GP125018	1.8	22	46	D1GP125044	4.4	47	80
D1GP125019	1.9	22	46	D1GP125045	4.5	47	80
D1GP125020	2.0	24	49	D1GP125046	4.6	47	80
D1GP125021	2.1	24	49	D1GP125047	4.7	47	80
D1GP125022	2.2	27	53	D1GP125048	4.8	52	86
D1GP125023	2.3	27	53	D1GP125049	4.9	52	86
D1GP125024	2.4	30	57	D1GP125050	5.0	52	86
D1GP125025	2.5	30	57	D1GP125051	5.1	52	86
D1GP125026	2.6	30	57	D1GP125052	5.2	52	86
D1GP125027	2.7	33	61	D1GP125053	5.3	52	86
D1GP125028	2.8	33	61	D1GP125054	5.4	57	93
D1GP125029	2.9	33	61	D1GP125055	5.5	57	93
D1GP125030	3.0	33	61	D1GP125056	5.6	57	93
D1GP125031	3.1	36	65	D1GP125057	5.7	57	93
D1GP125032	3.2	36	65	D1GP125058	5.8	57	93
D1GP125033	3.3	36	65	D1GP125059	5.9	57	93
D1GP125034	3.4	39	70	D1GP125060	6.0	57	93
D1GP125035	3.5	39	70	D1GP125061	6.1	63	101

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					



D1GP125 SERIES

**HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED**

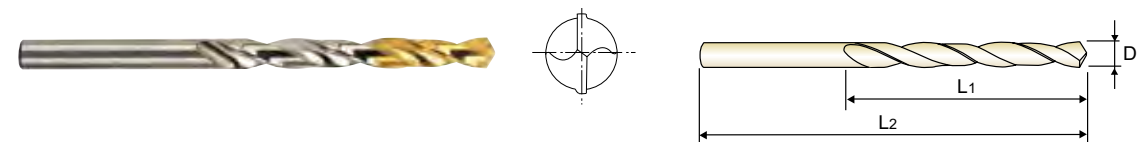
**JOBBER**

- HSS SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS queue cylindrique revêtus, série courte
- PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

**KURZ**  
**COURTE**  
**CORTA**

- **Flute Geometry** : Right hand helix
- **Point Angle** : 118°, Normal point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 118° Normalanschliff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1GP125062	6.2	63	101	D1GP125088	8.8	81	125
D1GP125063	6.3	63	101	D1GP125089	8.9	81	125
D1GP125064	6.4	63	101	D1GP125090	9.0	81	125
D1GP125065	6.5	63	101	D1GP125091	9.1	81	125
D1GP125066	6.6	63	101	D1GP125092	9.2	81	125
D1GP125067	6.7	63	101	D1GP125093	9.3	81	125
D1GP125068	6.8	69	109	D1GP125094	9.4	81	125
D1GP125069	6.9	69	109	D1GP125095	9.5	81	125
D1GP125070	7.0	69	109	D1GP125096	9.6	87	133
D1GP125071	7.1	69	109	D1GP125097	9.7	87	133
D1GP125072	7.2	69	109	D1GP125098	9.8	87	133
D1GP125073	7.3	69	109	D1GP125099	9.9	87	133
D1GP125074	7.4	69	109	D1GP125100	10.0	87	133
D1GP125075	7.5	69	109	D1GP125101	10.1	87	133
D1GP125076	7.6	75	117	D1GP125102	10.2	87	133
D1GP125077	7.7	75	117	D1GP125103	10.3	87	133
D1GP125078	7.8	75	117	D1GP125104	10.4	87	133
D1GP125079	7.9	75	117	D1GP125105	10.5	87	133
D1GP125080	8.0	75	117	D1GP125106	10.6	87	133
D1GP125081	8.1	75	117	D1GP125107	10.7	94	142
D1GP125082	8.2	75	117	D1GP125108	10.8	94	142
D1GP125083	8.3	75	117	D1GP125109	10.9	94	142
D1GP125084	8.4	75	117	D1GP125110	11.0	94	142
D1GP125085	8.5	75	117	D1GP125111	11.1	94	142
D1GP125086	8.6	81	125	D1GP125112	11.2	94	142
D1GP125087	8.7	81	125	D1GP125113	11.3	94	142

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					





D1GP125 SERIES

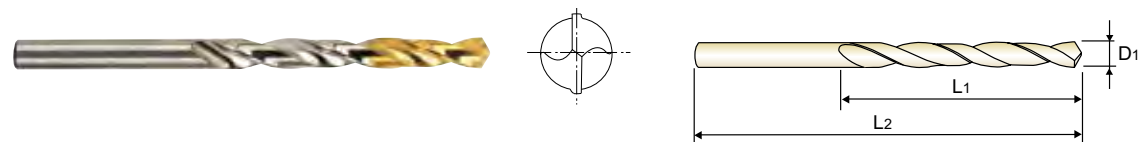
**HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED**

JOBBER

- HSS SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS queue cylindrique revêtus, série courte
- PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

KURZ  
COURTE  
CORTA

- **Flute Geometry** : Right hand helix
- **Point Angle** : 118°, Normal point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron
- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 118° Normalanschiff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



EDP No.	Drill Diameter	Flute Length	Overall Length
	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>
D1GP125114	11.4	94	142
D1GP125115	11.5	94	142
D1GP125116	11.6	94	142
D1GP125117	11.7	94	142
D1GP125118	11.8	94	142
D1GP125119	11.9	101	151
D1GP125120	12.0	101	151
D1GP125121	12.1	101	151
D1GP125122	12.2	101	151
D1GP125123	12.3	101	151

EDP No.	Drill Diameter	Flute Length	Overall Length
	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>
D1GP125124	12.4	101	151
D1GP125125	12.5	101	151
D1GP125126	12.6	101	151
D1GP125127	12.7	101	151
D1GP125128	12.8	101	151
D1GP125129	12.9	101	151
D1GP125130	13.0	101	151

Unit : mm

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	35	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○						○							○					



D1GP165 SERIES

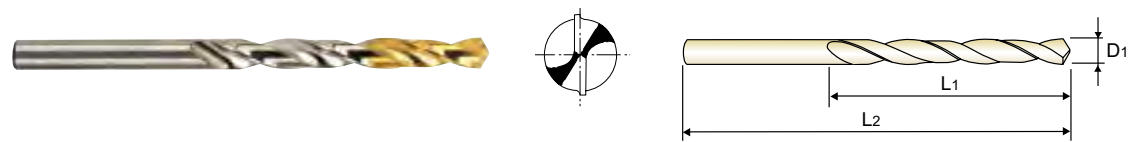
**HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED**

JOBBER

- HSS SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS queue cylindrique revêtus, série courte
- PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

KURZ  
COURTE  
CORTA

- **Flute Geometry** : Right hand helix
- **Point Angle** : 118°, Split point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron
- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 118° Kreuzanschiff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



EDP No.	Drill Diameter	Flute Length	Overall Length
	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>
D1GP165016	1.6	20	43
D1GP165017	1.7	20	43
D1GP165018	1.8	22	46
D1GP165019	1.9	22	46
D1GP165020	2.0	24	49
D1GP165021	2.1	24	49
D1GP165022	2.2	27	53
D1GP165023	2.3	27	53
D1GP165024	2.4	30	57
D1GP165025	2.5	30	57
D1GP165026	2.6	30	57
D1GP165027	2.7	33	61
D1GP165028	2.8	33	61
D1GP165029	2.9	33	61
D1GP165030	3.0	33	61
D1GP165031	3.1	36	65
D1GP165032	3.2	36	65
D1GP165033	3.3	36	65
D1GP165034	3.4	39	70
D1GP165035	3.5	39	70
D1GP165036	3.6	39	70
D1GP165037	3.7	39	70
D1GP165038	3.8	43	75
D1GP165039	3.9	43	75
D1GP165040	4.0	43	75
D1GP165041	4.1	43	75

EDP No.	Drill Diameter	Flute Length	Overall Length
	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>
D1GP165042	4.2	43	75
D1GP165043	4.3	47	80
D1GP165044	4.4	47	80
D1GP165045	4.5	47	80
D1GP165046	4.6	47	80
D1GP165047	4.7	47	80
D1GP165048	4.8	52	86
D1GP165049	4.9	52	86
D1GP165050	5.0	52	86
D1GP165051	5.1	52	86
D1GP165052	5.2	52	86
D1GP165053	5.3	52	86
D1GP165054	5.4	57	93
D1GP165055	5.5	57	93
D1GP165056	5.6	57	93
D1GP165057	5.7	57	93
D1GP165058	5.8	57	93
D1GP165059	5.9	57	93
D1GP165060	6.0	57	93
D1GP165061	6.1	63	101
D1GP165062	6.2	63	101
D1GP165063	6.3	63	101
D1GP165064	6.4	63	101
D1GP165065	6.5	63	101
D1GP165066	6.6	63	101
D1GP165067	6.7	63	101

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	35	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○						○							○					



i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

**HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED**

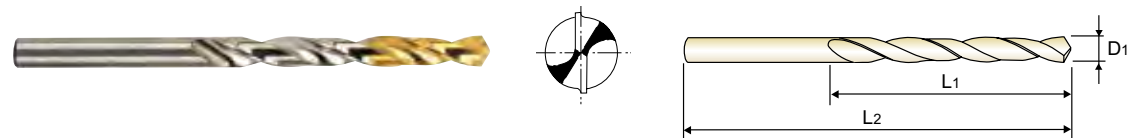
**JOBBER**

- HSS SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS queue cylindrique revêtus, série courte
- PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

**KURZ  
COURTE  
CORTA**

- **Flute Geometry** : Right hand helix
- **Point Angle** : 118°, Split point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 118° Kreuzanschliff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 HSS N 30° h8 118° TiN p.A207

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

EDP No.	Drill Diameter			Flute Length			Overall Length		
	D1	L1	L2	D1	L1	L2	D1	L1	L2
D1GP165068	6.8	69	109	D1GP165094	9.4	81	125		
D1GP165069	6.9	69	109	D1GP165095	9.5	81	125		
D1GP165070	7.0	69	109	D1GP165096	9.6	87	133		
D1GP165071	7.1	69	109	D1GP165097	9.7	87	133		
D1GP165072	7.2	69	109	D1GP165098	9.8	87	133		
D1GP165073	7.3	69	109	D1GP165099	9.9	87	133		
D1GP165074	7.4	69	109	D1GP165100	10.0	87	133		
D1GP165075	7.5	69	109	D1GP165101	10.1	87	133		
D1GP165076	7.6	75	117	D1GP165102	10.2	87	133		
D1GP165077	7.7	75	117	D1GP165103	10.3	87	133		
D1GP165078	7.8	75	117	D1GP165104	10.4	87	133		
D1GP165079	7.9	75	117	D1GP165105	10.5	87	133		
D1GP165080	8.0	75	117	D1GP165106	10.6	87	133		
D1GP165081	8.1	75	117	D1GP165107	10.7	94	142		
D1GP165082	8.2	75	117	D1GP165108	10.8	94	142		
D1GP165083	8.3	75	117	D1GP165109	10.9	94	142		
D1GP165084	8.4	75	117	D1GP165110	11.0	94	142		
D1GP165085	8.5	75	117	D1GP165111	11.1	94	142		
D1GP165086	8.6	81	125	D1GP165112	11.2	94	142		
D1GP165087	8.7	81	125	D1GP165113	11.3	94	142		
D1GP165088	8.8	81	125	D1GP165114	11.4	94	142		
D1GP165089	8.9	81	125	D1GP165115	11.5	94	142		
D1GP165090	9.0	81	125	D1GP165116	11.6	94	142		
D1GP165091	9.1	81	125	D1GP165117	11.7	94	142		
D1GP165092	9.2	81	125	D1GP165118	11.8	94	142		
D1GP165093	9.3	81	125	D1GP165119	11.9	101	151		

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○						○							○					



**HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED**

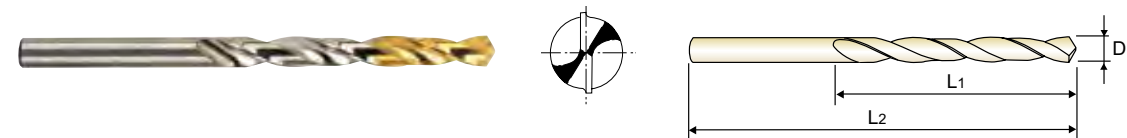
**JOBBER**

- HSS SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS queue cylindrique revêtus, série courte
- PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

**KURZ  
COURTE  
CORTA**

- **Flute Geometry** : Right hand helix
- **Point Angle** : 118°, Split point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 118° Kreuzanschliff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 HSS N 30° h8 118° TiN p.A207

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

EDP No.	Drill Diameter			Flute Length			Overall Length		
	D1	L1	L2	D1	L1	L2	D1	L1	L2
D1GP165120	12.0	101	151	D1GP165126	12.6	101	151		
D1GP165121	12.1	101	151	D1GP165127	12.7	101	151		
D1GP165122	12.2	101	151	D1GP165128	12.8	101	151		
D1GP165123	12.3	101	151	D1GP165129	12.9	101	151		
D1GP165124	12.4	101	151	D1GP165130	13.0	101	151		
D1GP165125	12.5	101	151						

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○						○							○					

**JOBBER**

**KURZ  
COURTE  
CORTA**

**Nutenform** : Rechtsspirale  
**Spitzenwinkel** : 118° Kreuzanschliff  
**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich  
**Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 HSS N 30° h8 118° TiN p.A207

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

EDP No.	Drill Diameter			Flute Length			Overall Length		
	D1	L1	L2	D1	L1	L2	D1	L1	L2
D1GP165120	12.0	101	151	D1GP165126	12.6	101	151		
D1GP165121	12.1	101	151	D1GP165127	12.7	101	151		
D1GP165122	12.2	101	151	D1GP165128	12.8	101	151		
D1GP165123	12.3	101	151	D1GP165129	12.9	101	151		
D1GP165124	12.4	101	151	D1GP165130	13.0	101	151		
D1GP165125	12.5	101	151						

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○						○							○					



DLGP195 SERIES

**HSS-E, STRAIGHT SHANK DRILLS, GOLD-P COATED**

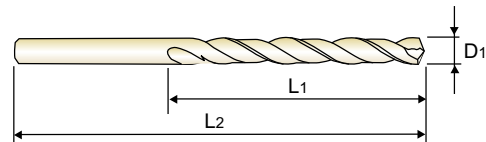
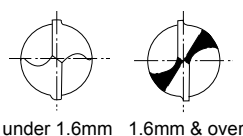
JOBBER

- HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS-E queue cylindrique revêtus, série courte
- PUNTE IN HSS-E, GAMBO CILINDRICO, GOLD-P

KURZ  
COURTE  
CORTA

- **Flute Geometry** : Right hand helix
- **Point Angle** : 135°, under 1.6mm : Normal point  
1.6mm & over : Split point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.

- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 135°, unter 1.6mm : Normalanschliff  
1.6mm & über : Kreuzanschliff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



DIN 338 HSS-E 33° h8 135° TiN p.A207

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DLGP195010	1.0	12	34	DLGP195036	3.6	39	70
DLGP195011	1.1	14	36	DLGP195037	3.7	39	70
DLGP195012	1.2	16	38	DLGP195038	3.8	43	75
DLGP195013	1.3	16	38	DLGP195039	3.9	43	75
DLGP195014	1.4	18	40	DLGP195040	4.0	43	75
DLGP195015	1.5	18	40	DLGP195041	4.1	43	75
DLGP195016	1.6	20	43	DLGP195042	4.2	43	75
DLGP195017	1.7	20	43	DLGP195043	4.3	47	80
DLGP195018	1.8	22	46	DLGP195044	4.4	47	80
DLGP195019	1.9	22	46	DLGP195045	4.5	47	80
DLGP195020	2.0	24	49	DLGP195046	4.6	47	80
DLGP195021	2.1	24	49	DLGP195047	4.7	47	80
DLGP195022	2.2	27	53	DLGP195048	4.8	52	86
DLGP195023	2.3	27	53	DLGP195049	4.9	52	86
DLGP195024	2.4	30	57	DLGP195050	5.0	52	86
DLGP195025	2.5	30	57	DLGP195051	5.1	52	86
DLGP195026	2.6	30	57	DLGP195052	5.2	52	86
DLGP195027	2.7	33	61	DLGP195053	5.3	52	86
DLGP195028	2.8	33	61	DLGP195054	5.4	57	93
DLGP195029	2.9	33	61	DLGP195055	5.5	57	93
DLGP195030	3.0	33	61	DLGP195056	5.6	57	93
DLGP195031	3.1	36	65	DLGP195057	5.7	57	93
DLGP195032	3.2	36	65	DLGP195058	5.8	57	93
DLGP195033	3.3	36	65	DLGP195059	5.9	57	93
DLGP195034	3.4	39	70	DLGP195060	6.0	57	93
DLGP195035	3.5	39	70	DLGP195061	6.1	63	101

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					



DLGP195 SERIES

**HSS-E, STRAIGHT SHANK DRILLS, GOLD-P COATED**

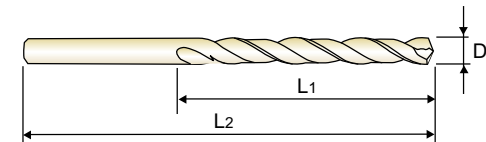
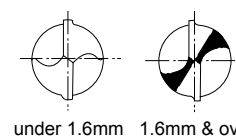
JOBBER

- HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS-E queue cylindrique revêtus, série courte
- PUNTE IN HSS-E, GAMBO CILINDRICO, GOLD-P

KURZ  
COURTE  
CORTA

- **Flute Geometry** : Right hand helix
- **Point Angle** : 135°, under 1.6mm : Normal point  
1.6mm & over : Split point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.

- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 135°, unter 1.6mm : Normalanschliff  
1.6mm & über : Kreuzanschliff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



DIN 338 HSS-E 33° h8 135° TiN p.A207

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DLGP195062	6.2	63	101	DLGP195088	8.8	81	125
DLGP195063	6.3	63	101	DLGP195089	8.9	81	125
DLGP195064	6.4	63	101	DLGP195090	9.0	81	125
DLGP195065	6.5	63	101	DLGP195091	9.1	81	125
DLGP195066	6.6	63	101	DLGP195092	9.2	81	125
DLGP195067	6.7	63	101	DLGP195093	9.3	81	125
DLGP195068	6.8	69	109	DLGP195094	9.4	81	125
DLGP195069	6.9	69	109	DLGP195095	9.5	81	125
DLGP195070	7.0	69	109	DLGP195096	9.6	87	133
DLGP195071	7.1	69	109	DLGP195097	9.7	87	133
DLGP195072	7.2	69	109	DLGP195098	9.8	87	133
DLGP195073	7.3	69	109	DLGP195099	9.9	87	133
DLGP195074	7.4	69	109	DLGP195100	10.0	87	133
DLGP195075	7.5	69	109	DLGP195101	10.1	87	133
DLGP195076	7.6	75	117	DLGP195102	10.2	87	133
DLGP195077	7.7	75	117	DLGP195103	10.3	87	133
DLGP195078	7.8	75	117	DLGP195104	10.4	87	133
DLGP195079	7.9	75	117	DLGP195105	10.5	87	133
DLGP195080	8.0	75	117	DLGP195106	10.6	87	133
DLGP195081	8.1	75	117	DLGP195107	10.7	94	142
DLGP195082	8.2	75	117	DLGP195108	10.8	94	142
DLGP195083	8.3	75	117	DLGP195109	10.9	94	142
DLGP195084	8.4	75	117	DLGP195110	11.0	94	142
DLGP195085	8.5	75	117	DLGP195111	11.1	94	142
DLGP195086	8.6	81	125	DLGP195112	11.2	94	142
DLGP195087	8.7	81	125	DLGP195113	11.3	94	142

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					

JOBBER

KURZ  
COURTE  
CORTA

► **Flute Geometry** : Right hand helix



DIN 338 HSS-E 33° h8 135° TiN p.A207

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DLGP195062	6.2	63	101	DLGP195088	8.8	81	125
DLGP195063	6.3	63	101	DLGP195089	8.9	81	125
DLGP195064	6.4	63	101	DLGP195090	9.0	81	125
DLGP195065	6.5	63	101	DLGP195091	9.1	81	125
DLGP195066	6.6	63	101	DLGP195092	9.2	81	125
DLGP195067	6.7	63	101	DLGP195093	9.3	81	125
DLGP195068	6.8	69	109	DLGP195094	9.4	81	125
DLGP195069	6.9	69	109	DLGP195095	9.5	81	125
DLGP195070	7.0	69	109	DLGP195096	9.6	87	133
DLGP195071	7.1	69	109	DLGP195097	9.7	87	133
DLGP195072	7.2	69	109	DLGP195098	9.8	87	133
DLGP195073	7.3	69	109	DLGP195099	9.9	87	133
DLGP195074	7.4	69	109	DLGP195100	10.0	87	133
DLGP195075	7.5	69	109	DLGP195101	10.1	87	133
DLGP195076	7.6	75	117	DLGP195102	10.2	87	133
DLGP195077	7.7	75	117	DLGP195103	10.3	87	133
DLGP195078	7.8	75	117	DLGP195104	10.4	87	133
DLGP195079	7.9	75	117	DLGP195105	10.5	87	133
DLGP195080	8.0	75	117	DLGP195106	10.6	87	133
DLGP195081	8.1	75	117	DLGP195107	10.7	94	142
DLGP195082	8.2	75	117	DLGP195108	10.8	94	142
DLGP195083	8.3	75	117	DLGP195109	10.9	94	142
DLGP195084	8.4	75	117	DLGP195110	11.0	94	142
DLGP195085	8.5	75	117	DLGP195111	11.1	94	142
DLGP195086	8.6	81	125	DLGP195112			



**HSS-E, STRAIGHT SHANK DRILLS, GOLD-P COATED**

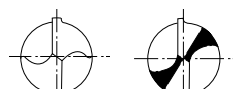
**JOBBER**

- HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET
- Forets GOLD-P HSS-E queue cylindrique revêtus, série courte
- PUNTE IN HSS-E, GAMBO CILINDRICO, GOLD-P

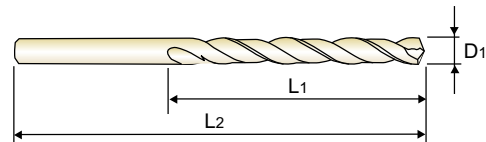
**KURZ**  
**COURTE**  
**CORTA**

- **Flute Geometry** : Right hand helix
- **Point Angle** : 135°, under 1.6mm : Normal point  
1.6mm & over : Split point
- **Surface treatment** : Bright body, TiN coating on working area
- **Application** : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.

- **Nutenform** : Rechtsspirale
- **Spitzenwinkel** : 135°, unter 1.6mm : Normalanschliff  
1.6mm & über : Kreuzanschliff
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



under 1.6mm 1.6mm & over



DIN 338 HSS-E 33° h8 135° TiN p.A207

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DLGP195114	11.4	94	142
DLGP195115	11.5	94	142
DLGP195116	11.6	94	142
DLGP195117	11.7	94	142
DLGP195118	11.8	94	142
DLGP195119	11.9	101	151
DLGP195120	12.0	101	151
DLGP195121	12.1	101	151
DLGP195122	12.2	101	151
DLGP195123	12.3	101	151

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DLGP195124	12.4	101	151
DLGP195125	12.5	101	151
DLGP195126	12.6	101	151
DLGP195127	12.7	101	151
DLGP195128	12.8	101	151
DLGP195129	12.9	101	151
DLGP195130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○						○							○					

**HSS-E, DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED**

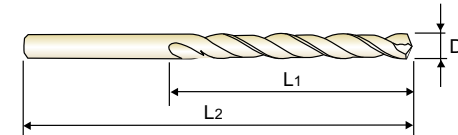
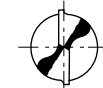
**JOBBER**

- HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET
- Forets GOLD-P HSS-E queue cylindrique revêtus, DH100 pour perçage profond, série courte
- PUNTE GAMBO CILINDRICO DH100 IN HSS-E, PER FORI PROFONDI, GOLD-P

**KURZ**  
**COURTE**  
**CORTA**

- **Flute Geometry** : Right hand, 38° helix, DH100 worm pattern type.
- **Point Angle** : 130°, Split point giving higher chip removal.
- **Surface treatment** : Bright body, TiN coating on working area.
- **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, or magnesium alloys.

- **Nutenform** : 38° Rechtsspirale, DH 100 Flachnut
- **Spitzenwinkel** : Durch 130° Kreuzanschliff Gute Spanabfuhr
- **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



**► DH100 worm pattern drills**

DIN 338 HSS-E 38° h8 130° TiN p.A207

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DLGP506020	2.0	24	49
DLGP506021	2.1	24	49
DLGP506022	2.2	27	53
DLGP506023	2.3	27	53
DLGP506024	2.4	30	57
DLGP506025	2.5	30	57
DLGP506026	2.6	30	57
DLGP506027	2.7	33	61
DLGP506028	2.8	33	61
DLGP506029	2.9	33	61
DLGP506030	3.0	33	61
DLGP506031	3.1	36	65
DLGP506032	3.2	36	65
DLGP506033	3.3	36	65
DLGP506034	3.4	39	70
DLGP506035	3.5	39	70
DLGP506036	3.6	39	70
DLGP506037	3.7	39	70
DLGP506038	3.8	43	75
DLGP506039	3.9	43	75
DLGP506040	4.0	43	75
DLGP506041	4.1	43	75
DLGP506042	4.2	43	75
DLGP506043	4.3	47	80
DLGP506044	4.4	47	80
DLGP506045	4.5	47	80

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DLGP506046	4.6	47	80
DLGP506047	4.7	47	80
DLGP506048	4.8	52	86
DLGP506049	4.9	52	86
DLGP506050	5.0	52	86
DLGP506051	5.1	52	86
DLGP506052	5.2	52	86
DLGP506053	5.3	52	86
DLGP506054	5.4	57	93
DLGP506055	5.5	57	93
DLGP506056	5.6	57	93
DLGP506057	5.7	57	93
DLGP506058	5.8	57	93
DLGP506059	5.9	57	93
DLGP506060	6.0	57	93
DLGP506061	6.1	63	101
DLGP506062	6.2	63	101
DLGP506063	6.3	63	101
DLGP506064	6.4	63	101
DLGP506065	6.5	63	101
DLGP506066	6.6	63	101
DLGP506067	6.7	63	101
DLGP506068	6.8	69	109
DLGP506069	6.9	69	109
DLGP506070	7.0	69	109
DLGP506071	7.1	69	109

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○						○							○					



i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

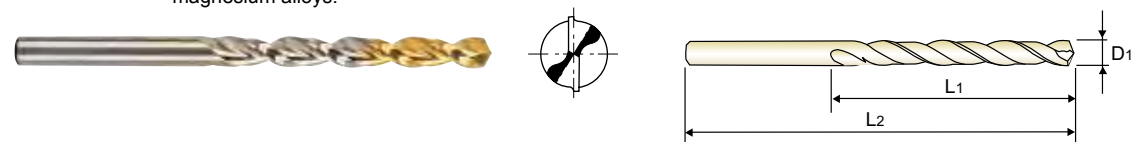
COUNTER BORES

TECHNICAL DATA

**HSS-E, DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED** **JOBBER**

**HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET** **KURZ**  
**Forets GOLD-P HSS-E queue cylindrique revêtus, DH100 pour perçage profond, série courte** **COURTE**  
**PUNTE GAMBO CILINDRICO DH100 IN HSS-E, PER FORI PROFONDI, GOLD-P** **CORTA**

- Flute Geometry** : Right hand, 38° helix, DH100 worm pattern type.
- Point Angle** : 130°, Split point giving higher chip removal.
- Surface treatment** : Bright body, TiN coating on working area.
- Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, or magnesium alloys.
- Nutenform** : 38° Rechtsspirale, DH 100 Flachnut
- Spitzenwinkel** : Durch 130° Kreuzanschiff Gute Spanabfuhr
- Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



**► DH100 worm pattern drills**

DIN 338 HSS-E 38° h8 130° TiN p.A207

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter			EDP No.	Drill Diameter		
	D1	L1	L2		D1	L1	L2
DLGP506072	7.2	69	109	DLGP506098	9.8	87	133
DLGP506073	7.3	69	109	DLGP506099	9.9	87	133
DLGP506074	7.4	69	109	DLGP506100	10.0	87	133
DLGP506075	7.5	69	109	DLGP506101	10.1	87	133
DLGP506076	7.6	75	117	DLGP506102	10.2	87	133
DLGP506077	7.7	75	117	DLGP506103	10.3	87	133
DLGP506078	7.8	75	117	DLGP506104	10.4	87	133
DLGP506079	7.9	75	117	DLGP506105	10.5	87	133
DLGP506080	8.0	75	117	DLGP506106	10.6	87	133
DLGP506081	8.1	75	117	DLGP506107	10.7	94	142
DLGP506082	8.2	75	117	DLGP506108	10.8	94	142
DLGP506083	8.3	75	117	DLGP506109	10.9	94	142
DLGP506084	8.4	75	117	DLGP506110	11.0	94	142
DLGP506085	8.5	75	117	DLGP506111	11.1	94	142
DLGP506086	8.6	81	125	DLGP506112	11.2	94	142
DLGP506087	8.7	81	125	DLGP506113	11.3	94	142
DLGP506088	8.8	81	125	DLGP506114	11.4	94	142
DLGP506089	8.9	81	125	DLGP506115	11.5	94	142
DLGP506090	9.0	81	125	DLGP506116	11.6	94	142
DLGP506091	9.1	81	125	DLGP506117	11.7	94	142
DLGP506092	9.2	81	125	DLGP506118	11.8	94	142
DLGP506093	9.3	81	125	DLGP506119	11.9	101	151
DLGP506094	9.4	81	125	DLGP506120	12.0	101	151
DLGP506095	9.5	81	125	DLGP506121	12.1	101	151
DLGP506096	9.6	87	133	DLGP506122	12.2	101	151
DLGP506097	9.7	87	133	DLGP506123	12.3	101	151

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

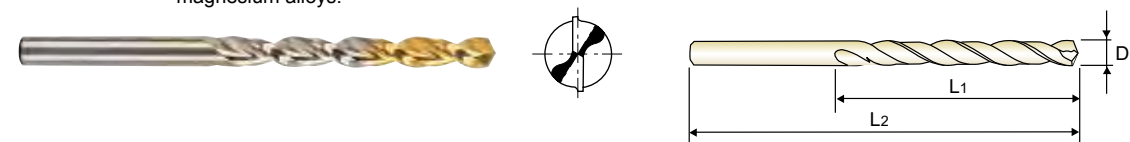
  

ISO Material Description	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**HSS-E, DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED** **JOBBER**

**HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET** **KURZ**  
**Forets GOLD-P HSS-E queue cylindrique revêtus, DH100 pour perçage profond, série courte** **COURTE**  
**PUNTE GAMBO CILINDRICO DH100 IN HSS-E, PER FORI PROFONDI, GOLD-P** **CORTA**

- Flute Geometry** : Right hand, 38° helix, DH100 worm pattern type.
- Point Angle** : 130°, Split point giving higher chip removal.
- Surface treatment** : Bright body, TiN coating on working area.
- Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, or magnesium alloys.
- Nutenform** : 38° Rechtsspirale, DH 100 Flachnut
- Spitzenwinkel** : Durch 130° Kreuzanschiff Gute Spanabfuhr
- Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



**► DH100 worm pattern drills**

DIN 338 HSS-E 38° h8 130° TiN p.A207

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter			EDP No.	Drill Diameter		
	D1	L1	L2		D1	L1	L2
DLGP506124	12.4	101	151	DLGP506128	12.8	101	151
DLGP506125	12.5	101	151	DLGP506129	12.9	101	151
DLGP506126	12.6	101	151	DLGP506130	13.0	101	151
DLGP506127	12.7	101	151				

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N							S							H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



i-ONE DRILLS  
i-DREAM DRILLS  
DREAM DRILLS -PRO  
DREAM DRILLS -GENERAL  
DREAM DRILLS -HIGH FEED  
DREAM DRILLS -FLAT BOTTOM  
DREAM DRILLS -INOX  
DREAM DRILLS -ALU  
DREAM DRILLS -MQL  
DREAM DRILLS for HIGH HARDENED STEELS  
GENERAL CARBIDE DRILLS  
MULTI-1 DRILLS  
HPD DRILLS  
GOLD-P DRILLS  
SUPER-GP DRILLS  
STRAIGHT SHANK DRILLS  
TAPER SHANK DRILLS  
NC-SPOTTING DRILLS  
CENTER DRILLS  
SPADE DRILLS  
REAMERS  
COUNTER SINKS  
COUNTER BORES  
TECHNICAL DATA

**GOLD-P COATED DRILL SETS**

- **GOLD-P BESCHICHTET BOHRER SATS**
- **Coffrets de Forets GOLD-P revêtus**
- **SET DI PUNTE GOLD-P**



**DIN338 DRILL SETS JOBBER LENGTH Gold-P coated Drills**

EDP No.	DESCRIPTON	SIZE	Q'TY
<b>D1GP165SET1</b>	HSS Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.0x0.5mm step	19 pcs
<b>D1GP165SET2</b>	HSS Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-13.0x0.5mm step	25 pcs
<b>D1GP165SET3</b>	HSS Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.5x0.5mm step +3.3 +4.2 +6.8 +10.2	24 pcs
<b>DLGP195SET1</b>	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.0x0.5mm step	19 pcs
<b>DLGP195SET2</b>	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-13.0x0.5mm step	25 pcs
<b>DLGP195SET3</b>	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.5x0.5mm step +3.3 +4.2 +6.8 +10.2	24 pcs
<b>DLGPSET982</b>	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.0x0.1mm step	91 pcs

**RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDPARAMETER**

**D1GP125, D1GP165, DLGP195, DLGP506 SERIES HSS & HSS-E GOLD-P DRILLS**

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

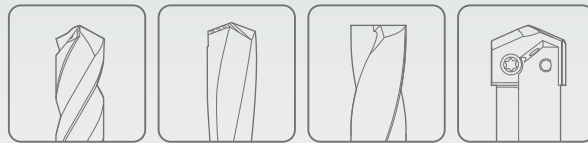
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)	Vc	Parameter	Drill Diameter (mm)							
								1.0	2.0	3.0	4.0	6.0	8.0	10.0	13.0
<b>P</b>	1	Non-alloy steel	28	RPM	8910	40	RPM	6370	4240	3180	2120	1590	1270	980	
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24	
			25	RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860	
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24	
	20		RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
	15		RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490		
			FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18		
	6	Low alloy steel	25	RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860	
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24	
20			RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
8	High alloyed steel, and tool steel	20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730		
			FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18		
10	High alloyed steel, and tool steel	15	RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
<b>M</b>	Stainless steel	18	RPM	5730	25	RPM	3980	2650	1990	1330	990	800	610		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
13	Stainless steel	15	RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
14	Stainless steel	10	RPM	3180	15	RPM	2390	1590	1190	800	600	480	370		
			FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18		
			FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18		
<b>K</b>	15	Grey cast iron	28	RPM	8910	40	RPM	6370	4240	3180	2120	1590	1270	980	
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24	
	25		RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860		
				FEED		0.01-0.02	FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18	
	17		Nodular cast iron	28	RPM	8910	40	RPM	6370	4240	3180	2120	1590	1270	980
					FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
18	Nodular cast iron	20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730		
			FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18		
19	Malleable cast iron	25	RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
20	Malleable cast iron	20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730		
			FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18		
<b>N</b>	21	Aluminum-wrought alloy	45	RPM	14320	65	RPM	10350	6900	5170	3450	2590	2070	1590	
				FEED	0.02-0.05		FEED	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.22-0.28	
	22		RPM	14320	65	RPM	10350	6900	5170	3450	2590	2070	1590		
				FEED		0.02-0.05	FEED	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.22-0.28	
23	Aluminum-cast, alloyed	35	RPM	11140	50	RPM	7960	5310	3980	2650	1990	1590	1220		
			FEED	0.02-0.05		FEED	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.22-0.28		
29	Non Metallic Materials	20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730		
			FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24		
36	Titanium Alloys	15	RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490		
			FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.13	0.08-0.14		







Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

SUPER HSS

# SUPER-GP DRILLS

## SUPER-GP DRILLS

- All Applications Regardless of Machining Conditions; Good or Poor
- Für alle Anwendungen unabhängig von den Bearbeitungsbedingungen; gut oder schlecht



SELECTION GUIDE



SERIES	DSH105
STANDARD	DIN338
LENGTH	JOBBER
SIZE MIN	D2.0
SIZE MAX	D13.0
PAGE	A211

SURFACE TREATMENT Steam Tempered

# SUPER HSS SUPER-GP DRILLS

All Applications Regardless of Machining Conditions; Good or Poor



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.226

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc		
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	
	2		About 0.45% C Annealed	190	13	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	
	4		About 0.75% C Annealed	270	28	○	
	5		About 0.75% C Quenched & Tempered	300	32	○	
	6	Low alloy steel	Annealed	180	10	◎	
	7		Quenched & Tempered	275	29	○	
	8		Quenched & Tempered	300	32	○	
	9		Quenched & Tempered	350	38	○	
	10		High alloyed steel, and tool steel	Annealed	200	15	○
	11		Quenched & Tempered	325	35	○	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	
	13		Martensitic Quenched & Tempered	240	23	○	
	14	Austenitic	180	10	○		
	K	15	Grey cast iron	Pearlitic / ferritic	180	10	○
16		Pearlitic (Martensitic)		260	26	○	
17		Nodular cast iron	Ferritic	160	3	○	
18			Pearlitic	250	25	○	
19			Ferritic	130		○	
20		Malleable cast iron	Pearlitic	230	21	○	
N	21	Aluminum-wrought alloy	Not Curable	60		○	
	22		Curable Hardened	100		○	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	
	24		≤ 12% Si, Curable Hardened	90		○	
	25		> 12% Si, Not Curable	130		○	
	26		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○
	27	Non Metallic Materials	CuZn, CuSnZn (Brass)	90		○	
	28		CuSn, lead-free copper and electrolytic copper	100		○	
	29		Duroplastic, Fiber Reinforced Plastic			○	
	30	Rubber, Wood, etc.			○		
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○	
	32		Cured	280	30	○	
	33		Annealed	250	25	○	
	34		Ni or Co Based Cured	350	38	○	
	35	Cast	320	34	○		
	36	Titanium Alloys	Pure Titanium	400 Rm		○	
	37		Alpha + Beta Alloys Hardened	1050 Rm		○	
38	Hardened steel		Hardened	550	55	○	
H	39	Chilled Cast Iron	Cast	630	60	○	
	40	Hardened Cast Iron	Hardened	400	42	○	
	41	Hardened Cast Iron	Hardened	550	55	○	



DSH105 SERIES

## SUPER HSS, SUPER-GP DRILLS (DIN338)

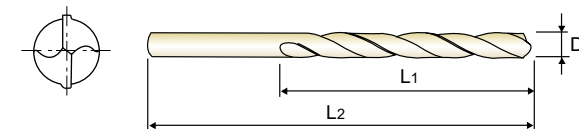
JOBBER

- SUPER HSS, SUPER-GP DRILLS (DIN338)
- Forets SUPER-GP Super HSS, queue cylindrique (DIN338)
- PUNTA SUPER-GP DRILL, IN SUPER-HSS, GAMBO CILINDRICO (DIN338)

- KURZ
- COURTE
- CORTA

- ▶ Surface treatment: Steam Tempered (Black Oxide Finish)
- ▶ Applications: Excellent tool performance in steels, cast iron, alloy steels and malleable cast iron.
- ▶ Special HSS improves toughness, wear resistance as well as extends dramatically the tool life.
- ▶ All applications regardless of machine condition: Good or Poor.

- ▶ Oberflächenbehandlung: Dampfgehärtet (Schwarze Oxydschicht)
- ▶ Anwendungen: Ausgezeichnete Leistung bei Stählen, Gusseisen, legierten Stählen und Temperguss.
- ▶ Spezial-HSS verbessert Zähigkeit, Verschleißfestigkeit und verlängert drastisch die Standzeit.
- ▶ Alle Anwendungen unabhängig vom Maschinenzustand: Gut oder schlecht.



DIN 338 SUPER HSS 30° h8 118° Vap p.A214

Plain Shank ER COLLET CHUCK D73-115

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
* DSH105020	2.0	24	49	* DSH105044	4.4	47	80
* DSH105021	2.1	24	49	* DSH105045	4.5	47	80
* DSH105022	2.2	27	53	* DSH105046	4.6	47	80
* DSH105023	2.3	27	53	* DSH105047	4.7	47	80
* DSH105024	2.4	30	57	* DSH105048	4.8	52	86
* DSH105025	2.5	30	57	* DSH105049	4.9	52	86
* DSH105026	2.6	30	57	* DSH105050	5.0	52	86
* DSH105027	2.7	33	61	* DSH105051	5.1	52	86
* DSH105028	2.8	33	61	* DSH105052	5.2	52	86
* DSH105029	2.9	33	61	* DSH105053	5.3	52	86
* DSH105030	3.0	33	61	* DSH105054	5.4	57	93
* DSH105031	3.1	36	65	* DSH105055	5.5	57	93
* DSH105032	3.2	36	65	* DSH105056	5.6	57	93
* DSH105033	3.3	36	65	* DSH105057	5.7	57	93
* DSH105034	3.4	39	70	* DSH105058	5.8	57	93
* DSH105035	3.5	39	70	* DSH105059	5.9	57	93
* DSH105036	3.6	39	70	* DSH105060	6.0	57	93
* DSH105037	3.7	39	70	* DSH105061	6.1	63	101
* DSH105038	3.8	43	75	* DSH105062	6.2	63	101
* DSH105039	3.9	43	75	* DSH105063	6.3	63	101
* DSH105040	4.0	43	75	* DSH105064	6.4	63	101
* DSH105041	4.1	43	75	* DSH105065	6.5	63	101
* DSH105042	4.2	43	75	* DSH105066	6.6	63	101
* DSH105043	4.3	47	80	* DSH105067	6.7	63	101

\* 10pcs per package  
\*\* 5pcs per package

▶ NEXT PAGE

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc																				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	10	26	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**SUPER HSS, SUPER-GP DRILLS (DIN338)**

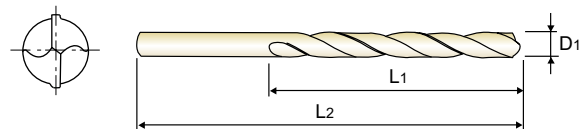
JOBBER

- SUPER HSS, SUPER-GP DRILLS (DIN338)
- Forets SUPER-GP Super HSS, queue cylindrique (DIN338)
- PUNTA SUPER-GP DRILL, IN SUPER-HSS, GAMBO CILINDRICO (DIN338)

KURZ  
COURTE  
CORTA

- ▶ Surface treatment: Steam Tempered (Black Oxide Finish)
- ▶ Applications: Excellent tool performance in steels, cast iron, alloy steels and malleable cast iron.
- ▶ Special HSS improves toughness, wear resistance as well as extends dramatically the tool life.
- ▶ All applications regardless of machine condition: Good or Poor.

- ▶ Oberflächenbehandlung: Dampfgehärtet (Schwarze Oxydschicht)
- ▶ Anwendungen: Ausgezeichnete Leistung bei Stählen, Gusseisen, legierten Stählen und Temperguss.
- ▶ Spezial-HSS verbessert Zähigkeit, Verschleissfestigkeit und verlängert drastisch die Standzeit.
- ▶ Alle Anwendungen unabhängig vom Maschinenzustand: Gut oder schlecht.



DIN 338 SUPER HSS 30° h8 118° Vap p.A214

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
* DSH105068	6.8	69	109
* DSH105069	6.9	69	109
* DSH105070	7.0	69	109
* DSH105071	7.1	69	109
* DSH105072	7.2	69	109
* DSH105073	7.3	69	109
* DSH105074	7.4	69	109
* DSH105075	7.5	69	109
* DSH105076	7.6	75	117
* DSH105077	7.7	75	117
* DSH105078	7.8	75	117
* DSH105079	7.9	75	117
* DSH105080	8.0	75	117
* DSH105081	8.1	75	117
* DSH105082	8.2	75	117
* DSH105083	8.3	75	117
** DSH105084	8.4	75	117
** DSH105085	8.5	75	117
** DSH105086	8.6	81	125
** DSH105087	8.7	81	125
** DSH105088	8.8	81	125
** DSH105089	8.9	81	125
** DSH105090	9.0	81	125
** DSH105091	9.1	81	125

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
** DSH105092	9.2	81	125
** DSH105093	9.3	81	125
** DSH105094	9.4	81	125
** DSH105095	9.5	81	125
** DSH105096	9.6	87	133
** DSH105097	9.7	87	133
** DSH105098	9.8	87	133
** DSH105099	9.9	87	133
** DSH105100	10.0	87	133
** DSH105101	10.1	87	133
** DSH105102	10.2	87	133
** DSH105103	10.3	87	133
** DSH105104	10.4	87	133
** DSH105105	10.5	87	133
** DSH105106	10.6	87	133
** DSH105107	10.7	94	142
** DSH105108	10.8	94	142
** DSH105109	10.9	94	142
** DSH105110	11.0	94	142
** DSH105111	11.1	94	142
** DSH105112	11.2	94	142
** DSH105113	11.3	94	142
** DSH105114	11.4	94	142
** DSH105115	11.5	94	142

\* 10pcs per package  
\*\* 5pcs per package

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					



**SUPER HSS, SUPER-GP DRILLS (DIN338)**

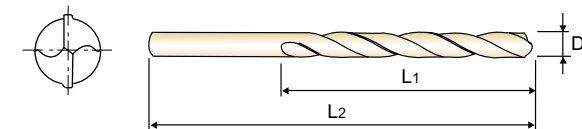
JOBBER

- SUPER HSS, SUPER-GP DRILLS (DIN338)
- Forets SUPER-GP Super HSS, queue cylindrique (DIN338)
- PUNTA SUPER-GP DRILL, IN SUPER-HSS, GAMBO CILINDRICO (DIN338)

KURZ  
COURTE  
CORTA

- ▶ Surface treatment: Steam Tempered (Black Oxide Finish)
- ▶ Applications: Excellent tool performance in steels, cast iron, alloy steels and malleable cast iron.
- ▶ Special HSS improves toughness, wear resistance as well as extends dramatically the tool life.
- ▶ All applications regardless of machine condition: Good or Poor.

- ▶ Oberflächenbehandlung: Dampfgehärtet (Schwarze Oxydschicht)
- ▶ Anwendungen: Ausgezeichnete Leistung bei Stählen, Gusseisen, legierten Stählen und Temperguss.
- ▶ Spezial-HSS verbessert Zähigkeit, Verschleissfestigkeit und verlängert drastisch die Standzeit.
- ▶ Alle Anwendungen unabhängig vom Maschinenzustand: Gut oder schlecht.



DIN 338 SUPER HSS 30° h8 118° Vap p.A214

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
** DSH105116	11.6	94	142
** DSH105117	11.7	94	142
** DSH105118	11.8	94	142
** DSH105119	11.9	101	151
** DSH105120	12.0	101	151
** DSH105121	12.1	101	151
** DSH105122	12.2	101	151
** DSH105123	12.3	101	151

\* 10pcs per package  
\*\* 5pcs per package

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
** DSH105124	12.4	101	151
** DSH105125	12.5	101	151
** DSH105126	12.6	101	151
** DSH105127	12.7	101	151
** DSH105128	12.8	101	151
** DSH105129	12.9	101	151
** DSH105130	13.0	101	151

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

JOBBER

KURZ  
COURTE  
CORTA

▶ Surface treatment: Steam Tempered (Black Oxide Finish)



DIN 338 SUPER HSS 30° h8 118° Vap p.A214

\* 10pcs per package  
\*\* 5pcs per package

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description

VDI 3323 HRc HB Recommended

ISO Material Description



**DSH105 SERIES SUPER HSS, SUPER-GP DRILLS (DIN338)**

R.P.M = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)								
					2.0	3.0	4.0	6.0	8.0	10.0	13.0		
<b>P</b>	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190	950	730		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17		
			25	RPM	3980	2650	1990	1330	990	800	610		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17		
	20		RPM	3180	2120	1590	1060	800	640	490			
			FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17			
	20		RPM	3180	2120	1590	1060	800	640	490			
			FEED	0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10			
	6	Low alloy steel	25	RPM	3980	2650	1990	1330	990	800	610		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17		
20			RPM	3180	2120	1590	1060	800	640	490			
			FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17			
20	RPM		3180	2120	1590	1060	800	640	490				
	FEED		0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10				
10	High alloyed steel, and tool steel		15	RPM	2390	1590	1190	800	600	480	370		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17		
20		RPM	3180	2120	1590	1060	800	640	490				
		FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17				
15		Stainless steel	15	RPM	2390	1590	1190	800	600	480	370		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17		
10			10	RPM	1590	1060	800	530	400	320	240		
				FEED	0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10		
<b>M</b>	Grey cast iron		30	RPM	4770	3180	2390	1590	1190	950	730		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17		
			25	RPM	3980	2650	1990	1330	990	800	610		
				FEED	0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10		
30		Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	730		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17		
25			25	RPM	3980	2650	1990	1330	990	800	610		
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.1-0.13	0.11-0.15	0.11-0.17		
<b>K</b>	Malleable cast iron		55	RPM	8750	5840	4380	2920	2190	1750	1350		
				FEED	0.03-0.06	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22		
			55	55	RPM	8750	5840	4380	2920	2190	1750	1350	
					FEED	0.03-0.06	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22	
40		Aluminum-wrought alloy	40	RPM	6370	4240	3180	2120	1590	1270	980		
				FEED	0.03-0.06	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22		
20			Aluminum-cast, alloyed	20	RPM	3180	2120	1590	1060	800	640	490	
					FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17	
10	Non Metallic Materials			10	RPM	1590	1060	800	530	400	320	240	
					FEED	0.01-0.03	0.02-0.04	0.03-0.05	0.04-0.07	0.05-0.08	0.05-0.09	0.06-0.10	
<b>N</b>				Titanium Alloys	10	RPM	1590	1060	800	530	400	320	240
						FEED	0.01-0.03	0.02-0.04	0.03-0.05	0.04-0.07	0.05-0.08	0.05-0.09	0.06-0.10
<b>P</b>		36			36	RPM	1590	1060	800	530	400	320	240
						FEED	0.01-0.03	0.02-0.04	0.03-0.05	0.04-0.07	0.05-0.08	0.05-0.09	0.06-0.10





Leading Through Innovation



HSS, HSS-E & HSSCo08

# STRAIGHT SHANK DRILLS

## BOHRER MIT ZYLINDERSCHAFT

- For General Purpose (Soft & Tough Materials)
- Für allgemeine Anwendungen (weiche & zähe Materialien)





SELECTION GUIDE

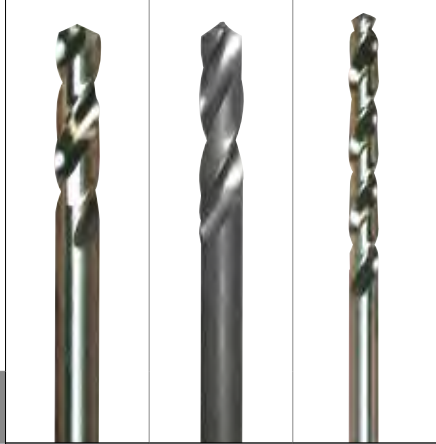


SERIES	D2107	D1107	D2105
STANDARD	DIN1897	DIN1897	DIN338
LENGTH	STUB	STUB	JOBBER
SIZE MIN	D1.0	D1.0	D1.0
SIZE MAX	D31.0	D13.0	D20.0
PAGE	A220	A224	A227

SURFACE TREATMENT	Gold Coloring	Steam Tempered	Gold Coloring
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# HSS, HSS-E & HSSCo8 STRAIGHT SHANK DRILLS

For General Purpose (Soft & Tough Materials)



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A262

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C Annealed	270	28	○	○	○
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	○	○	○
	8		Quenched & Tempered	300	32	○	○	○
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	○	◎
	13		Martensitic Quenched & Tempered	240	23	○	○	○
	14		Austenitic	180	10	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○
	18		Pearlitic	250	25			
	19		Ferritic	130		○	○	○
20	Malleable cast iron	Pearlitic	230	21				
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○
	22		Curable Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110				
	27		CuZn, CuSnZn (Brass)	90				
28		CuSn, lead-free copper and electrolytic copper	100					
29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○
30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Cured	350	38			
	35		Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm		○	○	○
37	Alpha + Beta Alloys Hardened		1050 Rm					
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40		Cast	400	42			
41	Hardened Cast Iron	Hardened	550	55				

DL105	D1105	D1125	D2104	D1121	DL109	D1100	D1106
DIN338	DIN338	DIN338	DIN340	DIN1869/1	DIN338	DIN338	DIN338
JOBBER	JOBBER	JOBBER	LONG	EXTRA LONG	JOBBER	JOBBER	JOBBER
D1.0	D0.3	D2.0	D2.0	D2.0	D1.5	D1.5	D1.5
D20.0	D20.0	D20.0	D12.0	D13.0	D13.0	D13.0	D13.0
A230	A233	A238	A241	A243	A244	A245	A247
Gold Coloring	Steam Tempered	Bright	Gold Coloring	Steam Tempered	Bright		



◎	◎	◎	◎	◎	◎			1
◎	◎	◎	◎	◎	◎			2
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								5
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○	○	○	○	○	○			9
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SELECTION GUIDE



SERIES	DH100 DL510	DH100 DL508	DH100 DL509
STANDARD	DIN1897	DIN338	DIN340
LENGTH	STUB	JOBBER	LONG
SIZE MIN	D2.0	D2.0	D2.0
SIZE MAX	D20.0	D16.0	D12.0
PAGE	A249	A251	A253

SURFACE TREATMENT

Bright

# HSS-E STRAIGHT SHANK DRILLS

For General Purpose (Soft & Tough Materials)



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A262

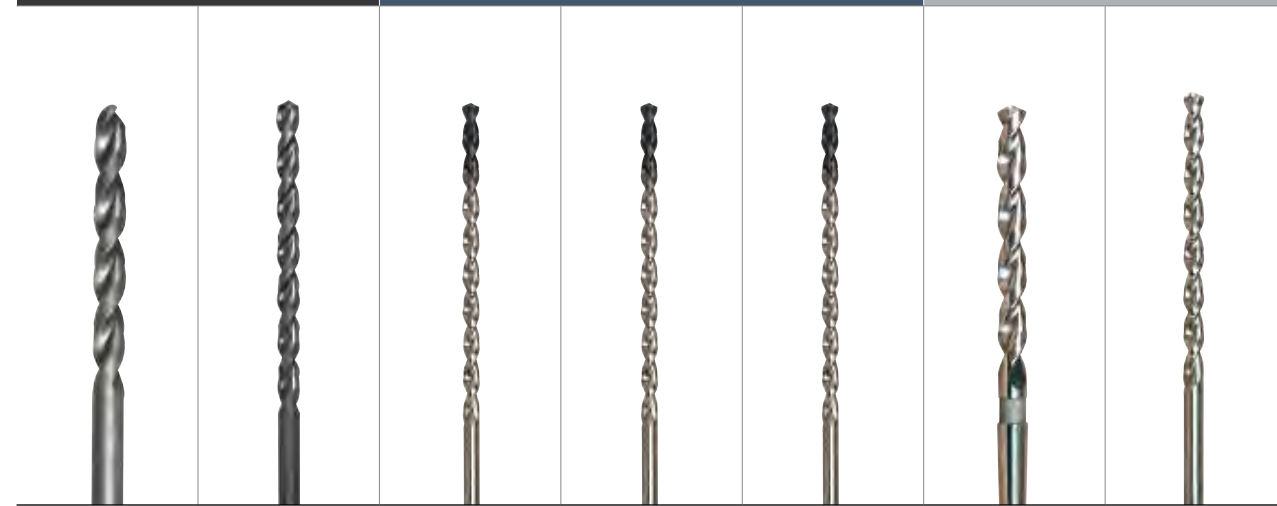
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C Annealed	270	28	○	○	○
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	○	○	○
	8		Quenched & Tempered	300	32	○	○	○
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15			
	13		Martensitic Quenched & Tempered	240	23			
	14		Austenitic	180	10			
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○
	18		Pearlitic	250	25	○	○	○
	19		Ferritic	130		○	○	○
20	Malleable cast iron	Pearlitic	230	21	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable	60				◎
	22		Curable Hardened	100				◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90			
	27	Non Metallic Materials	Cutting Alloys, PB>1%	110				
	28		CuSn, lead-free copper and electrolytic copper	100				
	29		Duroplastic, Fiber Reinforced Plastic					
	30	Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Cured	350	38			
	35		Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys Hardened	1050 Rm				
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40		Cast	400	42			
41	Hardened Cast Iron	Hardened	550	55				

DH100 DL505	DH100 DL504	DH100 DT600	DH100 DT692	DH100 DT693	DH100 DL608	DH50 DL507
DIN338	DIN340	DIN1869/1	DIN1869/2	DIN1869/3	DIN341	-
JOBBER	LONG	EXTRA LONG			LONG	EXTRA LONG
D2.0	D2.0	D2.0	D3.0	D4.0	D13.0	D2.0
D13.0	D13.0	D10.5	D10.2	D10.0	D30.0	D13.0
A255	A257	A258			A259	A260

Steam Tempered

TiAIN

Bright



◎	◎	◎	◎	◎	◎	○	1
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# YG STRAIGHT SHANK DRILLS

D2107 SERIES

## HSSCo8, STRAIGHT SHANK TWIST DRILLS

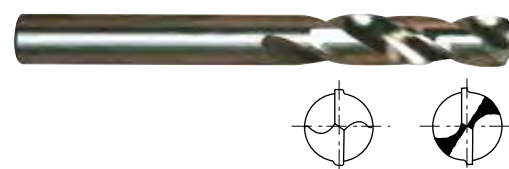
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

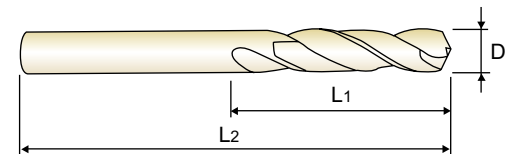
EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Suitable for drilling thin materials with portable electric drills.  
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



under 1.6mm 1.6mm & over



DIN 1897 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
D2107010	1.0	6	26	D2107032	3.2	18	49
D2107011	1.1	7	28	D2107932	3.25	18	49
D2107012	1.2	8	30	D2107033	3.3	18	49
D2107912	1.25	8	30	D2107034	3.4	20	52
D2107013	1.3	8	30	D2107035	3.5	20	52
D2107014	1.4	9	32	D2107036	3.6	20	52
D2107015	1.5	9	32	D2107037	3.7	20	52
D2107016	1.6	10	34	D2107937	3.75	20	52
D2107017	1.7	10	34	D2107038	3.8	22	55
D2107917	1.75	11	36	D2107039	3.9	22	55
D2107018	1.8	11	36	D2107040	4.0	22	55
D2107019	1.9	11	36	D2107041	4.1	22	55
D2107020	2.0	12	38	D2107042	4.2	22	55
D2107021	2.1	12	38	D2107942	4.25	22	55
D2107022	2.2	13	40	D2107043	4.3	24	58
D2107922	2.25	13	40	D2107044	4.4	24	58
D2107023	2.3	13	40	D2107045	4.5	24	58
D2107024	2.4	14	43	D2107046	4.6	24	58
D2107025	2.5	14	43	D2107946	4.65	24	58
D2107026	2.6	14	43	D2107047	4.7	24	58
D2107027	2.7	16	46	D2107947	4.75	24	58
D2107927	2.75	16	46	D2107048	4.8	26	62
D2107028	2.8	16	46	D2107049	4.9	26	62
D2107029	2.9	16	46	D2107050	5.0	26	62
D2107030	3.0	16	46	D2107051	5.1	26	62
D2107031	3.1	18	49	D2107052	5.2	26	62

► HSS-E(DL107) is available on your request.  
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P									M					K						
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○								○					○					



# YG STRAIGHT SHANK DRILLS

D2107 SERIES

## HSSCo8, STRAIGHT SHANK TWIST DRILLS

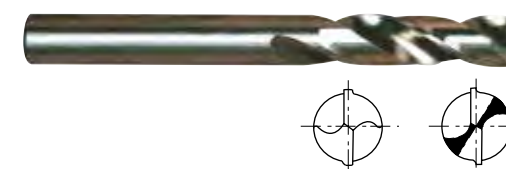
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

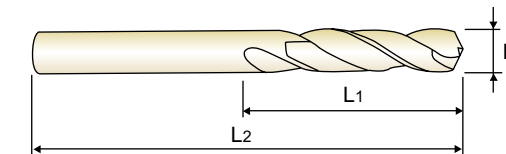
EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Suitable for drilling thin materials with portable electric drills.  
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



under 1.6mm 1.6mm & over



DIN 1897 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
D2107952	5.25	26	62	D2107073	7.3	34	74
D2107053	5.3	26	62	D2107074	7.4	34	74
D2107054	5.4	28	66	D2107974	7.45	34	74
D2107055	5.5	28	66	D2107075	7.5	34	74
D2107955	5.55	28	66	D2107076	7.6	37	79
D2107056	5.6	28	66	D2107077	7.7	37	79
D2107057	5.7	28	66	D2107977	7.75	37	79
D2107957	5.75	28	66	D2107078	7.8	37	79
D2107058	5.8	28	66	D2107079	7.9	37	79
D2107059	5.9	28	66	D2107080	8.0	37	79
D2107060	6.0	28	66	D2107081	8.1	37	79
D2107061	6.1	31	70	D2107082	8.2	37	79
D2107062	6.2	31	70	D2107982	8.25	37	79
D2107962	6.25	31	70	D2107083	8.3	37	79
D2107063	6.3	31	70	D2107084	8.4	37	79
D2107064	6.4	31	70	D2107085	8.5	37	79
D2107065	6.5	31	70	D2107086	8.6	40	84
D2107066	6.6	31	70	D2107087	8.7	40	84
D2107067	6.7	31	70	D2107987	8.75	40	84
D2107967	6.75	34	74	D2107088	8.8	40	84
D2107068	6.8	34	74	D2107089	8.9	40	84
D2107069	6.9	34	74	D2107090	9.0	40	84
D2107070	7.0	34	74	D2107091	9.1	40	84
D2107071	7.1	34	74	D2107092	9.2	40	84
D2107072	7.2	34	74	D2107992	9.25	40	84
D2107972	7.25	34	74	D2107093	9.3	40	84

► HSS-E(DL107) is available on your request.  
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P									M					K						
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○

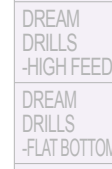
  

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○								○					○					

STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA



under 1.6mm 1.6mm & over

DIN 1897 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
D2107952	5.25	26	62	D2107073	7.3	34	74
D2107053	5.3	26	62	D2107074	7.4	34	74
D2107054	5.4	28	66	D2107974	7.45	34	74
D2107055	5.5	28	66	D2107075	7.5	34	74
D2107955	5.55	28	66	D2107076	7.6	37	79
D2107056	5.6	28	66	D2107077	7.7	37	79
D2107057	5.7	28	66	D2107977	7.75	37	79
D2107957	5.75	28	66	D2107078	7.8	37	79
D2107058	5.8	28	66	D2107079	7.9	37	79
D2107059	5.9	28	66	D2107080	8.0	37	79
D2107060	6.0	28	66	D2107081	8.1	37	79
D2107061	6.1	31	70	D2107082	8.2	37	79
D2107062	6.2	31	70	D2107982	8.25	37	79
D2107962	6.25	31	70	D2107083	8.3	37	79
D2107063	6.3	31	70	D2107084	8.4	37	79
D2107064	6.4	31	70	D2107085	8.5	37	79
D21070							



# YG STRAIGHT SHANK DRILLS

D2107 SERIES

## HSSCo8, STRAIGHT SHANK TWIST DRILLS

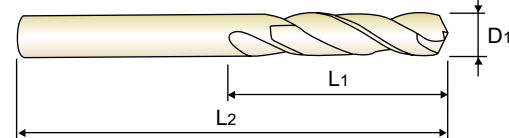
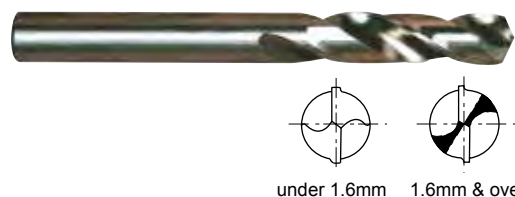
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Suitable for drilling thin materials with portable electric drills.  
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D2107993	9.35	40	84	D2107138	13.8	54	107
D2107094	9.4	40	84	D2107140	14.0	54	107
D2107095	9.5	40	84	D2107842	14.25	56	111
D2107096	9.6	43	89	D2107145	14.5	56	111
D2107097	9.7	43	89	D2107847	14.75	56	111
D2107997	9.75	43	89	D2107150	15.0	56	111
D2107098	9.8	43	89	D2107852	15.25	58	115
D2107099	9.9	43	89	D2107155	15.5	58	115
D2107100	10.0	43	89	D2107857	15.75	58	115
D2107102	10.2	43	89	D2107160	16.0	58	115
D2107802	10.25	43	89	D2107862	16.25	60	119
D2107105	10.5	43	89	D2107165	16.5	60	119
D2107807	10.75	47	95	D2107867	16.75	60	119
D2107110	11.0	47	95	D2107170	17.0	60	119
D2107812	11.25	47	95	D2107872	17.25	62	123
D2107115	11.5	47	95	D2107175	17.5	62	123
D2107817	11.75	47	95	D2107877	17.75	62	123
D2107118	11.8	47	95	D2107180	18.0	62	123
D2107120	12.0	51	102	D2107882	18.25	64	127
D2107822	12.25	51	102	D2107185	18.5	64	127
D2107125	12.5	51	102	D2107887	18.75	64	127
D2107827	12.75	51	102	D2107190	19.0	64	127
D2107130	13.0	51	102	D2107892	19.25	66	131
D2107832	13.25	54	107	D2107195	19.5	66	131
D2107135	13.5	54	107	D2107897	19.75	66	131
D2107837	13.75	54	107	D2107200	20.0	66	131

► HSS-E(DL107) is available on your request.  
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○								○										



# YG STRAIGHT SHANK DRILLS

D2107 SERIES

## HSSCo8, STRAIGHT SHANK TWIST DRILLS

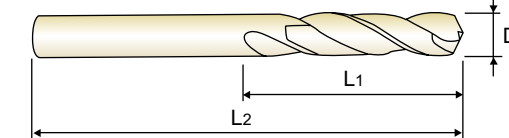
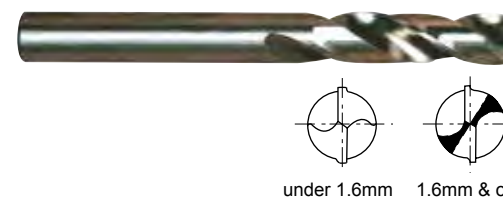
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Suitable for drilling thin materials with portable electric drills.  
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D2107205	20.5	68	136	D2107245	24.5	75	151
D2107210	21.0	68	136	D2107250	25.0	75	151
D2107215	21.5	70	141	D2107260	26.0	78	156
D2107220	22.0	70	141	D2107270	27.0	81	162
D2107225	22.5	72	146	D2107280	28.0	81	162
D2107230	23.0	72	146	D2107290	29.0	84	168
D2107235	23.5	72	146	D2107300	30.0	84	168
D2107240	24.0	75	151	D2107310	31.0	87	174

► HSS-E(DL107) is available on your request.  
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○								○										

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

# YG STRAIGHT SHANK DRILLS

D1107 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

STUB

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

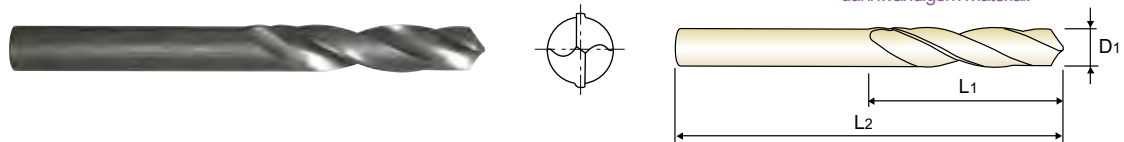
EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

**Surface treatment:** Steam Tempered(Black Oxide Finish)  
Bright Finish under 2mm

**Application:** Suitable for drilling thin materials with portable electric drills.  
Special twist drills for automatic and turret lathes.

**Oberflächenbehandlung:** Steam Homo(Schwarzoxidation)  
Helle Beschaffenheit unter 2mm

**Verwendung:** Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1107010	1.0	6	26	D1107032	3.2	18	49
D1107011	1.1	7	28	D1107932	3.25	18	49
D1107012	1.2	8	30	D1107033	3.3	18	49
D1107912	1.25	8	30	D1107034	3.4	20	52
D1107013	1.3	8	30	D1107035	3.5	20	52
D1107014	1.4	9	32	D1107036	3.6	20	52
D1107015	1.5	9	32	D1107037	3.7	20	52
D1107016	1.6	9	34	D1107937	3.75	20	52
D1107017	1.7	10	34	D1107038	3.8	22	55
D1107917	1.75	11	36	D1107039	3.9	22	55
D1107018	1.8	11	36	D1107040	4.0	22	55
D1107019	1.9	11	36	D1107041	4.1	22	55
D1107020	2.0	12	38	D1107042	4.2	22	55
D1107021	2.1	12	38	D1107942	4.25	22	55
D1107022	2.2	13	40	D1107043	4.3	24	58
D1107922	2.25	13	40	D1107044	4.4	24	58
D1107023	2.3	13	40	D1107045	4.5	24	58
D1107024	2.4	14	43	D1107046	4.6	24	58
D1107025	2.5	14	43	D1107047	4.7	24	58
D1107026	2.6	14	43	D1107947	4.75	24	58
D1107027	2.7	16	46	D1107048	4.8	26	62
D1107927	2.75	16	46	D1107049	4.9	26	62
D1107028	2.8	16	46	D1107050	5.0	26	62
D1107029	2.9	16	46	D1107051	5.1	26	62
D1107030	3.0	16	46	D1107052	5.2	26	62
D1107031	3.1	18	49	D1107952	5.25	26	62

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○								○	○	○	○	○	○	○	○	○	○	○



# YG STRAIGHT SHANK DRILLS

D1107 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

STUB

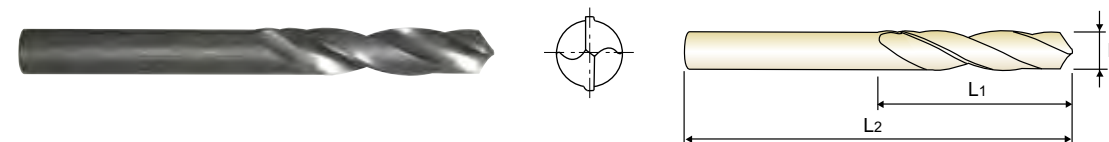
- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

**Surface treatment:** Steam Tempered(Black Oxide Finish)  
Suitable for drilling thin materials with portable electric drills.

**Application:** Special twist drills for automatic and turret lathes.

**Oberflächenbehandlung:** Steam Homo(Schwarzoxidation)  
Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1107053	5.3	26	62	D1107075	7.5	34	74
D1107054	5.4	28	66	D1107076	7.6	37	79
D1107055	5.5	28	66	D1107077	7.7	37	79
D1107056	5.6	28	66	D1107977	7.75	37	79
D1107057	5.7	28	66	D1107078	7.8	37	79
D1107957	5.75	28	66	D1107079	7.9	37	79
D1107058	5.8	28	66	D1107080	8.0	37	79
D1107059	5.9	28	66	D1107081	8.1	37	79
D1107060	6.0	28	66	D1107082	8.2	37	79
D1107061	6.1	31	70	D1107982	8.25	37	79
D1107062	6.2	31	70	D1107083	8.3	37	79
D1107962	6.25	31	70	D1107084	8.4	37	79
D1107063	6.3	31	70	D1107085	8.5	37	79
D1107064	6.4	31	70	D1107086	8.6	40	84
D1107065	6.5	31	70	D1107087	8.7	40	84
D1107066	6.6	31	70	D1107987	8.75	40	84
D1107067	6.7	31	70	D1107088	8.8	40	84
D1107967	6.75	34	74	D1107089	8.9	40	84
D1107068	6.8	34	74	D1107090	9.0	40	84
D1107069	6.9	34	74	D1107091	9.1	40	84
D1107070	7.0	34	74	D1107092	9.2	40	84
D1107071	7.1	34	74	D1107992	9.25	40	84
D1107072	7.2	34	74	D1107093	9.3	40	84
D1107972	7.25	34	74	D1107094	9.4	40	84
D1107073	7.3	34	74	D1107095	9.5	40	84
D1107074	7.4	34	74	D1107096	9.6	43	89

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○								○	○	○	○	○	○	○	○	○	○	○

## HSS, STRAIGHT SHANK TWIST DRILLS

STUB

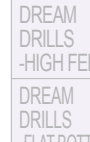
- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

**Surface treatment:** Steam Tempered(Black Oxide Finish)  
Suitable for drilling thin materials with portable electric drills.

**Application:** Special twist drills for automatic and turret lathes.

**Oberflächenbehandlung:** Steam Homo(Schwarzoxidation)  
Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1107053	5.3	26	62	D1107075	7.5	34	74
D1107054	5.4	28	66	D1107076	7.6	37	79
D1107055	5.5	28	66	D1107077	7.7	37	79
D1107056	5.6	28	66	D1107977	7.75	37	79
D1107057	5.7	28	66	D1107078	7.8	37	79
D1107957	5.75	28	66	D1107079	7.9	37	79
D1107058	5.8	28	66	D1107080	8.0	37	79
D1107059	5.9	28	66	D1107081	8.1	37	79
D1107060	6.0	28	66	D1107082	8.2	37	79
D1107061	6.1	31	70	D1107982	8.25	37	79
D1107062	6.2	31	70	D1107083	8.3	37	79
D1107962	6.25	31	70	D1107084	8.4	37	79
D1107063	6.3	31	70	D1107085	8.5	37	79
D1107064	6.4	31	70	D1107086	8.6	40	84
D1107065	6.5	31	70	D1107087	8.7	40	84
D1107066	6.6	31	70	D1107987	8.75	40	84
D1107067	6.7	31	70	D1107088	8.8	40	84
D1107967	6.75	34	74	D1107089	8.9	40	84
D1107068	6.8	34	74	D1107090	9.0	40	84
D1107069	6.9	34	74	D1107091	9.1	40	84
D1107070	7.0	34	74	D1107092	9.2	40	84
D1107071	7.1	34	74	D1107992	9.25	40	84
D1107072	7.2	34	74	D1107093	9.3	40	84
D1107972	7.25	34	74	D1107094	9.4	40	84
D1107073	7.3	34	74	D1107095	9.5	40	84
D1107074	7.4	34	74	D1107096	9.6	43	89

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nod		

# YG STRAIGHT SHANK DRILLS

## D1107 SERIES

### HSS, STRAIGHT SHANK TWIST DRILLS

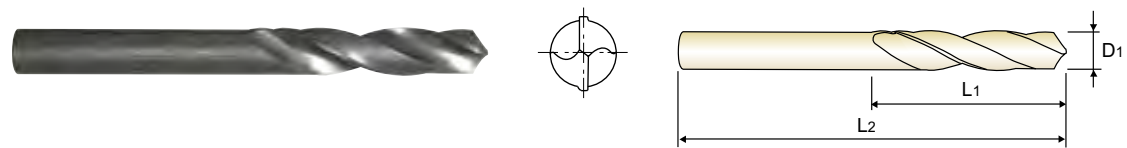
STUB

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
► **Application** : Suitable for drilling thin materials with portable electric drills.  
Special twist drills for automatic and turret lathes.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.  
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page ER COLLET CHUCK D73 - 115

EDP No.	Drill Diameter			Flute Length			Overall Length		
	D1	L1	L2	D1	L1	L2	D1	L1	L2
D1107097	9.7	43	89						
D1107997	9.75	43	89						
D1107098	9.8	43	89						
D1107099	9.9	43	89						
D1107100	10.0	43	89						
D1107802	10.25	43	89						
D1107105	10.5	43	89						
D1107807	10.75	47	95						
D1107110	11.0	47	95						
D1107812	11.25	47	95						
D1107115	11.5	47	95						
D1107817	11.75	47	95						

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					



# YG STRAIGHT SHANK DRILLS

## D2105 SERIES

### HSSCo8, STRAIGHT SHANK TWIST DRILLS

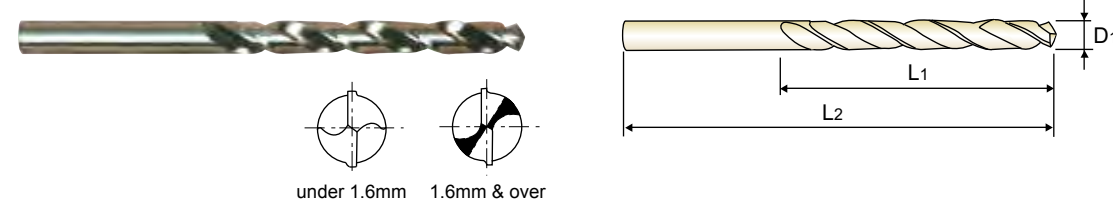
JOBBER

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

KURZ  
COURTE  
CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page ER COLLET CHUCK D73 - 115

EDP No.	Drill Diameter			Flute Length			Overall Length		
	D1	L1	L2	D1	L1	L2	D1	L1	L2
D2105010	1.0	12	34						
D2105011	1.1	14	36						
D2105012	1.2	16	38						
D2105912	1.25	16	38						
D2105013	1.3	16	38						
D2105014	1.4	18	40						
D2105015	1.5	18	40						
D2105016	1.6	20	43						
D2105017	1.7	20	43						
D2105917	1.75	22	46						
D2105018	1.8	22	46						
D2105019	1.9	22	46						
D2105020	2.0	24	49						
D2105021	2.1	24	49						
D2105022	2.2	27	53						
D2105922	2.25	27	53						
D2105023	2.3	27	53						
D2105024	2.4	30	57						
D2105025	2.5	30	57						
D2105026	2.6	30	57						
D2105027	2.7	33	61						
D2105927	2.75	33	61						
D2105028	2.8	33	61						
D2105029	2.9	33	61						
D2105030	3.0	33	61						
D2105031	3.1	36	65						

► TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

► NEXT PAGE

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					



# YG STRAIGHT SHANK DRILLS

D2105 SERIES

## HSSCo8, STRAIGHT SHANK TWIST DRILLS

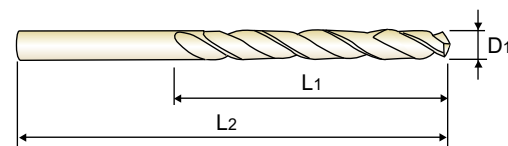
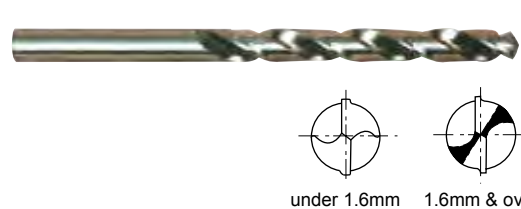
JOBBER

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

- KURZ
- COURTE
- CORTA

► **Surface treatment** : Coloring(Gold color)  
 ► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
 ► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwererspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D2105053	5.3	52	86	D2105075	7.5	69	109
D2105054	5.4	57	93	D2105076	7.6	75	117
D2105055	5.5	57	93	D2105077	7.7	75	117
D2105056	5.6	57	93	D2105078	7.8	75	117
D2105057	5.7	57	93	D2105079	7.9	75	117
D2105058	5.75	57	93	D2105080	8.0	75	117
D2105059	5.8	57	93	D2105081	8.1	75	117
D2105060	5.9	57	93	D2105082	8.2	75	117
D2105061	6.0	57	93	D2105083	8.25	75	117
D2105062	6.1	63	101	D2105084	8.3	75	117
D2105063	6.2	63	101	D2105085	8.4	75	117
D2105064	6.25	63	101	D2105086	8.5	75	117
D2105065	6.3	63	101	D2105087	8.6	81	125
D2105066	6.3	63	101	D2105088	8.7	81	125
D2105067	6.4	63	101	D2105089	8.75	81	125
D2105068	6.5	63	101	D2105090	8.8	81	125
D2105069	6.6	63	101	D2105091	8.9	81	125
D2105070	6.7	63	101	D2105092	9.0	81	125
D2105071	6.75	69	109	D2105093	9.1	81	125
D2105072	6.8	69	109	D2105094	9.2	81	125
D2105073	6.9	69	109	D2105095	9.25	81	125
D2105074	7.0	69	109	D2105096	9.3	81	125
D2105075	7.1	69	109		9.4	81	125
D2105076	7.2	69	109		9.5	81	125
D2105077	7.25	69	109		9.6	87	133
D2105078	7.3	69	109				
D2105079	7.4	69	109				

► TIN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron		Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					



# YG STRAIGHT SHANK DRILLS

D2105 SERIES

## HSSCo8, STRAIGHT SHANK TWIST DRILLS

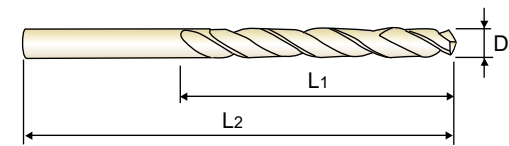
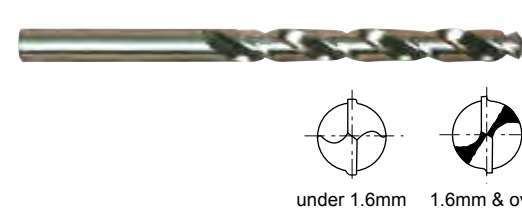
JOBBER

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

- KURZ
- COURTE
- CORTA

► **Surface treatment** : Coloring(Gold color)  
 ► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
 ► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwererspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D2105097	9.7	87	133	D2105145	14.5	114	169
D2105098	9.75	87	133	D2105150	15.0	114	169
D2105099	9.8	87	133	D2105155	15.5	120	178
D2105100	9.9	87	133	D2105160	16.0	120	178
D2105102	10.0	87	133	D2105165	16.5	125	184
D2105105	10.2	87	133	D2105170	17.0	125	184
D2105110	10.5	87	133	D2105175	17.5	130	191
D2105115	10.5	87	133	D2105180	18.0	130	191
D2105120	11.0	94	142	D2105185	18.5	135	198
D2105125	11.5	94	142	D2105190	19.0	135	198
D2105130	12.0	101	151	D2105195	19.5	140	205
D2105135	12.5	101	151	D2105200	20.0	140	205
D2105140	13.0	101	151				
D2105145	13.5	108	160				
D2105150	14.0	108	160				

► TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron		Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					

JOBBER

- KURZ
- COURTE
- CORTA

► **Surface treatment** : Coloring(Gold color)  
 ► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
 ► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwererspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS Co8 33° h8 135° Gold Coloring p.A262

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D2105097	9.7	87	133	D2105145	14.5	114	169
D2105098	9.75	87	133	D2105150	15.0	114	169
D2105099	9.8	87	133	D2105155	15.5	120	178
D2105100	9.9	87	133	D2105160	16.0	120	178
D2105102	10.0	87	133	D2105165	16.5	125	184
D2105105	10.2	87	133	D2105170	17.0	125	184
D2105110	10.5	87	133	D2105175	17.5	130	191
D2105115	11.0	94	142	D2105180	18.0	130	191
D2105120	11.5	94	142	D2105185	18.5	135	198
D2105125	12.0	101	151	D2105190	19.0	135	198
D2105130	12.5	101	151	D2105195	19.5	140	205
D2105135	13.0	101	151	D2105200	20.0	140	205
D2105140	13.5	108	160				
D2105145	14.0	108	160				

► TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron		Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					

# YIG STRAIGHT SHANK DRILLS

DL105 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS

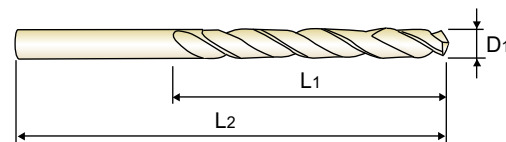
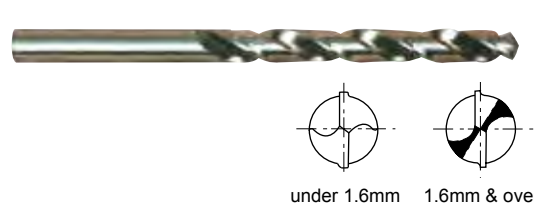
JOBBER

- HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E

KURZ  
COURTE  
CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS-E 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL105010	1.0	12	34	DL105032	3.2	36	65
DL105011	1.1	14	36	DL105932	3.25	36	65
DL105012	1.2	16	38	DL105033	3.3	36	65
DL105912	1.25	16	38	DL105034	3.4	39	70
DL105013	1.3	16	38	DL105035	3.5	39	70
DL105014	1.4	18	40	DL105036	3.6	39	70
DL105015	1.5	18	40	DL105037	3.7	39	70
DL105016	1.6	20	43	DL105937	3.75	39	70
DL105017	1.7	20	43	DL105038	3.8	43	75
DL105917	1.75	22	46	DL105039	3.9	43	75
DL105018	1.8	22	46	DL105040	4.0	43	75
DL105019	1.9	22	46	DL105041	4.1	43	75
DL105020	2.0	24	49	DL105042	4.2	43	75
DL105021	2.1	24	49	DL105942	4.25	43	75
DL105022	2.2	27	53	DL105043	4.3	47	80
DL105922	2.25	27	53	DL105044	4.4	47	80
DL105023	2.3	27	53	DL105045	4.5	47	80
DL105024	2.4	30	57	DL105046	4.6	47	80
DL105025	2.5	30	57	DL105047	4.7	47	80
DL105026	2.6	30	57	DL105947	4.75	47	80
DL105027	2.7	33	61	DL105048	4.8	52	86
DL105927	2.75	33	61	DL105049	4.9	52	86
DL105028	2.8	33	61	DL105050	5.0	52	86
DL105029	2.9	33	61	DL105051	5.1	52	86
DL105030	3.0	33	61	DL105052	5.2	52	86
DL105031	3.1	36	65	DL105952	5.25	52	86

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○												



# YIG STRAIGHT SHANK DRILLS

DL105 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS

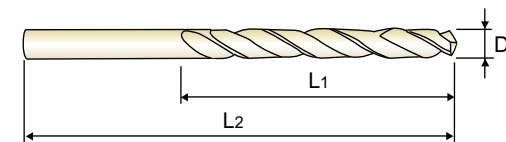
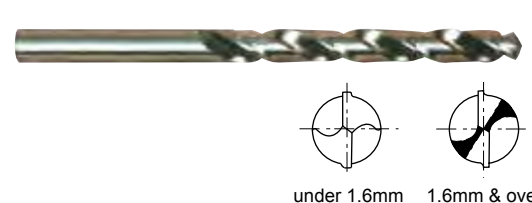
JOBBER

- HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E

KURZ  
COURTE  
CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS-E 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL105053	5.3	52	86	DL105075	7.5	69	109
DL105054	5.4	57	93	DL105076	7.6	75	117
DL105055	5.5	57	93	DL105077	7.7	75	117
DL105056	5.6	57	93	DL105977	7.75	75	117
DL105057	5.7	57	93	DL105078	7.8	75	117
DL105957	5.75	57	93	DL105079	7.9	75	117
DL105058	5.8	57	93	DL105080	8.0	75	117
DL105059	5.9	57	93	DL105081	8.1	75	117
DL105060	6.0	57	93	DL105082	8.2	75	117
DL105061	6.1	63	101	DL105982	8.25	75	117
DL105062	6.2	63	101	DL105083	8.3	75	117
DL105962	6.25	63	101	DL105084	8.4	75	117
DL105063	6.3	63	101	DL105085	8.5	75	117
DL105064	6.4	63	101	DL105086	8.6	81	125
DL105065	6.5	63	101	DL105087	8.7	81	125
DL105066	6.6	63	101	DL105987	8.75	81	125
DL105067	6.7	63	101	DL105088	8.8	81	125
DL105967	6.75	69	109	DL105089	8.9	81	125
DL105068	6.8	69	109	DL105090	9.0	81	125
DL105069	6.9	69	109	DL105091	9.1	81	125
DL105070	7.0	69	109	DL105092	9.2	81	125
DL105071	7.1	69	109	DL105992	9.25	81	125
DL105072	7.2	69	109	DL105093	9.3	81	125
DL105972	7.25	69	109	DL105094	9.4	81	125
DL105073	7.3	69	109	DL105095	9.5	81	125
DL105074	7.4	69	109	DL105096	9.6	87	133

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○												

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

# YG STRAIGHT SHANK DRILLS

DL105 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS

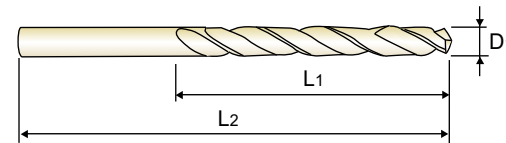
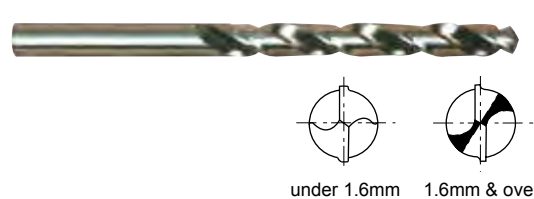
JOBBER

- HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E

KURZ  
COURTE  
CORTA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwererspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS-E 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
DL105097	9.7	87	133			
DL105997	9.75	87	133			
DL105098	9.8	87	133			
DL105099	9.9	87	133			
DL105100	10.0	87	133			
DL105102	10.2	87	133			
DL105105	10.5	87	133			
DL105110	11.0	94	142			
DL105115	11.5	94	142			
DL105120	12.0	101	151			
DL105125	12.5	101	151			
DL105130	13.0	101	151			
DL105135	13.5	108	160			
DL105140	14.0	108	160			

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
DL105145	14.5	114	169			
DL105150	15.0	114	169			
DL105155	15.5	120	178			
DL105160	16.0	120	178			
DL105165	16.5	125	184			
DL105170	17.0	125	184			
DL105175	17.5	130	191			
DL105180	18.0	130	191			
DL105185	18.5	135	198			
DL105190	19.0	135	198			
DL105195	19.5	140	205			
DL105200	20.0	140	205			

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	550	630	400	550	
HB	60	100	75	90	130	110	90	100			400 Rm	1050 Rm	550	630	400	550					
Recommended	○	○	○			○					○					○					

# YG STRAIGHT SHANK DRILLS

D1105 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

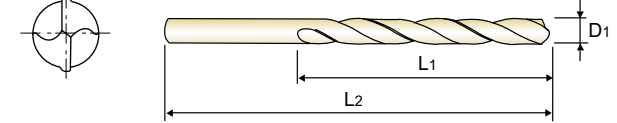
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

KURZ  
COURTE  
CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
Bright Finish under 2mm  
► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
Helle Beschaffenheit unter 2mm  
► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



DIN 338 HSS 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
D1105003	0.3	3	19			
D1105004	0.4	5	20			
D1105005	0.5	6	22			
D1105006	0.6	7	24			
D1105007	0.7	9	28			
D1105008	0.8	10	30			
D1105009	0.9	11	32			
D1105010	1.0	12	34			
D1105910	1.05	12	34			
D1105011	1.1	14	36			
D1105911	1.15	14	36			
D1105012	1.2	16	38			
D1105912	1.25	16	38			
D1105013	1.3	16	38			
D1105913	1.35	18	40			
D1105014	1.4	18	40			
D1105914	1.45	18	40			
D1105015	1.5	18	40			
D1105915	1.55	20	43			
D1105016	1.6	20	43			
D1105916	1.65	20	43			
D1105017	1.7	20	43			
D1105917	1.75	22	46			
D1105018	1.8	22	46			
D1105918	1.85	22	46			
D1105019	1.9	22	46			

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
D1105919	1.95	24	49			
D1105020	2.0	24	49			
D1105920	2.05	24	49			
D1105021	2.1	24	49			
D1105921	2.15	27	53			
D1105022	2.2	27	53			
D1105922	2.25	27	53			
D1105023	2.3	27	53			
D1105923	2.35	27	53			
D1105024	2.4	30	57			
D1105924	2.45	30	57			
D1105025	2.5	30	57			
D1105925	2.55	30	57			
D1105026	2.6	30	57			
D1105926	2.65	30	57			
D1105027	2.7	33	61			
D1105927	2.75	33	61			
D1105028	2.8	33	61			
D1105928	2.85	33	61			
D1105029	2.9	33	61			
D1105929	2.95	33	61			
D1105030	3.0	33	61			
D1105930	3.05	36	65			
D1105031	3.1	36	65			
D1105931	3.15	36	65			
D1105032	3.2	36	65			

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	550	630	400	550	
HB	60	100	75	90	130	110	90	100			400 Rm	1050 Rm	550	630	400	550					
Recommended	○	○	○			○					○					○					





# YG STRAIGHT SHANK DRILLS

D1105 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

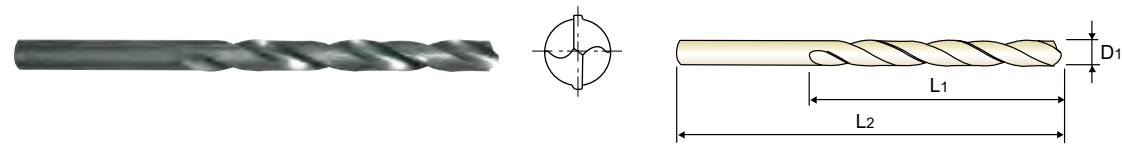
KURZ  
COURTE  
CORTA

►Surface treatment : Steam Tempered(Black Oxide Finish)  
Bright Finish under 2mm

►Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

►Oberflächenbehandlung : Steam Homo(Schwarzoxidation)  
Helle Beschaffenheit unter 2mm

►Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphite.



DIN 338 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105932	3.25	36	65	D1105945	4.55	47	80
D1105033	3.3	36	65	D1105046	4.6	47	80
D1105933	3.35	36	65	D1105946	4.65	47	80
D1105034	3.4	39	70	D1105047	4.7	47	80
D1105934	3.45	39	70	D1105947	4.75	47	80
D1105035	3.5	39	70	D1105048	4.8	52	86
D1105935	3.55	39	70	D1105948	4.85	52	86
D1105036	3.6	39	70	D1105049	4.9	52	86
D1105936	3.65	39	70	D1105949	4.95	52	86
D1105037	3.7	39	70	D1105050	5.0	52	86
D1105937	3.75	39	70	D1105950	5.05	52	86
D1105038	3.8	43	75	D1105051	5.1	52	86
D1105938	3.85	43	75	D1105951	5.15	52	86
D1105039	3.9	43	75	D1105052	5.2	52	86
D1105939	3.95	43	75	D1105952	5.25	52	86
D1105040	4.0	43	75	D1105053	5.3	52	86
D1105940	4.05	43	75	D1105953	5.35	57	93
D1105041	4.1	43	75	D1105054	5.4	57	93
D1105941	4.15	43	75	D1105954	5.45	57	93
D1105042	4.2	43	75	D1105055	5.5	57	93
D1105942	4.25	43	75	D1105955	5.55	57	93
D1105043	4.3	47	80	D1105056	5.6	57	93
D1105943	4.35	47	80	D1105956	5.65	57	93
D1105044	4.4	47	80	D1105057	5.7	57	93
D1105944	4.45	47	80	D1105957	5.75	57	93
D1105045	4.5	47	80	D1105058	5.8	57	93

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					



# YG STRAIGHT SHANK DRILLS

D1105 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

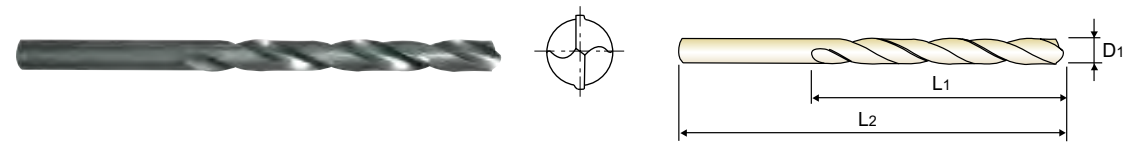
KURZ  
COURTE  
CORTA

►Surface treatment : Steam Tempered(Black Oxide Finish)  
Bright Finish under 2mm

►Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

►Oberflächenbehandlung : Steam Homo(Schwarzoxidation)  
Helle Beschaffenheit unter 2mm

►Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphite.



DIN 338 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105958	5.85	57	93	D1105971	7.15	69	109				
D1105059	5.9	57	93	D1105072	7.2	69	109				
D1105959	5.95	57	93	D1105972	7.25	69	109				
D1105060	6.0	57	93	D1105073	7.3	69	109				
D1105960	6.05	63	101	D1105973	7.35	69	109				
D1105061	6.1	63	101	D1105074	7.4	69	109				
D1105961	6.15	63	101	D1105974	7.45	69	109				
D1105062	6.2	63	101	D1105075	7.5	69	109				
D1105962	6.25	63	101	D1105975	7.55	75	117				
D1105063	6.3	63	101	D1105076	7.6	75	117				
D1105963	6.35	63	101	D1105976	7.65	75	117				
D1105064	6.4	63	101	D1105077	7.7	75	117				
D1105964	6.45	63	101	D1105977	7.75	75	117				
D1105065	6.5	63	101	D1105078	7.8	75	117				
D1105965	6.55	63	101	D1105978	7.85	75	117				
D1105066	6.6	63	101	D1105079	7.9	75	117				
D1105966	6.65	63	101	D1105979	7.95	75	117				
D1105067	6.7	63	101	D1105080	8.0	75	117				
D1105967	6.75	69	109	D1105081	8.1	75	117				
D1105068	6.8	69	109	D1105082	8.2	75	117				
D1105968	6.85	69	109	D1105982	8.25	75	117				
D1105069	6.9	69	109	D1105083	8.3	75	117				
D1105969	6.95	69	109	D1105084	8.4	75	117				
D1105070	7.0	69	109	D1105085	8.5	75	117				
D1105970	7.05	69	109	D1105086	8.6	81	125				
D1105071	7.1	69	109	D1105087	8.7	81	125				

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○								○					○					

# YG STRAIGHT SHANK DRILLS

D1105 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

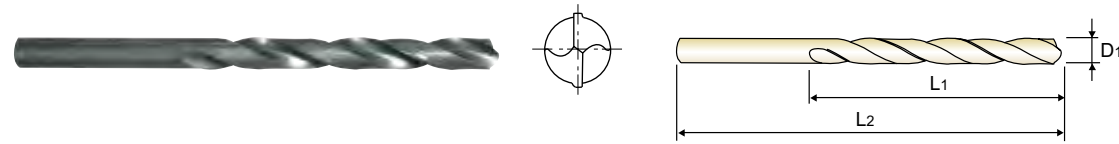
KURZ  
COURTE  
CORTA

**Surface treatment** : Steam Tempered(Black Oxide Finish)  
Bright Finish under 2mm

**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
Helle Beschaffenheit unter 2mm

**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1105987	8.75	81	125	D1105109	10.9	94	142
D1105088	8.8	81	125	D1105110	11.0	94	142
D1105089	8.9	81	125	D1105111	11.1	94	142
D1105090	9.0	81	125	D1105112	11.2	94	142
D1105091	9.1	81	125	D1105812	11.25	94	142
D1105092	9.2	81	125	D1105113	11.3	94	142
D1105992	9.25	81	125	D1105114	11.4	94	142
D1105093	9.3	81	125	D1105115	11.5	94	142
D1105094	9.4	81	125	D1105116	11.6	94	142
D1105095	9.5	81	125	D1105117	11.7	94	142
D1105096	9.6	87	133	D1105817	11.75	94	142
D1105097	9.7	87	133	D1105118	11.8	94	142
D1105997	9.75	87	133	D1105119	11.9	101	151
D1105098	9.8	87	133	D1105120	12.0	101	151
D1105099	9.9	87	133	D1105121	12.1	101	151
D1105100	10.0	87	133	D1105122	12.2	101	151
D1105101	10.1	87	133	D1105822	12.25	101	151
D1105102	10.2	87	133	D1105123	12.3	101	151
D1105802	10.25	87	133	D1105124	12.4	101	151
D1105103	10.3	87	133	D1105125	12.5	101	151
D1105104	10.4	87	133	D1105126	12.6	101	151
D1105105	10.5	87	133	D1105127	12.7	101	151
D1105106	10.6	87	133	D1105827	12.75	101	151
D1105107	10.7	94	142	D1105128	12.8	101	151
D1105807	10.75	94	142	D1105129	12.9	101	151
D1105108	10.8	94	142	D1105130	13.0	101	151

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55		
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		



# YG STRAIGHT SHANK DRILLS

D1105 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

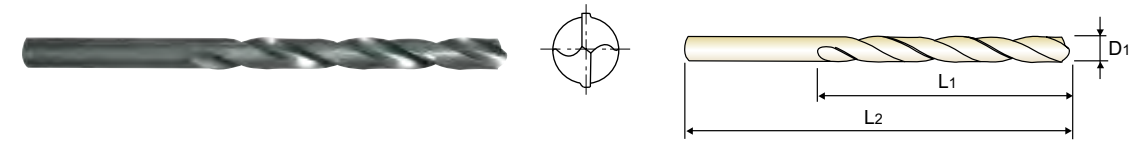
KURZ  
COURTE  
CORTA

**Surface treatment** : Steam Tempered(Black Oxide Finish)  
Bright Finish under 2mm

**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
Helle Beschaffenheit unter 2mm

**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

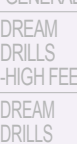
EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1105832	13.25	108	160	D1105867	16.75	125	184
D1105135	13.5	108	160	D1105170	17.0	125	184
D1105837	13.75	108	160	D1105872	17.25	130	191
D1105140	14.0	108	160	D1105175	17.5	130	191
D1105842	14.25	114	169	D1105877	17.75	130	191
D1105145	14.5	114	169	D1105180	18.0	130	191
D1105847	14.75	114	169	D1105882	18.25	135	198
D1105150	15.0	114	169	D1105185	18.5	135	198
D1105155	15.5	120	178	D1105887	18.75	135	198
D1105852	15.25	120	178	D1105190	19.0	135	198
D1105155	15.5	120	178	D1105892	19.25	140	205
D1105857	15.75	120	178	D1105195	19.5	140	205
D1105160	16.0	120	178	D1105897	19.75	140	205
D1105862	16.25	125	184	D1105200	20.0	140	205
D1105165	16.5	125	184				

JOBBER

KURZ  
COURTE  
CORTA

**Surface treatment** : Steam Tempered(Black Oxide Finish)  
Bright Finish under 2mm

**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.



DIN 338 HSS N 20~30° h8 118° Vap p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1105832	13.25	108	160	D1105867	16.75	125	184
D1105135	13.5	108	160	D1105170	17.0	125	184
D1105837	13.75	108	160	D1105872	17.25	130	191
D1105140	14.0	108	160	D1105175	17.5	130	191
D1105842	14.25	114	169	D1105877	17.75	130	191
D1105145	14.5	114	169	D1105180	18.0	130	191
D1105847	14.75	114	169	D1105882	18.25	135	198
D1105150	15.0	114	169	D1105185	18.5	135	198
D1105155	15.5	120	178	D1105887	18.75	135	198
D1105852	15.25	120	178	D1105190	19.0	135	198
D1105155	15.5	120	178	D1105892	19.25	140	205
D1105857	15.75	120	178	D1105195	19.5	140	205
D1105160	16.0	120	178	D1105897	19.75	140	205
D1105862	16.25	125	184	D1105200	20.0	140	205
D1105165	16.5	125	184				

# YG STRAIGHT SHANK DRILLS

D1125 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

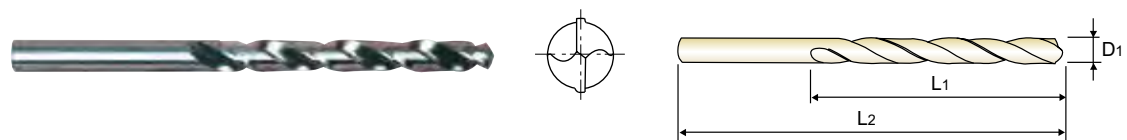
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

- KURZ
- COURTE
- CORTA

►Surface treatment : Bright Finish  
 ►Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

►Oberflächenbehandlung : Helle Beschaffenheit  
 ►Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



DIN 338 HSS N 20~30° h8 118° Bright p.A262

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125020	2.0	24	49	D1125046	4.6	47	80
D1125021	2.1	24	49	D1125047	4.7	47	80
D1125022	2.2	27	53	D1125048	4.8	52	86
D1125023	2.3	27	53	D1125049	4.9	52	86
D1125024	2.4	30	57	D1125050	5.0	52	86
D1125025	2.5	30	57	D1125051	5.1	52	86
D1125026	2.6	30	57	D1125052	5.3	52	86
D1125027	2.7	33	61	D1125053	5.3	52	86
D1125028	2.8	33	61	D1125054	5.4	57	93
D1125029	2.9	33	61	D1125055	5.5	57	93
D1125030	3.0	33	61	D1125056	5.6	57	93
D1125031	3.1	36	65	D1125057	5.7	57	93
D1125032	3.2	36	65	D1125058	5.8	57	93
D1125033	3.3	36	65	D1125059	5.9	57	93
D1125034	3.4	39	70	D1125060	6.0	57	93
D1125035	3.5	39	70	D1125061	6.1	63	101
D1125036	3.6	39	70	D1125062	6.2	63	101
D1125037	3.7	39	70	D1125063	6.3	63	101
D1125038	3.8	43	75	D1125064	6.4	63	101
D1125039	3.9	43	75	D1125065	6.5	63	101
D1125040	4.0	43	75	D1125066	6.6	63	101
D1125041	4.1	43	75	D1125067	6.7	63	101
D1125042	4.2	43	75	D1125068	6.8	69	109
D1125043	4.3	47	80	D1125069	6.9	69	109
D1125044	4.4	47	80	D1125070	7.0	69	109
D1125045	4.5	47	80	D1125071	7.1	69	109

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320			400 Rm	1050 Rm	550	630	
Recommended	○	○	○						○									○				

# YG STRAIGHT SHANK DRILLS

D1125 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

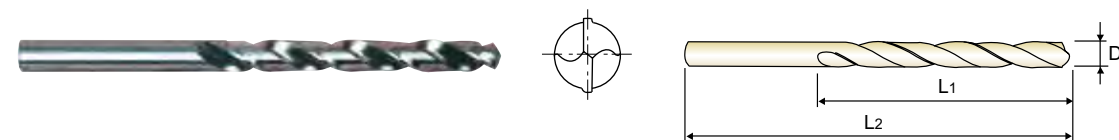
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

- KURZ
- COURTE
- CORTA

►Surface treatment : Bright Finish  
 ►Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

►Oberflächenbehandlung : Helle Beschaffenheit  
 ►Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



DIN 338 HSS N 20~30° h8 118° Bright p.A262

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125072	7.2	69	109	D1125098	9.8	87	133	D1125116	11.6	94	142
D1125073	7.3	69	109	D1125099	9.9	87	133	D1125117	11.7	94	142
D1125074	7.4	69	109	D1125100	10.0	87	133	D1125118	11.8	94	142
D1125075	7.5	69	109	D1125101	10.1	87	133	D1125119	11.9	101	151
D1125076	7.6	75	117	D1125102	10.2	87	133	D1125120	12.0	101	151
D1125077	7.7	75	117	D1125103	10.3	87	133	D1125121	12.1	101	151
D1125078	7.8	75	117	D1125104	10.4	87	133	D1125122	12.2	101	151
D1125079	7.9	75	117	D1125105	10.5	87	133	D1125123	12.3	101	151
D1125080	8.0	75	117	D1125106	10.6	87	133				
D1125081	8.1	75	117	D1125107	10.7	94	142				
D1125082	8.2	75	117	D1125108	10.8	94	142				
D1125083	8.3	75	117	D1125109	10.9	94	142				
D1125084	8.4	75	117	D1125110	11.0	94	142				
D1125085	8.5	75	117	D1125111	11.1	94	142				
D1125086	8.6	81	125	D1125112	11.2	94	142				
D1125087	8.7	81	125	D1125113	11.3	94	142				
D1125088	8.8	81	125	D1125114	11.4	94	142				
D1125089	8.9	81	125	D1125115	11.5	94	142				
D1125090	9.0	81	125								
D1125091	9.1	81	125								
D1125092	9.2	81	125								
D1125093	9.3	81	125								
D1125094	9.4	81	125								
D1125095	9.5	81	125								
D1125096	9.6	87	133								
D1125097	9.7	87	133								

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320			400 Rm	1050 Rm	550	630	
Recommended	○	○	○						○									○				



i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA



# YG STRAIGHT SHANK DRILLS

## D1125 SERIES

### HSS, STRAIGHT SHANK TWIST DRILLS

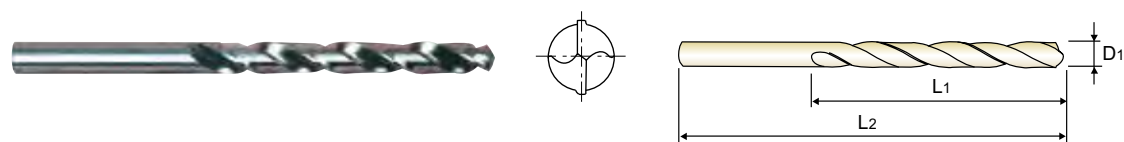
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

- KURZ
- COURTE
- CORTA

►Surface treatment : Bright Finish  
 ►Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

►Oberflächenbehandlung : Helle Beschaffenheit  
 ►Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



DIN 338 HSS N 20~30° h8 118° Bright p.A262

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1125124	12.4	101	151	D1125150	15.0	114	169
D1125125	12.5	101	151	D1125155	15.5	120	178
D1125126	12.6	101	151	D1125160	16.0	120	178
D1125127	12.7	101	151	D1125165	16.5	125	184
D1125128	12.8	101	151	D1125170	17.0	125	184
D1125129	12.9	101	151	D1125175	17.5	130	191
D1125130	13.0	101	151	D1125180	18.0	130	191
D1125132	13.2	101	151	D1125185	18.5	135	198
D1125133	13.3	108	160	D1125190	19.0	135	198
D1125135	13.5	108	160	D1125195	19.5	140	205
D1125140	14.0	108	160	D1125200	20.0	140	205
D1125145	14.5	114	169				

◎ : Excellent ○ : Good

ISO Material Description	P										M					K																													
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel					Grey cast iron					Nodular cast iron					Malleable cast iron														
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230																									
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



# YG STRAIGHT SHANK DRILLS

## D2104 SERIES

### HSSCo8, STRAIGHT SHANK TWIST DRILLS

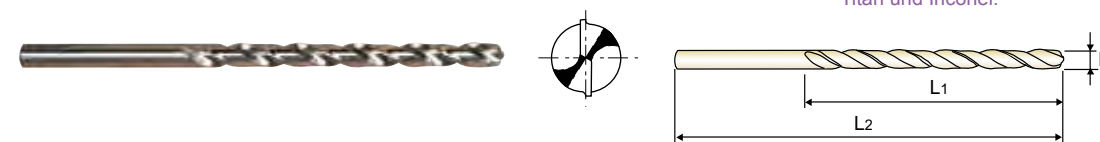
LONG

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, série longue
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

- LANG
- LONGUE
- LUNGA

►Surface treatment : Coloring(Gold color)  
 ►Application : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

►Oberflächenbehandlung : Coloring(Goldfarbe)  
 ►Verwendung : Für Bohrarbeiten mit Bohrungen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 340 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D2104020	2.0	56	85	D2104046	4.6	82	126
D2104021	2.1	56	85	D2104047	4.7	82	126
D2104022	2.2	59	90	D2104048	4.8	87	132
D2104023	2.3	59	90	D2104049	4.9	87	132
D2104024	2.4	62	95	D2104050	5.0	87	132
D2104025	2.5	62	95	D2104051	5.1	87	132
D2104026	2.6	62	95	D2104052	5.2	87	132
D2104027	2.7	66	100	D2104053	5.3	87	132
D2104028	2.8	66	100	D2104054	5.4	91	139
D2104029	2.9	66	100	D2104055	5.5	91	139
D2104030	3.0	66	100	D2104056	5.6	91	139
D2104031	3.1	69	106	D2104057	5.7	91	139
D2104032	3.2	69	106	D2104058	5.8	91	139
D2104033	3.3	69	106	D2104059	5.9	91	139
D2104034	3.4	73	112	D2104060	6.0	91	139
D2104035	3.5	73	112	D2104061	6.1	97	148
D2104036	3.6	73	112	D2104062	6.2	97	148
D2104037	3.7	73	112	D2104063	6.3	97	148
D2104038	3.8	78	119	D2104064	6.4	97	148
D2104039	3.9	78	119	D2104065	6.5	97	148
D2104040	4.0	78	119	D2104066	6.6	97	148
D2104041	4.1	78	119	D2104067	6.7	97	148
D2104042	4.2	78	119	D2104068	6.8	102	156
D2104043	4.3	82	126	D2104069	6.9	102	156
D2104044	4.4	82	126	D2104070	7.0	102	156
D2104045	4.5	82	126	D2104071	7.1	102	156

► HSS-E(DL104) is available on your request.  
 ► TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M					K																													
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel					Grey cast iron					Nodular cast iron					Malleable cast iron														
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230																									
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

# YIG STRAIGHT SHANK DRILLS

D2104 SERIES

## HSSCo8, STRAIGHT SHANK TWIST DRILLS

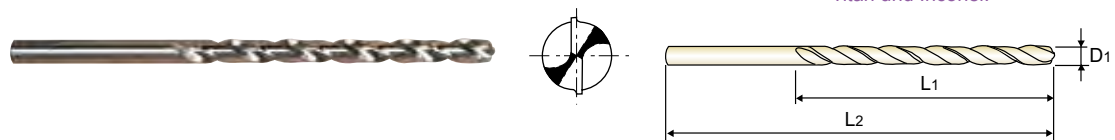
LONG

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, série longue
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

LANG  
LONGUE  
LUNGA

► **Surface treatment** : Coloring(Gold color)  
► **Application** : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)  
► **Verwendung** : Für Bohrarbeiten mit Bohrbuchsen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 340 HSS Co8 33° h8 135° Gold Coloring p.A262

Plain Shank Page ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
D2104072	7.2	102	156			
D2104073	7.3	102	156			
D2104074	7.4	102	156			
D2104075	7.5	102	156			
D2104076	7.6	109	165			
D2104077	7.7	109	165			
D2104078	7.8	109	165			
D2104079	7.9	109	165			
D2104080	8.0	109	165			
D2104081	8.1	109	165			
D2104082	8.2	109	165			
D2104083	8.3	109	165			
D2104084	8.4	109	165			
D2104085	8.5	109	165			
D2104086	8.6	115	175			
D2104087	8.7	115	175			
D2104088	8.8	115	175			
D2104089	8.9	115	175			
D2104090	9.0	115	175			
D2104091	9.1	115	175			
D2104092	9.2	115	175			
D2104093	9.3	115	175			
D2104094	9.4	115	175			
D2104095	9.5	115	175			
D2104096	9.6	121	184			
D2104097	9.7	121	184			
D2104098	9.8	121	184			
D2104099	9.9	121	184			
D2104100	10.0	121	184			
D2104102	10.2	121	184			
D2104105	10.5	121	184			
D2104108	10.8	128	195			
D2104110	11.0	128	195			
D2104112	11.2	128	195			
D2104115	11.5	128	195			
D2104118	11.8	128	195			
D2104120	12.0	134	205			

► HSS-E(DL104) is available on your request.  
► TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K							
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	230		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○						○														

# YIG STRAIGHT SHANK DRILLS

D1121 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS

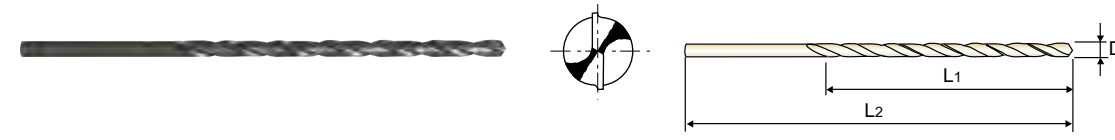
EXTRA LONG

- HSS, SPIRALBOHRER MIT ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-longue
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

ÜBERLANG  
EXTRA-LONGUE  
EXTRA LUNGA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
► **Application** : Designed for drilling deep holes or deeply located holes. Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
► **Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher, zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphit.



DIN 1869/1 HSS 20~30° h8 118° Vap p.A262

Plain Shank Page ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
D1121020	2.0	85	125			
D1121025	2.5	95	140			
D1121030	3.0	100	150			
D1121035	3.5	115	165			
D1121040	4.0	120	175			
D1121045	4.5	125	185			
D1121050	5.0	135	195			
D1121055	5.5	140	205			
D1121060	6.0	140	205			
D1121065	6.5	150	215			
D1121070	7.0	155	225			
D1121075	7.5	155	225			
D1121080	8.0	165	240			
D1121085	8.5	165	240			
D1121090	9.0	175	250			
D1121095	9.5	175	250			
D1121100	10.0	185	265			
D1121105	10.5	185	265			
D1121110	11.0	195	280			
D1121115	11.5	195	280			
D1121120	12.0	205	295			
D1121125	12.5	205	295			
D1121130	13.0	205	295			

◎ : Excellent ○ : Good

ISO Material Description	P										M				K							
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	230		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○						○														



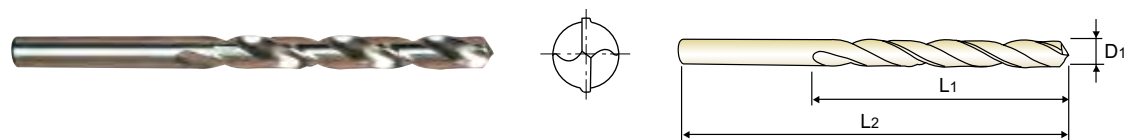
# YG STRAIGHT SHANK DRILLS

DL109 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for HEAVY DUTY JOBBER

● HSS-E, SPIRALBOHRER für HOHE LEISTUNGEN mit ZYLINDERSCHAFT KURZ  
● Forets HSS-E, queue cylindrique pour matériaux durs, série courte COURTE  
● PUNTE ELICOIDALI PER IMPIEGHI GRAVOSI, GAMBO CILINDRICO, HSS - E CORTA

**►Application :** Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite. **►Verwendung :** Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphit.



DIN 338 HSS-E N 20~30° h8 118° Bright p.A262

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL109015	1.5	18	40	DL109080	8.0	75	117
DL109917	1.75	22	46	DL109982	8.25	75	117
DL109020	2.0	24	49	DL109085	8.5	75	117
DL109922	2.25	27	53	DL109987	8.75	81	125
DL109025	2.5	30	57	DL109090	9.0	81	125
DL109927	2.75	33	61	DL109992	9.25	81	125
DL109030	3.0	33	61	DL109095	9.5	81	125
DL109932	3.25	36	65	DL109997	9.75	87	133
DL109035	3.5	39	70	DL109100	10.0	87	133
DL109937	3.75	39	70	DL109105	10.5	87	133
DL109040	4.0	43	75	DL109110	11.0	94	142
DL109942	4.25	43	75	DL109115	11.5	94	142
DL109045	4.5	47	80	DL109120	12.0	101	151
DL109947	4.75	47	80	DL109125	12.5	101	151
DL109050	5.0	52	86	DL109130	13.0	101	151
DL109952	5.25	52	86				
DL109055	5.5	57	93				
DL109957	5.75	57	93				
DL109060	6.0	57	93				
DL109962	6.25	63	101				
DL109065	6.5	63	101				
DL109967	6.75	69	109				
DL109070	7.0	69	109				
DL109972	7.25	69	109				
DL109075	7.5	69	109				
DL109977	7.75	75	117				

► TiN(DN109), TiCN(DX109) and TiAlN(DT109) are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					



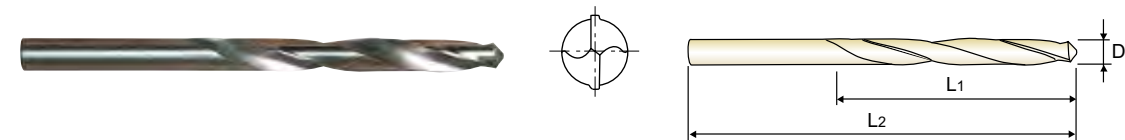
# YG STRAIGHT SHANK DRILLS

D1100 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS for BRASS/BRONZE JOBBER

● HSS, SPIRALBOHRER für MESSING/BRONZE mit ZYLINDERSCHAFT KURZ  
● Forets HSS, queue cylindrique pour Laiton/Bronze, série courte COURTE  
● PUNTE ELICOIDALI, GAMBO CILINDRICO PER OTTONE (HSS) CORTA

**►Application :** Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys. **►Verwendung :** Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338 HSS N 15~20° h8 118° Bright p.A263

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1100015	1.5	18	40	D1100041	4.1	43	75
D1100016	1.6	20	43	D1100042	4.2	43	75
D1100017	1.7	20	43	D1100043	4.3	47	80
D1100018	1.8	22	46	D1100044	4.4	47	80
D1100019	1.9	22	46	D1100045	4.5	47	80
D1100020	2.0	24	49	D1100046	4.6	47	80
D1100021	2.1	24	49	D1100047	4.7	47	80
D1100022	2.2	27	53	D1100048	4.8	52	86
D1100023	2.3	27	53	D1100049	4.9	52	86
D1100024	2.4	30	57	D1100050	5.0	52	86
D1100025	2.5	30	57	D1100051	5.1	52	86
D1100026	2.6	30	57	D1100052	5.2	52	86
D1100027	2.7	33	61	D1100053	5.3	52	86
D1100028	2.8	33	61	D1100054	5.4	57	93
D1100029	2.9	33	61	D1100055	5.5	57	93
D1100030	3.0	33	61	D1100056	5.6	57	93
D1100031	3.1	36	65	D1100057	5.7	57	93
D1100032	3.2	36	65	D1100058	5.8	57	93
D1100033	3.3	36	65	D1100059	5.9	57	93
D1100034	3.4	39	70	D1100060	6.0	57	93
D1100035	3.5	39	70	D1100061	6.1	63	101
D1100036	3.6	39	70	D1100062	6.2	63	101
D1100037	3.7	39	70	D1100063	6.3	63	101
D1100038	3.8	43	75	D1100064	6.4	63	101
D1100039	3.9	43	75	D1100065	6.5	63	101
D1100040	4.0	43	75	D1100066	6.6	63	101

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

## HSS, STRAIGHT SHANK TWIST DRILLS for BRASS/BRONZE JOBBER

● HSS, SPIRALBOHRER für MESSING/BRONZE mit ZYLINDERSCHAFT KURZ  
● Forets HSS, queue cylindrique pour Laiton/Bronze, série courte COURTE  
● PUNTE ELICOIDALI, GAMBO CILINDRICO PER OTTONE (HSS) CORTA

**►Application :** Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys. **►Verwendung :** Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338 HSS N 15~20° h8 118° Bright p.A263

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1100015	1.5	18	40	D1100041	4.1	43	75
D1100016	1.6	20	43	D1100042	4.2	43	75
D1100017	1.7	20	43	D1100043	4.3	47	80
D1100018	1.8	22	46	D1100044	4.4	47	80
D1100019	1.9	22	46	D1100045	4.5	47	80
D1100020	2.0	24	49	D1100046	4.6	47	80
D1100021	2.1	24	49	D1100047	4.7	47	80
D1100022	2.2	27	53	D1100048	4.8	52	86
D1100023	2.3	27	53	D1100049	4.9	52	86
D1100024	2.4	30	57	D1100050	5.0	52	86
D1100025	2.5	30	57	D1100051	5.1	52	86
D1100026	2.6	30	57	D1100052	5.2	52	86
D1100027	2.7	33	61	D1100053	5.3	52	86
D1100028	2.8	33	61	D1100054	5.4	57	93
D1100029	2.9	33	61	D1100055	5.5	57	93
D1100030	3.0	33	61	D1100056	5.6	57	93
D1100031	3.1	36	65	D1100057	5.7	57	93
D1100032	3.2	36	65	D1100058	5.8	57	93
D1100033	3.3	36	65	D1100059	5.9	57	93
D1100034	3.4	39	70	D1100060	6.0	57	93
D1100035	3.5	39	70	D1100061			



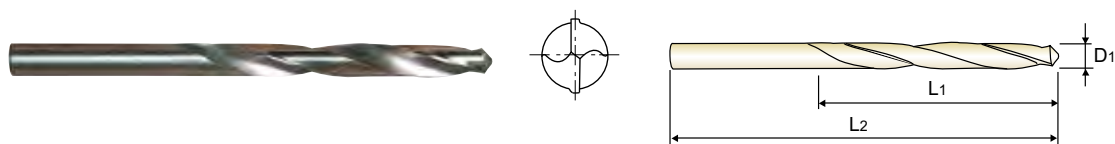
# YG STRAIGHT SHANK DRILLS

D1100 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS for BRASS/BRONZE JOBBER

● HSS, SPIRALBOHRER für MESSING/BRONZE mit ZYLINDERSCHAFT KURZ  
● Forets HSS, queue cylindrique pour Laiton/Bronze, série courte COURTE  
● PUNTE ELICOIDALI, GAMBO CILINDRICO PER OTTONE (HSS) CORTA

**►Application :** Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.  
**►Verwendung :** Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338 HSS N 15~20° h8 118° Bright p.A263

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1100067	6.7	63	101	D1100087	8.7	81	125
D1100068	6.8	69	109	D1100088	8.8	81	125
D1100069	6.9	69	109	D1100089	8.9	81	125
D1100070	7.0	69	109	D1100090	9.0	81	125
D1100071	7.1	69	109	D1100091	9.1	81	125
D1100072	7.2	69	109	D1100092	9.2	81	125
D1100073	7.3	69	109	D1100093	9.3	81	125
D1100074	7.4	69	109	D1100094	9.4	81	125
D1100075	7.5	69	109	D1100095	9.5	81	125
D1100076	7.6	75	117	D1100096	9.6	87	133
D1100077	7.7	75	117	D1100097	9.7	87	133
D1100078	7.8	75	117	D1100098	9.8	87	133
D1100079	7.9	75	117	D1100099	9.9	87	133
D1100080	8.0	75	117	D1100100	10.0	87	133
D1100081	8.1	75	117	D1100105	10.5	87	133
D1100082	8.2	75	117	D1100110	11.0	94	142
D1100083	8.3	75	117	D1100115	11.5	94	142
D1100084	8.4	75	117	D1100120	12.0	101	151
D1100085	8.5	75	117	D1100125	12.5	101	151
D1100086	8.6	81	125	D1100130	13.0	101	151

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	550	600	42	55					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎		◎	◎														



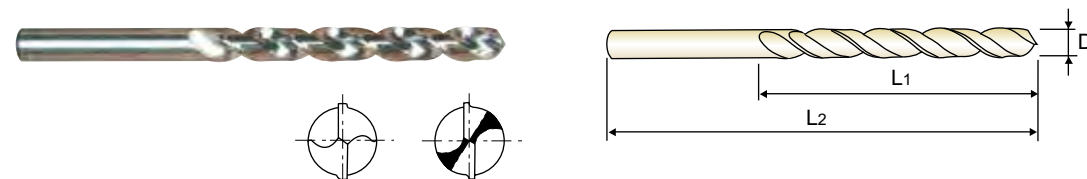
# YG STRAIGHT SHANK DRILLS

D1106 SERIES

## HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM JOBBER

● HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT KURZ  
● Forets HSS, queue cylindrique pour ALU, Forme C, série courte COURTE  
● PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS) CORTA

**►Application :** Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze aluminum and magnesium alloys.  
**►Verwendung :** Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



under 1.6mm 1.6mm & over

DIN 338 HSS 38° h8 135° Bright p.A263

Plain Shank Page  
 Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1106015	1.5	18	40	D1106041	4.1	43	75
D1106016	1.6	20	43	D1106042	4.2	43	75
D1106017	1.7	20	43	D1106043	4.3	47	80
D1106018	1.8	22	46	D1106044	4.4	47	80
D1106019	1.9	22	46	D1106045	4.5	47	80
D1106020	2.0	24	49	D1106046	4.6	47	80
D1106021	2.1	24	49	D1106047	4.7	47	80
D1106022	2.2	27	53	D1106048	4.8	52	86
D1106023	2.3	27	53	D1106049	4.9	52	86
D1106024	2.4	30	57	D1106050	5.0	52	86
D1106025	2.5	30	57	D1106051	5.1	52	86
D1106026	2.6	30	57	D1106052	5.2	52	86
D1106027	2.7	33	61	D1106053	5.3	52	86
D1106028	2.8	33	61	D1106054	5.4	57	93
D1106029	2.9	33	61	D1106055	5.5	57	93
D1106030	3.0	33	61	D1106056	5.6	57	93
D1106031	3.1	36	65	D1106057	5.7	57	93
D1106032	3.2	36	65	D1106058	5.8	57	93
D1106033	3.3	36	65	D1106059	5.9	57	93
D1106034	3.4	39	70	D1106060	6.0	57	93
D1106035	3.5	39	70	D1106061	6.1	63	101
D1106036	3.6	39	70	D1106062	6.2	63	101
D1106037	3.7	39	70	D1106063	6.3	63	101
D1106038	3.8	43	75	D1106064	6.4	63	101
D1106039	3.9	43	75	D1106065	6.5	63	101
D1106040	4.0	43	75	D1106066	6.6	63	101

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	550	600	42	55					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎		◎	◎														

# YIG STRAIGHT SHANK DRILLS

## D1106 SERIES

### HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

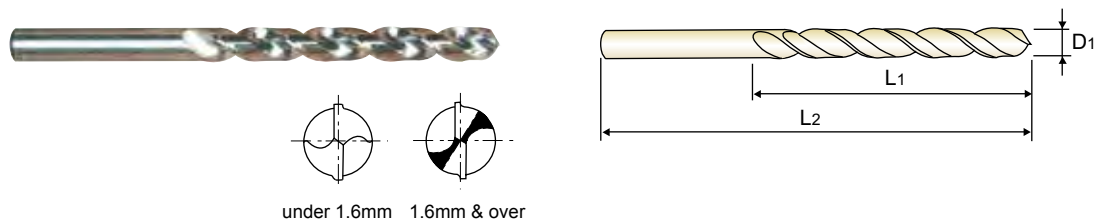
JOBBER

- HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique pour ALU, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS)

KURZ  
COURTE  
CORTA

►Application : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze aluminum and magnesium alloys.

►Verwendung : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



under 1.6mm 1.6mm & over

DIN 338 HSS 38° h8 135° Bright p.A263

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1106067	6.7	63	101	D1106087	8.7	81	125
D1106068	6.8	69	109	D1106088	8.8	81	125
D1106069	6.9	69	109	D1106089	8.9	81	125
D1106070	7.0	69	109	D1106090	9.0	81	125
D1106071	7.1	69	109	D1106091	9.1	81	125
D1106072	7.2	69	109	D1106092	9.2	81	125
D1106073	7.3	69	109	D1106093	9.3	81	125
D1106074	7.4	69	109	D1106094	9.4	81	125
D1106075	7.5	69	109	D1106095	9.5	81	125
D1106076	7.6	75	117	D1106096	9.6	87	133
D1106077	7.7	75	117	D1106097	9.7	87	133
D1106078	7.8	75	117	D1106098	9.8	87	133
D1106079	7.9	75	117	D1106099	9.9	87	133
D1106080	8.0	75	117	D1106100	10.0	87	133
D1106081	8.1	75	117	D1106105	10.5	87	133
D1106082	8.2	75	117	D1106110	11.0	94	142
D1106083	8.3	75	117	D1106115	11.5	94	142
D1106084	8.4	75	117	D1106120	12.0	101	151
D1106085	8.5	75	117	D1106125	12.5	101	151
D1106086	8.6	81	125	D1106130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YIG STRAIGHT SHANK DRILLS

## DL510 SERIES

### HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

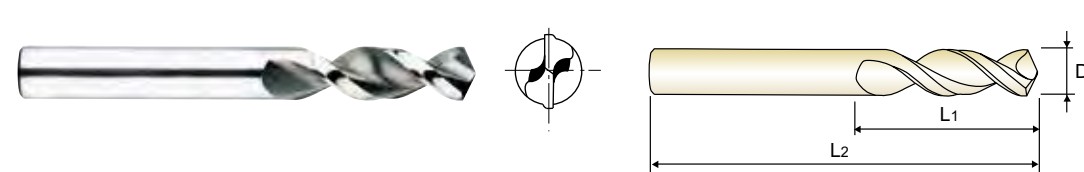
STUB

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série extra-courte
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

EXTRA KURZ  
EXTRA-COURTE  
EXTRA CORTA

►Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

►Verwendung : Zum Bohren von legiertem und unlegiertem Stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 1897 HSS-E 42° h8 130° Bright p.A264

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL510020	2.0	12	38	DL510046	4.6	24	58
DL510021	2.1	12	38	DL510047	4.7	24	58
DL510022	2.2	13	40	DL510048	4.8	26	62
DL510023	2.3	13	40	DL510049	4.9	26	62
DL510024	2.4	14	43	DL510050	5.0	26	62
DL510025	2.5	14	43	DL510051	5.1	26	62
DL510026	2.6	14	43	DL510052	5.2	26	62
DL510027	2.7	16	46	DL510053	5.3	26	66
DL510028	2.8	16	46	DL510054	5.4	28	66
DL510029	2.9	16	46	DL510055	5.5	28	66
DL510030	3.0	16	46	DL510056	5.6	28	66
DL510031	3.1	18	49	DL510057	5.7	28	66
DL510032	3.2	18	49	DL510058	5.8	28	66
DL510033	3.3	18	49	DL510059	5.9	28	66
DL510034	3.4	20	52	DL510060	6.0	28	66
DL510035	3.5	20	52	DL510061	6.1	31	70
DL510036	3.6	20	52	DL510062	6.2	31	70
DL510037	3.7	20	52	DL510063	6.3	31	70
DL510038	3.8	22	55	DL510064	6.4	31	70
DL510039	3.9	22	55	DL510065	6.5	31	70
DL510040	4.0	22	55	DL510066	6.6	31	70
DL510041	4.1	22	55	DL510067	6.7	31	70
DL510042	4.2	22	55	DL510068	6.8	34	74
DL510043	4.3	24	58	DL510069	6.9	34	74
DL510044	4.4	24	58	DL510070	7.0	34	74
DL510045	4.5	24	58	DL510071	7.1	34	74

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG STRAIGHT SHANK DRILLS

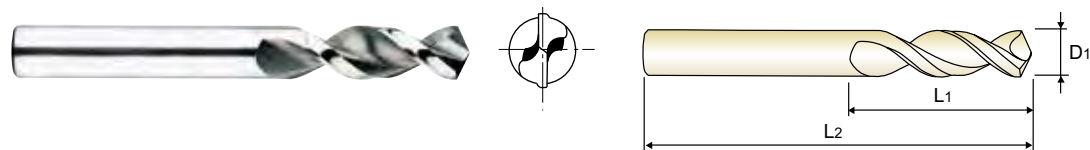
DL510 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES STUB

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT EXTRA KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série extra-courte EXTRA-COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP EXTRA CORTA

►Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

►Verwendung : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 1897 HSS-E 42° h8 130° Bright p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL510072	7.2	34	74	DL510100	10.0	43	89
DL510073	7.3	34	74	DL510102	10.2	43	89
DL510074	7.4	34	74	DL510105	10.5	43	89
DL510075	7.5	34	74	DL510108	10.8	47	95
DL510076	7.6	37	79	DL510110	11.0	47	95
DL510077	7.7	37	79	DL510112	11.2	47	95
DL510078	7.8	37	79	DL510115	11.5	47	95
DL510079	7.9	37	79	DL510118	11.8	47	95
DL510080	8.0	37	79	DL510120	12.0	51	102
DL510081	8.1	37	79	DL510125	12.5	51	102
DL510082	8.2	37	79	DL510130	13.0	51	102
DL510083	8.3	37	79	DL510135	13.5	54	107
DL510084	8.4	37	79	DL510140	14.0	54	107
DL510085	8.5	37	79	DL510145	14.5	56	111
DL510086	8.6	40	84	DL510150	15.0	56	111
DL510087	8.7	40	84	DL510155	15.5	58	115
DL510088	8.8	40	84	DL510160	16.0	58	115
DL510089	8.9	40	84	DL510165	16.5	60	119
DL510090	9.0	40	84	DL510170	17.0	60	119
DL510091	9.1	40	84	DL510175	17.5	62	123
DL510092	9.2	40	84	DL510180	18.0	62	123
DL510093	9.3	40	84	DL510185	18.5	64	127
DL510094	9.4	40	84	DL510190	19.0	64	127
DL510095	9.5	40	84	DL510195	19.5	66	131
DL510096	9.6	43	89	DL510200	20.0	66	131
DL510097	9.7	43	89				
DL510098	9.8	43	89				
DL510099	9.9	43	89				

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	34	34	34	34	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					



# YG STRAIGHT SHANK DRILLS

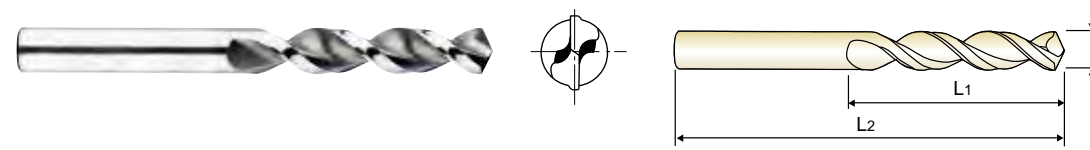
DL508 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série courte COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP CORTA

►Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

►Verwendung : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 338 HSS-E 42° h8 130° Bright p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL508020	2.0	24	49	DL508046	4.6	47	80
DL508021	2.1	24	49	DL508047	4.7	47	80
DL508022	2.2	27	53	DL508048	4.8	52	86
DL508023	2.3	27	53	DL508049	4.9	52	86
DL508024	2.4	30	57	DL508050	5.0	52	86
DL508025	2.5	30	57	DL508051	5.1	52	86
DL508026	2.6	30	57	DL508052	5.2	52	86
DL508027	2.7	33	61	DL508053	5.3	52	86
DL508028	2.8	33	61	DL508054	5.4	57	93
DL508029	2.9	33	61	DL508055	5.5	57	93
DL508030	3.0	33	61	DL508056	5.6	57	93
DL508031	3.1	36	65	DL508057	5.7	57	93
DL508032	3.2	36	65	DL508058	5.8	57	93
DL508033	3.3	36	65	DL508059	5.9	57	93
DL508034	3.4	39	70	DL508060	6.0	57	93
DL508035	3.5	39	70	DL508061	6.1	63	101
DL508036	3.6	39	70	DL508062	6.2	63	101
DL508037	3.7	39	70	DL508063	6.3	63	101
DL508038	3.8	43	75	DL508064	6.4	63	101
DL508039	3.9	43	75	DL508065	6.5	63	101
DL508040	4.0	43	75	DL508066	6.6	63	101
DL508041	4.1	43	75	DL508067	6.7	63	101
DL508042	4.2	43	75	DL508068	6.8	69	109
DL508043	4.3	47	80	DL508069	6.9	69	109
DL508044	4.4	47	80	DL508070	7.0	69	109
DL508045	4.5	47	80	DL508071	7.1	69	109

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	34	34	34	34	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série courte COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP CORTA

►Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

►Verwendung : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 338 HSS-E 42° h8 130° Bright p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL508020	2.0	24	49	DL508046	4.6	47	80
DL508021	2.1	24	49	DL508047	4.7	47	80
DL508022	2.2	27	53	DL508048	4.8	52	86
DL508023	2.3	27	53	DL508049	4.9	52	86
DL508024	2.4	30	57	DL508050	5.0	52	86
DL508025	2.5	30	57	DL508051	5.1	52	86
DL508026	2.6	30	57	DL508052	5.2	52	86
DL508027	2.7	33	61	DL508053	5.3	52	86
DL508028	2.8	33	61	DL508054	5.4	57	93
DL508029	2.9	33	61	DL508055	5.5	57	93
DL508030	3.0	33	61	DL508056	5.6	57	93
DL508031	3.1	36	65	DL508057	5.7	57	93
DL508032	3.2	36	65	DL508058	5.8	57	93
DL508033	3.3	36	65	DL508059	5.9	57	93
DL508034	3.4	39	70	DL508060	6.0	57	93
DL508035	3.5	39	70	DL508061	6.1	63	101
DL508036	3.6	39	70	DL508062	6.2	63	101
DL508037	3.7	39	70	DL508063	6.3	63	101
DL508038	3.8	43	75	DL508064	6.4	63	101
DL508039	3.9	43	75	DL508065	6.5	63	101
DL508040	4.0	43	75	DL508066	6.6	63	101
DL508041	4.1	43	75	DL508067	6.7	63	101
DL508042	4.2	43	75	DL508068	6.8	69	109
DL508043	4.3	47	80	DL508069	6.9	69	109
DL508044	4.4	47	80	DL508070	7.0	69	109
DL508045	4.5	47	80	DL508071	7.1	69	109

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P</									
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# YG STRAIGHT SHANK DRILLS

DL508 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

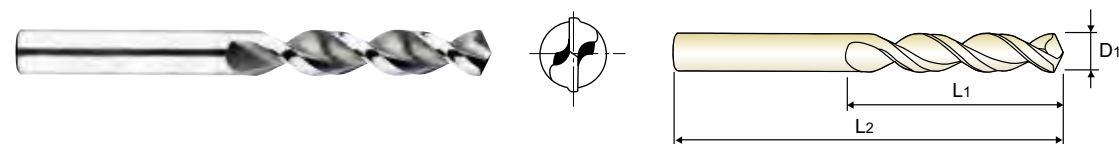
JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série courte
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

KURZ  
COURTE  
CORTA

►Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

►Verwendung : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 338 HSS-E 42° h8 130° Bright p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL508072	7.2	69	109	DL508096	9.6	87	133
DL508073	7.3	69	109	DL508097	9.7	87	133
DL508074	7.4	69	109	DL508098	9.8	87	133
DL508075	7.5	69	109	DL508099	9.9	87	133
DL508076	7.6	75	117	DL508100	10.0	87	133
DL508077	7.7	75	117	DL508102	10.2	87	133
DL508078	7.8	75	117	DL508105	10.5	87	133
DL508079	7.9	75	117	DL508110	11.0	94	142
DL508080	8.0	75	117	DL508112	11.2	94	142
DL508081	8.1	75	117	DL508115	11.5	94	142
DL508082	8.2	75	117	DL508120	12.0	101	151
DL508083	8.3	75	117	DL508125	12.5	101	151
DL508084	8.4	75	117	DL508130	13.0	101	151
DL508085	8.5	75	117	DL508135	13.5	108	160
DL508086	8.6	81	125	DL508140	14.0	108	160
DL508087	8.7	81	125	DL508145	14.5	114	169
DL508088	8.8	81	125	DL508150	15.0	114	169
DL508089	8.9	81	125	DL508155	15.5	120	178
DL508090	9.0	81	125	DL508160	16.0	120	178
DL508091	9.1	81	125				
DL508092	9.2	81	125				
DL508093	9.3	81	125				
DL508094	9.4	81	125				
DL508095	9.5	81	125				

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG STRAIGHT SHANK DRILLS

DL509 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

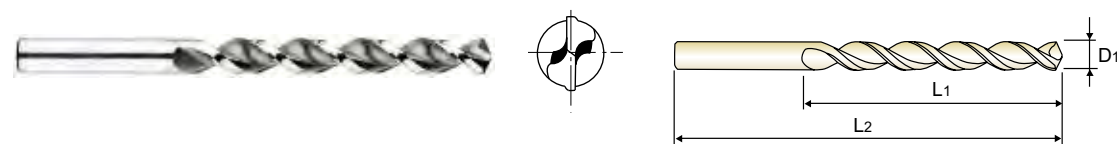
LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série longue
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

LANG  
LONGUE  
LUNGA

►Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

►Verwendung : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 340 HSS-E 42° h8 130° Bright p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL509020	2.0	56	85	DL509046	4.6	82	126
DL509021	2.1	56	85	DL509047	4.7	82	126
DL509022	2.2	59	90	DL509048	4.8	87	132
DL509023	2.3	59	90	DL509049	4.9	87	132
DL509024	2.4	62	95	DL509050	5.0	87	132
DL509025	2.5	62	95	DL509051	5.1	87	132
DL509026	2.6	62	95	DL509052	5.2	87	132
DL509027	2.7	66	100	DL509053	5.3	87	132
DL509028	2.8	66	100	DL509054	5.4	91	139
DL509029	2.9	66	100	DL509055	5.5	91	139
DL509030	3.0	66	100	DL509056	5.6	91	139
DL509031	3.1	69	106	DL509057	5.7	91	139
DL509032	3.2	69	106	DL509058	5.8	91	139
DL509033	3.3	69	106	DL509059	5.9	91	139
DL509034	3.4	73	112	DL509060	6.0	91	139
DL509035	3.5	73	112	DL509061	6.1	97	148
DL509036	3.6	73	112	DL509062	6.2	97	148
DL509037	3.7	73	112	DL509063	6.3	97	148
DL509038	3.8	78	119	DL509064	6.4	97	148
DL509039	3.9	78	119	DL509065	6.5	97	148
DL509040	4.0	78	119	DL509066	6.6	97	148
DL509041	4.1	78	119	DL509067	6.7	97	148
DL509042	4.2	78	119	DL509068	6.8	102	156
DL509043	4.3	82	126	DL509069	6.9	102	156
DL509044	4.4	82	126	DL509070	7.0	102	156
DL509045	4.5	82	126	DL509071	7.1	102	156

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG STRAIGHT SHANK DRILLS

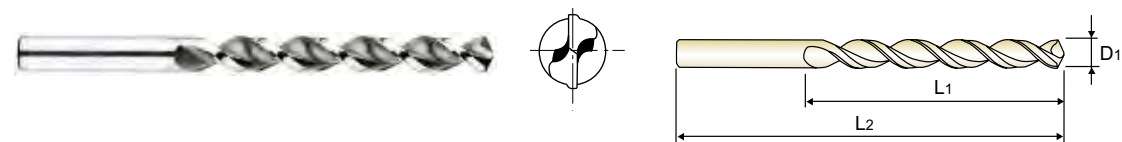
DL509 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT LANG
- Forets HSS-E, queue cylindrique pour perçage profond, série longue LONGUE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP LUNGA

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 340 HSS-E 42° h8 130° Bright p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
DL509072	7.2	102	156	DL509098	9.8	121	184
DL509073	7.3	102	156	DL509099	9.9	121	184
DL509074	7.4	102	156	DL509100	10.0	121	184
DL509075	7.5	102	156	DL509102	10.2	121	184
DL509076	7.6	109	165	DL509105	10.5	121	184
DL509077	7.7	109	165	DL509110	11.0	128	195
DL509078	7.8	109	165	DL509115	11.5	128	195
DL509079	7.9	109	165	DL509120	12.0	134	205
DL509080	8.0	109	165				
DL509081	8.1	109	165				
DL509082	8.2	109	165				
DL509083	8.3	109	165				
DL509084	8.4	109	165				
DL509085	8.5	109	165				
DL509086	8.6	115	175				
DL509087	8.7	115	175				
DL509088	8.8	115	175				
DL509089	8.9	115	175				
DL509090	9.0	115	175				
DL509091	9.1	115	175				
DL509092	9.2	115	175				
DL509093	9.3	115	175				
DL509094	9.4	115	175				
DL509095	9.5	115	175				
DL509096	9.6	121	184				
DL509097	9.7	121	184				

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					



# YG STRAIGHT SHANK DRILLS

DL505 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES JOBBER

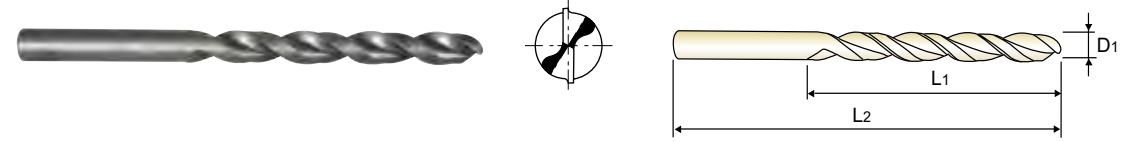
- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série courte COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 338 HSS-E 38° h8 130° Vap p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
DL505020	2.0	24	49	DL505046	4.6	47	80
DL505021	2.1	24	49	DL505047	4.7	47	80
DL505022	2.2	27	53	DL505048	4.8	52	86
DL505023	2.3	27	53	DL505049	4.9	52	86
DL505024	2.4	30	57	DL505050	5.0	52	86
DL505025	2.5	30	57	DL505051	5.1	52	86
DL505026	2.6	30	57	DL505052	5.2	52	86
DL505027	2.7	33	61	DL505053	5.3	52	86
DL505028	2.8	33	61	DL505054	5.4	57	93
DL505029	2.9	33	61	DL505055	5.5	57	93
DL505030	3.0	33	61	DL505056	5.6	57	93
DL505031	3.1	36	65	DL505057	5.7	57	93
DL505032	3.2	36	65	DL505058	5.8	57	93
DL505033	3.3	36	65	DL505059	5.9	57	93
DL505034	3.4	39	70	DL505060	6.0	57	93
DL505035	3.5	39	70	DL505061	6.1	63	101
DL505036	3.6	39	70	DL505062	6.2	63	101
DL505037	3.7	39	70	DL505063	6.3	63	101
DL505038	3.8	43	75	DL505064	6.4	63	101
DL505039	3.9	43	75	DL505065	6.5	63	101
DL505040	4.0	43	75	DL505066	6.6	63	101
DL505041	4.1	43	75	DL505067	6.7	63	101
DL505042	4.2	43	75	DL505068	6.8	69	109
DL505043	4.3	47	80	DL505069	6.9	69	109
DL505044	4.4	47	80	DL505070	7.0	69	109
DL505045	4.5	47	80	DL505071	7.1	69	109

► TIN(DN505), TICN(DX505) and TIAIN(DT505) are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

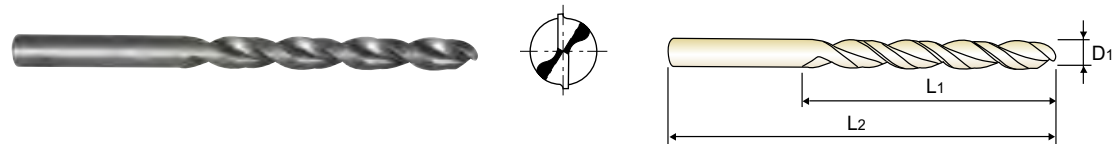
# YG STRAIGHT SHANK DRILLS

DL505 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série courte COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish) ► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys. ► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 338 HSS-E 38° h8 130° Vap p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL505072	7.2	69	109	DL505098	9.8	87	133
DL505073	7.3	69	109	DL505099	9.9	87	133
DL505074	7.4	69	109	DL505100	10.0	87	133
DL505075	7.5	69	109	DL505101	10.1	87	133
DL505076	7.6	75	117	DL505102	10.2	87	133
DL505077	7.7	75	117	DL505105	10.5	87	133
DL505078	7.8	75	117	DL505108	10.8	94	142
DL505079	7.9	75	117	DL505110	11.0	94	142
DL505080	8.0	75	117	DL505112	11.2	94	142
DL505081	8.1	75	117	DL505115	11.5	94	142
DL505082	8.2	75	117	DL505118	11.8	94	142
DL505083	8.3	75	117	DL505120	12.0	101	151
DL505084	8.4	75	117	DL505122	12.2	101	151
DL505085	8.5	75	117	DL505125	12.5	101	151
DL505086	8.6	81	125	DL505128	12.8	101	151
DL505087	8.7	81	125	DL505130	13.0	101	151
DL505088	8.8	81	125				
DL505089	8.9	81	125				
DL505090	9.0	81	125				
DL505091	9.1	81	125				
DL505092	9.2	81	125				
DL505093	9.3	81	125				
DL505094	9.4	81	125				
DL505095	9.5	81	125				
DL505096	9.6	87	133				
DL505097	9.7	87	133				

► TIN(DN505), TICN(DX505) and TIAIN(DT505) are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



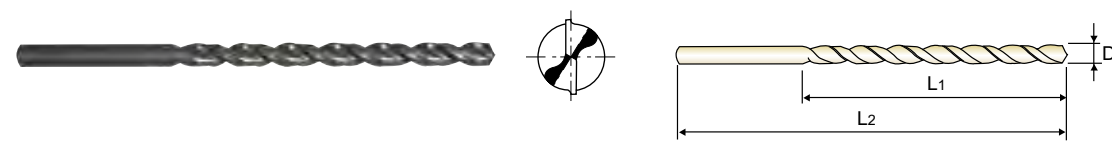
# YG STRAIGHT SHANK DRILLS

DL504 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT LANG
- Forets HSS-E, queue cylindrique pour perçage profond, série longue LONGUE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP LUNGA

► **Surface treatment** : Steam Tempered(Black Oxide Finish) ► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys. ► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 340 HSS-E 38° h8 130° Vap p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL504020	2.0	56	85	DL504055	5.5	91	139
DL504021	2.1	56	85	DL504058	5.8	91	139
DL504022	2.2	59	90	DL504060	6.0	91	139
DL504023	2.3	59	90	DL504062	6.2	97	148
DL504024	2.4	62	95	DL504065	6.5	97	148
DL504025	2.5	62	95	DL504068	6.8	102	156
DL504026	2.6	62	95	DL504070	7.0	102	156
DL504027	2.7	66	100	DL504072	7.2	102	156
DL504028	2.8	66	100	DL504075	7.5	102	156
DL504029	2.9	66	100	DL504078	7.8	109	165
DL504030	3.0	66	100	DL504080	8.0	109	165
DL504031	3.1	69	106	DL504082	8.2	109	165
DL504032	3.2	69	106	DL504085	8.5	109	165
DL504033	3.3	69	106	DL504090	9.0	115	175
DL504034	3.4	73	112	DL504095	9.5	115	175
DL504035	3.5	73	112	DL504098	9.8	121	184
DL504036	3.6	73	112	DL504100	10.0	121	184
DL504037	3.7	73	112	DL504105	10.5	121	184
DL504038	3.8	78	119	DL504110	11.0	128	195
DL504039	3.9	78	119	DL504115	11.5	128	195
DL504040	4.0	78	119	DL504120	12.0	134	205
DL504042	4.2	78	119	DL504125	12.5	134	205
DL504045	4.5	82	126	DL504130	13.0	134	205
DL504048	4.8	87	132				
DL504050	5.0	87	132				
DL504052	5.2	87	132				

► TIN(DN504), TICN(DX504) and TIAIN(DT504) are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

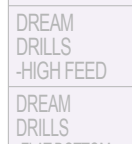
  

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT LANG
- Forets HSS-E, queue cylindrique pour perçage profond, série longue LONGUE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP LUNGA

► **Surface treatment** : Steam Tempered(Black Oxide Finish) ► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys. ► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 340 HSS-E 38° h8 130° Vap p.A264

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL504020	2.0	56	85	DL504055	5.5	91	139
DL504021	2.1	56	85	DL504058	5.8	91	139
DL504022	2.2	59	90	DL504060	6.0	91	139
DL504023	2.3	59	90	DL504062	6.2	97	148
DL504024	2.4	62	95	DL504065	6.5	97	148
DL504025	2.5	62	95	DL504068	6.8	102	156
DL504026	2.6	62	95	DL504070	7.0	102	156
DL504027	2.7	66	100	DL504072	7.2	102	156
DL504028	2.8	66	100	DL504075	7.5	102	156
DL504029	2.9	66	100	DL504078	7.8	109	165
DL504030	3.0	66	100	DL504080	8.0	109	165
DL504031	3.1	69	106	DL504082	8.2	109	165
DL504032	3.2	69	106	DL504085	8.5	109	165
DL504033	3.3	69	106	DL504090	9.0	115	175
DL504034	3.4	73	112	DL504095	9.5	115	175
DL504035	3.5	73	112	DL504098	9.8	121	184
DL504036	3.6	73	112	DL504100	10.0	121	184
DL504037	3.7	73	112	DL504105	10.5	121	184
DL504038	3.8	78	119	DL504110	11.0	128	195
DL504039	3.9	78	119	DL50			



# YIG STRAIGHT SHANK DRILLS

DT600 SERIES

DT692 SERIES

DT693 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

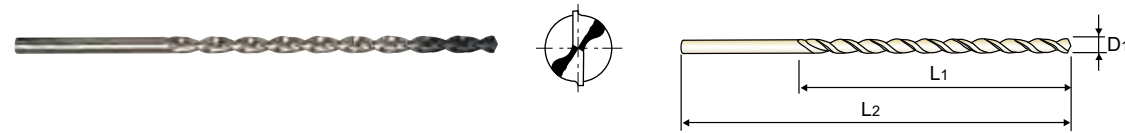
EXTRA LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, Forme C, série extra-longue
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

ÜBERLANG  
EXTRA-LONGUE  
EXTRA LUNGA

► **Surface treatment** : TiAlN coating on working area.  
► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 1869/1, DIN 1869/2, DIN 1869/3, HSS-E, 38°, h8, 130°, TiAlN, p.A265

Plain Shank, Recommended ToolHolder, ER COLLET CHUCK, D73-115, Page

#### DT600 SERIES (DIN1869/1)

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DT600020	2.0	85	125
DT600025	2.5	95	140
DT600030	3.0	100	150
DT600035	3.5	115	165
DT600040	4.0	120	175
DT600045	4.5	125	185
DT600050	5.0	135	195
DT600055	5.5	140	205
DT600060	6.0	140	205
DT600065	6.5	150	215
DT600070	7.0	155	225
DT600075	7.5	155	225
DT600080	8.0	165	240
DT600085	8.5	165	240
DT600090	9.0	175	250
DT600095	9.5	175	250
DT600100	10.0	185	265
DT600105	10.5	185	265

#### DT692 SERIES (DIN1869/2)

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DT692030	3.0	130	190
DT692035	3.5	145	210
DT692040	4.0	150	220
DT692045	4.5	160	235
DT692050	5.0	170	245
DT692055	5.5	180	260
DT692060	6.0	180	260
DT692065	6.5	190	275
DT692070	7.0	200	290
DT692075	7.5	200	290
DT692080	8.0	210	305
DT692085	8.5	210	305
DT692090	9.0	220	320
DT692095	9.5	220	320
DT692100	10.0	235	340
DT692102	10.2	235	340

#### DT693 SERIES (DIN1869/3)

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DT693040	4.0	190	280
DT693050	5.0	210	315
DT693060	6.0	225	330
DT693080	8.0	265	390
DT693100	10.0	295	430

► TiN(DN600) and TiCN(DX600) are available on your request.

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N							S							H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550
Recommended																						



# YIG STRAIGHT SHANK DRILLS

DL608 SERIES

## HSS-E, MORSE TAPER SHANK TWIST DRILLS for DEEP HOLES

LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT
- Forets HSS-E, queue cône morse pour perçage profond, série longue
- PUNTE IN HSS - E, ATTACCO CONO MORSE PER FORI NON - STOP

LANG  
LONGUE  
LUNGA

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



### ► DH100 worm pattern drills

DIN 341, HSS-E, 38°, 1~3, h8, 130°, Bright, p.A264

Plain Shank, Recommended ToolHolder, ER COLLET CHUCK, D73-115, Page

EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper
	D1	L1	L2	
DL608130	13.0	134	215	1
DL608135	13.5	142	223	1
DL608140	14.0	142	223	1
DL608145	14.5	147	245	2
DL608150	15.0	147	245	2
DL608155	15.5	153	251	2
DL608160	16.0	153	251	2
DL608165	16.5	159	257	2
DL608170	17.0	159	257	2
DL608175	17.5	165	263	2
DL608180	18.0	165	263	2
DL608185	18.5	171	269	2
DL608190	19.0	171	269	2

EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper
	D1	L1	L2	
DL608195	19.5	177	275	2
DL608200	20.0	177	275	2
DL608210	21.0	184	282	2
DL608220	22.0	191	289	2
DL608230	23.0	198	296	2
DL608240	24.0	206	327	3
DL608250	25.0	206	327	3
DL608260	26.0	214	335	3
DL608270	27.0	222	343	3
DL608280	28.0	222	343	3
DL608290	29.0	230	351	3
DL608300	30.0	230	351	3

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N							S							H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550
Recommended																						

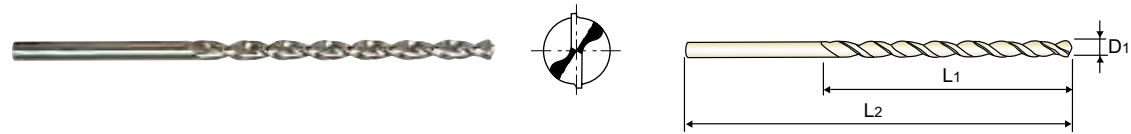
# YIG STRAIGHT SHANK DRILLS

DL507 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES EXTRA LONG

🇩🇪 HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT **ÜBERLANG**  
🇫🇷 Forets HSS-E, queue cylindrique pour ALU, perçage profond, série extra-longue **EXTRA-LONGUE**  
🇮🇹 PUNTE HSS-E, GAMBO CILINDRICO PER FORATURE NON - STOP SU ALLUMINIO **EXTRA LUNGA**

**►Application :** Drilling deep holes in aluminum and its alloys, silumini, zinc, refined copper, wood and other soft synthetic materials.  
**►Verwendung :** Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunststoffe und Holz.



### ► DH50 worm pattern drills



Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
DL507120	2.0	40	75	DL507430	3.0	100	200
DL507121	2.1	40	75	DL507433	3.3	100	200
DL507220	2.0	50	100	DL507435	3.5	100	200
DL507221	2.1	50	100	DL507440	4.0	100	200
DL507225	2.5	50	100	DL507442	4.2	100	200
DL507227	2.7	50	100	DL507445	4.5	100	200
DL507230	3.0	50	100	DL507450	5.0	100	200
DL507233	3.3	50	100	DL507453	5.3	100	200
DL507235	3.5	50	100	DL507455	5.5	100	200
DL507320	2.0	75	150	DL507460	6.0	100	200
DL507321	2.1	75	150	DL507465	6.5	100	200
DL507325	2.5	75	150	DL507468	6.8	100	200
DL507327	2.7	75	150	DL507470	7.0	100	200
DL507330	3.0	75	150	DL507475	7.5	100	200
DL507333	3.3	75	150	DL507480	8.0	100	200
DL507335	3.5	75	150	DL507485	8.5	100	200
DL507340	4.0	75	150	DL507488	8.8	100	200
DL507342	4.2	75	150	DL507490	9.0	100	200
DL507345	4.5	75	150	DL507495	9.5	100	200
DL507350	5.0	75	150	DL507700	10.0	100	200
DL507353	5.3	75	150	DL507540	4.0	150	250
DL507355	5.5	75	150	DL507542	4.2	150	250
DL507360	6.0	75	150	DL507545	4.5	150	250
				DL507550	5.0	150	250
				DL507553	5.3	150	250

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○																			

ISO Material Description	N						S										H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○																		



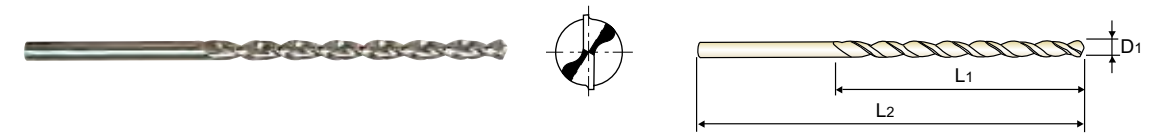
# YIG STRAIGHT SHANK DRILLS

DL507 SERIES

## HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES EXTRA LONG

🇩🇪 HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT **ÜBERLANG**  
🇫🇷 Forets HSS-E, queue cylindrique pour ALU, perçage profond, série extra-longue **EXTRA-LONGUE**  
🇮🇹 PUNTE HSS-E, GAMBO CILINDRICO PER FORATURE NON - STOP SU ALLUMINIO **EXTRA LUNGA**

**►Application :** Drilling deep holes in aluminum and its alloys, silumini, zinc, refined copper, wood and other soft synthetic materials.  
**►Verwendung :** Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunststoffe und Holz.



### ► DH50 worm pattern drills



Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
DL507555	5.5	150	250	DL507650	5.0	180	300
DL507560	6.0	150	250	DL507653	5.3	180	300
DL507565	6.5	150	250	DL507655	5.5	180	300
DL507568	6.8	150	250	DL507660	6.0	180	300
DL507570	7.0	150	250	DL507665	6.5	180	300
DL507575	7.5	150	250	DL507668	6.8	180	300
DL507580	8.0	150	250	DL507670	7.0	180	300
DL507585	8.5	150	250	DL507675	7.5	180	300
DL507588	8.8	150	250	DL507680	8.0	180	300
DL507590	9.0	150	250	DL507685	8.5	180	300
DL507595	9.5	150	250	DL507688	8.8	180	300
DL507800	10.0	150	250	DL507690	9.0	180	300
DL507803	10.3	150	250	DL507695	9.5	180	300
DL507805	10.5	150	250	DL507900	10.0	180	300
DL507810	11.0	150	250	DL507903	10.3	180	300
DL507815	11.5	150	250	DL507905	10.5	180	300
DL507820	12.0	150	250	DL507910	11.0	180	300
DL507825	12.5	150	250	DL507915	11.5	180	300
DL507830	13.0	150	250	DL507920	12.0	180	300
				DL507925	12.5	180	300
				DL507930	13.0	180	300

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel					Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○																			

ISO Material Description	N						S										H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○																		



RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

D2107, D1107, D2105, DL105, D1105,  
D1125, D2104, D1121, DL109 SERIES

HSS, HSS-E & HSSCo8  
COBALT DRILLS

Vc = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)												
					2.0	3.0	4.0	6.0	8.0	10.0	13.0	16.0	18.0	20.0	30.0		
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320		
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28		
			25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270		
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28		
	20		RPM	3180	2120	1590	1060	800	640	490	400	350	320	210			
			FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28			
	20		RPM	3180	2120	1590	1060	800	640	490	400	350	320	210			
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18			
	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270				
		FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28				
20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210					
	FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28					
20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210					
	FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18					
20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210					
	FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28					
10	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	800	600	480	370	300	270	240	160			
			FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28			
M	12	Stainless steel	20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210		
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28		
				RPM	2390	1590	1190	800	600	480	370	300	270	240	160		
10	Stainless steel	15	FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28			
			RPM	1590	1060	800	530	400	320	240	200	180	160	110			
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18			
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320		
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28		
	25		RPM	3980	2650	1990	1330	990	800	610	500	440	400	270			
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18			
30	Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320			
			FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28			
25	Malleable cast iron	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270			
			FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28			
N	21	Aluminum-wrought alloy	55	RPM	8750	5840	4380	2920	2190	1750	1350	1090	970	880	580		
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38		
	55		RPM	8750	5840	4380	2920	2190	1750	1350	1090	970	880	580			
			FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38			
	40		Aluminum-cast, alloyed	40	RPM	6370	4240	3180	2120	1590	1270	980	800	710	640	420	
					FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38	
20	Non Metallic Materials	20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210			
			FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28			
36	Titanium Alloys	10	RPM	1590	1060	800	530	400	320	240	200	180	160	110			
			FEED	0.01~0.03	0.02~0.04	0.03~0.05	0.04~0.07	0.05~0.08	0.05~0.09	0.06~0.10	0.05~0.11	0.06~0.12	0.09~0.13	0.12~0.18			



RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

D1100 SERIES

HSS, TWIST DRILLS for BRASS / BRONZE

Vc = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)								
					1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0
N	27	Copper and Copper Alloys (Bronze / Brass)	45	RPM	9550	7160	4770	3580	2860	2390	1790	1430	1100
				FEED	0.03~0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.12~0.16	0.16~0.20	0.19~0.25	0.22~0.32
28	30		RPM	6370	4770	3180	2390	1910	1590	1190	950	730	
			FEED	0.01~0.03	0.02~0.05	0.03~0.06	0.04~0.08	0.05~0.09	0.07~0.11	0.09~0.13	0.10~0.16	0.11~0.21	

D1106 SERIES

HSS, TWIST DRILLS for ALUMINUM

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)								
					1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0
N	21	Aluminum-wrought alloy	50	RPM	10610	7960	5310	3980	3180	2650	1990	1590	1220
				FEED	0.03~0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	22		50	RPM	10610	7960	5310	3980	3180	2650	1990	1590	1220
				FEED	0.03~0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	23	Aluminum-cast, alloyed	40	RPM	8490	6370	4240	3180	2550	2120	1590	1270	980
				FEED	0.03~0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
24	30		RPM	6370	4770	3180	2390	1910	1590	1190	950	730	
			FEED	0.01~0.04	0.03~0.06	0.03~0.07	0.04~0.08	0.05~0.09	0.04~0.10	0.06~0.12	0.10~0.16	0.12~0.22	







RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

DL510, DL508, DL509,  
DL505, DL504, DL608 SERIES

HSS-E, DH100 WORM  
PATTERN DRILLS

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)												
					2.0	3.0	4.0	6.0	8.0	10.0	13.0	16.0	18.0	20.0	30.0		
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320		
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28		
			25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270		
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28		
	20		RPM	3180	2120	1590	1060	800	640	490	400	350	320	210			
			FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28			
	4		RPM	3180	2120	1590	1060	800	640	490	400	350	320	210			
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18			
	6	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270				
		FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28				
7	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210					
	FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28					
8	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210					
	FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18					
10	RPM	2390	1590	1190	800	600	480	370	300	270	240	160					
	FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28					
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320		
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28		
	25		RPM	3980	2650	1990	1330	990	800	610	500	440	400	270			
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18			
	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320				
		FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28				
	20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210				
		FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18				
	17	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270				
		FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28				
	18	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210				
		FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18				
19	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270					
	FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28					
20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210					
	FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18					



RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

DT600, DT692, DT693 SERIES

HSS-E, DH100 WORM PATTERN DRILLS (EXTRA LONG)

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)						
					2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
			15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	10		RPM	1590	1060	800	530	400	320	240	
			FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16	
	10		RPM	1590	1060	800	530	400	320	240	
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	
	6	RPM	2390	1590	1190	800	600	480	370		
		FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16		
7	RPM	1590	1060	800	530	400	320	240			
	FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16			
8	RPM	1590	1060	800	530	400	320	240			
	FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10			
10	RPM	800	530	400	270	200	160	120			
	FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16			
K	15	Grey cast iron	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	15		RPM	2390	1590	1190	800	600	480	370	
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	
	20	RPM	3180	2120	1590	1060	800	640	490		
		FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16		
	17	RPM	1590	1060	800	530	400	320	240		
		FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10		
	18	RPM	2390	1590	1190	800	600	480	370		
		FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16		
19	RPM	1590	1060	800	530	400	320	240			
	FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10			
20	RPM	2390	1590	1190	800	600	480	370			
	FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16			
10	RPM	1590	1060	800	530	400	320	240			
	FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10			

DL507 SERIES

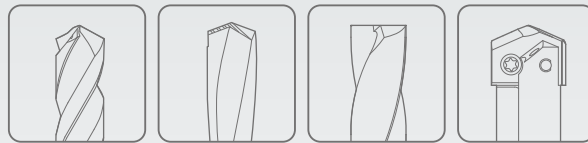
HSS-E, DH50 WORM PATTERN DRILLS

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)						
					2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01~0.03	0.02~0.04	0.03~0.06	0.04~0.08	0.04~0.10	0.07~0.13	0.09~0.15
N	21	Aluminum-wrought alloy	55	RPM	8750	5840	4380	2920	2190	1750	1350
				FEED	0.02~0.04	0.03~0.06	0.04~0.08	0.08~0.12	0.10~0.16	0.14~0.20	0.16~0.26
	22	Aluminum-wrought alloy	45	RPM	7160	4770	3580	2390	1790	1430	1100
				FEED	0.02~0.04	0.03~0.06	0.04~0.08	0.08~0.12	0.10~0.16	0.14~0.20	0.16~0.26
23	Aluminum-cast, alloyed	40	RPM	6370	4240	3180	2120	1590	1270	980	
			FEED	0.02~0.04	0.03~0.06	0.04~0.08	0.08~0.12	0.10~0.16	0.14~0.20	0.16~0.26	





Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation



HSS & HSS-E

# MORSE TAPER SHANK DRILLS

## BOHRER MIT MK

- Morse Taper Shank Drills for Wide Applications
- Bohrer mit Morsekegel für breite Anwendungen





SELECTION GUIDE



SERIES	DL205	D1205	D1206
STANDARD	DIN345	DIN345	DIN341
LENGTH	JOBBER	JOBBER	LONG
SIZE MIN	D13.0	D5.0	D13.0
SIZE MAX	D30.0	D60.0	D30.0
PAGE	A270	A271	A274

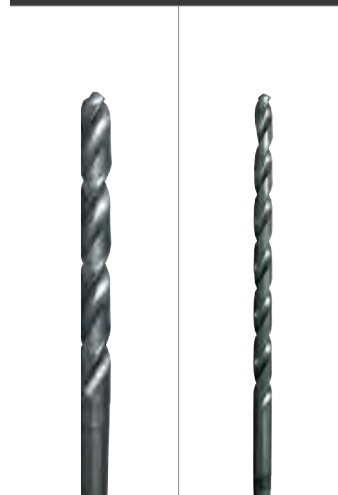
D1209	D1210
DIN1870/1	DIN1870/2
EXTRA LONG	EXTRA LONG
D13.0	D13.0
D50.0	D50.0
A275	A276

SURFACE TREATMENT	Bright	Steam Tempered
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Steam Tempered
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# HSS & HSS-E MORSE TAPER SHANK DRILLS

Morse Taper Shank Drills for Wide Applications



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A277

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc		
P	1	Non-alloy steel	About 0.15% C Annealed	125	◎		
	2		About 0.45% C Annealed	190	13	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	
	4		About 0.75% C Annealed	270	28	○	
	5		About 0.75% C Quenched & Tempered	300	32	○	
	6	Low alloy steel	Annealed	180	10	◎	
	7		Quenched & Tempered	275	29	○	
	8		Quenched & Tempered	300	32	○	
	9		Quenched & Tempered	350	38	○	
	10		High alloyed steel, and tool steel	Annealed	200	15	○
	11	Quenched & Tempered	325	35	○		
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	
	13		Martensitic Quenched & Tempered	240	23	○	
	14		Austenitic	180	10	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	
	16		Pearlitic (Martensitic)	260	26	○	
	17	Nodular cast iron	Ferritic	160	3	○	
	18		Pearlitic	250	25	○	
	19		Ferritic	130	○		
20	Malleable cast iron	Pearlitic	230	21	○		
N	21	Aluminum-wrought alloy	Not Curable	60	○		
	22		Curable Hardened	100	○		
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	○		
	24		≤ 12% Si, Curable Hardened	90	○		
	25		> 12% Si, Not Curable	130	○		
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	○		
	27		CuZn, CuSnZn (Brass)	90	○		
28		CuSn, lead-free copper and electrolytic copper	100	○			
29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic	○	○	○		
30		Rubber, Wood, etc.	○	○	○		
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○	
	32		Cured	280	30	○	
	33		Annealed	250	25	○	
	34		Ni or Co Based Cured	350	38	○	
	35		Cast	320	34	○	
	36	Titanium Alloys	Pure Titanium	400 Rm	○	○	○
	37		Alpha + Beta Alloys Hardened	1050 Rm	○	○	○
H	38	Hardened steel	Hardened	550	55	○	
	39		Hardened	630	60	○	
	40		Chilled Cast Iron	Cast	400	42	○
41	Hardened Cast Iron	Hardened	550	55	○		

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	
P	1	Non-alloy steel	About 0.15% C Annealed	125	◎	
	2		About 0.45% C Annealed	190	13	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎
	4		About 0.75% C Annealed	270	28	○
	5		About 0.75% C Quenched & Tempered	300	32	○
	6	Low alloy steel	Annealed	180	10	◎
	7		Quenched & Tempered	275	29	○
	8		Quenched & Tempered	300	32	○
	9		Quenched & Tempered	350	38	○
	10		High alloyed steel, and tool steel	Annealed	200	15
	11	Quenched & Tempered	325	35	○	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎
	13		Martensitic Quenched & Tempered	240	23	○
	14		Austenitic	180	10	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○
	16		Pearlitic (Martensitic)	260	26	○
	17	Nodular cast iron	Ferritic	160	3	○
	18		Pearlitic	250	25	○
	19		Ferritic	130	○	
20	Malleable cast iron	Pearlitic	230	21	○	
N	21	Aluminum-wrought alloy	Not Curable	60	○	
	22		Curable Hardened	100	○	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	○	
	24		≤ 12% Si, Curable Hardened	90	○	
	25		> 12% Si, Not Curable	130	○	
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	○	
	27		CuZn, CuSnZn (Brass)	90	○	
28		CuSn, lead-free copper and electrolytic copper	100	○		
29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic	○	○	○	
30		Rubber, Wood, etc.	○	○	○	
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○
	32		Cured	280	30	○
	33		Annealed	250	25	○
	34		Ni or Co Based Cured	350	38	○
	35		Cast	320	34	○
	36	Titanium Alloys	Pure Titanium	400 Rm	○	○
	37		Alpha + Beta Alloys Hardened	1050 Rm	○	○
H	38	Hardened steel	Hardened	550	55	○
	39		Hardened	630	60	○
	40		Chilled Cast Iron	Cast	400	42
41	Hardened Cast Iron	Hardened	550	55	○	



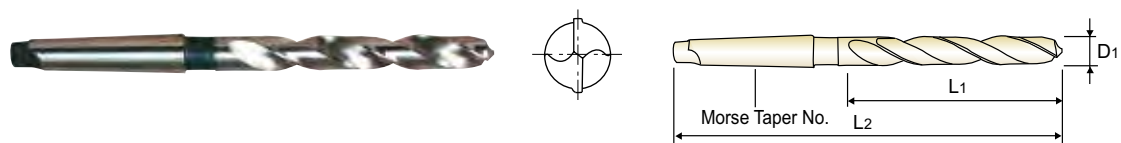
# YG MORSE TAPER SHANK DRILLS

DL205 SERIES

## HSS-E, MORSE TAPER SHANK TWIST DRILLS for HEAVY DUTY JOBBER

- HSS-E, SPIRALBOHRER für HOHELEISTUNGEN mit MORSEKEGELSCHAFT KURZ
- Forets HSS-E, queue cône morse pour matériaux durs, série courte COURTE
- HSS-E, PUNTE ELICOIDALI, ATTACCO CM PER LAVORAZIONI GRAVOSE CORTA

► **Surface treatment** : Bright Finish ► **Oberflächenbehandlung** : Helle Beschaffenheit  
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite. ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphit.



DIN 345 HSS-E N 30° 1~3 h8 118° Bright p.A277

Recommended ToolHolder MORSE TAPER ARBOR D177-181 Plain Shank Page

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.	EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.
	D1	L1	L2			D1	L1	L2	
DL205130	13.0	101	182	1	DL205220	22.0	150	248	2
DL205135	13.5	108	189	1	DL205225	22.5	155	253	2
DL205140	14.0	108	189	1	DL205230	23.0	155	253	2
DL205145	14.5	114	212	2	DL205235	23.5	155	276	3
DL205150	15.0	114	212	2	DL205240	24.0	160	281	3
DL205155	15.5	120	218	2	DL205245	24.5	160	281	3
DL205160	16.0	120	218	2	DL205250	25.0	160	281	3
DL205165	16.5	125	223	2	DL205255	25.5	165	286	3
DL205170	17.0	125	223	2	DL205260	26.0	165	286	3
DL205175	17.5	130	228	2	DL205265	26.5	165	286	3
DL205180	18.0	130	228	2	DL205270	27.0	170	291	3
DL205185	18.5	135	233	2	DL205275	27.5	170	291	3
DL205190	19.0	135	233	2	DL205280	28.0	170	291	3
DL205195	19.5	140	238	2	DL205285	28.5	175	296	3
DL205200	20.0	140	238	2	DL205290	29.0	175	296	3
DL205205	20.5	145	243	2	DL205295	29.5	175	296	3
DL205210	21.0	145	243	2	DL205300	30.0	175	296	3
DL205215	21.5	150	248	2					

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	180	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	○	○	○						○							○					



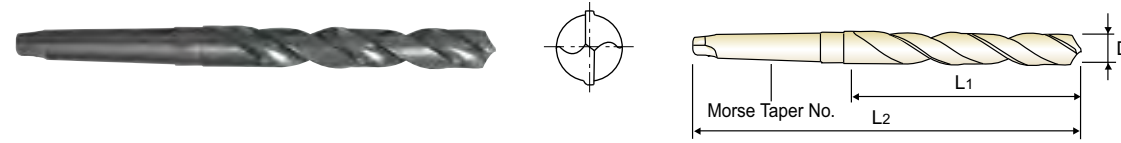
# YG MORSE TAPER SHANK DRILLS

D1205 SERIES

## HSS, MORSE TAPER SHANK TWIST DRILLS JOBBER

- HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT KURZ
- Forets HSS, queue cône morse, série courte COURTE
- PUNTE ELICOIDALI IN HSS, ATTACCO CM CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish) ► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite. ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphit.



DIN 345 HSS N 30° 1~5 h8 118° Vap p.A277

Recommended ToolHolder MORSE TAPER ARBOR D177-181 Plain Shank Page

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.	EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.
	D1	L1	L2			D1	L1	L2	
D1205050	5.0	52	133	1	D1205150	15.0	114	212	2
D1205055	5.5	57	138	1	D120515A	15.25	120	218	2
D1205060	6.0	57	138	1	D1205155	15.5	120	218	2
D1205065	6.5	63	144	1	D120515B	15.75	120	218	2
D1205070	7.0	69	150	1	D1205160	16.0	120	218	2
D1205075	7.5	69	150	1	D120516A	16.25	125	223	2
D1205080	8.0	75	156	1	D1205165	16.5	125	223	2
D1205085	8.5	75	156	1	D120516B	16.75	125	223	2
D1205090	9.0	81	162	1	D1205170	17.0	125	223	2
D1205095	9.5	81	162	1	D120517A	17.25	130	228	2
D1205100	10.0	87	168	1	D1205175	17.5	130	228	2
D1205105	10.5	87	168	1	D120517B	17.75	130	228	2
D1205110	11.0	94	175	1	D1205180	18.0	130	228	2
D1205115	11.5	94	175	1	D120518A	18.25	135	233	2
D1205120	12.0	101	182	1	D1205185	18.5	135	233	2
D1205125	12.5	101	182	1	D120518B	18.75	135	233	2
D1205130	13.0	101	182	1	D1205190	19.0	135	233	2
D1205132	13.2	101	182	1	D120519A	19.25	140	238	2
D120513A	13.25	108	189	1	D1205195	19.5	140	238	2
D1205135	13.5	108	189	1	D120519B	19.75	140	238	2
D120513B	13.75	108	189	1	D1205200	20.0	140	238	2
D1205138	13.8	108	189	1	D120520A	20.25	145	243	2
D1205140	14.0	108	189	1	D1205205	20.5	145	243	2
D120514A	14.25	114	212	2	D120520B	20.75	145	243	2
D1205145	14.5	114	212	2	D1205210	21.0	145	243	2
D120514B	14.75	114	212	2	D120521A	21.25	150	248	2

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	180	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	○	○	○						○							○					

# YIG MORSE TAPER SHANK DRILLS

D1205 SERIES

## HSS, MORSE TAPER SHANK TWIST DRILLS

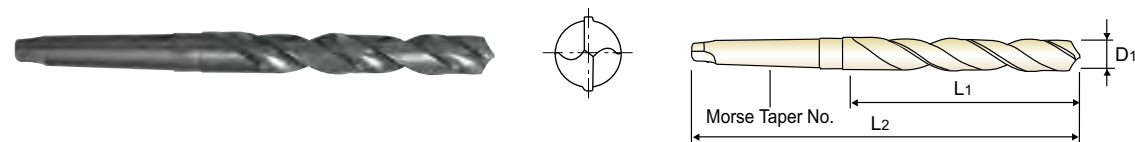
JOBBER

- HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
- Forets HSS, queue cône morse, série courte
- PUNTE ELICOIDALI IN HSS, ATTACCO CM

- KURZ
- COURTE
- CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphit.



DIN 345 HSS N 30° 1~5 h8 118° Vap p.A277

Plain Shank Page  
 Recommended ToolHolder MORSE TAPER ARBOR D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205215	21.5	150	248	2	D1205280	28.0	170	291	3
D120521B	21.75	150	248	2	D120528A	28.25	175	296	3
D1205220	22.0	150	248	2	D1205285	28.5	175	296	3
D120522A	22.25	150	248	2	D120528B	28.75	175	296	3
D1205225	22.5	155	253	2	D1205290	29.0	175	296	3
D120522B	22.75	155	253	2	D120529A	29.25	175	296	3
D1205230	23.0	155	253	2	D1205295	29.5	175	296	3
D120523A	23.25	155	276	3	D120529B	29.75	175	296	3
D1205235	23.5	155	276	3	D1205300	30.0	175	296	3
D120523B	23.75	160	281	3	D120530A	30.25	180	301	3
D1205240	24.0	160	281	3	D1205305	30.5	180	301	3
D120524A	24.25	160	281	3	D120530B	30.75	180	301	3
D1205245	24.5	160	281	3	D1205310	31.0	180	301	3
D120524B	24.75	160	281	3	D120531A	31.25	180	301	3
D1205250	25.0	160	281	3	D1205315	31.5	180	301	3
D120525A	25.25	165	286	3	D120531B	31.75	185	306	3
D1205255	25.5	165	286	3	D1205320	32.0	185	334	4
D120525B	25.75	165	286	3	D1205325	32.5	185	334	4
D1205260	26.0	165	286	3	D1205330	33.0	185	334	4
D120526A	26.25	165	286	3	D1205335	33.5	185	334	4
D1205265	26.5	165	286	3	D1205340	34.0	190	339	4
D120526B	26.75	170	291	3	D1205345	34.5	190	339	4
D1205270	27.0	170	291	3	D1205350	35.0	190	339	4
D120527A	27.25	170	291	3	D1205355	35.5	190	339	4
D1205275	27.5	170	291	3	D1205360	36.0	195	344	4
D120527B	27.75	170	291	3	D1205365	36.5	195	344	4

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	30	38	35	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	30	25	38	34	34	15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					



# YIG MORSE TAPER SHANK DRILLS

D1205 SERIES

## HSS, MORSE TAPER SHANK TWIST DRILLS

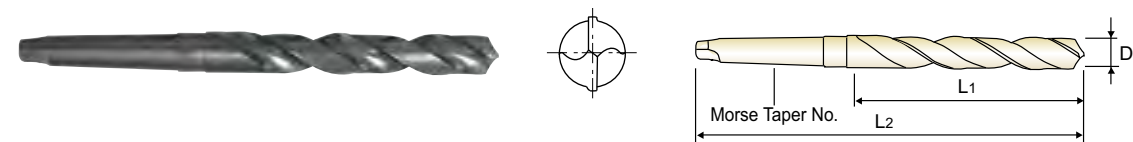
JOBBER

- HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
- Forets HSS, queue cône morse, série courte
- PUNTE ELICOIDALI IN HSS, ATTACCO CM

- KURZ
- COURTE
- CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphit.



DIN 345 HSS N 30° 1~5 h8 118° Vap p.A277

Plain Shank Page  
 Recommended ToolHolder MORSE TAPER ARBOR D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205370	37.0	195	344	4	D1205500	50.0	220	369	4
D1205375	37.5	195	344	4	D1205505	50.5	225	374	4
D1205380	38.0	200	349	4	D1205510	51.0	225	412	5
D1205385	38.5	200	349	4	D1205520	52.0	225	412	5
D1205390	39.0	200	349	4	D1205530	53.0	225	412	5
D1205395	39.5	200	349	4	D1205540	54.0	230	417	5
D1205400	40.0	200	349	4	D1205550	55.0	230	417	5
D1205405	40.5	205	354	4	D1205560	56.0	230	417	5
D1205410	41.0	205	354	4	D1205570	57.0	235	422	5
D1205415	41.5	205	354	4	D1205580	58.0	235	422	5
D1205420	42.0	205	354	4	D1205590	59.0	235	422	5
D1205425	42.5	205	354	4	D1205600	60.0	235	422	5
D1205430	43.0	210	359	4					
D1205435	43.5	210	359	4					
D1205440	44.0	210	359	4					
D1205445	44.5	210	359	4					
D1205450	45.0	210	359	4					
D1205455	45.5	215	364	4					
D1205460	46.0	215	364	4					
D1205465	46.5	215	364	4					
D1205470	47.0	215	364	4					
D1205475	47.5	215	364	4					
D1205480	48.0	220	369	4					
D1205485	48.5	220	369	4					
D1205490	49.0	220	369	4					
D1205495	49.5	220	369	4					

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	30	38	35	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	30	25	38	34	34	15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA



# YIG MORSE TAPER SHANK DRILLS

D1206 SERIES

## HSS, MORSE TAPER SHANK TWIST DRILLS

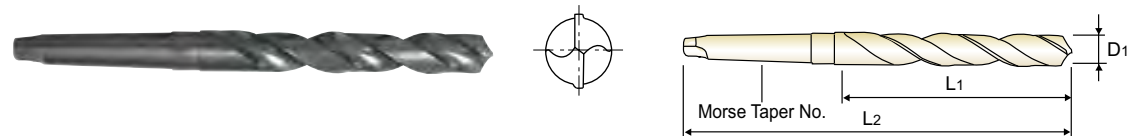
LONG

- HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
- Forets HSS, queue cône morse, série longue
- PUNTE ELICOIDALI IN HSS, ATTACCO CM

LANG  
LONGUE  
LUNGA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
 ► **Application** : Drilling deep holes in steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Verwendung** : Für Bohrungen mit Bohrbuchsen oder an tief liegenden Stellen.  
 Zum Bohren von Stahl und Stahlguß, Grauß, Temperguß, Sphäroguß, Sintereisen, Neusilber und Graphit.



DIN 341 HSS N 30° 1~3 h8 118° Vap p.A277

Plain Shank Page  
 Recommended ToolHolder MORSE TAPER ARBOR D177-181

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.
	D1	L1	L2	
D1206130	13.0	134	215	1
D1206135	13.5	142	223	1
D1206140	14.0	142	223	1
D1206145	14.5	147	245	2
D1206150	15.0	147	245	2
D1206155	15.5	153	251	2
D1206160	16.0	153	251	2
D1206165	16.5	159	257	2
D1206170	17.0	159	257	2
D1206175	17.5	165	263	2
D1206180	18.0	165	263	2
D1206185	18.5	171	269	2
D1206190	19.0	171	269	2

EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.
	D1	L1	L2	
D1206195	19.5	177	275	2
D1206200	20.0	177	275	2
D1206210	21.0	184	282	2
D1206220	22.0	191	289	2
D1206230	23.0	198	296	2
D1206240	24.0	206	327	3
D1206250	25.0	206	327	3
D1206260	26.0	214	335	3
D1206270	27.0	222	343	3
D1206280	28.0	222	343	3
D1206290	29.0	230	351	3
D1206300	30.0	230	351	3

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



# YIG MORSE TAPER SHANK DRILLS

D1209 SERIES

## HSS, MORSE TAPER SHANK TWIST DRILLS

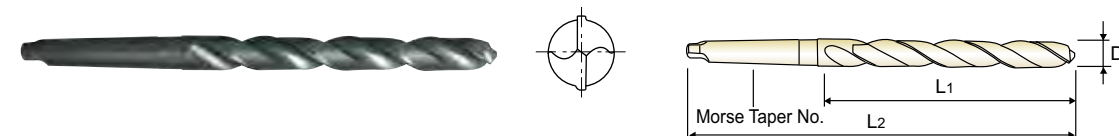
EXTRA LONG

- HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
- Forets HSS, queue cône morse, série extra-longue
- PUNTE ELICOIDALI IN HSS, ATTACCO CM

ÜBERLANG  
EXTRA-LONGUE  
EXTRA LUNGA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
 ► **Application** : Drilling deep holes in steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Verwendung** : Für Bohrungen mit Bohrbuchsen oder an tief liegenden Stellen.  
 Zum Bohren von Stahl und Stahlguß, Grauß, Temperguß, Sphäroguß, Sintereisen, Neusilber und Graphit.



DIN 1870/1 HSS N 30° 1~4 h8 118° Vap p.A277

Plain Shank Page  
 Recommended ToolHolder MORSE TAPER ARBOR D177-181

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.
	D1	L1	L2	
D1209130	13.0	205	310	1
D1209135	13.5	220	325	1
D1209140	14.0	220	325	1
D1209145	14.5	220	340	2
D1209150	15.0	220	340	2
D1209155	15.5	230	355	2
D1209160	16.0	230	355	2
D1209165	16.5	230	355	2
D1209170	17.0	230	355	2
D1209175	17.5	245	370	2
D1209180	18.0	245	370	2
D1209185	18.5	245	370	2
D1209190	19.0	245	370	2
D1209195	19.5	260	385	2
D1209200	20.0	260	385	2
D1209205	20.5	260	385	2
D1209210	21.0	260	385	2
D1209215	21.5	270	405	2
D1209220	22.0	270	405	2
D1209225	22.5	270	405	2
D1209230	23.0	270	405	2
D1209235	23.5	270	425	3
D1209240	24.0	290	440	3
D1209245	24.5	290	440	3
D1209250	25.0	290	440	3
D1209255	25.5	290	440	3
D1209260	26.0	290	440	3
D1209265	26.5	290	440	3

EDP No.	Drill Diameter	Flute Length	Overall Length	Morse Taper No.
	D1	L1	L2	
D1209270	27.0	305	460	3
D1209275	27.5	305	460	3
D1209280	28.0	305	460	3
D1209285	28.5	305	460	3
D1209290	29.0	305	460	3
D1209295	29.5	305	460	3
D1209300	30.0	305	460	3
D1209305	30.5	320	480	3
D1209310	31.0	320	480	3
D1209320	32.0	320	505	4
D1209330	33.0	320	505	4
D1209340	34.0	340	530	4
D1209350	35.0	340	530	4
D1209360	36.0	340	530	4
D1209370	37.0	340	530	4
D1209380	38.0	360	555	4
D1209390	39.0	360	555	4
D1209400	40.0	360	555	4
D1209410	41.0	360	555	4
D1209420	42.0	360	555	4
D1209430	43.0	385	585	4
D1209440	44.0	385	585	4
D1209450	45.0	385	585	4
D1209460	46.0	385	585	4
D1209470	47.0	385	585	4
D1209480	48.0	405	605	4
D1209490	49.0	405	605	4
D1209500	50.0	405	605	4

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	○	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

# YG MORSE TAPER SHANK DRILLS

D1210 SERIES

## HSS, MORSE TAPER SHANK TWIST DRILLS

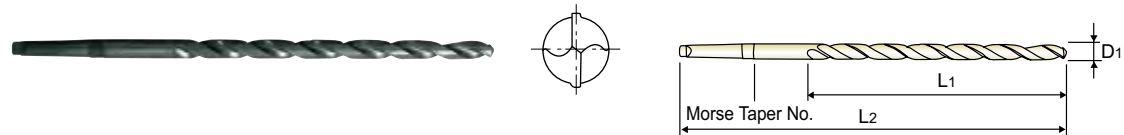
EXTRA LONG

- HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
- Forets HSS, queue cône morse, série extra-longue
- PUNTE ELICOIDALI IN HSS, ATTACCO CM

ÜBERLANG  
EXTRA-LONGUE  
EXTRA LUNGA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)  
 ► **Application** : Designed for drilling deep holes or deeply located holes. Drilling into steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, Spheroidal graphite cast iron, sintered iron, aluminum and aluminum alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)  
 ► **Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher.  
 Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen und Graphit



DIN 1870/2 HSS N 30° 1~4 h8 118° Vap p.A277

Plain Shank Page Recommended Toolholder MORSE TAPER ARBOR D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1210130	13.0	260	395	1	D1210270	27.0	385	580	3
D1210135	13.5	275	410	1	D1210275	27.5	385	580	3
D1210140	14.0	275	410	1	D1210280	28.0	385	580	3
D1210145	14.5	275	425	2	D1210285	28.5	385	580	3
D1210150	15.0	275	425	2	D1210290	29.0	385	580	3
D1210155	15.5	295	445	2	D1210295	29.5	385	580	3
D1210160	16.0	295	445	2	D1210300	30.0	385	580	3
D1210165	16.5	295	445	2	D1210310	31.0	410	610	3
D1210170	17.0	295	445	2	D1210320	32.0	410	635	4
D1210175	17.5	310	465	2	D1210330	33.0	410	635	4
D1210180	18.0	310	465	2	D1210340	34.0	430	665	4
D1210185	18.5	310	465	2	D1210350	35.0	430	665	4
D1210190	19.0	310	465	2	D1210360	36.0	430	665	4
D1210195	19.5	325	490	2	D1210370	37.0	430	665	4
D1210200	20.0	325	490	2	D1210380	38.0	460	695	4
D1210205	20.5	325	490	2	D1210390	39.0	460	695	4
D1210210	21.0	325	490	2	D1210400	40.0	460	695	4
D1210215	21.5	345	515	2	D1210410	41.0	460	695	4
D1210220	22.0	345	515	2	D1210420	42.0	460	695	4
D1210225	22.5	345	515	2	D1210430	43.0	490	735	4
D1210230	23.0	345	515	2	D1210440	44.0	490	735	4
D1210235	23.5	345	535	3	D1210450	45.0	490	735	4
D1210240	24.0	365	555	3	D1210460	46.0	490	735	4
D1210245	24.5	365	555	3	D1210470	47.0	490	735	4
D1210250	25.0	365	555	3	D1210480	48.0	510	765	4
D1210255	25.5	365	555	3	D1210490	49.0	510	765	4
D1210260	26.0	365	555	3	D1210500	50.0	510	765	4
D1210265	26.5	365	555	3					

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○													○					



# YG MORSE TAPER SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS  
EMPFOLGENE SCHNEIDKONDITIONEN

DL205, D1205, D1206, D1209, D1210 SERIES

## HSS&HSS-E, MORSE TAPER SHANK DRILLS

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

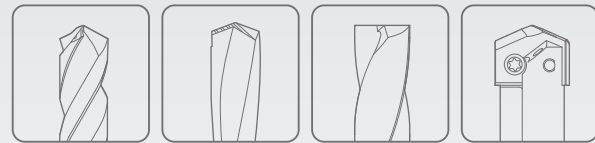
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)							
					13.0	16.0	18.0	20.0	30.0	40.0	50.0	60.0
P	1	Non-alloy steel	30	RPM	730	600	530	480	320	240	190	160
			FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40	
			25	RPM	610	500	440	400	270	200	160	130
	FEED		0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40		
	20		RPM	490	400	350	320	210	160	130	110	
	FEED		0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40		
	Low alloy steel	15	RPM	370	300	270	240	160	120	100	80	
		FEED	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24		
		25	RPM	610	500	440	400	270	200	160	130	
		FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40		
High alloyed steel, and tool steel	20	RPM	490	400	350	320	210	160	130	110		
	FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40			
M	12	Stainless steel	20	RPM	490	400	350	320	210	160	130	110
			FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40	
K	15	Grey cast iron	30	RPM	730	600	530	480	320	240	190	160
			FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40	
	25		RPM	610	500	440	400	270	200	160	130	
	FEED		0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24		
	Nodular cast iron	30	RPM	730	600	530	480	320	240	190	160	
		FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40		
		20	RPM	490	400	350	320	210	160	130	110	
		FEED	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24		
	Malleable cast iron	25	RPM	610	500	440	400	270	200	160	130	
		FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40		
20		RPM	490	400	350	320	210	160	130	110		
FEED		0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24			
N	21	Aluminum-wrought alloy	55	RPM	1350	1090	970	880	580	440	350	290
			FEED	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38	0.32~0.42	0.36~0.46	0.40~0.50	
	55		RPM	1350	1090	970	880	580	440	350	290	
	FEED		0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38	0.32~0.42	0.36~0.46	0.40~0.50		
23	Aluminum-cast, alloyed	40	RPM	980	800	710	640	420	320	250	210	
		FEED	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38	0.32~0.42	0.36~0.46	0.40~0.50		
29	Non Metallic Materials	20	RPM	490	400	350	320	210	160	130	110	
		FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40		
S	36	Titanium Alloys	10	RPM	240	200	180	160	110	80	60	50
			FEED	0.06~0.10	0.05~0.11	0.06~0.12	0.09~0.13	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	



Leading Through Innovation



Global Cutting Tool Leader **YG-1**



SOLID CARBIDE & HSSCo8

# HOLEMAKING

# NC-SPOTTING DRILLS

**NC-ANBOHRER**

- For Centering and Chamfering of Holes
- Zum Zentrieren und Anfasen von Bohrungen





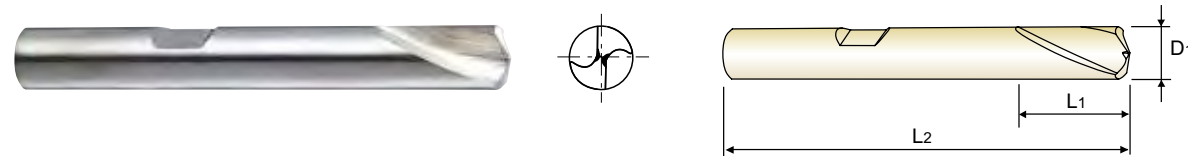


**CARBIDE, NC-SPOTTING DRILLS 142°**

- VOLLHARTMETALL NC-ANBOHRER 142°
- Forets carbure à pointer NC 142°
- PUNTE IN MD A CENTRARE NC 142°

► **Application** : For more precise centering work on NC/CNC machines. The large diameter of the tool permits chamfering work after centering continuously.

► **Verwendung** : Auf NC-Maschinen, Lehrenbohrwerken u.a. kapitalintensiven Bohrwerken, zum Zentrieren und Anfasen von Gewindebohrungen in einem Arbeitsgang. Besonders geeignet zum Anbohren von hochfesten Stählen, Stahlguß, Grauguß, Hartguß, Mangan-Hartstahl, CrNi-Stählen, Bronze, Leicht- und Buntmetallen.



CARBIDE DIN 6535HB h6 142° Bright p.A286

Plain Shank Page  
 Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247 - 256  
 ER COLLET CHUCK D73 - 115

**NC-Spotting drills 142°**  
**NC-Anbohrer 142°**

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
● D5320030	3.0	8	32
● D5320040	4.0	10	40
● D5320050	5.0	13	50
D5320060	6.0	13	50
D5320080	8.0	23	60
D5320100	10.0	24	70
D5320120	12.0	24	70
D5320160	16.0	29	75
D5320200	20.0	35	100

● with plain shank

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	15	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

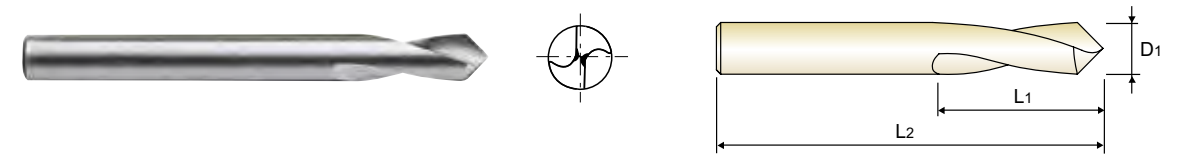


**HSSCo8, NC-SPOTTING DRILLS 90°**

- HSSCo8, NC-ANBOHRER 90°
- Forets HSSCo8 à pointer NC 90°
- PUNTE A CENTRARE NC 90°, HSSCo8

► **Application** : For more precise centering work on NC/CNC Machines. The large diameter of the tool permits chamfering work after centering continuously.

► **Verwendung** : Für positionsgenaueres und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.



NC HSS Co8 h6 h6 90° Bright p.A286

Plain Shank Page  
 Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247 - 256  
 ER COLLET CHUCK D73 - 115

**LONG LENGTH**

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2306030	3.0	12	46
D2306040	4.0	12	55
D2306050	5.0	15	60
D2306060	6.0	20	66
D2306080	8.0	25	79
D2306100	10.0	25	89
D2306120	12.0	30	102
D2306160	16.0	35	115
D2306200	20.0	40	131

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2321030	3.0	12	80
D2321040	4.0	12	100
D2321050	5.0	15	120
D2321060	6.0	20	140
D2321080	8.0	25	140
D2321100	10.0	25	170
D2321120	12.0	30	170
D2321160	16.0	35	200
D2321200	20.0	40	200

► TiN, TiCN and TiAlN are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	15	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

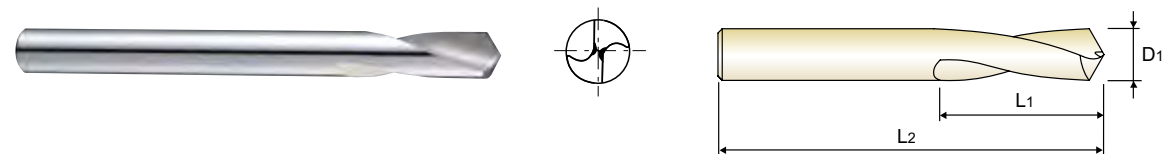
ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**HSSCo8, NC-SPOTTING DRILLS 120°**

- HSSCo8, NC-ANBOHRER 120°
- Forets HSSCo8 à pointer NC 120°
- PUNTE A CENTRARE NC 120°, HSSCo8

► **Application** : For more precise centering work on NC/CNC Machines.  
The large diameter of the tool permits chamfering work after centering continuously.

► **Verwendung** : Für positionsgenaueres und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.



NC HSS Co8 h6 h6 120° Bright p.A286

Plain Shank Page  
Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247-256  
ER COLLET CHUCK D73-115

**LONG LENGTH**

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2307030	3.0	12	46
D2307040	4.0	12	55
D2307050	5.0	15	60
D2307060	6.0	20	66
D2307080	8.0	25	79
D2307100	10.0	25	89
D2307120	12.0	30	102
D2307160	16.0	35	115
D2307200	20.0	40	131

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2322060	6.0	20	140
D2322080	8.0	25	140
D2322100	10.0	25	170
D2322120	12.0	30	170

► TiN, TiCN and TiAlN are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

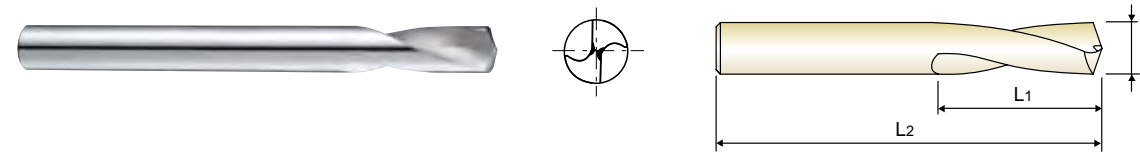


**HSSCo8, NC-SPOTTING DRILLS 142°**

- HSSCo8, NC-ANBOHRER 142°
- Forets HSSCo8 à pointer NC 142°
- PUNTE A CENTRARE NC 142°, HSSCo8

► **Application** : For more precise centering work on NC/CNC Machines.  
The large diameter of the tool permits chamfering work after centering continuously.

► **Verwendung** : Für positionsgenaueres und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.



NC HSS Co8 h6 h6 142° Bright p.A286

Plain Shank Page  
Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247-256  
ER COLLET CHUCK D73-115

**LONG LENGTH**

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2320030	3.0	12	46
D2320040	4.0	12	55
D2320050	5.0	15	60
D2320060	6.0	20	66
D2320080	8.0	25	79
D2320100	10.0	25	89
D2320120	12.0	30	102
D2320160	16.0	35	115
D2320200	20.0	40	131

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2323060	6.0	20	140
D2323080	8.0	25	140
D2323100	10.0	25	170
D2323120	12.0	30	170

► TiN, TiCN and TiAlN are available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





D5306, D5307, D5320 SERIES

CARBIDE, NC-SPOTTING DRILLS

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)								
					2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1	Non-alloy steel	75	RPM	11940	7960	5970	3980	2980	2390	1990	1490	1190
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
			70	RPM	11140	7430	5570	3710	2790	2230	1860	1390	1110
	6	Low alloy steel	70	RPM	10350	6900	5170	3450	2590	2070	1720	1290	1030
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
			55	RPM	11140	7430	5570	3710	2790	2230	1860	1390	1110
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
M	12	Stainless steel	35	RPM	5570	3710	2790	1860	1390	1110	930	700	560
K	15	Grey cast iron	90	RPM	14320	9550	7160	4770	3580	2860	2390	1790	1430
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28
	70	RPM	11140	7430	5570	3710	2790	2230	1860	1390	1110		
		FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19		
17	Nodular cast iron	90	RPM	14320	9550	7160	4770	3580	2860	2390	1790	1430	
			FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28	
19	Malleable cast iron	60	RPM	9550	6370	4770	3180	2390	1910	1590	1190	950	
			FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28	
N	21	Aluminum-wrought alloy	165	RPM	26260	17510	13130	8750	6570	5250	4380	3280	2630
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31
	22	Aluminum-cast, alloyed	130	RPM	20690	13790	10350	6900	5170	4140	3450	2590	2070
FEED				0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31	
23	Aluminum-cast, alloyed	110	RPM	17510	11670	8750	5840	4380	3500	2920	2190	1750	
			FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31	
S	36	Titanium Alloys	35	RPM	5570	3710	2790	1860	1390	1110	930	700	560
				FEED	0.01-0.03	0.03-0.05	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19

D2320, D2321, D2322, D2323, D2306, D2307 SERIES

HSSCo8, NC-SPOTTING DRILLS

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)								
					2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1	Non-alloy steel	25	RPM	3980	2650	1990	1330	990	800	660	500	400
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
			25	RPM	3980	2650	1990	1330	990	800	660	500	400
	6	Low alloy steel	15	RPM	2390	1590	1190	800	600	480	400	300	240
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
			20	RPM	3180	2120	1590	1060	800	640	530	400	320
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
7	Low alloy steel	15	RPM	2390	1590	1190	800	600	480	400	300	240	
			FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	
M	12	Stainless steel	15	RPM	2390	1590	1190	800	600	480	400	300	240
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	800	600	480
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28
	25	RPM	3980	2650	1990	1330	990	800	660	500	400		
		FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19		
17	Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	800	600	480	
			FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28	
19	Malleable cast iron	20	RPM	3180	2120	1590	1060	800	640	530	400	320	
			FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28	
N	21	Aluminum-wrought alloy	65	RPM	10350	6900	5170	3450	2590	2070	1720	1290	1030
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31
	22	Aluminum-wrought alloy	60	RPM	9550	6370	4770	3180	2390	1910	1590	1190	950
FEED				0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31	
23	Aluminum-cast, alloyed	50	RPM	7960	5310	3980	2650	1990	1590	1330	990	800	
			FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31	





Leading Through Innovation

SOLID CARBIDE, HSS & HSS-E

# CENTER DRILLS

## ZENTRIERBOHRER

- For General Purpose
- Für allgemeine Anwendungen



SELECTION GUIDE

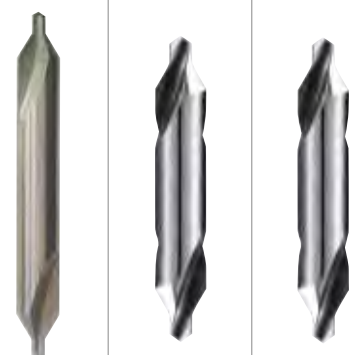


SERIES	D5303	DV303	DV333
TOOL MATERIAL	CARBIDE	HSS-E	HSS-E
TYPE	FORM A	FORM A	FORM A
SIZE MIN	D1.0	D0.5	D1.6
SIZE MAX	D6.3	D6.3	D6.3
PAGE	A290	A291	

SURFACE TREATMENT Bright

# SOLID CARBIDE, HSS & HSS-E CENTER DRILLS

For General Purpose



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A297

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	○	○
	4		About 0.75% C Annealed	270	28			
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	○	○	○
	8		Quenched & Tempered	300	32			
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15		
	11	Quenched & Tempered		325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○
	13		Martensitic Quenched & Tempered	240	23			
	14		Austenitic	180	10			
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎
	16		Pearlitic (Martensitic)	260	26	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○
	18		Pearlitic	250	25			
	19		Ferritic	130				
20	Malleable cast iron	Pearlitic	230	21	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable	60				
	22		Curable Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26		Copper and Copper Alloys	Cutting Alloys, PB>1%	110			
	27	(Bronze / Brass)	CuZn, CuSnZn (Brass)	90				
	28		CuSn, lead-free copper and electrolytic copper	100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Ni or Co Based Cured	350	38			
	35		Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys Hardened	1050 Rm				
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40		Cast	400	42			
41	Hardened Cast Iron	Hardened	550	55				

DV334	D1303	D1343	D1313	D1353	D1363	D1373	DV383
HSS-E	HSS	HSS	HSS	HSS	HSS	HSS	HSS-E
FORM A	FORM A	FORM A	FORM B	FORM B	FORM R	FORM R	FORM R
D1.0	D0.5	D0.5	D1.0	D2.0	D0.5	D0.8	D1.6
D5.0	D10.0	D8.0	D6.3	D6.3	D8.0	D5.0	D6.3
A292	A293		A294		A295		A296

Bright



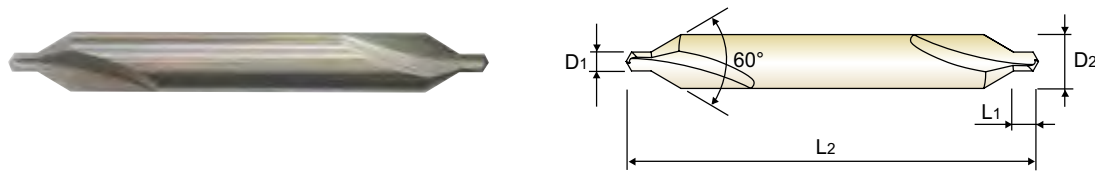
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**CARBIDE, CENTER DRILLS / FORM A**

- VOLLHARTMETALL, ZENTRIERBOHRER / FORM A
- Forets carbure à centrer / Forme A
- PUNTE A CENTRARE IN MD / FORMA A



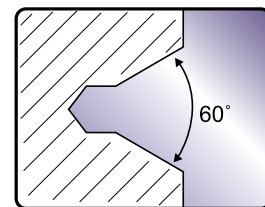
DIN 333 CARBIDE h8 k12 120° Bright p.A297

Plain Shank Page  
Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247 - 256  
ER COLLET CHUCK D73 - 115

**FORM A (60°)**

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Pilot Length	Overall Length
	D1	D2	L1	L2
D5303010	1.0	3.15	1.3	31.5
D5303912	1.25	3.15	1.6	31.5
D5303016	1.6	4	2	35.5
D5303020	2.0	5	2.5	40
D5303025	2.5	6.3	3.1	45
D5303931	3.15	8	3.9	50
D5303040	4.0	10	5	56
D5303050	5.0	12.5	6.3	63
D5303063	6.3	16	8	71



◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	45	50	55	58	60	63	65	68	70	75	80	85	90	95
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

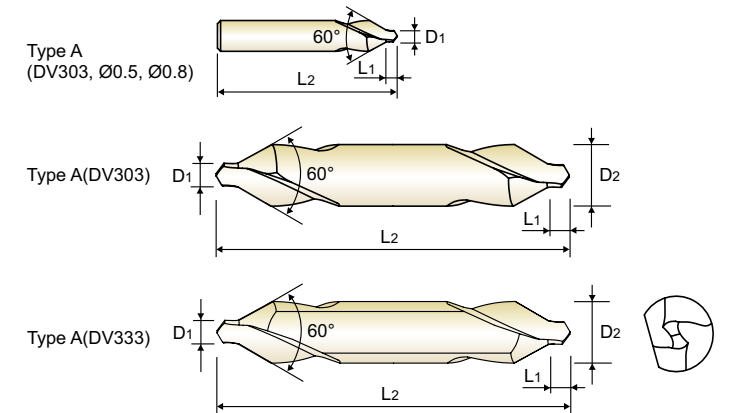
  

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**HSS-E, CENTER DRILLS / FORM A**

- HSS-EX, ZENTRIERBOHRER / FORM A
- Forets HSS-EX à centrer / Forme A
- PUNTE A CENTRARE PER TORNI IN HSS-EX / FORMA A



DIN 333 HSS-E h8 k12 120° Bright p.A297

Plain Shank Page  
Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247 - 256  
ER COLLET CHUCK D73 - 115

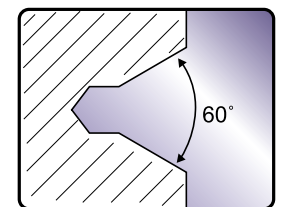
**FORM A (60°)**

**FORM A (60°), FLAT**

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Pilot Length	Overall Length
	D1	D2	L1	L2
DV303005	0.5	3.15	0.8	25
DV303008	0.8	3.15	1.1	25
DV303010	1.0	3.15	1.3	31.5
DV303912	1.25	3.15	1.6	31.5
DV303016	1.6	4	2	35.5
DV303020	2.0	5	2.5	40
DV303025	2.5	6.3	3.1	45
DV303931	3.15	8	3.9	50
DV303040	4.0	10	5	56
DV303050	5.0	12.5	6.3	63
DV303063	6.3	16	8	71

EDP No.	Drill Diameter	Shank Diameter	Pilot Length	Overall Length
	D1	D2	L1	L2
DV333016	1.6	4	2	35.5
DV333020	2.0	5	2.5	40
DV333025	2.5	6.3	3.1	45
DV333931	3.15	8	3.9	50
DV333040	4.0	10	5	56
DV333050	5.0	12.5	6.3	63
DV333063	6.3	16	8	71



▶ Under 1.0mm : Single End

◎ : Excellent ○ : Good

ISO Material Description	P									M					K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	45	50	55	58	60	63	65	68	70	75	80	85	90	95
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

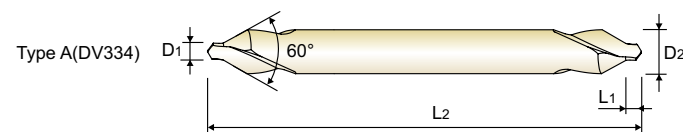
ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



DV334 SERIES

**HSS-E, CENTER DRILLS EXTRA LONG / FORM A**

- HSS-EX, ZENTRIERBOHRER / FORM A
- Forets HSS-EX à centrer / Forme A, série extra-longue
- PUNTE A CENTRARE PER TORNI IN HSS-EX / FORMA A



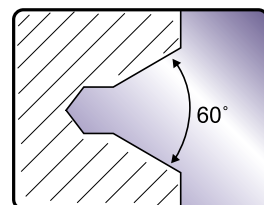
HSS-E h8 k12 120° Bright p.A297

Plain Shank Page  
 Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247 - 256  
 ER COLLET CHUCK D73 - 115

**EXTRA LONG / FORM A (60°)**

Unit : mm

EDP No.	Drill Diameter		Pilot Length L1	Overall Length L2
	D1	D2		
DV334010	1.0	4	1.3	120
DV334016	1.6	5	2	120
DV334020	2.0	6	2.5	120
DV334025	2.5	8	3.1	120
DV334931	3.15	10	3.9	120
DV334040	4.0	12	5	120
DV334050	5.0	14	6.3	120



◎ : Excellent ○ : Good

ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

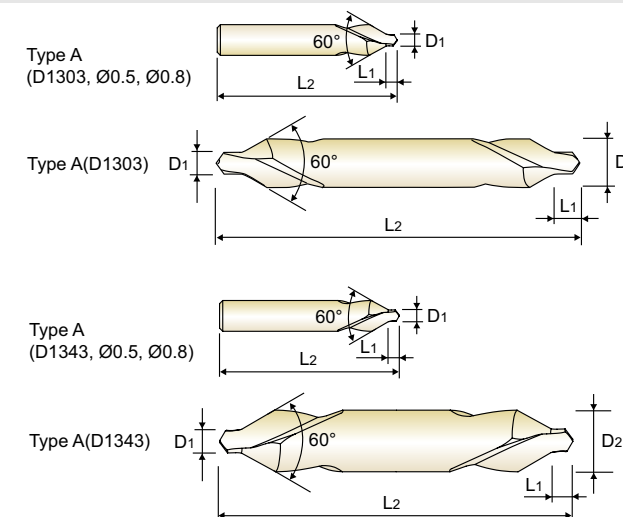


D1303 SERIES

D1343 SERIES

**HSS, CENTER DRILLS / FORM A**

- HSS, ZENTRIERBOHRER / FORM A
- Forets HSS à centrer / Forme A
- PUNTE A CENTRARE PER TORNI IN HSS / FORMA A



DIN 333 HSS h8 k12 120° Bright p.A297

Plain Shank Page  
 Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247 - 256  
 ER COLLET CHUCK D73 - 115

**FORM A (60°)**

EDP No.	Drill Diameter		Pilot Length L1	Overall Length L2
	D1	D2		
D1303005	0.5	3.15	0.8	25
D1303008	0.8	3.15	1.1	25
D1303010	1.0	3.15	1.3	31.5
D1303912	1.25	3.15	1.6	31.5
D1303016	1.6	4	2	35.5
D1303020	2.0	5	2.5	40
D1303025	2.5	6.3	3.1	45
D1303931	3.15	8	3.9	50
D1303040	4.0	10	5	56
D1303050	5.0	12.5	6.3	63
D1303063	6.3	16	8	71
D1303080	8.0	20	10.1	80
D1303100	10.0	25	12.8	100

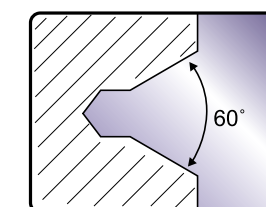
► Under 1.0mm : Single End

**LEFT HELIX / FORM A (60°)**

Unit : mm

EDP No.	Drill Diameter		Pilot Length L1	Overall Length L2
	D1	D2		
D1343005	0.5	3.15	0.8	25
D1343008	0.8	3.15	1.1	25
D1343010	1.0	3.15	1.3	31.5
D1343912	1.25	3.15	1.6	31.5
D1343016	1.6	4	2	35.5
D1343020	2.0	5	2.5	40
D1343025	2.5	6.3	3.1	45
D1343931	3.15	8	3.9	50
D1343040	4.0	10	5	56
D1343050	5.0	12.5	6.3	63
D1343063	6.3	16	8	71
D1343080	8.0	20	10.1	80

► Under 1.0mm : Single End



◎ : Excellent ○ : Good

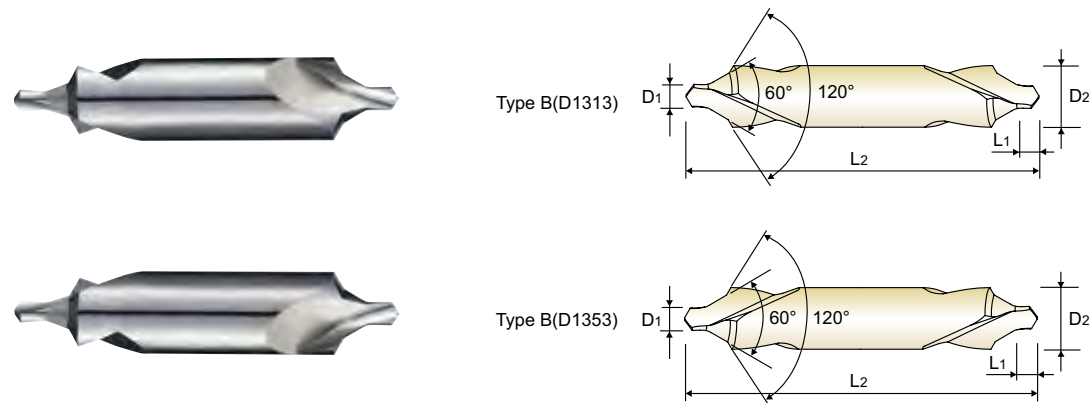
ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**HSS, CENTER DRILLS / FORM B**

- HSS, ZENTRIERBOHRER / FORM B
- Forets HSS à centrer / Forme B
- PUNTE A CENTRARE PER TORNII IN HSS / FORMA B



DIN 333 HSS h8 k12 120° Bright p.A297

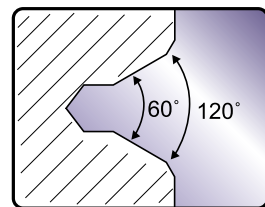
Plain Shank Page  
 Recommended Toolholder NC DRILL CHUCK & OTHER TOOL HOLDERS D247-256  
 ER COLLET CHUCK D73-115

**FORM B (60° + 120°)**

EDP No.	Drill Diameter		Pilot Length L1	Overall Length L2
	D1	D2		
D1313010	1.0	4	1.3	35.5
D1313912	1.25	5	1.6	40
D1313016	1.6	6.3	2	45
D1313020	2.0	8	2.5	50
D1313025	2.5	10	3.1	55
D1313931	3.15	11.2	3.9	60
D1313040	4.0	14	5	67
D1313050	5.0	18	6.3	75
D1313063	6.3	20	8	80

**LEFT HELIX / FORM B (60° + 120°)**

EDP No.	Drill Diameter		Pilot Length L1	Overall Length L2
	D1	D2		
D1353020	2.0	8	2.5	50
D1353025	2.5	10	3.1	55
D1353931	3.15	11.2	3.9	60
D1353040	4.0	14	5	67
D1353063	6.3	20	8	80



◎ : Excellent ○ : Good

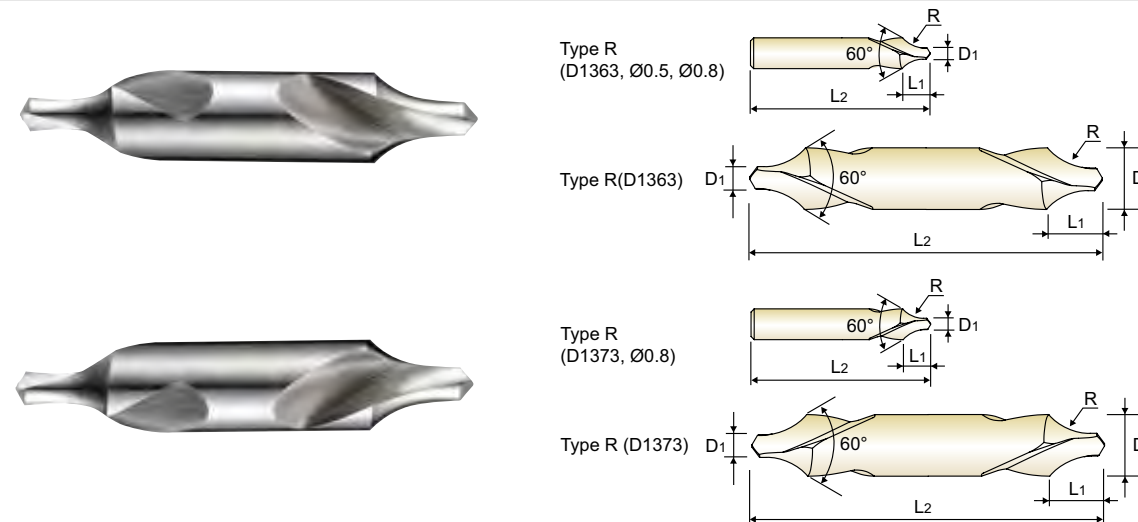
ISO Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**HSS, CENTER DRILLS / FORM R**

- HSS, ZENTRIERBOHRER / FORM R
- Forets HSS à centrer / Forme R
- PUNTE A CENTRARE PER TORNII IN HSS / FORMA R



DIN 333 HSS h8 k12 120° Bright p.A297

Plain Shank Page  
 Recommended Toolholder NC DRILL CHUCK & OTHER TOOL HOLDERS D247-256  
 ER COLLET CHUCK D73-115

**FORM R**

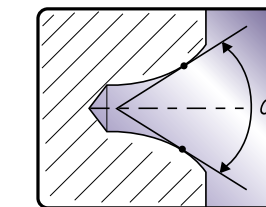
EDP No.	Drill Diameter		Pilot Length (Include Radius) L1	Overall Length L2	Radius R
	D1	D2			
D1363005	0.5	3.15	2.12	25	1.25
D1363008	0.8	3.15	2.65	25	2
D1363010	1.0	3.15	3	31.5	2.5
D1363912	1.25	3.15	3.35	31.5	3.15
D1363016	1.6	4	4.25	35.5	4
D1363020	2.0	5	5.3	40	5
D1363025	2.5	6.3	6.7	45	6.3
D1363931	3.15	8	8.5	50	8
D1363040	4.0	10	10.6	56	10
D1363050	5.0	12.5	13.2	63	12.5
D1363063	6.3	16	17	71	16
D1363080	8.0	20	21.2	80	20

► Under 1.0mm : Single End

**LEFT HELIX / FORM R**

EDP No.	Drill Diameter		Pilot Length (Include Radius) L1	Overall Length L2	Radius R
	D1	D2			
D1373008	0.8	3.15	2.65	25	2
D1373010	1.0	3.15	3	31.5	2.5
D1373912	1.25	3.15	3.35	31.5	3.15
D1373016	1.6	4	4.25	35.5	4
D1373020	2.0	5	5.3	40	5
D1373025	2.5	6.3	6.7	45	6.3
D1373931	3.15	8	8.5	50	8
D1373040	4.0	10	10.6	56	10
D1373050	5.0	12.5	13.2	63	12.5

► Under 1.0mm : Single End



◎ : Excellent ○ : Good

ISO Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



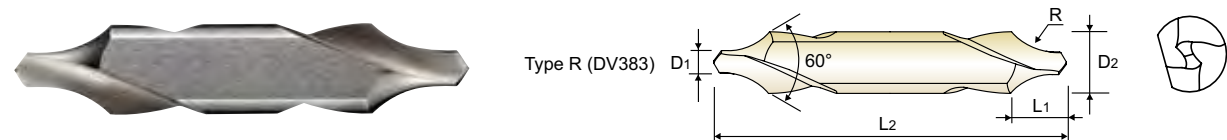




DV383 SERIES

**HSS-E, CENTER DRILLS / FORM R**

- HSS-EX, ZENTRIERBOHRER / FORM R
- Forets HSS-EX à centrer / Forme R
- PUNTE A CENTRARE PER TORNII IN HSS-EX / FORMA R



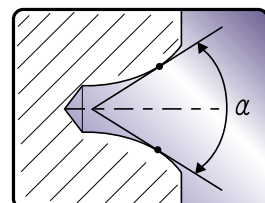
DIN 333 HSS-E h8 k12 120° Bright p.A297

Plain Shank Page  
 Recommended ToolHolder NC DRILL CHUCK & OTHER TOOL HOLDERS D247 - 256  
 ER COLLET CHUCK D73 - 115

**FORM R / FLAT**

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Pilot Length (Include Radius)	Overall Length	Radius
	D1	D2	L1	L2	R
DV383016	1.6	4	4.25	35.5	4
DV383020	2.0	5	5.3	40	5
DV383025	2.5	6.3	6.7	45	6.3
DV383931	3.15	8	8.5	50	8
DV383040	4.0	10	10.6	56	10
DV383050	5.0	12.5	13.2	63	12.5
DV383063	6.3	16	17	71	16



◎ : Excellent ○ : Good

ISO	P										M						K																								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel						Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron																		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
HB	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



RECOMMENDED CUTTING CONDITIONS  
 EMPFOHLENE SCHNEIDKONDITIONEN

**D5303 SERIES CARBIDE, CENTER DRILLS**

VC = M/MIN  
 RPM = rev./min.  
 FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)					
					1.0	2.0	3.0	4.0	5.0	6.0
P	1	Non-alloy steel	50	RPM	15920	7960	5310	3980	3180	2650
			FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	
	2		40	RPM	12730	6370	4240	3180	2550	2120
			FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	
	3		30	RPM	9550	4770	3180	2390	1910	1590
			FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	
6	40	RPM	12730	6370	4240	3180	2550	2120		
	FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12			
7	30	RPM	9550	4770	3180	2390	1910	1590		
	FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08			
M	12	Stainless steel	20	RPM	6370	3180	2120	1590	1270	1060
K	15	Grey cast iron	60	RPM	19100	9550	6370	4770	3820	3180
			FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	
	16		50	RPM	15920	7960	5310	3980	3180	2650
			FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	
17	Nodular cast iron	60	RPM	19100	9550	6370	4770	3820	3180	
		FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12		
19		Malleable cast iron	40	RPM	12730	6370	4240	3180	2550	2120
			FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	

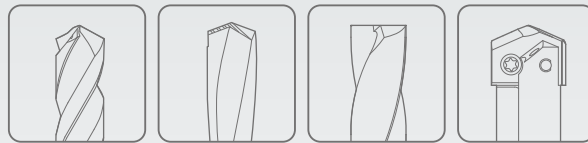
DV303, DV333, DV334, D1303, D1343, D1313, D1353, D1363, D1373, DV383 SERIES

**HSS & HSS-E, CENTER DRILLS**

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)	Vc	Parameter	Drill Diameter (mm)									
								0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	
P	1	Non-alloy steel	30	RPM	19100	40	RPM	12730	6370	4240	3180	2550	2120	1590	1270		
			FEED	0.01-0.03	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18					
	2		25	RPM	15920	30	RPM	9550	4770	3180	2390	1910	1590	1190	950		
			FEED	0.01-0.03	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18					
	3		20	RPM	12730	25	RPM	7960	3980	2650	1990	1590	1330	990	800		
			FEED	0.005-0.02	0.01-0.03	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	0.06-0.12	0.08-0.14						
6	25	RPM	15920	30	RPM	9550	4770	3180	2390	1910	1590	1190	950				
	FEED	0.01-0.03	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18							
7	15	RPM	9550	20	RPM	6370	3180	2120	1590	1270	1060	800	640				
	FEED	0.005-0.02	0.01-0.03	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	0.06-0.12	0.08-0.14								
M	12	Stainless steel	8	RPM	5090	10	RPM	3180	1590	1060	800	640	530	400	320		
K	15	Grey cast iron	30	RPM	19100	40	RPM	12730	6370	4240	3180	2550	2120	1590	1270		
			FEED	0.01-0.03	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18					
	16		25	RPM	15920	30	RPM	9550	4770	3180	2390	1910	1590	1190	950		
			FEED	0.005-0.02	0.01-0.03	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	0.06-0.12	0.08-0.14						
17	Nodular cast iron	30	RPM	19100	40	RPM	12730	6370	4240	3180	2550	2120	1590	1270			
		FEED	0.01-0.03	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18						
19		Malleable cast iron	20	RPM	12730	25	RPM	7960	3980	2650	1990	1590	1330	990	800		
			FEED	0.01-0.03	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18					



Global Cutting Tool Leader **YG-1**



# HOLEMAKING



Leading Through Innovation

INSERTS & HOLDERS

SPADE DRILLS

BOHRMESSER

- For General Machines and Drilling Large Diameters, Longer Tool Life and High Productivity
- Für allgemeine Maschinen und zum Bohren großer Durchmesser, längere Werkzeugstandzeiten und höhere Produktivität





SELECTION GUIDE



SERIES	1~8	Y,Z,0,1~4	Y,Z,0,1,2
TOOL MATERIAL	HSS M4	SUPER HSS T15	PREMIUM HSS M48
POINT	STANDARD	STANDARD	STANDARD
SIZE MIN	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)
SIZE MAX	Ø114.3(#8)	Ø65.09(#4)	Ø35(#2)
PAGE	A302	A308	A313



INSERTS & HOLDERS SPADE DRILLS

For General Machines and Drilling Large Diameters  
Longer Tool Life and High Productivity

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A375

SURFACE TREATMENT

TiN / TiCN / TiAlN



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	1~8	Y,Z,0,1~4	Y,Z,0,1,2
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	◎	◎
	2		About 0.45% C Annealed	190	13	○	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	◎	◎
	4		About 0.75% C Annealed	270	28	○	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32	○	◎	◎
	6	Low alloy steel	Annealed	180	10	○	◎	◎
	7		Quenched & Tempered	275	29	○	◎	◎
	8		Quenched & Tempered	300	32	○	◎	◎
	9		Quenched & Tempered	350	38	○	◎	◎
	10	High alloyed steel, and tool steel	Annealed	200	15	○	◎	◎
	11		Quenched & Tempered	325	35	○	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	○	○
	13		Martensitic Quenched & Tempered	240	23	◎	○	○
	14		Austenitic	180	10	◎	○	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	○	○
	16		Pearlitic (Martensitic)	260	26	○	◎	◎
	17	Nodular cast iron	Ferritic	160	3	◎	○	○
	18		Pearlitic	250	25	○	◎	◎
	19		Ferritic	130		◎	○	○
20	Malleable cast iron	Pearlitic	230	21	○	◎	◎	
N	21	Aluminum-wrought alloy	Not Curable	60		◎	○	○
	22		Curable Hardened	100		◎	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110				
	27		CuZn, CuSnZn (Brass)	90		◎	○	○
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100				
	29		Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		◎	◎
	32		Cured	280	30		○	◎
	33		Annealed	250	25		○	◎
	34	Titanium Alloys	Ni or Co Based Cured	350	38		○	◎
	35		Cast	320	34		○	◎
	36		Pure Titanium	400 Rm				
37	Alpha + Beta Alloys Hardened	1050 Rm						
H	38	Hardened steel	Hardened	550	55		○	◎
	39		Hardened	630	60			
	40	Chilled Cast Iron	Cast	400	42			
	41	Hardened Cast Iron	Hardened	550	55			

TAPER SHANK		TAPER SHANK HOLDERS - INCH/METRIC	A364
FLANGED SHANK		FLANGED STRAIGHT SHANK HOLDERS - INCH/METRIC	A364
STRAIGHT SHANK		STRAIGHT SHANK HOLDERS - INCH	A382



Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	1~3	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1,2
CARBIDE K10	CARBIDE K20	CARBIDE P40	HSS M4	SUPER HSS T15	PREMIUM HSS M48	CARBIDE K10	CARBIDE K20	CARBIDE P40	SUPER COBALT T15
STANDARD	STANDARD	STANDARD	SM-POINT	SM-POINT	SM-POINT	SM-POINT	SM-POINT	SM-POINT	FALT BOTTOM
Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)
Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)
A316	A319	A323	A328	A331	A335	A338	A341	A345	A349

TiN / TiCN / TiAlN



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										41

Coating	Characteristics	Coating	Characteristics
H	-First choice for excellent wear resistance and toughness -Preventive of chipping due to cold welding -Achieve high penetration rates even in deep holes with reliable tool life -Coefficient of friction against steel : 0.25 -Color : Bronze	TiCN	-Maximum working temperature up to 400°C -Better wear resistance over non-coating -Coefficient of friction against steel : 0.4 -Color : Blue-Grey
	TiN	-Increased tool life over non-coating -Improved wear resistance and high hardness -For normal applications -Coefficient of friction against steel : 0.4 -Color : Gold	TiAlN
			Hardsllick

HSS  
i-ONE DRILLS  
i-DREAM DRILLS  
DREAM DRILLS -PRO  
DREAM DRILLS -GENERAL  
DREAM DRILLS -HIGH FEED  
DREAM DRILLS -FLAT BOTTOM  
DREAM DRILLS -INOX  
DREAM DRILLS -ALU  
DREAM DRILLS -MQL  
DREAM DRILLS for HIGH HARDENED STEELS  
GENERAL CARBIDE DRILLS  
MULTI-1 DRILLS  
HPD DRILLS  
GOLD-P DRILLS  
SUPER-GP DRILLS  
STRAIGHT SHANK DRILLS  
TAPER SHANK DRILLS  
NC-SPOTTING DRILLS  
CENTER DRILLS  
SPADE DRILLS  
REAMERS  
COUNTER SINKS  
COUNTER BORES  
TECHNICAL DATA

HSS  
i-ONE DRILLS  
i-DREAM DRILLS  
DREAM DRILLS -PRO  
DREAM DRILLS -GENERAL  
DREAM DRILLS -HIGH FEED  
DREAM DRILLS -FLAT BOTTOM  
DREAM DRILLS -INOX  
DREAM DRILLS -ALU  
DREAM DRILLS -MQL  
DREAM DRILLS for HIGH HARDENED STEELS  
GENERAL CARBIDE DRILLS  
MULTI-1 DRILLS  
HPD DRILLS  
GOLD-P DRILLS  
SUPER-GP DRILLS  
STRAIGHT SHANK DRILLS  
TAPER SHANK DRILLS  
NC-SPOTTING DRILLS  
CENTER DRILLS  
SPADE DRILLS  
REAMERS  
COUNTER SINKS  
COUNTER BORES  
TECHNICAL DATA

# YG SPADE DRILLS

SERIES 1, 2

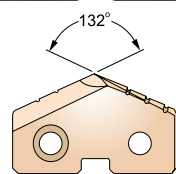
## SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes SPADE DRILL - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>1</b> Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	S1405045	S1410045	S1415045	
		18.00	.7087	S1455180	S1460180	S1465180	
	23/32	18.26	.7188	S1405046	S1410046	S1415046	
		18.50	.7283	S1455185	S1460185	S1465185	
	47/64	18.65	.7344	S1405047	S1410047	S1415047	
		19.00	.7480	S1455190	S1460190	S1465190	
	3/4	19.05	.7500	S1405048	S1410048	S1415048	
		19.45	.7656	S1405049	S1410049	S1415049	
	25/32	19.50	.7677	S1455195	S1460195	S1465195	
		19.84	.7813	S1405050	S1410050	S1415050	
	51/64	20.00	.7874	S1455200	S1460200	S1465200	
		20.24	.7969	S1405051	S1410051	S1415051	
	13/16	20.50	.8071	S1455205	S1460205	S1465205	
		20.64	.8125	S1405052	S1410052	S1415052	
	27/32	21.00	.8268	S1455210	S1460210	S1465210	
		21.43	.8438	S1405054	S1410054	S1415054	
55/64	21.83	.8594	S1405055	S1410055	S1415055		
	22.00	.8661	S1455220	S1460220	S1465220		
7/8	22.23	.8750	S1405056	S1410056	S1415056		
	22.62	.8906	S1405057	S1410057	S1415057		
29/32	23.00	.9055	S1455230	S1460230	S1465230		
	23.02	.9063	S1405058	S1410058	S1415058		
59/64	23.42	.9219	S1405059	S1410059	S1415059		
	15/16	23.81	.9375	S1405060	S1410060	S1415060	
31/32	24.00	.9449	S1455240	S1460240	S1465240		
	24.61	.9688	S1405062	S1410062	S1415062		
63/64	25.00	.9843	S1455250	S1460250	S1465250		
	1	25.40	1.0000	S1405100	S1410100	S1415100	
Ø24.41 (.961) to Ø35.05 (1.380)	1-1/64	25.80	1.0156	S1405101	S1410101	S1415101	
	26.00	1.0236	S1455260	S1460260	S1465260		
1-1/32	26.19	1.0313	S1405102	S1410102	S1415102		
	26.59	1.0469	S1405103	S1410103	S1415103		
1-3/64	26.99	1.0625	S1405104	S1410104	S1415104		
	27.00	1.0630	S1455270	S1460270	S1465270		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	180	260	160	250
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	260	160	250	130	230	180	260	160	250	
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	○	◎	○	◎	○	◎	○	◎	○

ISO Material Description	N										S						H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100	200	280	250	350	320	400Rm	1050Rm	550	630	400	400	550	550	630	400	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400Rm	1050Rm	550	630	400	400	550	550	630	400	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

A302 phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

YG-1 CO., LTD.

# YG SPADE DRILLS

SERIES 2, 3

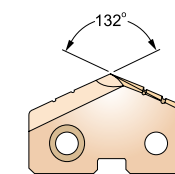
## SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>2</b> Ø24.41 (.961) to Ø35.05 (1.380)	1-3/32	27.78	1.0938	S1405106	S1410106	S1415106	
		28.00	1.1024	S1455280	S1460280	S1465280	
	1-7/64	28.18	1.1094	S1405107	S1410107	S1415107	
		28.58	1.1250	S1405108	S1410108	S1415108	
	1-1/8	29.00	1.1417	S1455290	S1460290	S1465290	
		29.37	1.1563	S1405110	S1410110	S1415110	
	1-5/32	30.00	1.1811	S1455300	S1460300	S1465300	
		30.16	1.1875	S1405112	S1410112	S1415112	
	1-3/16	30.96	1.2188	S1405114	S1410114	S1415114	
		31.00	1.2205	S1455310	S1460310	S1465310	
	1-7/32	31.75	1.2500	S1405116	S1410116	S1415116	
		32.00	1.2598	S1455320	S1460320	S1465320	
	1-1/4	32.54	1.2813	S1405118	S1410118	S1415118	
		33.00	1.2992	S1455330	S1460330	S1465330	
	1-9/32	33.34	1.3125	S1405120	S1410120	S1415120	
		34.00	1.3386	S1455340	S1460340	S1465340	
1-5/16	34.13	1.3438	S1405122	S1410122	S1415122		
	34.93	1.3750	S1405124	S1410124	S1415124		
1-11/32	35.00	1.3780	S1455350	S1460350	S1465350		
	35.72	1.4063	S1405126	S1410126	S1415126		
1-3/8	36.00	1.4173	S1455360	S1460360	S1465360		
	36.51	1.4375	S1405128	S1410128	S1415128		
1-13/32	37.00	1.4567	S1455370	S1460370	S1465370		
	37.31	1.4688	S1405130	S1410130	S1415130		
1-15/32	38.00	1.4961	S1455380	S1460380	S1465380		
	38.10	1.5000	S1405132	S1410132	S1415132		
1-1/2	38.89	1.5313	S1455390	S1460390	S1465390		
	39.00	1.5354	S1405134	S1410134	S1415134		
1-17/32	39.69	1.5625	S1455390	S1460390	S1465390		
	40.00	1.5748	S1405136	S1410136	S1415136		
1-9/16	40.48	1.5938	S1455400	S1460400	S1465400		
	41.00	1.6142	S1405138	S1410138	S1415138		
1-19/32	41.28	1.6250	S1455410	S1460410	S1465410		
	42.00	1.6535	S1405140	S1410140	S1415140		
1-5/8	42.00	1.6535	S1455420	S1460420	S1465420		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	180	260	160	250
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	260	160	250	130	230	180	260	160	250	
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	○	◎	○	◎	○	◎	○	◎	○

ISO Material Description	N										S						H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100	200	280	250	350	320	400Rm	1050Rm	550	630	400	400	550	550	630	400	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400Rm	1050Rm	550	630	400	400	550	550	630	400	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

A303



i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

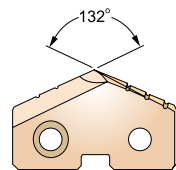
**SPADE DRILL INSERTS - HSS M4**

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>3</b> Ø34.37 (1.353) to Ø47.80 (1.882)	1-21/32	42.07	1.6563	6.4 (1/4)	S1405142	S1410142	S1415142
	1-11/16	42.86	1.6875		S1405144	S1410144	S1415144
		43.00	1.6929		S1455430	S1460430	S1465430
	1-23/32	43.66	1.7188		S1405146	S1410146	S1415146
		44.00	1.7323		S1455440	S1460440	S1465440
	1-3/4	44.45	1.7500		S1405148	S1410148	S1415148
		45.00	1.7717		S1455450	S1460450	S1465450
	1-25/32	45.24	1.7813		S1405150	S1410150	S1415150
		46.00	1.8110		S1455460	S1460460	S1465460
	1-13/16	46.04	1.8125		S1405152	S1410152	S1415152
	1-27/32	46.83	1.8438		S1405154	S1410154	S1415154
		47.00	1.8504		S1455470	S1460470	S1465470
<b>4</b> Ø46.99 (1.850) to Ø65.28 (2.570)	1-7/8	47.63	1.8750	7.9 (5/16)	S1405156	S1410156	S1415156
		48.00	1.8898		S1455480	S1460480	S1465480
	1-29/32	48.42	1.9063		S1405158	S1410158	S1415158
		49.00	1.9291		S1455490	S1460490	S1465490
	1-15/16	49.21	1.9375		S1405160	S1410160	S1415160
		50.00	1.9685		S1455500	S1460500	S1465500
	1-31/32	50.01	1.9688		S1405162	S1410162	S1415162
	2	50.80	2.0000		S1405200	S1410200	S1415200
		51.00	2.0079		S1455510	S1460510	S1465510
	2-1/32	51.59	2.0313		S1405202	S1410202	S1415202
	2-3/64	52.00	2.0472		S1455520	S1460520	S1465520
	2-1/16	52.39	2.0625		S1405204	S1410204	S1415204
	53.00	2.0866	S1455530	S1460530	S1465530		
2-3/32	53.18	2.0938	S1405206	S1410206	S1415206		
2-1/8	53.98	2.1250	S1405208	S1410208	S1415208		
	54.00	2.1260	S1455540	S1460540	S1465540		
2-5/32	54.77	2.1563	S1405210	S1410210	S1415210		
	55.00	2.1654	S1455550	S1460550	S1465550		
2-3/16	55.56	2.1875	S1405212	S1410212	S1415212		
	56.00	2.2047	S1455560	S1460560	S1465560		
2-7/32	56.36	2.2188	S1405214	S1410214	S1415214		
	57.00	2.2441	S1455570	S1460570	S1465570		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	○	◎	○

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials				Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎						◎														



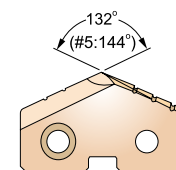
**SPADE DRILL INSERTS - HSS M4**

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>4</b> Ø46.99 (1.850) to Ø65.28 (2.570)	2-1/4	57.15	2.2500	7.9 (5/16)	S1405216	S1410216	S1415216
	2-9/32	57.94	2.2813		S1405218	S1410218	S1415218
		58.00	2.2835		S1455580	S1460580	S1465580
	2-5/16	58.74	2.3125		S1405220	S1410220	S1415220
		59.00	2.3228		S1455590	S1460590	S1465590
	2-11/32	59.53	2.3438		S1405222	S1410222	S1415222
		60.00	2.3622		S1455600	S1460600	S1465600
	2-3/8	60.33	2.3750		S1405224	S1410224	S1415224
		61.00	2.4016		S1455610	S1460610	S1465610
	2-13/32	61.12	2.4063		S1405226	S1410226	S1415226
	2-7/16	61.91	2.4375		S1405228	S1410228	S1415228
		62.00	2.4409		S1455620	S1460620	S1465620
<b>5</b> Ø62.38 (2.456) to Ø76.20 (3.000)	2-15/32	62.71	2.4688	11.1 (7/16)	S1405230	S1410230	S1415230
		63.00	2.4803		S1455630	S1460630	S1465630
	2-1/2	63.50	2.5000		S1405232	S1410232	S1415232
		64.00	2.5197		S1455640	S1460640	S1465640
	2-17/32	64.29	2.5313		S1405234	S1410234	S1415234
		65.00	2.5591		S1455650	S1460650	S1465650
	2-9/16	65.09	2.5625		S1405236	S1410236	S1415236
	2-1/2	63.50	2.5000		S14052D2	S14102D2	S14152D2
		64.00	2.5197		S145564A	S146064A	S146564A
	2-17/32	64.29	2.5313		S14052D4	S14102D4	S14152D4
	2-9/16	65.09	2.5625		S14052D6	S14102D6	S14152D6
	2-19/32	65.88	2.5938		S1405238	S1410238	S1415238
	66.00	2.5984	S1455660	S1460660	S1465660		
2-5/8	66.68	2.6250	S1405240	S1410240	S1415240		
2-21/32	67.47	2.6563	S1405242	S1410242	S1415242		
	68.00	2.6772	S1455680	S1460680	S1465680		
2-11/16	68.26	2.6875	S1405244	S1410244	S1415244		
2-23/32	69.05	2.7188	S1405246	S1410246	S1415246		
2-3/4	69.85	2.7500	S1405248	S1410248	S1415248		
	70.00	2.7559	S1455700	S1460700	S1465700		
2-25/32	70.64	2.7813	S1405250	S1410250	S1415250		
2-13/16	71.44	2.8125	S1405252	S1410252	S1415252		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	○	◎	○

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials				Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎						◎														



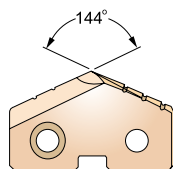
**SPADE DRILL INSERTS - HSS M4**

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
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- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>5</b> Ø62.38 (2.456) to Ø76.20 (3.000)	2-27/32	72.00	2.8346	11.1 (7/16)	S1455720	S1460720	S1465720
	2-7/8	72.23	2.8438		S1405254	S1410254	S1415254
	2-29/32	73.03	2.8750		S1405256	S1410256	S1415256
	2-15/16	73.82	2.9063		S1405258	S1410258	S1415258
	2-31/32	74.00	2.9134		S1455740	S1460740	S1465740
	3	74.61	2.9375		S1405260	S1410260	S1415260
	3-1/32	75.41	2.9688		S1405262	S1410262	S1415262
	3-1/16	76.00	2.9921		S1455760	S1460760	S1465760
	3-3/32	76.20	3.0000		S1405300	S1410300	S1415300
	3-1/8	76.99	3.0313		S1405302	S1410302	S1415302
	3-5/32	77.79	3.0625		S1405304	S1410304	S1415304
	3-7/32	78.00	3.0709		S1455780	S1460780	S1465780
	3-9/32	78.58	3.0938		S1405306	S1410306	S1415306
	3-11/32	79.38	3.1250		S1405308	S1410308	S1415308
	3-1/4	80.00	3.1496		S1455800	S1460800	S1465800
<b>6</b> Ø76.23 (3.001) to Ø89.08 (3.507)	3-5/32	80.17	3.1563	11.1 (7/16)	S1405310	S1410310	S1415310
	3-3/16	80.96	3.1875		S1405312	S1410312	S1415312
	3-7/32	81.76	3.2188		S1405314	S1410314	S1415314
	3-9/32	82.00	3.2283		S1455820	S1460820	S1465820
	3-11/32	82.55	3.2500		S1405316	S1410316	S1415316
	3-1/8	83.34	3.2813		S1405318	S1410318	S1415318
	3-3/8	84.00	3.3071		S1455840	S1460840	S1465840
	3-5/16	84.14	3.3125		S1405320	S1410320	S1415320
	3-7/16	84.93	3.3438		S1405322	S1410322	S1415322
	3-9/16	84.93	3.3438		S1405324	S1410324	S1415324
	3-11/16	85.73	3.3750		S1455860	S1460860	S1465860
	3-13/16	86.00	3.3858		S1405326	S1410326	S1415326
	3-1/2	86.52	3.4063		S1405328	S1410328	S1415328
	3-5/8	87.31	3.4375		S1455880	S1460880	S1465880
	3-3/4	88.00	3.4646		S1405330	S1410330	S1415330
<b>7</b>	3-15/32	88.11	3.4688	11.1 (7/16)	S1405332	S1410332	S1415332
	3-17/32	88.90	3.5000		S1405334	S1410334	S1415334
	3-1/2	89.69	3.5313		S1455900	S1460900	S1465900
	3-9/16	90.00	3.5433	S1405336	S1410336	S1415336	
	3-5/8	90.49	3.5625				

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	○	◎	○	

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials				Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎						◎														



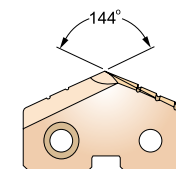
**SPADE DRILL INSERTS - HSS M4**

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>7</b> Ø87.76 (3.455) to Ø101.60 (4.000)	3-19/32	91.28	3.5938	11.1 (7/16)	S1405338	S1410338	S1415338
		92.00	3.6221		S1455920	S1460920	S1465920
	3-5/8	92.08	3.6250		S1405340	S1410340	S1415340
	3-21/32	92.87	3.6563		S1405342	S1410342	S1415342
	3-11/16	93.66	3.6875		S1405344	S1410344	S1415344
	3-23/32	94.46	3.7188		S1455940	S1460940	S1465940
	3-3/4	94.46	3.7188		S1405346	S1410346	S1415346
	3-7/8	95.25	3.7500		S1405348	S1410348	S1415348
	3-25/32	96.00	3.7795		S1455960	S1460960	S1465960
	3-13/16	96.04	3.7813		S1405350	S1410350	S1415350
	3-27/32	96.84	3.8125		S1405352	S1410352	S1415352
	3-7/8	97.63	3.8438		S1405354	S1410354	S1415354
	3-29/32	98.00	3.8583		S1455980	S1460980	S1465980
	3-7/8	98.43	3.8750		S1405356	S1410356	S1415356
	3-15/16	99.22	3.9063		S1405358	S1410358	S1415358
3-1/2	100.00	3.9370	S1455A00	S1460A00	S1465A00		
<b>8</b> Ø101.63 (4.001) to Ø114.48 (4.507)	3-15/16	100.01	3.9375	11.1 (7/16)	S1405360	S1410360	S1415360
	3-31/32	100.81	3.9688		S1405362	S1410362	S1415362
	4	101.60	4.0000		S1405400	S1410400	S1415400
	4-1/64	102.00	4.0157		S1455A20	S1460A20	S1465A20
	4-1/16	103.19	4.0625		S1405404	S1410404	S1415404
	4-3/32	104.00	4.0945		S1455A40	S1460A40	S1465A40
	4-1/8	104.78	4.1250		S1405408	S1410408	S1415408
		106.00	4.1732		S1455A60	S1460A60	S1465A60
	4-3/16	106.36	4.1875		S1405412	S1410412	S1415412
	4-1/4	107.95	4.2500		S1405416	S1410416	S1415416
		108.00	4.2520		S1455A80	S1460A80	S1465A80
	4-5/16	109.54	4.3125		S1405420	S1410420	S1415420
		110.00	4.3307		S1455B00	S1460B00	S1465B00
	4-3/8	111.13	4.3750		S1405424	S1410424	S1415424
		112.00	4.4094		S1455B20	S1460B20	S1465B20
4-7/16	112.71	4.4375	S1405428	S1410428	S1415428		
	114.00	4.4882	S1455B40	S1460B40	S1465B40		
4-1/2	114.30	4.5000	S1405432	S1410432	S1415432		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	○	◎	○	

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials				Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎						◎														

# YG SPADE DRILLS

SERIES Y, Z, 0

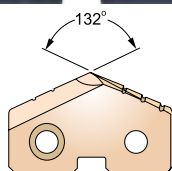
## SPADE DRILL INSERTS - SUPER HSS T15

- EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL - Super HSS T15
- CUSPIDI SPADE DRILL - SUPER HSS T15



- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A376

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>Y</b> Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	S1155095	S1160095	S1165095	
		9.53	.3750	S1105024	S1110024	S1115024	
	25/64	9.80	.3860	S1155098	S1160098	S1165098	
		9.92	.3906	S1105025	S1110025	S1115025	
		10.00	.3937	S1155100	S1160100	S1165100	
		10.20	.4016	S1155102	S1160102	S1165102	
	13/32	10.32	.4063	S1105026	S1110026	S1115026	
		10.50	.4134	S1155105	S1160105	S1165105	
	27/64	10.72	.4219	S1105027	S1110027	S1115027	
		10.80	.4252	S1155108	S1160108	S1165108	
11.00		.4331	S1155110	S1160110	S1165110		
11.11		.4375	S1105028	S1110028	S1115028		
<b>Z</b> Ø11.11(.437) to Ø12.95(.510)	7/16	11.50	.4528	S1155115	S1160115	S1165115	
		11.51	.4531	S1105029	S1110029	S1115029	
	15/32	11.91	.4688	S1105030	S1110030	S1115030	
		12.00	.4724	S1155120	S1160120	S1165120	
	31/64	12.30	.4844	S1105031	S1110031	S1115031	
		12.50	.4921	S1155125	S1160125	S1165125	
	1/2	12.70	.5000	S1105032	S1110032	S1115032	
		13.00	.5118	S1155130	S1160130	S1165130	
	33/64	13.10	.5156	S1105033	S1110033	S1115033	
		13.49	.5313	S1105034	S1110034	S1115034	
13.50		.5315	S1155135	S1160135	S1165135		
13.89		.5469	S1105035	S1110035	S1115035		
9/16	14.00	.5512	S1155140	S1160140	S1165140		
	14.29	.5625	S1105036	S1110036	S1115036		
	14.50	.5709	S1155145	S1160145	S1165145		
	14.68	.5781	S1105037	S1110037	S1115037		
37/64	15.00	.5906	S1155150	S1160150	S1165150		
	15.08	.5938	S1105038	S1110038	S1115038		
39/64	15.48	.6094	S1105039	S1110039	S1115039		
	15.50	.6102	S1155155	S1160155	S1165155		
5/8	15.88	.6250	S1105040	S1110040	S1115040		
	16.00	.6299	S1155160	S1160160	S1165160		

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	○	◎

ISO	N					S										H									
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400	550
Recommended	○	○				○	○	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	

A308 phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

YG-1 CO., LTD.



# YG SPADE DRILLS

SERIES 0, 1

## SPADE DRILL INSERTS - SUPER HSS T15

- EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL - Super HSS T15
- CUSPIDI SPADE DRILL - SUPER HSS T15



- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A376

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>0</b> Ø12.98 (.511) to Ø17.65 (.695)	41/64	16.27	.6406	S1105041	S1110041	S1115041	
		16.50	.6496	S1155165	S1160165	S1165165	
	21/32	16.67	.6563	S1105042	S1110042	S1115042	
		17.00	.6693	S1155170	S1160170	S1165170	
		17.07	.6719	S1105043	S1110043	S1115043	
		17.46	.6875	S1105044	S1110044	S1115044	
	11/16	17.50	.6890	S1155175	S1160175	S1165175	
		17.86	.7031	S1105045	S1110045	S1115045	
	45/64	18.00	.7087	S1155180	S1160180	S1165180	
		18.26	.7188	S1105046	S1110046	S1115046	
18.50		.7283	S1155185	S1160185	S1165185		
18.65		.7344	S1105047	S1110047	S1115047		
23/32	19.00	.7480	S1155190	S1160190	S1165190		
	19.05	.7500	S1105048	S1110048	S1115048		
49/64	19.45	.7656	S1105049	S1110049	S1115049		
	19.50	.7677	S1155195	S1160195	S1165195		
25/32	19.84	.7813	S1105050	S1110050	S1115050		
	20.00	.7874	S1155200	S1160200	S1165200		
51/64	20.24	.7969	S1105051	S1110051	S1115051		
	20.50	.8071	S1155205	S1160205	S1165205		
13/16	20.64	.8125	S1105052	S1110052	S1115052		
	21.00	.8268	S1155210	S1160210	S1165210		
27/32	21.43	.8438	S1105054	S1110054	S1115054		
	21.83	.8594	S1105055	S1110055	S1115055		
55/64	22.00	.8661	S1155220	S1160220	S1165220		
	22.23	.8750	S1105056	S1110056	S1115056		
7/8	22.62	.8906	S1105057	S1110057	S1115057		
	23.00	.9055	S1155230	S1160230	S1165230		
57/64	23.02	.9063	S1105058	S1110058	S1115058		
	23.42	.9219	S1105059	S1110059	S1115059		
29/32	23.81	.9375	S1105060	S1110060	S1115060		
	24.00	.9449	S1155240	S1160240	S1165240		

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	○	◎

ISO	N					S										H									
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400	550
Recommended	○	○				○	○	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

A309

## SPADE DRILL INSERTS - SUPER HSS T15

- EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL - Super HSS T15
- CUSPIDI SPADE DRILL - SUPER HSS T15



- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A376

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>0</b> Ø12.98 (.511) to Ø17.65 (.695)	41/64	16.27	.6406	S1105041	S1110041	S1115041	
		16.50	.6496	S1155165	S1160165	S1165165	
	21/32	16.67	.6563	S1105042	S1110042	S1115042	
		17.00	.6693	S1155170	S1160170	S1165170	
		17.07	.6719	S1105043	S1110043	S1115043	
		17.46	.6875	S1105044	S1110044	S1115044	
	11/16	17.50	.6890	S1155175	S1160175	S1165175	
		17.86	.7031	S1105045	S1110045	S1115045	
	45/64	18.00	.7087	S1155180	S1160180	S1165180	
		18.26	.7188	S1105046	S1110		

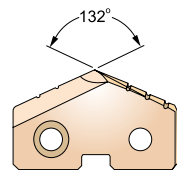
**SPADE DRILL INSERTS - SUPER HSS T15**

- EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL - Super HSS T15
- CUSPIDI SPADE DRILL - SUPER HSS T15



- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A376

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>2</b> Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1105062	S1110062	S1115062
	63/64	25.00	.9843		S1155250	S1160250	S1165250
	1	25.40	1.0000		S1105100	S1110100	S1115100
	1-1/64	25.80	1.0156		S1105101	S1110101	S1115101
		26.00	1.0236		S1155260	S1160260	S1165260
	1-1/32	26.19	1.0313		S1105102	S1110102	S1115102
	1-3/64	26.59	1.0469		S1105103	S1110103	S1115103
	1-1/16	26.99	1.0625		S1105104	S1110104	S1115104
		27.00	1.0630		S1155270	S1160270	S1165270
	1-3/32	27.78	1.0938		S1105106	S1110106	S1115106
		28.00	1.1024		S1155280	S1160280	S1165280
	1-7/64	28.18	1.1094		S1105107	S1110107	S1115107
	1-1/8	28.58	1.1250		S1105108	S1110108	S1115108
		29.00	1.1417		S1155290	S1160290	S1165290
	1-5/32	29.37	1.1563		S1105110	S1110110	S1115110
		30.00	1.1811		S1155300	S1160300	S1165300
	1-3/16	30.16	1.1875		S1105112	S1110112	S1115112
	1-7/32	30.96	1.2188		S1105114	S1110114	S1115114
	31.00	1.2205	S1155310	S1160310	S1165310		
1-1/4	31.75	1.2500	S1105116	S1110116	S1115116		
	32.00	1.2598	S1155320	S1160320	S1165320		
1-9/32	32.54	1.2813	S1105118	S1110118	S1115118		
1-5/16	33.00	1.2992	S1155330	S1160330	S1165330		
	33.34	1.3125	S1105120	S1110120	S1115120		
	34.00	1.3386	S1155340	S1160340	S1165340		
1-11/32	34.13	1.3438	S1105122	S1110122	S1115122		
1-3/8	34.93	1.3750	S1105124	S1110124	S1115124		
	35.00	1.3780	S1155350	S1160350	S1165350		
1-13/32	35.72	1.4063	S1105126	S1110126	S1115126		
	36.00	1.4173	S1155360	S1160360	S1165360		
1-7/16	36.51	1.4375	S1105128	S1110128	S1115128		
	37.00	1.4567	S1155370	S1160370	S1165370		
1-15/32	37.31	1.4688	S1105130	S1110130	S1115130		
Ø34.37(1.353) to Ø47.80(1.882)	38.00	1.4961	S1155380	S1160380	S1165380		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	○	◎

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○				○			○	○	◎	○	○	○	○	○	○	○	○	○	○



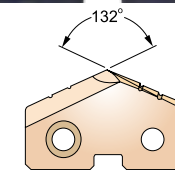
**SPADE DRILL INSERTS - SUPER HSS T15**

- EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL - Super HSS T15
- CUSPIDI SPADE DRILL - SUPER HSS T15



- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A376

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>3</b> Ø34.37 (1.353) to Ø47.80 (1.882)	1-1/2	38.10	1.5000	6.4 (1/4)	S1105132	S1110132	S1115132
	1-17/32	38.89	1.5313		S1105134	S1110134	S1115134
		39.00	1.5354		S1155390	S1160390	S1165390
	1-9/16	39.69	1.5625		S1105136	S1110136	S1115136
		40.00	1.5748		S1155400	S1160400	S1165400
	1-19/32	40.48	1.5938		S1105138	S1110138	S1115138
		41.00	1.6142		S1155410	S1160410	S1165410
	1-5/8	41.28	1.6250		S1105140	S1110140	S1115140
		42.00	1.6535		S1155420	S1160420	S1165420
	1-21/32	42.07	1.6563		S1105142	S1110142	S1115142
	1-11/16	42.86	1.6875		S1105144	S1110144	S1115144
		43.00	1.6929		S1155430	S1160430	S1165430
	1-23/32	43.66	1.7188		S1105146	S1110146	S1115146
		44.00	1.7323		S1155440	S1160440	S1165440
	1-3/4	44.45	1.7500		S1105148	S1110148	S1115148
		45.00	1.7717		S1155450	S1160450	S1165450
	1-25/32	45.24	1.7813		S1105150	S1110150	S1115150
		46.00	1.8110		S1155460	S1160460	S1165460
1-13/16	46.04	1.8125	S1105152	S1110152	S1115152		
1-27/32	46.83	1.8438	S1105154	S1110154	S1115154		
	47.00	1.8504	S1155470	S1160470	S1165470		
1-7/8	47.63	1.8750	S1105156	S1110156	S1115156		
	48.00	1.8898	S1155480	S1160480	S1165480		
1-29/32	48.42	1.9063	S1105158	S1110158	S1115158		
	49.00	1.9291	S1155490	S1160490	S1165490		
1-15/16	49.21	1.9375	S1105160	S1110160	S1115160		
	50.00	1.9685	S1155500	S1160500	S1165500		
1-31/32	50.01	1.9688	S1105162	S1110162	S1115162		
2	50.80	2.0000	S1105200	S1110200	S1115200		
	51.00	2.0079	S1155510	S1160510	S1165510		
2-1/32	51.59	2.0313	S1105202	S1110202	S1115202		
2-3/64	52.00	2.0472	S1155520	S1160520	S1165520		
2-1/16	52.39	2.0625	S1105204	S1110204	S1115204		
	53.00	2.0866	S1155530	S1160530	S1165530		

**4**

Ø46.99 (1.850) to Ø65.28 (2.570)

7.9 (5/16)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	○	◎

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○				○			○	○	◎	○	○	○	○	○	○	○	○	○	○



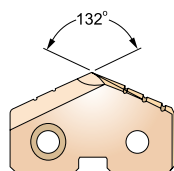
**SPADE DRILL INSERTS - SUPER HSS T15**

- EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL - Super HSS T15
- CUSPIDI SPADE DRILL - SUPER HSS T15



- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A376

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN		
					TiCN	TiAlN	
4 Ø46.99 (1.850) to Ø65.28 (2.570)	2-3/32	53.18	2.0938	S1105206	S1110206	S1115206	
	2-1/8	53.98	2.1250	S1105208	S1110208	S1115208	
	2-5/32	54.00	2.1260	S1155540	S1160540	S1165540	
		54.77	2.1563	S1105210	S1110210	S1115210	
	2-3/16	55.00	2.1654	S1155550	S1160550	S1165550	
		55.56	2.1875	S1105212	S1110212	S1115212	
	2-7/32	56.00	2.2047	S1155560	S1160560	S1165560	
		56.36	2.2188	S1105214	S1110214	S1115214	
	2-1/4	57.00	2.2441	S1155570	S1160570	S1165570	
		57.15	2.2500	S1105216	S1110216	S1115216	
	2-9/32	57.94	2.2813	S1105218	S1110218	S1115218	
		58.00	2.2835	S1155580	S1160580	S1165580	
	2-5/16	58.74	2.3125	S1105220	S1110220	S1115220	
		59.00	2.3228	S1155590	S1160590	S1165590	
	2-11/32	59.53	2.3438	S1105222	S1110222	S1115222	
		60.00	2.3622	S1155600	S1160600	S1165600	
	2-3/8	60.33	2.3750	S1105224	S1110224	S1115224	
		61.00	2.4016	S1155610	S1160610	S1165610	
	2-13/32	61.12	2.4063	S1105226	S1110226	S1115226	
		61.91	2.4375	S1105228	S1110228	S1115228	
2-7/16	62.00	2.4409	S1155620	S1160620	S1165620		
	62.71	2.4688	S1105230	S1110230	S1115230		
2-1/2	63.00	2.4803	S1155630	S1160630	S1165630		
	63.50	2.5000	S1105232	S1110232	S1115232		
2-15/32	64.00	2.5197	S1155640	S1160640	S1165640		
	64.29	2.5313	S1105234	S1110234	S1115234		
2-9/16	65.00	2.5591	S1155650	S1160650	S1165650		
	65.09	2.5625	S1105236	S1110236	S1115236		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	130	21	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	130	230	230	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



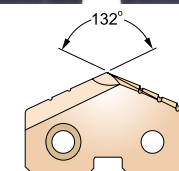
**SPADE DRILL INSERTS - PREMIUM HSS M48**

- EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL - HSS Premium M48
- CUSPIDI SPADE DRILL - PREMIUM HSS M48



- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350-500 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A377

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN		
					TiCN	TiAlN	
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	S1555095	S1560095	S1565095	
		9.53	.3750	S1505024	S1510024	S1515024	
	25/64	9.80	.3860	S1555098	S1560098	S1565098	
		9.92	.3906	S1505025	S1510025	S1515025	
	13/32	10.00	.3937	S1555100	S1560100	S1565100	
		10.20	.4016	S1555102	S1560102	S1565102	
	27/64	10.32	.4063	S1505026	S1510026	S1515026	
		10.50	.4134	S1555105	S1560105	S1565105	
	11.00	10.80	.4252	S1555108	S1560108	S1565108	
		11.00	.4331	S1555110	S1560110	S1565110	
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	S1505028	S1510028	S1515028	
		11.50	.4528	S1555115	S1560115	S1565115	
	29/64	11.51	.4531	S1505029	S1510029	S1515029	
		11.91	.4688	S1505030	S1510030	S1515030	
	31/64	12.00	.4724	S1555120	S1560120	S1565120	
		12.30	.4844	S1505031	S1510031	S1515031	
	1/2	12.50	.4921	S1555125	S1560125	S1565125	
		13.00	.5118	S1505032	S1510032	S1515032	
	33/64	13.00	.5118	S1555130	S1560130	S1565130	
		13.10	.5156	S1505033	S1510033	S1515033	
17/32	13.49	.5313	S1505034	S1510034	S1515034		
	13.50	.5315	S1555135	S1560135	S1565135		
35/64	13.89	.5469	S1505035	S1510035	S1515035		
	14.00	.5512	S1555140	S1560140	S1565140		
9/16	14.29	.5625	S1505036	S1510036	S1515036		
	14.50	.5709	S1555145	S1560145	S1565145		
37/64	14.68	.5781	S1505037	S1510037	S1515037		
	15.00	.5906	S1555150	S1560150	S1565150		
19/32	15.08	.5938	S1505038	S1510038	S1515038		
	15.48	.6094	S1505039	S1510039	S1515039		
39/64	15.50	.6102	S1555155	S1560155	S1565155		
	15.88	.6250	S1505040	S1510040	S1515040		
5/8	16.00	.6299	S1555160	S1560160	S1565160		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	130	21	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	130	230	230	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG SPADE DRILLS

SERIES 0, 1

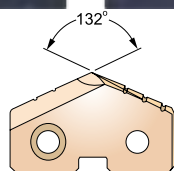
## SPADE DRILL INSERTS - PREMIUM HSS M48

- EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL - HSS Premium M48
- CUSPIDI SPADE DRILL - PREMIUM HSS M48



- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350-500 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A377

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
Recommended ToolHolder	ER COLLET CHUCK		D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48			
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN	
	<b>0</b> Ø12.98(.511) to Ø17.65(.695)	41/64 21/32 43/64 11/16	16.27 16.50 16.67 17.00 17.07 17.46 17.50		.6406 .6496 .6563 .6693 .6719 .6875 .6890	3.2 (1/8)	S1505041 S1555165 S1505042 S1555170 S1505043 S1505044 S1555175 S1505045 S1555180 S1505046 S1555185 S1505047 S1555190 S1505048 S1505049 S1555195 S1505050 S1555200 S1505051 S1555205 S1505052 S1555210 S1505054 S1505055 S1555220 S1505056 S1505057 S1555230 S1505058 S1505059 S1505060 S1555240	S1510041 S1560165 S1510042 S1560170 S1510043 S1510044 S1560175 S1510045 S1560180 S1510046 S1560185 S1510047 S1560190 S1510048 S1510049 S1560195 S1510050 S1560200 S1510051 S1560205 S1510052 S1560210 S1510054 S1510055 S1560220 S1510056 S1510057 S1560230 S1510058 S1510059 S1510060 S1560240
<b>1</b> Ø17.53 (.690) to Ø24.38 (.960)	45/64 23/32 47/64 3/4 49/64 25/32 51/64 13/16 27/32 55/64 7/8 57/64 29/32 59/64 15/16	17.86 18.00 18.26 18.50 18.50 19.00 19.05 19.45 19.50 19.84 20.00 20.24 20.50 20.64 21.00 21.43 21.83 22.00 22.23 22.62 23.00 23.02 23.42 23.81 24.00	.7031 .7087 .7188 .7283 .7344 .7480 .7500 .7656 .7677 .7813 .7874 .7969 .8071 .8125 .8268 .8438 .8594 .8661 .8750 .8906 .9055 .9063 .9219 .9375 .9449	4.0 (5/32)	S1505041 S1555165 S1505042 S1555170 S1505043 S1505044 S1555175 S1505045 S1555180 S1505046 S1555185 S1505047 S1555190 S1505048 S1505049 S1555195 S1505050 S1555200 S1505051 S1555205 S1505052 S1555210 S1505054 S1505055 S1555220 S1505056 S1505057 S1555230 S1505058 S1505059 S1505060 S1555240		S1510041 S1560165 S1510042 S1560170 S1510043 S1510044 S1560175 S1510045 S1560180 S1510046 S1560185 S1510047 S1560190 S1510048 S1510049 S1560195 S1510050 S1560200 S1510051 S1560205 S1510052 S1560210 S1510054 S1510055 S1560220 S1510056 S1510057 S1560230 S1510058 S1510059 S1510060 S1560240	S1515041 S1565165 S1515042 S1565170 S1515043 S1515044 S1565175 S1515045 S1565180 S1515046 S1565185 S1515047 S1565190 S1515048 S1515049 S1565195 S1515050 S1565200 S1515051 S1565205 S1515052 S1565210 S1515054 S1515055 S1565220 S1515056 S1515057 S1565230 S1515058 S1515059 S1515060 S1565240

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	○	◎

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

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YG-1 CO., LTD.



# YG SPADE DRILLS

SERIES 2

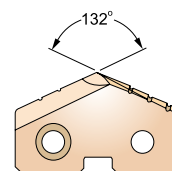
## SPADE DRILL INSERTS - PREMIUM HSS M48

- EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL - HSS Premium M48
- CUSPIDI SPADE DRILL - PREMIUM HSS M48



- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350-500 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A377

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
Recommended ToolHolder	ER COLLET CHUCK		D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
	<b>2</b> Ø24.41 (.961) to Ø35.05 (1.380)	31/32 63/64 1 1-1/64 1-1/32 1-3/64 1-1/16 1-3/32 1-7/64 1-1/8 1-5/32 1-3/16 1-7/32 1-1/4 1-9/32 1-5/16 1-11/32 1-3/8	24.61 25.00 25.40 25.80 26.00 26.19 26.59 26.99 27.00 27.78 28.00 28.18 28.58 29.00 29.37 30.00 30.16 30.96 31.00 31.75 32.00 32.54 33.00 33.34 34.00 34.13 34.93 35.00		.9688 .9843 1.0000 1.0156 1.0236 1.0313 1.0469 1.0625 1.0630 1.0938 1.1024 1.1094 1.1250 1.1417 1.1563 1.1811 1.1875 1.2188 1.2205 1.2500 1.2598 1.2813 1.2992 1.3125 1.3386 1.3438 1.3750 1.3780	4.8 (3/16)	S1505062 S1555250 S1505100 S1505101 S1555260 S1505102 S1505103 S1505104 S1555270 S1505106 S1555280 S1505107 S1505108 S1555290 S1505110 S1555300 S1505112 S1505114 S1555310 S1505116 S1555320 S1505118 S1555330 S1505120 S1555340 S1505122 S1505124 S1555350

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	○	◎

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

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A315

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

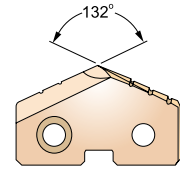
**SPADE DRILL INSERTS for CAST IRON - CARBIDE K10**

- EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL pour la fonte - Carbure K10
- CUSPIDI SPADE DRILL - MD K10



- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A378

Flat Shank	Page	Plain Shank	Page
Recommended ToolHolder	INDEXABLE DRILL HOLDER D245-246	ER COLLET CHUCK	D73-115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K10		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>Y</b> Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	S1655095	S1660095	S1665095	
		9.53	.3750	S1605024	S1610024	S1615024	
	25/64	9.80	.3860	S1655098	S1660098	S1665098	
		9.92	.3906	S1605025	S1610025	S1615025	
		10.00	.3937	S1655100	S1660100	S1665100	
		10.20	.4016	S1655102	S1660102	S1665102	
		10.32	.4063	S1605026	S1610026	S1615026	
		10.50	.4134	S1655105	S1660105	S1665105	
		10.72	.4219	S1605027	S1610027	S1615027	
		10.80	.4252	S1655108	S1660108	S1665108	
<b>Z</b> Ø11.11(.437) to Ø12.95(.510)	7/16	11.00	.4331	S1655110	S1660110	S1665110	
		11.11	.4375	S1605028	S1610028	S1615028	
	15/32	11.50	.4528	S1655115	S1660115	S1665115	
		11.51	.4531	S1605029	S1610029	S1615029	
		11.91	.4688	S1655120	S1660120	S1665120	
		12.00	.4724	S1605030	S1610030	S1615030	
		12.30	.4844	S1655125	S1660125	S1665125	
		12.50	.4921	S1605031	S1610031	S1615031	
		12.70	.5000	S1655125	S1660125	S1665125	
		12.70	.5000	S1605032	S1610032	S1615032	
<b>0</b> Ø12.98 (.511) to Ø17.65 (.695)	1/2	13.00	.5118	S1655130	S1660130	S1665130	
		13.10	.5156	S1605033	S1610033	S1615033	
	33/64	13.49	.5313	S1655135	S1660135	S1665135	
		13.50	.5315	S1605034	S1610034	S1615034	
		13.89	.5469	S1655140	S1660140	S1665140	
		14.00	.5512	S1605035	S1610035	S1615035	
		14.29	.5625	S1655145	S1660145	S1665145	
		14.50	.5709	S1605036	S1610036	S1615036	
		14.68	.5781	S1655145	S1660145	S1665145	
		14.68	.5781	S1605037	S1610037	S1615037	
37/64	15.00	.5906	S1655150	S1660150	S1665150		
	15.08	.5938	S1605038	S1610038	S1615038		
	15.48	.6094	S1655155	S1660155	S1665155		
	15.50	.6102	S1605039	S1610039	S1615039		
	15.88	.6250	S1655160	S1660160	S1665160		
	16.00	.6299	S1605040	S1610040	S1615040		
	16.00	.6299	S1655160	S1660160	S1665160		
	16.00	.6299	S1605040	S1610040	S1615040		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum- wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	55	60	42
Recommended																								



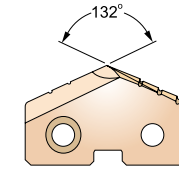
**SPADE DRILL INSERTS for CAST IRON - CARBIDE K10**

- EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL pour la fonte - Carbure K10
- CUSPIDI SPADE DRILL - MD K10



- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A378

Flat Shank	Page	Plain Shank	Page
Recommended ToolHolder	INDEXABLE DRILL HOLDER D245-246	ER COLLET CHUCK	D73-115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K10		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>0</b> Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	S1605041	S1610041	S1615041	
		16.50	.6496	S1655165	S1660165	S1665165	
	21/32	16.67	.6563	S1605042	S1610042	S1615042	
		17.00	.6693	S1655170	S1660170	S1665170	
		17.07	.6719	S1605043	S1610043	S1615043	
		17.46	.6875	S1605044	S1610044	S1615044	
		17.50	.6890	S1655175	S1660175	S1665175	
		17.86	.7031	S1605045	S1610045	S1615045	
		18.00	.7087	S1655180	S1660180	S1665180	
		18.26	.7188	S1605046	S1610046	S1615046	
<b>1</b> Ø17.53 (.690) to Ø24.38 (.960)	47/64	18.50	.7283	S1655185	S1660185	S1665185	
		18.65	.7344	S1605047	S1610047	S1615047	
	3/4	19.00	.7480	S1655190	S1660190	S1665190	
		19.05	.7500	S1605048	S1610048	S1615048	
		19.45	.7656	S1655195	S1660195	S1665195	
		19.50	.7677	S1605049	S1610049	S1615049	
		19.84	.7813	S1655200	S1660200	S1665200	
		20.00	.7874	S1605050	S1610050	S1615050	
		20.24	.7969	S1655205	S1660205	S1665205	
		20.50	.8071	S1605051	S1610051	S1615051	
<b>0</b> Ø17.53 (.690) to Ø24.38 (.960)	13/16	20.64	.8125	S1655205	S1660205	S1665205	
		21.00	.8268	S1605052	S1610052	S1615052	
	27/32	21.00	.8268	S1655210	S1660210	S1665210	
		21.43	.8438	S1605054	S1610054	S1615054	
		21.83	.8594	S1655210	S1660210	S1665210	
		22.00	.8661	S1605055	S1610055	S1615055	
		22.23	.8750	S1655220	S1660220	S1665220	
		22.62	.8906	S1605056	S1610056	S1615056	
		23.00	.9055	S1655230	S1660230	S1665230	
		23.02	.9063	S1605057	S1610057	S1615057	
55/64	23.42	.9219	S1655230	S1660230	S1665230		
	23.81	.9375	S1605058	S1610058	S1615058		
	24.00	.9449	S1655240	S1660240	S1665240		
	24.00	.9449	S1605059	S1610059	S1615059		
	24.00	.9449	S1655240	S1660240	S1665240		
	24.00	.9449	S1605060	S1610060	S1615060		
	24.00	.9449	S1655240	S1660240	S1665240		
	24.00	.9449	S1605060	S1610060	S1615060		

◎ : Excellent ○ : Good

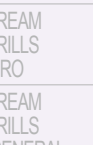
ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum- wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	55	60	42
Recommended																								

**SPADE DRILL INSERTS for CAST IRON - CARBIDE K10**

- EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL pour la fonte - Carbure K10
- CUSPIDI SPADE DRILL - MD K10



- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A378

Flat Shank	Page	Plain Shank	Page
Recommended ToolHolder	INDEXABLE DRILL HOLDER D245-246	ER COLLET CHUCK	D73-115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K10		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN



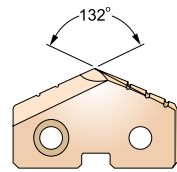
**SPADE DRILL INSERTS for CAST IRON - CARBIDE K10**

- EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL pour la fonte - Carbure K10
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- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
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- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A378

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K10		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1605062	S1610062	S1615062
	63/64	25.00	.9843		S1655250	S1660250	S1665250
	1	25.40	1.0000		S1605100	S1610100	S1615100
	1-1/64	25.80	1.0156		S1605101	S1610101	S1615101
		26.00	1.0236		S1655260	S1660260	S1665260
	1-1/32	26.19	1.0313		S1605102	S1610102	S1615102
	1-3/64	26.59	1.0469		S1605103	S1610103	S1615103
	1-1/16	26.99	1.0625		S1605104	S1610104	S1615104
		27.00	1.0630		S1655270	S1660270	S1665270
	1-3/32	27.78	1.0938		S1605106	S1610106	S1615106
		28.00	1.1024		S1655280	S1660280	S1665280
	1-7/64	28.18	1.1094		S1605107	S1610107	S1615107
	1-1/8	28.58	1.1250		S1605108	S1610108	S1615108
		29.00	1.1417		S1655290	S1660290	S1665290
	1-5/32	29.37	1.1563		S1605110	S1610110	S1615110
		30.00	1.1811		S1655300	S1660300	S1665300
	1-3/16	30.16	1.1875		S1605112	S1610112	S1615112
	1-7/32	30.96	1.2188		S1605114	S1610114	S1615114
		31.00	1.2205		S1655310	S1660310	S1665310
	1-1/4	31.75	1.2500		S1605116	S1610116	S1615116
		32.00	1.2598		S1655320	S1660320	S1665320
	1-9/32	32.54	1.2813		S1605118	S1610118	S1615118
		33.00	1.2992		S1655330	S1660330	S1665330
	1-5/16	33.34	1.3125		S1605120	S1610120	S1615120
	34.00	1.3386	S1655340	S1660340	S1665340		
1-11/32	34.13	1.3438	S1605122	S1610122	S1615122		
1-3/8	34.93	1.3750	S1605124	S1610124	S1615124		
	35.00	1.3780	S1655350	S1660350	S1665350		

◎ : Excellent ○ : Good

ISO	P										M				K									
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	180	260	160	250
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	180	260	160	250
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H							
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)						Non Metallic Materials							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



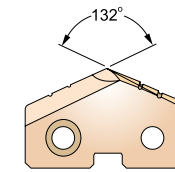
**SPADE DRILL INSERTS - CARBIDE K20**

- EINWEG BOHREINSATZ - VOLLHARTMETALL K20
- Plaquettes SPADE DRILL - Carbure K20
- CUSPIDI SPADE DRILL - MD K20



- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A378

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K20		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	2.4 (3/32)	S1755095	S1760095	S1765095
		9.53	.3750		S1705024	S1710024	S1715024
		9.80	.3860		S1755098	S1760098	S1765098
		9.92	.3906		S1705025	S1710025	S1715025
		10.00	.3937		S1755100	S1760100	S1765100
		10.20	.4016		S1755102	S1760102	S1765102
	13/32	10.32	.4063		S1705026	S1710026	S1715026
		10.50	.4134		S1755105	S1760105	S1765105
		10.72	.4219		S1705027	S1710027	S1715027
		10.80	.4252		S1755108	S1760108	S1765108
		11.00	.4331		S1755110	S1760110	S1765110
		11.11	.4375		S1705028	S1710028	S1715028
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.50	.4528	2.4 (3/32)	S1755115	S1760115	S1765115
		11.51	.4531		S1705029	S1710029	S1715029
		11.91	.4688		S1705030	S1710030	S1715030
		12.00	.4724		S1755120	S1760120	S1765120
		12.30	.4844		S1705031	S1710031	S1715031
		12.50	.4921		S1755125	S1760125	S1765125
	15/32	12.70	.5000		S1705032	S1710032	S1715032
		13.00	.5118		S1755130	S1760130	S1765130
		13.10	.5156		S1705033	S1710033	S1715033
		13.49	.5313		S1705034	S1710034	S1715034
		13.50	.5315		S1755135	S1760135	S1765135
		13.89	.5469		S1705035	S1710035	S1715035
O Ø12.98 (.511) to Ø17.65 (.695)	31/64	14.00	.5512	3.2 (1/8)	S1755140	S1760140	S1765140
		14.29	.5625		S1705036	S1710036	S1715036
		14.50	.5709		S1755145	S1760145	S1765145
		14.68	.5781		S1705037	S1710037	S1715037
		15.00	.5906		S1755150	S1760150	S1765150
		15.08	.5938		S1705038	S1710038	S1715038
	17/32	15.48	.6094		S1705039	S1710039	S1715039
		15.50	.6102		S1755155	S1760155	S1765155
		15.88	.6250		S1705040	S1710040	S1715040
		16.00	.6299		S1755160	S1760160	S1765160

◎ : Excellent ○ : Good

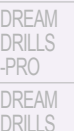
ISO	P										M				K									
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	180	260	160	250
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	180	260	160	250
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H							
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)						Non Metallic Materials							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

SPADE DRILL INSERTS for CAST IRON - CARBIDE K10

- EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL pour la fonte - Carbure K10
- CUSPIDI SPADE DRILL - MD K10



- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K10		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	4.8 (3/16)	31/32	24.61	.9688	S1605062	S1610062	S1615062
		63/64	25.00	.9843	S1655250	S1660250	S1665250
		1	25.40	1.0000	S1605100	S1610100	S1615100
		1-1/64	25.80	1.0156	S1605101	S1610101	S1615101
			26.00	1.0236	S1655260	S1660260	S1665260
		1-1/32	26.19	1.0313	S1605102	S1610102	S1615102
		1-3/64	26.59	1.0469	S1605103	S1610103	S16





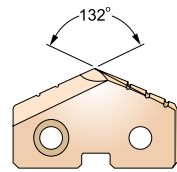
**SPADE DRILL INSERTS - CARBIDE K20**

- EINWEG BOHREINSATZ - VOLLHARTMETALL K20
- Plaquettes SPADE DRILL - Carbure K20
- CUSPIDI SPADE DRILL - MD K20



- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A378

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
Recommended ToolHolder	ER COLLET CHUCK	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K20		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>3</b> Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4063	S1705126	S1710126	S1715126	
		36.00	1.4173	S1755360	S1760360	S1765360	
	1-7/16	36.51	1.4375	S1705128	S1710128	S1715128	
		37.00	1.4567	S1755370	S1760370	S1765370	
	1-15/32	37.31	1.4688	S1705130	S1710130	S1715130	
		38.00	1.4961	S1755380	S1760380	S1765380	
	1-1/2	38.10	1.5000	S1705132	S1710132	S1715132	
		38.89	1.5313	S1705134	S1710134	S1715134	
	1-9/16	39.00	1.5354	S1755390	S1760390	S1765390	
		39.69	1.5625	S1705136	S1710136	S1715136	
	1-19/32	40.00	1.5748	S1755400	S1760400	S1765400	
		40.48	1.5938	S1705138	S1710138	S1715138	
	1-5/8	41.00	1.6142	S1755410	S1760410	S1765410	
		41.28	1.6250	S1705140	S1710140	S1715140	
	1-21/32	42.00	1.6535	S1755420	S1760420	S1765420	
		42.07	1.6563	S1705142	S1710142	S1715142	
	1-11/16	42.86	1.6875	S1705144	S1710144	S1715144	
		43.00	1.6929	S1755430	S1760430	S1765430	
	1-23/32	43.66	1.7188	S1705146	S1710146	S1715146	
		44.00	1.7323	S1755440	S1760440	S1765440	
1-3/4	44.45	1.7500	S1705148	S1710148	S1715148		
	45.00	1.7717	S1755450	S1760450	S1765450		
1-25/32	45.24	1.7813	S1705150	S1710150	S1715150		
	46.00	1.8110	S1755460	S1760460	S1765460		
1-13/16	46.04	1.8125	S1705152	S1710152	S1715152		
	46.83	1.8438	S1705154	S1710154	S1715154		
1-27/32	47.00	1.8504	S1755470	S1760470	S1765470		
	47.63	1.8750	S1705156	S1710156	S1715156		

◎ : Excellent ○ : Good

ISO	P										M				K							
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	210	230
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○

ISO	N										S				H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

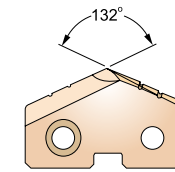
**SPADE DRILL INSERTS - CARBIDE P40**

- EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL - Carbure P40
- CUSPIDI SPADE DRILL - MD P40



- ▶ For general use in carbon steels and alloy steels.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A380

Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER D245 - 246	-	-	-
Recommended ToolHolder	ER COLLET CHUCK	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE P40		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>Y</b> Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	S1855095	S1860095	S1865095	
		9.53	.3750	S1805024	S1810024	S1815024	
	25/64	9.80	.3860	S1855098	S1860098	S1865098	
		9.92	.3906	S1805025	S1810025	S1815025	
	13/32	10.00	.3937	S1855100	S1860100	S1865100	
		10.20	.4016	S1855102	S1860102	S1865102	
	27/64	10.32	.4063	S1805026	S1810026	S1815026	
		10.50	.4134	S1855105	S1860105	S1865105	
	1/2	10.72	.4219	S1805027	S1810027	S1815027	
		10.80	.4252	S1855108	S1860108	S1865108	
<b>Z</b> Ø11.11(.437) to Ø12.95(.510)	7/16	11.00	.4331	S1855110	S1860110	S1865110	
		11.11	.4375	S1805028	S1810028	S1815028	
	29/64	11.50	.4528	S1855115	S1860115	S1865115	
		11.51	.4531	S1805029	S1810029	S1815029	
	15/32	11.91	.4688	S1855120	S1860120	S1865120	
		12.00	.4724	S1805031	S1810031	S1815031	
	31/64	12.30	.4844	S1855125	S1860125	S1865125	
		12.50	.4921	S1805032	S1810032	S1815032	
	1/2	13.00	.5118	S1855130	S1860130	S1865130	
		13.10	.5156	S1805033	S1810033	S1815033	
33/64	13.49	.5313	S1855135	S1860135	S1865135		
	13.50	.5315	S1805034	S1810034	S1815034		
35/64	13.89	.5469	S1855140	S1860140	S1865140		
	14.00	.5512	S1805035	S1810035	S1815035		
9/16	14.29	.5625	S1855145	S1860145	S1865145		
	14.50	.5709	S1805036	S1810036	S1815036		
37/64	14.68	.5781	S1855150	S1860150	S1865150		
	15.00	.5906	S1805037	S1810037	S1815037		
19/32	15.08	.5938	S1855155	S1860155	S1865155		
	15.48	.6094	S1805038	S1810038	S1815038		
39/64	15.50	.6102	S1855160	S1860160	S1865160		
	15.88	.6250	S1805039	S1810039	S1815039		
5/8	16.00	.6299	S1855155	S1860155	S1865155		
	16.00	.6299	S1805040	S1810040	S1815040		

◎ : Excellent ○ : Good

ISO	P										M				K							
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	210	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○

ISO	N										S				H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○







# Y/G SPADE DRILLS

SERIES 3

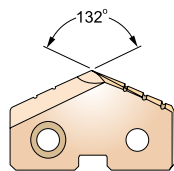
## SPADE DRILL INSERTS - CARBIDE P40

- EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL - Carbure P40
- CUSPIDI SPADE DRILL - MD P40



- ▶ For general use in carbon steels and alloy steels.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK	-	D73 - 115	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE P40		
					TiN	TiCN	TiAlN
<b>3</b> Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4063	S1805126	S1810126	S1815126	
		36.00	1.4173	S1855360	S1860360	S1865360	
	1-7/16	36.51	1.4375	S1805128	S1810128	S1815128	
		37.00	1.4567	S1855370	S1860370	S1865370	
	1-15/32	37.31	1.4688	S1805130	S1810130	S1815130	
		38.00	1.4961	S1855380	S1860380	S1865380	
	1-1/2	38.10	1.5000	S1805132	S1810132	S1815132	
		38.89	1.5313	S1805134	S1810134	S1815134	
	1-17/32	39.00	1.5354	S1855390	S1860390	S1865390	
		39.69	1.5625	S1805136	S1810136	S1815136	
	1-9/16	40.00	1.5748	S1855400	S1860400	S1865400	
		40.48	1.5938	S1805138	S1810138	S1815138	
	1-19/32	41.00	1.6142	S1855410	S1860410	S1865410	
		41.28	1.6250	S1805140	S1810140	S1815140	
	1-5/8	42.00	1.6535	S1855420	S1860420	S1865420	
		42.07	1.6563	S1805142	S1810142	S1815142	
	1-21/32	42.86	1.6875	S1805144	S1810144	S1815144	
		43.00	1.6929	S1855430	S1860430	S1865430	
	1-11/16	43.66	1.7188	S1805146	S1810146	S1815146	
		44.00	1.7323	S1855440	S1860440	S1865440	
	1-23/32	44.45	1.7500	S1805148	S1810148	S1815148	
		45.00	1.7717	S1855450	S1860450	S1865450	
	1-3/4	45.24	1.7813	S1805150	S1810150	S1815150	
		46.00	1.8110	S1855460	S1860460	S1865460	
1-13/16	46.04	1.8125	S1805152	S1810152	S1815152		
	46.83	1.8438	S1805154	S1810154	S1815154		
1-27/32	47.00	1.8504	S1855470	S1860470	S1865470		
	47.63	1.8750	S1805156	S1810156	S1815156		

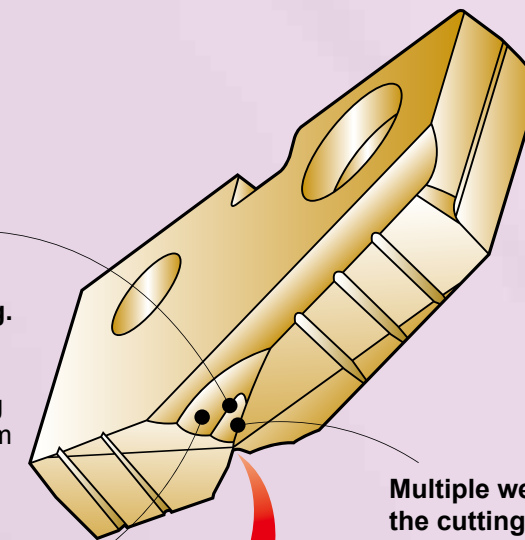
# Y/G Special features of SM-Point Spade Drill

This new "Hybrid Point" combines the strength of the standard point with additional "Web Thinning".

This new point increases stability, reduces thrust, improves centering and allows increased speeds and feeds.

**Multiple thinning form at the bottom of the large thinning.**

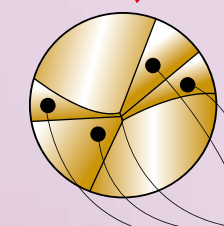
- ▶ The optimum thinning for the difference from the cutting speed, the cutting quantity and the cutting load according to the distance from the drill point to the cutting edge.



**Multiple web thinning with the cutting edge of small web thinning.**

- ▶ Good self-centering
- ▶ Less tool lead off
- ▶ Reduction in bell mouching, thrust
- ▶ Increased stability

**Radius back face**  
▶ Wide chip space



**Four-facet point**

- ▶ Self-centering
- ▶ Less thrust force

© : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	125	13	25	28	32	32	38	38	38	38	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys						Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○				○					○	○	○	○	○	◎		◎			





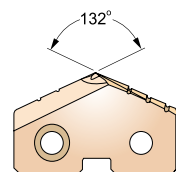
**SM-POINT SPADE DRILL INSERTS - HSS M4**

- SM-POINT EINWEG BOHREINSATZ - HSS M4
- Plaquettes SPADE DRILL, pointe SM - HSS M4
- CUSPIDI, SM-POINT - HSS M4



- For general use in steels and cast irons.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
	1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86		.7031	4.0 (5/32)	SM405045
		18.00	.7087	SM455180	SM460180		SM465180
23/32		18.26	.7188	SM405046	SM410046		SM415046
		18.50	.7283	SM455185	SM460185		SM465185
47/64		18.65	.7344	SM405047	SM410047		SM415047
		19.00	.7480	SM455190	SM460190		SM465190
3/4		19.05	.7500	SM405048	SM410048		SM415048
		19.45	.7656	SM405049	SM410049		SM415049
49/64		19.50	.7677	SM455195	SM460195		SM465195
		19.84	.7812	SM405050	SM410050		SM415050
		20.00	.7874	SM455200	SM460200		SM465200
51/64		20.24	.7969	SM405051	SM410051		SM415051
		20.50	.8071	SM455205	SM460205		SM465205
		21.00	.8268	SM405052	SM410052		SM415052
		21.00	.8268	SM455210	SM460210		SM465210
		21.43	.8438	SM405054	SM410054		SM415054
		21.83	.8594	SM405055	SM410055		SM415055
		22.00	.8661	SM455220	SM460220		SM465220
		22.23	.8750	SM405056	SM410056		SM415056
		22.62	.8906	SM405057	SM410057		SM415057
	22.62	.8906	SM455230	SM460230	SM465230		
	23.00	.9055	SM405058	SM410058	SM415058		
	23.02	.9062	SM405059	SM410059	SM415059		
	23.42	.9219	SM405060	SM410060	SM415060		
	23.81	.9375	SM455240	SM460240	SM465240		
	24.00	.9449					

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	○	◎	○	◎	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎															



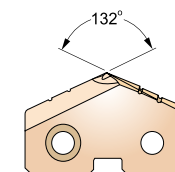
**SM-POINT SPADE DRILL INSERTS - HSS M4**

- SM-POINT EINWEG BOHREINSATZ - HSS M4
- Plaquettes SPADE DRILL, pointe SM - HSS M4
- CUSPIDI, SM-POINT - HSS M4



- For general use in steels and cast irons.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK			D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
	2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61		.9688	4.8 (3/16)	SM405062
63/64		25.00	.9843	SM455250	SM460250		SM465250
1		25.40	1.0000	SM405100	SM410100		SM415100
1-1/64		25.80	1.0156	SM405101	SM410101		SM415101
		26.00	1.0236	SM455260	SM460260		SM465260
1-1/32		26.19	1.0312	SM405102	SM410102		SM415102
1-3/64		26.59	1.0469	SM405103	SM410103		SM415103
1-1/16		26.99	1.0625	SM405104	SM410104		SM415104
		27.00	1.0630	SM455270	SM460270		SM465270
1-3/32		27.78	1.0938	SM405106	SM410106		SM415106
		28.00	1.1024	SM455280	SM460280		SM465280
1-7/64		28.18	1.1094	SM405107	SM410107		SM415107
1-1/8		28.58	1.1250	SM405108	SM410108		SM415108
		29.00	1.1417	SM455290	SM460290		SM465290
1-5/32		29.37	1.1562	SM405110	SM410110		SM415110
		30.00	1.1811	SM455300	SM460300		SM465300
1-3/16		30.16	1.1875	SM405112	SM410112		SM415112
1-7/32		30.96	1.2188	SM405114	SM410114		SM415114
		31.00	1.2205	SM455310	SM460310		SM465310
1-1/4		31.75	1.2500	SM405116	SM410116		SM415116
	32.00	1.2598	SM455320	SM460320	SM465320		
1-9/32	32.54	1.2812	SM405118	SM410118	SM415118		
	33.00	1.2992	SM455330	SM460330	SM465330		
1-5/16	33.34	1.3125	SM405120	SM410120	SM415120		
	34.00	1.3386	SM455340	SM460340	SM465340		
1-11/32	34.13	1.3438	SM405122	SM410122	SM415122		
1-3/8	34.93	1.3750	SM405124	SM410124	SM415124		
	35.00	1.3780	SM455350	SM460350	SM465350		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	○	◎	○	◎	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎															



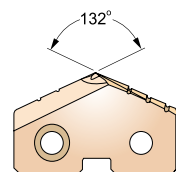
**SM-POINT SPADE DRILL INSERTS - HSS M4**

- SM-POINT EINWEG BOHREINSATZ - HSS M4
- Plaquettes SPADE DRILL, pointe SM - HSS M4
- CUSPIDI, SM-POINT - HSS M4



- For general use in steels and cast irons.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4062	SM405126	SM410126	SM415126	
		36.00	1.4173	SM455360	SM460360	SM465360	
	1-7/16	36.51	1.4375	SM405128	SM410128	SM415128	
		37.00	1.4567	SM455370	SM460370	SM465370	
	1-15/32	37.31	1.4688	SM405130	SM410130	SM415130	
		38.00	1.4961	SM455380	SM460380	SM465380	
	1-1/2	38.10	1.5000	SM405132	SM410132	SM415132	
		38.89	1.5312	SM405134	SM410134	SM415134	
	1-17/32	39.00	1.5354	SM455390	SM460390	SM465390	
		39.69	1.5625	SM405136	SM410136	SM415136	
	1-9/16	40.00	1.5748	SM455400	SM460400	SM465400	
		40.48	1.5938	SM405138	SM410138	SM415138	
	1-19/32	41.00	1.6142	SM455410	SM460410	SM465410	
		41.28	1.6250	SM405140	SM410140	SM415140	
	1-5/8	42.00	1.6535	SM455420	SM460420	SM465420	
		42.07	1.6562	SM405142	SM410142	SM415142	
	1-21/32	42.86	1.6875	SM405144	SM410144	SM415144	
		43.00	1.6929	SM455430	SM460430	SM465430	
	1-23/32	43.66	1.7188	SM405146	SM410146	SM415146	
		44.00	1.7323	SM455440	SM460440	SM465440	
1-3/4	44.45	1.7500	SM405148	SM410148	SM415148		
	45.00	1.7717	SM455450	SM460450	SM465450		
1-25/32	45.24	1.7812	SM405150	SM410150	SM415150		
	46.00	1.8110	SM455460	SM460460	SM465460		
1-13/16	46.04	1.8125	SM405152	SM410152	SM415152		
	46.83	1.8438	SM405154	SM410154	SM415154		
1-27/32	47.00	1.8504	SM455470	SM460470	SM465470		
	47.63	1.8750	SM405156	SM410156	SM415156		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230					
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

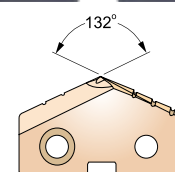


**SM-POINT SPADE DRILL INSERTS - SUPER HSS T15**

- SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL, pointe SM - Super HSS T15
- CUSPIDI, SM-POINT - HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A376

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	SM155095	SM160095	SM165095	
		9.53	.3750	SM105024	SM110024	SM115024	
	25/64	9.80	.3858	SM155098	SM160098	SM165098	
		9.92	.3906	SM105025	SM110025	SM115025	
		10.00	.3937	SM155100	SM160100	SM165100	
		10.20	.4016	SM155102	SM160102	SM165102	
	13/32	10.32	.4062	SM105026	SM110026	SM115026	
		10.50	.4134	SM155105	SM160105	SM165105	
	27/64	10.72	.4219	SM105027	SM110027	SM115027	
		10.80	.4252	SM155108	SM160108	SM165108	
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	SM155110	SM160110	SM165110	
		11.50	.4528	SM105028	SM110028	SM115028	
	29/64	11.51	.4531	SM155115	SM160115	SM165115	
		11.91	.4688	SM105029	SM110029	SM115029	
	15/32	11.91	.4688	SM105030	SM110030	SM115030	
		12.00	.4724	SM155120	SM160120	SM165120	
	31/64	12.30	.4844	SM105031	SM110031	SM115031	
		12.50	.4921	SM155125	SM160125	SM165125	
	1/2	12.70	.5000	SM105032	SM110032	SM115032	
		13.00	.5118	SM155130	SM160130	SM165130	
33/64	13.10	.5156	SM105033	SM110033	SM115033		
	13.49	.5312	SM105034	SM110034	SM115034		
17/32	13.49	.5312	SM155135	SM160135	SM165135		
	13.50	.5315	SM105035	SM110035	SM115035		
35/64	13.89	.5469	SM155140	SM160140	SM165140		
	14.00	.5512	SM105036	SM110036	SM115036		
9/16	14.29	.5625	SM105037	SM110037	SM115037		
	14.50	.5709	SM155145	SM160145	SM165145		
37/64	14.68	.5781	SM105038	SM110038	SM115038		
	15.00	.5906	SM155150	SM160150	SM165150		
19/32	15.08	.5938	SM105039	SM110039	SM115039		
	15.48	.6094	SM155155	SM160155	SM165155		
39/64	15.50	.6102	SM105040	SM110040	SM115040		
	15.88	.6250	SM155160	SM160160	SM165160		
5/8	16.00	.6299					

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230					
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

- SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL, pointe SM - Super HSS T15
- CUSPIDI, SM-POINT - HSS T15

- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	SM155095	SM160095	SM165095	
		9.53	.3750	SM105024	SM110024	SM115024	
	25/64	9.80	.3858	SM155098	SM160098	SM165098	
		9.92	.3906	SM105025	SM110025	SM115025	
		10.00	.39				

# YG SPADE DRILLS

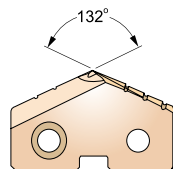
SERIES 0, 1

## SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

- SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL, pointe SM - Super HSS T15
- CUSPIDI DI FORATURA SM-POINT - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A376

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS T15		
					TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM105041	SM110041	SM115041
		16.50	.6496		SM155165	SM160165	SM165165
	21/32	16.67	.6562		SM105042	SM110042	SM115042
		17.00	.6693		SM155170	SM160170	SM165170
	43/64	17.07	.6719		SM105043	SM110043	SM115043
		17.46	.6875		SM105044	SM110044	SM115044
		17.50	.6890		SM155175	SM160175	SM165175
	45/64	17.86	.7031		SM105045	SM110045	SM115045
		18.00	.7087		SM155180	SM160180	SM165180
		18.26	.7188		SM105046	SM110046	SM115046
1 Ø17.53 (.690) to Ø24.38 (.960)		18.50	.7283	4.0 (5/32)	SM155185	SM160185	SM165185
	47/64	18.65	.7344		SM105047	SM110047	SM115047
		19.00	.7480		SM155190	SM160190	SM165190
	3/4	19.05	.7500		SM105048	SM110048	SM115048
		19.45	.7656		SM105049	SM110049	SM115049
		19.50	.7677		SM155195	SM160195	SM165195
	25/32	19.84	.7812		SM105050	SM110050	SM115050
		20.00	.7874		SM155200	SM160200	SM165200
	51/64	20.24	.7969		SM105051	SM110051	SM115051
		20.50	.8071		SM155205	SM160205	SM165205
		20.64	.8125		SM105052	SM110052	SM115052
		21.00	.8268		SM155210	SM160210	SM165210
		21.43	.8438		SM105054	SM110054	SM115054
		21.83	.8594		SM105055	SM110055	SM115055
		22.00	.8661		SM155220	SM160220	SM165220
		22.23	.8750		SM105056	SM110056	SM115056
		22.62	.8906		SM105057	SM110057	SM115057
		23.00	.9055		SM155230	SM160230	SM165230
	23.02	.9062	SM105058	SM110058	SM115058		
	23.42	.9219	SM105059	SM110059	SM115059		
	23.81	.9375	SM105060	SM110060	SM115060		
	24.00	.9449	SM155240	SM160240	SM165240		

◎ : Excellent ○ : Good

ISO	P										M				K																										
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	180	260	160	250	130	230	200	325	200	240	180	180	260	160	250	130	230				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	200	325	200	240	180	180	260	160	250	130	230	200	325	200	240	180					
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					

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YG-1 CO., LTD.

# YG SPADE DRILLS

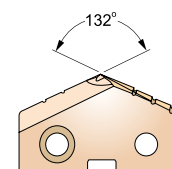
SERIES 2

## SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

- SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL, pointe SM - Super HSS T15
- CUSPIDI DI FORATURA SM-POINT - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A376

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS T15		
					TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM105062	SM110062	SM115062
	63/64	25.00	.9843		SM155250	SM160250	SM165250
	1	25.40	1.0000		SM105100	SM110100	SM115100
	1-1/64	25.80	1.0156		SM105101	SM110101	SM115101
		26.00	1.0236		SM155260	SM160260	SM165260
	1-1/32	26.19	1.0312		SM105102	SM110102	SM115102
	1-3/64	26.59	1.0469		SM105103	SM110103	SM115103
	1-1/16	26.99	1.0625		SM105104	SM110104	SM115104
		27.00	1.0630		SM155270	SM160270	SM165270
	1-3/32	27.78	1.0938		SM105106	SM110106	SM115106
		28.00	1.1024		SM155280	SM160280	SM165280
	1-7/64	28.18	1.1094		SM105107	SM110107	SM115107
	1-1/8	28.58	1.1250		SM105108	SM110108	SM115108
		29.00	1.1417		SM155290	SM160290	SM165290
	1-5/32	29.37	1.1562		SM105110	SM110110	SM115110
		30.00	1.1811		SM155300	SM160300	SM165300
	1-3/16	30.16	1.1875		SM105112	SM110112	SM115112
	1-7/32	30.96	1.2188		SM105114	SM110114	SM115114
		31.00	1.2205		SM155310	SM160310	SM165310
	1-1/4	31.75	1.2500		SM105116	SM110116	SM115116
	32.00	1.2598	SM155320	SM160320	SM165320		
1-9/32	32.54	1.2812	SM105118	SM110118	SM115118		
	33.00	1.2992	SM155330	SM160330	SM165330		
1-5/16	33.34	1.3125	SM105120	SM110120	SM115120		
	34.00	1.3386	SM155340	SM160340	SM165340		
1-11/32	34.13	1.3438	SM105122	SM110122	SM115122		
1-3/8	34.93	1.3750	SM105124	SM110124	SM115124		
	35.00	1.3780	SM155350	SM160350	SM165350		

◎ : Excellent ○ : Good

ISO	P										M				K																										
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	180	260	160	250	130	230	200	325	200	240	180	180	260	160	250	130	230				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	200	325	200	240	180	180	260	160	250	130	230	200	325	200	240	180					
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					

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YG-1 CO., LTD.



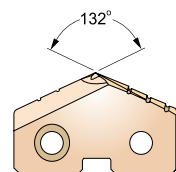


## SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

- SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
- Plaquettes SPADE DRILL, pointe SM - Super HSS T15
- CUSPIDI DI FORATURA SM-POINT - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittsgeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A376

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4062	SM105126	SM110126	SM115126	
		36.00	1.4173	SM155360	SM160360	SM165360	
	1-7/16	36.51	1.4375	SM105128	SM110128	SM115128	
		37.00	1.4567	SM155370	SM160370	SM165370	
	1-15/32	37.31	1.4688	SM105130	SM110130	SM115130	
		38.00	1.4961	SM155380	SM160380	SM165380	
	1-1/2	38.10	1.5000	SM105132	SM110132	SM115132	
		38.89	1.5312	SM105134	SM110134	SM115134	
	1-17/32	39.00	1.5354	SM155390	SM160390	SM165390	
		39.69	1.5625	SM105136	SM110136	SM115136	
	1-9/16	40.00	1.5748	SM155400	SM160400	SM165400	
		40.48	1.5938	SM105138	SM110138	SM115138	
	1-19/32	41.00	1.6142	SM155410	SM160410	SM165410	
		41.28	1.6250	SM105140	SM110140	SM115140	
	1-5/8	42.00	1.6535	SM155420	SM160420	SM165420	
		42.07	1.6562	SM105142	SM110142	SM115142	
	1-21/32	42.86	1.6875	SM105144	SM110144	SM115144	
		43.00	1.6929	SM155430	SM160430	SM165430	
	1-11/16	43.66	1.7188	SM105146	SM110146	SM115146	
		44.00	1.7323	SM155440	SM160440	SM165440	
	1-23/32	44.45	1.7500	SM105148	SM110148	SM115148	
		45.00	1.7717	SM155450	SM160450	SM165450	
	1-3/4	45.24	1.7812	SM105150	SM110150	SM115150	
		46.00	1.8110	SM155460	SM160460	SM165460	
	1-25/32	46.04	1.8125	SM105152	SM110152	SM115152	
		46.83	1.8438	SM105154	SM110154	SM115154	
	1-13/16	47.00	1.8504	SM155470	SM160470	SM165470	
		47.63	1.8750	SM105156	SM110156	SM115156	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRC	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	130	230	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)						Non Metallic Materials							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	55	60	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

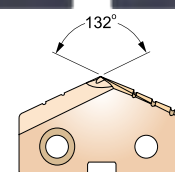


## SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48

- SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL, pointe SM - HSS Premium M48
- CUSPIDI, SM-POINT - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350-500 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350-500 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittsgeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A377

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48			
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN	
								TiN
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	SM555095	SM560095	SM565095		
		9.53	.3750	SM555024	SM510024	SM515024		
		9.80	.3858	SM555098	SM560098	SM565098		
		25/64	9.92	.3906	SM555025	SM510025	SM515025	
		10.00	.3937	SM555100	SM560100	SM565100		
		10.20	.4016	SM555102	SM560102	SM565102		
	Z Ø11.11(.437) to Ø12.95(.510)	7/16	10.32	.4062	SM555026	SM510026	SM515026	
			10.50	.4134	SM555105	SM560105	SM565105	
			27/64	10.72	.4219	SM555027	SM510027	SM515027
			10.80	.4252	SM555108	SM560108	SM565108	
			11.00	.4331	SM555110	SM560110	SM565110	
			11.11	.4375	SM555028	SM510028	SM515028	
O Ø12.98 (.511) to Ø17.65 (.695)	2.4 (3/32)	11.50	.4528	SM555115	SM560115	SM565115		
		11.51	.4531	SM555029	SM510029	SM515029		
		11.91	.4688	SM555030	SM510030	SM515030		
		12.00	.4724	SM555120	SM560120	SM565120		
		12.30	.4844	SM555031	SM510031	SM515031		
		12.50	.4921	SM555125	SM560125	SM565125		
	2.4 (3/32)	1/2	12.70	.5000	SM555032	SM510032	SM515032	
		13.00	.5118	SM555130	SM560130	SM565130		
		33/64	13.10	.5156	SM555033	SM510033	SM515033	
		17/32	13.49	.5312	SM555034	SM510034	SM515034	
		13.50	.5315	SM555135	SM560135	SM565135		
		13.89	.5469	SM555035	SM510035	SM515035		
	3.2 (1/8)	35/64	13.89	.5469	SM555036	SM510036	SM515036	
		14.00	.5512	SM555140	SM560140	SM565140		
		9/16	14.29	.5625	SM555037	SM510037	SM515037	
		14.50	.5709	SM555145	SM560145	SM565145		
		37/64	14.68	.5781	SM555037	SM510037	SM515037	
		15.00	.5906	SM555150	SM560150	SM565150		
5/8	19/32	15.08	.5938	SM555038	SM510038	SM515038		
	39/64	15.48	.6094	SM555039	SM510039	SM515039		
	15.50	.6102	SM555155	SM560155	SM565155			
	15.88	.6250	SM555040	SM510040	SM515040			
	16.00	.6299	SM555160	SM560160	SM565160			

◎ : Excellent ○ : Good

ISO Material Description	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HRC	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	130	230	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H							
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)						Non Metallic Materials							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	55	60	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG SPADE DRILLS

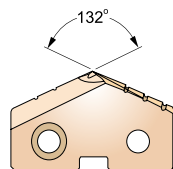
SERIES 0, 1

## SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48

- SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL, pointe SM - HSS Premium M48
- CUSPIDI, SM-POINT - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350-500 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350-500 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A377

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48			
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN	
	<b>0</b> Ø12.98(.511) to Ø17.65(.695)	41/64 21/32 43/64 11/16	16.27 16.50 16.67 17.00 17.07 17.46 17.50		.6406 .6496 .6562 .6693 .6719 .6875 .6890	3.2 (1/8)	SM505041 SM555165 SM505042 SM555170 SM505043 SM510044 SM555175 SM505045 SM555180 SM505046	SM510041 SM560165 SM510042 SM560170 SM510043 SM510044 SM560175 SM510045 SM560180 SM510046
<b>1</b> Ø17.53 (.690) to Ø24.38 (.960)	45/64 23/32 47/64 3/4 49/64 25/32 51/64 13/16 27/32 55/64 7/8 57/64 29/32 59/64 15/16	17.86 18.00 18.26 18.50 18.65 19.00 19.05 19.45 19.50 19.84 20.00 20.24 20.50 20.64 21.00 21.43 21.83 22.00 22.23 22.62 23.00 23.02 23.42 23.81 24.00	.7031 .7087 .7188 .7283 .7344 .7480 .7500 .7656 .7677 .7812 .7874 .7969 .8071 .8125 .8268 .8438 .8594 .8661 .8750 .8906 .9055 .9062 .9219 .9375 .9449	4.0 (5/32)	SM505045 SM555180 SM505046 SM555185 SM505047 SM555190 SM505048 SM505049 SM555195 SM505050 SM555200 SM505051 SM555205 SM505052 SM555210 SM505054 SM505055 SM555220 SM505056 SM505057 SM555230 SM505058 SM505059 SM505060 SM555240		SM510045 SM560180 SM510046 SM560185 SM510047 SM560190 SM510048 SM510049 SM560195 SM510050 SM560200 SM510051 SM560205 SM510052 SM560210 SM510054 SM510055 SM560220 SM510056 SM510057 SM560230 SM510058 SM510059 SM510060 SM560240	SM515045 SM565180 SM515046 SM565185 SM515047 SM565190 SM515048 SM515049 SM565195 SM515050 SM565200 SM515051 SM565205 SM515052 SM565210 SM515054 SM515055 SM565220 SM515056 SM515057 SM565230 SM515058 SM515059 SM515060 SM565240

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	125	13	25	28	32	30	10	29	32	38	15	35	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	○	◎

ISO Material Description	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○				○					◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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# YG SPADE DRILLS

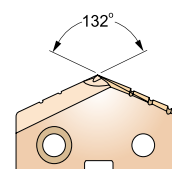
SERIES 2

## SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48

- SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL, pointe SM - HSS Premium M48
- CUSPIDI, SM-POINT - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350-500 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350-500 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A377

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
	<b>2</b> Ø24.41 (.961) to Ø35.05 (1.380)	31/32 63/64 1 1-1/64 1-1/32 1-3/64 1-1/16 1-3/32 1-7/64 1-1/8 1-5/32 1-3/16 1-7/32 1-1/4 1-9/32 1-5/16 1-11/32 1-3/8	24.61 25.00 25.40 25.80 26.00 26.19 26.59 26.99 27.00 27.78 28.00 28.18 28.58 29.00 29.37 30.00 30.16 30.96 31.00 31.75 32.00 32.54 33.00 33.34 34.00 34.13 34.93 35.00		.9688 .9843 1.0000 1.0156 1.0236 1.0312 1.0469 1.0625 1.0630 1.0938 1.1024 1.1094 1.1250 1.1417 1.1562 1.1811 1.1875 1.2188 1.2205 1.2500 1.2598 1.2812 1.2992 1.3125 1.3386 1.3438 1.3750 1.3780	4.8 (3/16)	SM505062 SM555250 SM505100 SM505101 SM555260 SM505102 SM505103 SM505104 SM555270 SM505106 SM555280 SM505107 SM505108 SM555290 SM505110 SM555300 SM505112 SM505114 SM555310 SM505116 SM555320 SM505118 SM555330 SM505120 SM555340 SM505122 SM505124 SM555350

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	125	13	25	28	32	30	10	29	32	38	15	35	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	○	◎

ISO Material Description	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○				○					◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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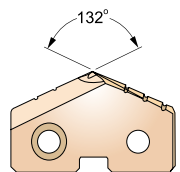
A337

# YG SPADE DRILLS

SERIES Y, Z, 0

## SM-POINT SPADE DRILL INSERTS for CAST IRON - CARBIDE K10

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL, pointe SM pour la fonte - Carbure K10
- CUSPIDI SM-POINT - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K10		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>Y</b> Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	2.4 (3/32)	SM655095	SM660095	SM665095
		9.53	.3750		SM605024	SM610024	SM615024
	25/64	9.80	.3858		SM655098	SM660098	SM665098
		9.92	.3906		SM605025	SM610025	SM615025
	7/16	10.00	.3937		SM655100	SM660100	SM665100
		10.20	.4016		SM655102	SM660102	SM665102
		10.32	.4062		SM605026	SM610026	SM615026
		10.50	.4134		SM655105	SM660105	SM665105
		10.72	.4219		SM605027	SM610027	SM615027
		10.80	.4252		SM655108	SM660108	SM665108
<b>Z</b> Ø11.11(.437) to Ø12.95(.510)	7/16	11.00	.4331	2.4 (3/32)	SM655110	SM660110	SM665110
		11.11	.4375		SM605028	SM610028	SM615028
	29/64	11.50	.4528		SM655115	SM660115	SM665115
		11.51	.4531		SM605029	SM610029	SM615029
	15/32	11.91	.4688		SM655120	SM660120	SM665120
		12.00	.4724		SM605030	SM610030	SM615030
	31/64	12.30	.4844		SM655125	SM660125	SM665125
		12.50	.4921		SM605031	SM610031	SM615031
	1/2	12.70	.5000		SM655130	SM660130	SM665130
		12.95	.5118		SM605032	SM610032	SM615032
<b>0</b> Ø12.98 (.511) to Ø17.65 (.695)	33/64	13.00	.5118	3.2 (1/8)	SM655130	SM660130	SM665130
		13.10	.5156		SM605033	SM610033	SM615033
	17/32	13.49	.5312		SM655135	SM660135	SM665135
		13.50	.5315		SM605034	SM610034	SM615034
	35/64	13.89	.5469		SM655140	SM660140	SM665140
		14.00	.5512		SM605035	SM610035	SM615035
	9/16	14.29	.5625		SM655145	SM660145	SM665145
		14.50	.5709		SM605036	SM610036	SM615036
	37/64	14.68	.5781		SM655150	SM660150	SM665150
		15.00	.5906		SM605037	SM610037	SM615037
19/32	15.08	.5938	SM655155	SM660155	SM665155		
	15.50	.6102	SM605038	SM610038	SM615038		
39/64	15.88	.6250	SM655160	SM660160	SM665160		
	16.00	.6299	SM605039	SM610039	SM615039		

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel				Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended										◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

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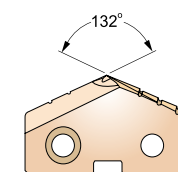
YG-1 CO., LTD.

# YG SPADE DRILLS

SERIES 0, 1

## SM-POINT SPADE DRILL INSERTS for CAST IRON - CARBIDE K10

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL, pointe SM pour la fonte - Carbure K10
- CUSPIDI SM-POINT - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K10		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>0</b> Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM605041	SM610041	SM615041
		16.50	.6496		SM655165	SM660165	SM665165
	21/32	16.67	.6562		SM605042	SM610042	SM615042
		17.00	.6693		SM655170	SM660170	SM665170
	43/64	17.07	.6719		SM605043	SM610043	SM615043
		17.46	.6875		SM605044	SM610044	SM615044
	11/16	17.50	.6890		SM655175	SM660175	SM665175
		17.86	.7031		SM605045	SM610045	SM615045
	45/64	18.00	.7087		SM655180	SM660180	SM665180
		18.26	.7188		SM605046	SM610046	SM615046
23/32	18.50	.7283	SM655185	SM660185	SM665185		
	18.65	.7344	SM605047	SM610047	SM615047		
47/64	19.00	.7480	SM655190	SM660190	SM665190		
	19.05	.7500	SM605048	SM610048	SM615048		
3/4	19.45	.7656	SM605049	SM610049	SM615049		
	19.50	.7677	SM655195	SM660195	SM665195		
49/64	19.84	.7812	SM605050	SM610050	SM615050		
	20.00	.7874	SM655200	SM660200	SM665200		
25/32	20.24	.7969	SM605051	SM610051	SM615051		
	20.50	.8071	SM655205	SM660205	SM665205		
51/64	20.64	.8125	SM605052	SM610052	SM615052		
	21.00	.8268	SM655210	SM660210	SM665210		
13/16	21.00	.8268	SM605054	SM610054	SM615054		
	21.43	.8438	SM655220	SM660220	SM665220		
27/32	21.83	.8594	SM605055	SM610055	SM615055		
	22.00	.8661	SM655230	SM660230	SM665230		
55/64	22.23	.8750	SM605056	SM610056	SM615056		
	22.62	.8906	SM655240	SM660240	SM665240		
7/8	23.00	.9055	SM605057	SM610057	SM615057		
	23.02	.9062	SM655250	SM660250	SM665250		
57/64	23.42	.9219	SM605058	SM610058	SM615058		
	23.81	.9375	SM655260	SM660260	SM665260		
29/32	24.00	.9449	SM605059	SM610059	SM615059		
			SM655270	SM660270	SM665270		

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel				Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended										◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

YG-1 CO., LTD.

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

A339







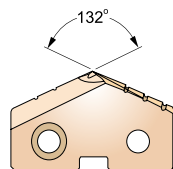


**SM-POINT SPADE DRILL INSERTS - CARBIDE K20**

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K20
- Plaquettes SPADE DRILL, pointe SM - Carbure K20
- CUSPIDI SM-POINT - MD K20



- For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen-Metallen, Kupfer, Messing und Aluminium
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A378

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K20		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
	<b>0</b> Ø12.98(.511) to Ø17.65(.695)	41/64 21/32 43/64 11/16	16.27 16.50 16.67 17.00 17.07 17.46 17.50		.6406 .6496 .6562 .6693 .6719 .6875 .6890	3.2 (1/8)	SM705041 SM755165 SM705042 SM755170 SM705043 SM710043 SM715043 SM705044 SM710044 SM715044 SM755175 SM760175 SM765175 SM705045 SM710045 SM715045 SM755180 SM760180 SM765180 SM705046 SM710046 SM715046 SM755185 SM760185 SM765185 SM705047 SM710047 SM715047 SM755190 SM760190 SM765190 SM705048 SM710048 SM715048 SM705049 SM710049 SM715049 SM755195 SM760195 SM765195 SM705050 SM710050 SM715050 SM755200 SM760200 SM765200 SM705051 SM710051 SM715051 SM755205 SM760205 SM765205 SM705052 SM710052 SM715052 SM755210 SM760210 SM765210 SM705054 SM710054 SM715054 SM705055 SM710055 SM715055 SM755220 SM760220 SM765220 SM705056 SM710056 SM715056 SM705057 SM710057 SM715057 SM755230 SM760230 SM765230 SM705058 SM710058 SM715058 SM705059 SM710059 SM715059 SM705060 SM710060 SM715060 SM755240 SM760240 SM765240
<b>1</b> Ø17.53 (.690) to Ø24.38 (.960)	45/64 23/32 47/64 3/4 49/64 25/32 51/64 13/16 27/32 55/64 7/8 57/64 29/32 59/64 15/16 24.00	17.86 18.00 18.26 18.50 18.65 19.00 19.05 19.45 19.50 19.84 20.00 20.24 20.50 20.64 21.00 21.43 21.83 22.00 22.23 22.62 23.00 23.02 23.42 23.81 24.00	.7031 .7087 .7188 .7283 .7344 .7480 .7500 .7656 .7677 .7812 .7874 .7969 .8071 .8125 .8268 .8438 .8594 .8661 .8750 .8906 .9055 .9062 .9219 .9375 .9449	4.0 (5/32)			

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	260	160	250	130	230		
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N					S					H										
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

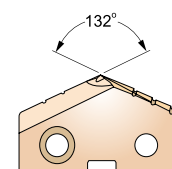


**SM-POINT SPADE DRILL INSERTS - CARBIDE K20**

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K20
- Plaquettes SPADE DRILL, pointe SM - Carbure K20
- CUSPIDI SM-POINT - MD K20



- For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen-Metallen, Kupfer, Messing und Aluminium
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A378

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K20		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
	<b>2</b> Ø24.41 (.961) to Ø35.05 (1.380)	31/32 63/64 1 1-1/64 1-1/32 1-3/64 1-1/16 1-3/32 1-7/64 1-1/8 1-5/32 1-3/16 1-7/32 1-1/4 1-9/32 1-5/16 1-11/32 1-3/8	24.61 25.00 25.40 25.80 26.00 26.19 26.59 26.99 27.00 27.78 28.00 28.18 28.58 29.00 29.37 30.00 30.16 30.96 31.00 31.75 32.00 32.54 33.00 33.34 34.00 34.13 34.93 35.00		.9688 .9843 1.0000 1.0156 1.0236 1.0312 1.0469 1.0625 1.0630 1.0938 1.1024 1.1094 1.1250 1.1417 1.1562 1.1811 1.1875 1.2188 1.2205 1.2500 1.2598 1.2812 1.2992 1.3125 1.3386 1.3438 1.3750 1.3780	4.8 (3/16)	SM705062 SM755250 SM705100 SM705101 SM755260 SM705102 SM705103 SM705104 SM755270 SM705106 SM755280 SM705107 SM705108 SM755290 SM705110 SM755300 SM705112 SM705114 SM755310 SM705116 SM755320 SM705118 SM755330 SM705120 SM755340 SM705122 SM705124 SM755350

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	260	160	250	130	230		
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

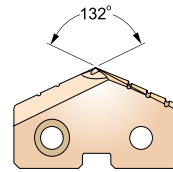
ISO	N					S					H										
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

**SM-POINT SPADE DRILL INSERTS - CARBIDE K20**

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K20
- Plaquettes SPADE DRILL, pointe SM - Carbure K20
- CUSPIDI SM-POINT - MD K20



- For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen-Metallen, Kupfer, Messing und Aluminium
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A378

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE K20		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4062	SM705126	SM710126	SM715126	
		36.00	1.4173	SM755360	SM760360	SM765360	
	1-7/16	36.51	1.4375	SM705128	SM710128	SM715128	
		37.00	1.4567	SM755370	SM760370	SM765370	
	1-15/32	37.31	1.4688	SM705130	SM710130	SM715130	
		38.00	1.4961	SM755380	SM760380	SM765380	
	1-1/2	38.10	1.5000	SM705132	SM710132	SM715132	
		38.89	1.5312	SM705134	SM710134	SM715134	
	1-17/32	39.00	1.5354	SM755390	SM760390	SM765390	
		39.69	1.5625	SM705136	SM710136	SM715136	
	1-9/16	40.00	1.5748	SM755400	SM760400	SM765400	
		40.48	1.5938	SM705138	SM710138	SM715138	
	1-19/32	41.00	1.6142	SM755410	SM760410	SM765410	
		41.28	1.6250	SM705140	SM710140	SM715140	
	1-5/8	42.00	1.6535	SM755420	SM760420	SM765420	
		42.07	1.6562	SM705142	SM710142	SM715142	
	1-21/32	42.86	1.6875	SM705144	SM710144	SM715144	
		43.00	1.6929	SM755430	SM760430	SM765430	
	1-11/16	43.66	1.7188	SM705146	SM710146	SM715146	
		44.00	1.7323	SM755440	SM760440	SM765440	
1-23/32	44.45	1.7500	SM705148	SM710148	SM715148		
	45.00	1.7717	SM755450	SM760450	SM765450		
1-3/4	45.24	1.7812	SM705150	SM710150	SM715150		
	46.00	1.8110	SM755460	SM760460	SM765460		
1-25/32	46.04	1.8125	SM705152	SM710152	SM715152		
	46.83	1.8438	SM705154	SM710154	SM715154		
1-13/16	47.00	1.8504	SM755470	SM760470	SM765470		
	47.63	1.8750	SM705156	SM710156	SM715156		

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

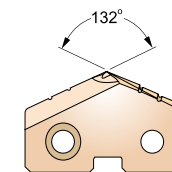
ISO	N					S										H											
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44			
HRc	60	100	75	90	130	110	90	100	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400	550	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		

**SM-POINT SPADE DRILL INSERTS - CARBIDE P40**

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL, pointe SM - Carbure P40
- CUSPIDI SM-POINT - MD P40



- For general use in carbon steels and alloys steels.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE P40		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	SM855095	SM860095	SM865095	
		9.53	.3750	SM805024	SM810024	SM815024	
	25/64	9.80	.3858	SM855098	SM860098	SM865098	
		9.92	.3906	SM805025	SM810025	SM815025	
		10.00	.3937	SM855100	SM860100	SM865100	
		10.20	.4016	SM855102	SM860102	SM865102	
	13/32	10.32	.4062	SM805026	SM810026	SM815026	
		10.50	.4134	SM855105	SM860105	SM865105	
	27/64	10.72	.4219	SM805027	SM810027	SM815027	
		10.80	.4252	SM855108	SM860108	SM865108	
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.00	.4331	SM855110	SM860110	SM865110	
		11.11	.4375	SM805028	SM810028	SM815028	
		11.50	.4528	SM855115	SM860115	SM865115	
		11.51	.4531	SM805029	SM810029	SM815029	
	15/32	11.91	.4688	SM805030	SM810030	SM815030	
		12.00	.4724	SM855120	SM860120	SM865120	
	31/64	12.30	.4844	SM805031	SM810031	SM815031	
		12.50	.4921	SM855125	SM860125	SM865125	
	1/2	12.70	.5000	SM805032	SM810032	SM815032	
		13.00	.5118	SM855130	SM860130	SM865130	
33/64	13.10	.5156	SM805033	SM810033	SM815033		
	13.49	.5312	SM805034	SM810034	SM815034		
17/32	13.50	.5315	SM855135	SM860135	SM865135		
	13.89	.5469	SM805035	SM810035	SM815035		
35/64	14.00	.5512	SM855140	SM860140	SM865140		
	14.29	.5625	SM805036	SM810036	SM815036		
9/16	14.50	.5709	SM855145	SM860145	SM865145		
	14.68	.5781	SM805037	SM810037	SM815037		
37/64	15.00	.5906	SM855150	SM860150	SM865150		
	15.08	.5938	SM805038	SM810038	SM815038		
19/32	15.48	.6094	SM805039	SM810039	SM815039		
	15.50	.6102	SM855155	SM860155	SM865155		
39/64	15.88	.6250	SM805040	SM810040	SM815040		
	16.00	.6299	SM855160	SM860160	SM865160		

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S										H											
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44			
HRc	60	100	75	90	130	110	90	100	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400	550	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		





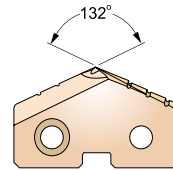
**SM-POINT SPADE DRILL INSERTS - CARBIDE P40**

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL, pointe SM - Carbure P40
- CUSPIDI SM-POINT - MD P40



- For general use in carbon steels and alloys steels.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE P40		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM805041	SM810041	SM815041
		16.50	.6496		SM855165	SM860165	SM865165
	21/32	16.67	.6562		SM805042	SM810042	SM815042
		17.00	.6693		SM855170	SM860170	SM865170
	43/64	17.07	.6719		SM805043	SM810043	SM815043
		17.46	.6875		SM805044	SM810044	SM815044
		17.50	.6890		SM855175	SM860175	SM865175
	45/64	17.86	.7031		SM805045	SM810045	SM815045
		18.00	.7087		SM855180	SM860180	SM865180
		18.26	.7188		SM805046	SM810046	SM815046
1 Ø17.53 (.690) to Ø24.38 (.960)		18.50	.7283	4.0 (5/32)	SM855185	SM860185	SM865185
	47/64	18.65	.7344		SM805047	SM810047	SM815047
		19.00	.7480		SM855190	SM860190	SM865190
	3/4	19.05	.7500		SM805048	SM810048	SM815048
		19.45	.7656		SM805049	SM810049	SM815049
		19.50	.7677		SM855195	SM860195	SM865195
	25/32	19.84	.7812		SM805050	SM810050	SM815050
		20.00	.7874		SM855200	SM860200	SM865200
	51/64	20.24	.7969		SM805051	SM810051	SM815051
		20.50	.8071		SM855205	SM860205	SM865205
		20.64	.8125		SM805052	SM810052	SM815052
		21.00	.8268		SM855210	SM860210	SM865210
		21.43	.8438		SM805054	SM810054	SM815054
		21.83	.8594		SM805055	SM810055	SM815055
		22.00	.8661		SM855220	SM860220	SM865220
		22.23	.8750		SM805056	SM810056	SM815056
		22.62	.8906		SM805057	SM810057	SM815057
		23.00	.9055		SM855230	SM860230	SM865230
	23.02	.9062	SM805058	SM810058	SM815058		
	23.42	.9219	SM805059	SM810059	SM815059		
	23.81	.9375	SM805060	SM810060	SM815060		
	24.00	.9449	SM855240	SM860240	SM865240		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



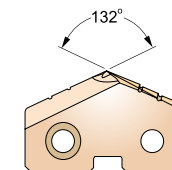
**SM-POINT SPADE DRILL INSERTS - CARBIDE P40**

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL, pointe SM - Carbure P40
- CUSPIDI SM-POINT - MD P40



- For general use in carbon steels and alloys steels.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE P40		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM805062	SM810062	SM815062
	63/64	25.00	.9843		SM855250	SM860250	SM865250
	1	25.40	1.0000		SM805100	SM810100	SM815100
	1-1/64	25.80	1.0156		SM805101	SM810101	SM815101
		26.00	1.0236		SM855260	SM860260	SM865260
	1-1/32	26.19	1.0312		SM805102	SM810102	SM815102
	1-3/64	26.59	1.0469		SM805103	SM810103	SM815103
	1-1/16	26.99	1.0625		SM805104	SM810104	SM815104
		27.00	1.0630		SM855270	SM860270	SM865270
	1-3/32	27.78	1.0938		SM805106	SM810106	SM815106
		28.00	1.1024		SM855280	SM860280	SM865280
	1-7/64	28.18	1.1094		SM805107	SM810107	SM815107
	1-1/8	28.58	1.1250		SM805108	SM810108	SM815108
		29.00	1.1417		SM855290	SM860290	SM865290
	1-5/32	29.37	1.1562		SM805110	SM810110	SM815110
		30.00	1.1811		SM855300	SM860300	SM865300
	1-3/16	30.16	1.1875		SM805112	SM810112	SM815112
	1-7/32	30.96	1.2188		SM805114	SM810114	SM815114
		31.00	1.2205		SM855310	SM860310	SM865310
	1-1/4	31.75	1.2500		SM805116	SM810116	SM815116
		32.00	1.2598		SM855320	SM860320	SM865320
	1-9/32	32.54	1.2812		SM805118	SM810118	SM815118
		33.00	1.2992		SM855330	SM860330	SM865330
	1-5/16	33.34	1.3125		SM805120	SM810120	SM815120
	34.00	1.3386	SM855340	SM860340	SM865340		
1-11/32	34.13	1.3438	SM805122	SM810122	SM815122		
1-3/8	34.93	1.3750	SM805124	SM810124	SM815124		
	35.00	1.3780	SM855350	SM860350	SM865350		

◎ : Excellent ○ : Good

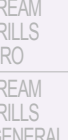
ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

SM-POINT SPADE DRILL INSERTS - CARBIDE P40

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL, pointe SM - Carbure P40
- CUSPIDI SM-POINT - MD P40



- For general use in carbon steels and alloys steels.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-	-
ER COLLET CHUCK	-	D73 - 115	-	-

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. CARBIDE P40		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM805062	SM810062	SM815062
	63/64	25.00	.9843		SM855250	SM860250	SM865250
	1	25.40	1.0000		SM805100	SM810100	SM815100
	1-1/64	25.80	1.0156		SM805101	SM810101	SM815101
		26.00	1.0236		SM855260	SM860260	SM865260
	1-1/32	26.19	1.0312		SM805102	SM810102	SM815102
	1-3/64	26.59	1.0469		SM805103	SM810103	SM815103
	1-1/16	26.99	1.0625		SM805104	SM810104	SM815104
		27.00	1.0630		SM855270	SM860270	SM865270
	1-3/32	27.78	1.				





**SPADE DRILL INSERTS - SUPER COBALT T15 FLAT BOTTOM**

- SPADE DRILL BOHRER-EINSÄTZE - SUPER COBALT T15 (FLACH-NUT)
- Plaquettes SPADE DRILL à fond plat - Super Cobalt T15
- INSERTI SPADE DRILL - SUPER HSS T15 FONDO PIATTO



Cutting conditions : p.A379

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK	-	-	D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAlN
<b>0</b> Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	S2105041	S2120041	S2115041	
		16.50	.6496	S2155165	S2170165	S2165165	
	21/32	16.67	.6562	S2105042	S2120042	S2115042	
		17.00	.6693	S2155170	S2170170	S2165170	
	43/64	17.07	.6719	S2105043	S2120043	S2115043	
		17.46	.6875	S2105044	S2120044	S2115044	
	11/16	17.50	.6890	S2155175	S2170175	S2165175	
		17.86	.7031	S2105045	S2120045	S2115045	
	<b>1</b> Ø17.53 (.690) to Ø24.38 (.960)	45/64	18.00	.7087	S2155180	S2170180	S2165180
			18.26	.7188	S2105046	S2120046	S2115046
23/32		18.50	.7283	S2155185	S2170185	S2165185	
		18.65	.7344	S2105047	S2120047	S2115047	
47/64		19.00	.7480	S2155190	S2170190	S2165190	
		19.05	.7500	S2105048	S2120048	S2115048	
3/4		19.45	.7656	S2105049	S2120049	S2115049	
		19.50	.7677	S2155195	S2170195	S2165195	
25/32		19.84	.7812	S2105050	S2120050	S2115050	
		20.00	.7874	S2155200	S2170200	S2165200	
51/64		20.24	.7969	S2105051	S2120051	S2115051	
		20.50	.8071	S2155205	S2170205	S2165205	
13/16		20.64	.8125	S2105052	S2120052	S2115052	
		21.00	.8268	S2155210	S2170210	S2165210	
27/32		21.43	.8438	S2105054	S2120054	S2115054	
		21.83	.8594	S2105055	S2120055	S2115055	
55/64		22.00	.8661	S2155220	S2170220	S2165220	
		22.23	.8750	S2105056	S2120056	S2115056	
7/8		22.62	.8906	S2105057	S2120057	S2115057	
		23.00	.9055	S2155230	S2170230	S2165230	
29/32	23.02	.9062	S2105058	S2120058	S2115058		
	23.42	.9219	S2105059	S2120059	S2115059		
59/64	23.81	.9375	S2105060	S2120060	S2115060		
	24.00	.9449	S2155240	S2170240	S2165240		

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	○	◎

ISO	N										S					H						
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○				○					◎	○	○	○	○	○		○	○	○	○	



**SPADE DRILL INSERTS - SUPER COBALT T15 FLAT BOTTOM**

- SPADE DRILL BOHRER-EINSÄTZE - SUPER COBALT T15 (FLACH-NUT)
- Plaquettes SPADE DRILL à fond plat - Super Cobalt T15
- INSERTI SPADE DRILL - SUPER HSS T15 FONDO PIATTO



Cutting conditions : p.A379

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245 - 246	-	-	-
	ER COLLET CHUCK	-	-	D73 - 115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAlN
<b>2</b> Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	S2105062	S2120062	S2115062	
		63/64	25.00	.9843	S2105063	S2120063	S2115063
	1	25.40	1.0000	S2105100	S2120100	S2115100	
		1-1/64	25.80	1.0156	S2105101	S2120101	S2115101
	1-1/32	26.00	1.0236	S2155260	S2170260	S2165260	
		26.19	1.0312	S2105102	S2120102	S2115102	
	1-3/64	26.59	1.0469	S2105103	S2120103	S2115103	
		26.99	1.0625	S2105104	S2120104	S2115104	
	1-1/16	27.00	1.0630	S2155270	S2170270	S2165270	
		27.78	1.0938	S2105106	S2120106	S2115106	
	1-3/32	28.00	1.1024	S2155280	S2170280	S2165280	
		28.18	1.1094	S2105107	S2120107	S2115107	
	1-7/64	28.58	1.1250	S2105108	S2120108	S2115108	
		29.00	1.1417	S2155290	S2170290	S2165290	
	1-5/32	29.37	1.1562	S2105110	S2120110	S2115110	
		30.00	1.1811	S2155300	S2170300	S2165300	
	1-3/16	30.16	1.1875	S2105112	S2120112	S2115112	
		30.96	1.2188	S2105114	S2120114	S2115114	
	1-7/32	31.00	1.2205	S2155310	S2170310	S2165310	
		31.75	1.2500	S2105116	S2120116	S2115116	
1-1/4	32.00	1.2598	S2155320	S2170320	S2165320		
	32.54	1.2812	S2105118	S2120118	S2115118		
1-9/32	33.00	1.2992	S2155330	S2170330	S2165330		
	33.34	1.3125	S2105120	S2120120	S2115120		
1-5/16	34.00	1.3386	S2155340	S2170340	S2165340		
	34.13	1.3438	S2105122	S2120122	S2115122		
1-11/32	34.93	1.3750	S2105124	S2120124	S2115124		
	35.00	1.3780	S2155350	S2170350	S2165350		

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	○	◎

ISO	N										S					H						
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○				○					◎	○	○	○	○	○		○	○	○	○	

**SPADE DRILL INSERTS - SUPER COBALT T15 FLAT BOTTOM**

- SPADE DRILL BOHRER-EINSÄTZE - SUPER COBALT T15 (FLACH-NUT)
- Plaquettes SPADE DRILL à fond plat - Super Cobalt T15
- INSERTI SPADE DRILL - SUPER HSS T15 FONDO PIATTO

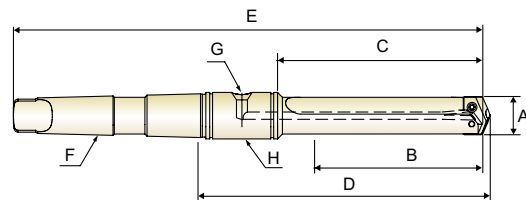


Cutting conditions : p.A379

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. SUPER HSS T15		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAlN
<b>2</b> Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	S2105062	S2120062	S2115062	
		63/64	25.00	.9843	S2105063	S2120063	S2115063
	1	25.40	1.0000	S2105100	S2120100	S2115100	
		1-1/64	25.80	1.0156	S2105101	S2120101	S2115101
	1-1/32	26.00	1.0236	S2155260	S2170260	S2165260	
		26.19	1.0312	S2105102	S2120102	S2115102	
	1-3/64	26.59	1.0469	S2105103	S2120103	S2115103	
		26.99	1.0625	S2105104	S2120104	S2115104	
	1-1/16	27.00	1.0630	S2155270	S2170270	S2165270	
		27.78	1.0938	S2105106	S2120106	S2115106	
	1-3/32	28.00	1.1024	S2155280	S2170280	S2165280	
		28.18	1.1094	S2105107	S2120107	S2115107	
	1-7/64	28.58	1.1250	S2105108	S2120108	S2115108	
		29.00	1.1417	S2155290	S2170290	S2165290	
	1-5/32	29.37	1.1562	S2105110	S2120110	S2115110	
		30.00	1.1811	S2155300	S2170300	S2165300	
	1-3/16	30.16	1.1875	S2105112	S2120112	S2115112	
		30.96	1.2188	S2105114	S2120114	S2115114	
	1-7/32	31.00	1.2205	S2155310	S2170310	S2165310	
		31.75	1.2500	S2105116	S2120116	S2115116	
1-1/4	32.00	1.2598	S2155320	S2170320	S2165320		
	32.54	1.2812</					

**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



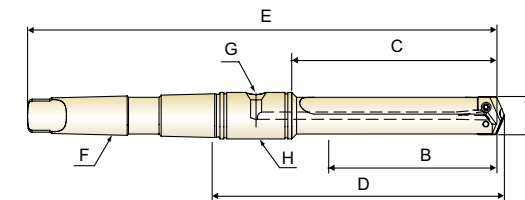
**SHORT LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E		F	G
Y	ZY0STSMT02I	3/8 ~ 27/64	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	PR110048
Z	ZZ0STSMT02I	7/16 ~ 1/2	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	PR110048
0	Z00STSMT02I	33/64 ~ 11/16	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	PR110048
0.5	Z05STSMT02I	39/64 ~ 11/16	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	PR110048
1	Z10STSMT03I	45/64 ~ 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	PR110100
	Z10STSMT04I	45/64 ~ 15/16	2-3/4	3-7/8	5-43/64	10-5/32	#4	1/8	PR110100
1.5	Z15STSMT03I	55/64 ~ 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	PR110100
	Z15STSMT04I	55/64 ~ 15/16	2-3/4	3-7/8	5-43/64	10-5/32	#4	1/8	PR110100
2	Z20STSMT03I	31/32 ~ 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	PR110100
	Z20STSMT04I	31/32 ~ 1-3/8	3-3/8	4-1/2	6-19/64	10-25/32	#4	1/8	PR110100
2.5	Z25STSMT03I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	PR110100
	Z25STSMT04I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	6-37/64	11-1/16	#4	1/4	PR110116
3	Z30STSMT04I	1-13/32 ~ 1-7/8	4-3/4	6	8-1/8	12-9/16	#4	1/4	PR110116
	Z30STSMT05I	1-13/32 ~ 1-7/8	4-3/4	6	8-1/8	13-13/16	#5	1/4	PR110148
4	Z40STSMT04I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	8-5/8	13-1/16	#4	1/4	PR110116
	Z40STSMT05I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	8-5/8	14-5/16	#5	1/4	PR110148
5	Z50STSMT05I	2-1/2 ~ 3-1/2	6-3/4	8-1/2	11-5/16	16-15/16	#5	1/2	PR110216
	Z70STSMT05I	3-17/32 ~ 4-1/2	6-3/4	8-7/8	11-11/16	17-5/16	#5	1/2	PR110216

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)

**TAPER SHANK HOLDERS**

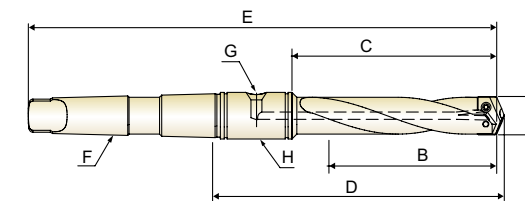
- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



**INTERMEDIATE LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E		F	G
1	Z10ITSMT03I	45/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
1.5	Z15ITSMT03I	55/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
2	Z20ITSMT04I	31/32 ~ 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	PR110100
2.5	Z25ITSMT04I	1-3/16 ~ 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	PR110116
3	Z30ITSMT04I	1-13/32 ~ 1-7/8	6-1/2	7-3/4	9-7/8	14-5/16	#4	1/4	PR110116

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



**INTERMEDIATE LENGTH - Helical Flute (Inch)**

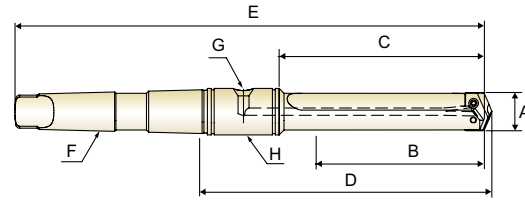
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E		F	G
1	Z10ITHMT03I	45/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
1.5	Z15ITHMT03I	55/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
2	Z20ITHMT04I	31/32 ~ 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	PR110100
2.5	Z25ITHMT04I	1-3/16 ~ 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	PR110116

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



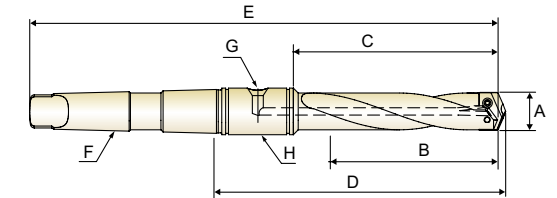
**STANDARD LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0SDSMT02I	3/8 ~ 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
Z	ZZ0SDSMT02I	7/16 ~ 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
0	Z00SDSMT02I	33/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
0.5	Z05SDSMT02I	39/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
1	Z10SDSMT03I	45/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z10SDSMT04I	45/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
1.5	Z15SDSMT03I	55/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z15SDSMT04I	55/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
2	Z20SDSMT03I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z20SDSMT04I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	PR110100
2.5	Z25SDSMT03I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z25SDSMT04I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-37/64	15-1/16	#4	1/4	PR110116
3	Z30SDSMT04I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	11-5/8	16-1/16	#4	1/4	PR110116
	Z30SDSMT05I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	11-5/8	17-5/16	#5	1/4	PR110148
4	Z40SDSMT04I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	12-5/8	17-1/16	#4	1/4	PR110116
	Z40SDSMT05I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	12-5/8	18-5/16	#5	1/4	PR110148
5	Z50SDSMT05I	2-1/2 ~ 3-1/2	10-3/4	12-1/2	15-5/16	20-15/16	#5	1/2	PR110216
	Z70SDSMT05I	3-17/32 ~ 4-1/2	10-3/4	12-7/8	15-11/16	21-5/16	#5	1/2	PR110216

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)

**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



**STANDARD LENGTH - Helical Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0SDHMT02I	3/8 ~ 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
Z	ZZ0SDHMT02I	7/16 ~ 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
0	Z00SDHMT02I	33/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
0.5	Z05SDHMT02I	39/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
1	Z10SDHMT03I	45/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z10SDHMT04I	45/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
1.5	Z15SDHMT03I	55/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z15SDHMT04I	55/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
2	Z20SDHMT03I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z20SDHMT04I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	PR110100
2.5	Z25SDHMT03I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z25SDHMT04I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-37/64	15-1/16	#4	1/4	PR110116

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)

**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



**EXTENDED LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0EXSMT02I	3/8 ~ 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
Z	ZZ0EXSMT02I	7/16 ~ 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
0	Z00EXSMT02I	33/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
0.5	Z05EXSMT02I	39/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
1	Z10EXSMT03I	45/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
1.5	Z15EXSMT03I	55/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
2	Z20EXSMT04I	31/32 ~ 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/8	PR110100
2.5	Z25EXSMT04I	1-3/16 ~ 1-3/8	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	PR110116
3	Z30EXSMT04I	1-13/32 ~ 1-7/8	13-3/4	15	17-1/8	21-9/16	#4	1/4	PR110116
4	Z40EXSMT05I	1-29/32 ~ 2-9/16	16-5/8	18	20-1/8	25-13/16	#5	1/4	PR110148
5	Z50EXSMT05I	2-1/2 ~ 3-1/2	18-1/4	20	22-13/16	28-7/16	#5	1/2	PR110216
7	Z70EXSMT05I	3-17/32 ~ 4-1/2	21-7/8	24	26-13/16	32-7/16	#5	1/2	PR110216

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



**EXTENDED LENGTH - Helical Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0EXHMT02I	3/8 ~ 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
Z	ZZ0EXHMT02I	7/16 ~ 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
0	Z00EXHMT02I	33/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
0.5	Z05EXHMT02I	39/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
1	Z10EXHMT03I	45/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
1.5	Z15EXHMT03I	55/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
2	Z20EXHMT04I	31/32 ~ 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/8	PR110100
2.5	Z25EXHMT04I	1-3/16 ~ 1-3/8	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	PR110116

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)

**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



**LONG LENGTH - Helical Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
0	Z00LGHMT02I	33/64 ~ 11/16	7	7-13/16	9-17/64	12-3/32	#2	1/16	PR110048
0.5	Z05LGHMT02I	39/64 ~ 11/16	7	7-13/16	9-17/64	12-3/32	#2	1/16	PR110048

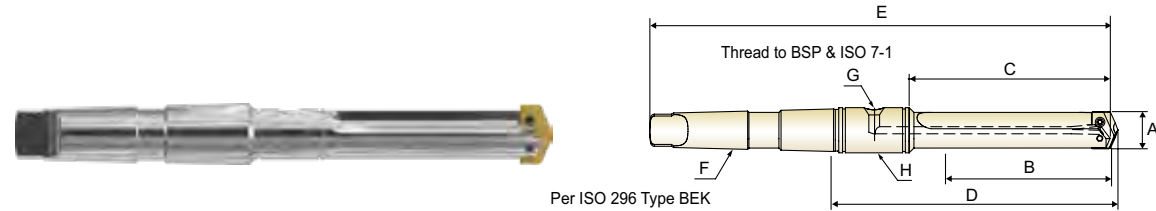
▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



Z\*\*STSMT SERIES  
Z\*\*ITHMT SERIES

**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



**SHORT LENGTH - Straight Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0STSMT02M	9.5 ~ 11.0	31.8	51.5	88.0	160.3	#2	1/16	PR120190
Z	ZZ0STSMT02M	11.5 ~ 12.5	31.8	51.5	88.0	160.3	#2	1/16	PR120190
0	Z00STSMT02M	13.0 ~ 17.5	35.0	55.5	92.4	164.3	#2	1/16	PR120190
0.5	Z05STSMT02M	15.5 ~ 17.5	35.0	55.5	92.4	164.3	#2	1/16	PR120190
1	Z10STSMT03M	18.0 ~ 24.0	69.8	98.4	142.5	232.5	#3	1/8	PR120254
1.5	Z15STSMT03M	22.0 ~ 24.0	69.8	98.4	142.5	232.5	#3	1/8	PR120254
2	Z20STSMT04M	25.0 ~ 35.0	85.7	114.3	160.4	273.8	#4	1/8	PR120254
2.5	Z25STSMT04M	30.0 ~ 35.0	85.7	114.3	167.6	281.0	#4	1/4	PR120317
3	Z30STSMT04M	36.0 ~ 47.0	120.6	152.4	206.4	319.1	#4	1/4	PR120317
4	Z40STSMT05M	48.0 ~ 65.0	130.1	165.1	219.1	363.5	#5	1/4	PR120444
5	Z50STSMT05M	64.0 ~ 88.0	171.5	215.9	287.3	430.2	#5	1/2	PR120571
7	Z70STSMT05M	90.0 ~ 114.0	171.5	225.4	296.8	439.7	#5	1/2	PR120571

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



**INTERMEDIATE LENGTH - Helical Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
1	Z10ITHMT03M	18.0 ~ 24.0	120.7	149.2	193.3	283.3	#3	1/8	PR120254
1.5	Z15ITHMT03M	22.0 ~ 24.0	120.7	149.2	193.3	283.3	#3	1/8	PR120254
2	Z20ITHMT04M	25.0 ~ 35.0	136.5	165.1	211.2	324.6	#4	1/8	PR120254
2.5	Z25ITHMT04M	30.0 ~ 35.0	136.5	165.1	218.4	331.8	#4	1/4	PR120317
3	Z30ITHMT04M	36.0 ~ 47.0	165.1	196.9	250.9	363.6	#4	1/4	PR120317

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



Z\*\*SDHMT SERIES

**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



**STANDARD LENGTH - Straight Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0SDHMT02M	9.5 ~ 11.0	60.3	80.2	116.7	188.9	#2	1/16	PR120190
Z	ZZ0SDHMT02M	11.5 ~ 12.5	60.3	80.2	116.7	188.9	#2	1/16	PR120190
0	Z00SDHMT02M	13.0 ~ 17.5	63.5	84.1	121.0	192.9	#2	1/16	PR120190
0.5	Z05SDHMT02M	15.5 ~ 17.5	63.5	84.1	121.0	192.9	#2	1/16	PR120190
1	Z10SDHMT03M	18.0 ~ 24.0	171.5	200.0	244.1	334.2	#3	1/8	PR120254
1.5	Z15SDHMT03M	22.0 ~ 24.0	171.5	200.0	244.1	334.2	#3	1/8	PR120254
2	Z20SDHMT04M	25.0 ~ 35.0	187.3	215.9	262.0	375.4	#4	1/8	PR120254
2.5	Z25SDHMT04M	30.0 ~ 35.0	187.3	215.9	269.2	382.6	#4	1/4	PR120317
3	Z30SDHMT04M	36.0 ~ 47.0	209.5	241.3	295.3	408.0	#4	1/4	PR120317
4	Z40SDHMT05M	48.0 ~ 65.0	231.8	266.7	320.7	465.1	#5	1/4	PR120444
5	Z50SDHMT05M	64.0 ~ 88.0	273.1	317.5	388.9	531.8	#5	1/2	PR120571
7	Z70SDHMT05M	90.0 ~ 114.0	273.1	327.0	398.5	541.3	#5	1/2	PR120571

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM

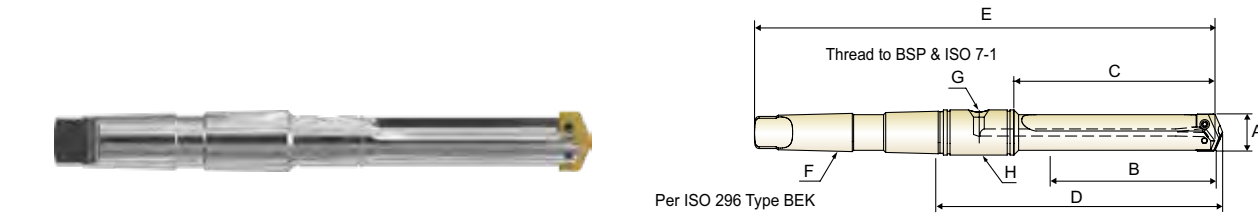


Per ISO 296 Type BEK

**EXTENDED LENGTH - Helical Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0EXHMT02M	9.5 ~ 11.0	111.1	130.9	167.4	239.7	#2	1/16	PR120190
Z	ZZ0EXHMT02M	11.5 ~ 12.5	111.1	130.9	167.4	239.7	#2	1/16	PR120190
0	Z00EXHMT02M	13.0 ~ 17.5	114.3	135.0	171.8	243.7	#2	1/16	PR120190
0.5	Z05EXHMT02M	15.5 ~ 17.5	114.3	135.0	171.8	243.7	#2	1/16	PR120190
1	Z10EXHMT03M	18.0 ~ 24.0	273.1	301.6	345.7	435.8	#3	1/8	PR120254
1.5	Z15EXHMT03M	22.0 ~ 24.0	273.1	301.6	345.7	435.8	#3	1/8	PR120254
2	Z20EXHMT04M	25.0 ~ 35.0	289.0	317.5	363.6	477.0	#4	1/8	PR120254
2.5	Z25EXHMT04M	30.0 ~ 35.0	289.0	317.5	370.8	484.2	#4	1/4	PR120317

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)



Per ISO 296 Type BEK

**EXTENDED LENGTH - Straight Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
3	Z30EXSMT04M	36.0 ~ 47.0	349.3	381.0	435.0	547.7	#4	1/4	PR120317
4	Z40EXSMT05M	48.0 ~ 65.0	422.3	457.2	511.2	655.6	#5	1/4	PR120444
5	Z50EXSMT05M	64.0 ~ 88.0	463.6	508.0	579.4	722.3	#5	1/2	PR120571
7	Z70EXSMT05M	90.0 ~ 114.0	555.6	609.6	681.1	823.9	#5	1/2	PR120571

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)

**TAPER SHANK HOLDERS**

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



Per ISO 296 Type BEK

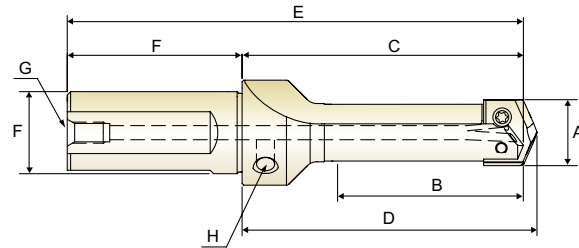
**LONG LENGTH - Helical Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
0	Z00LGHMT02M	13.0 ~ 17.5	177.8	198.5	235.3	307.2	#2	1/16	PR120190
0.5	Z05LGHMT02M	15.5 ~ 17.5	177.8	198.5	235.3	307.2	#2	1/16	PR120190

▶ You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 324)

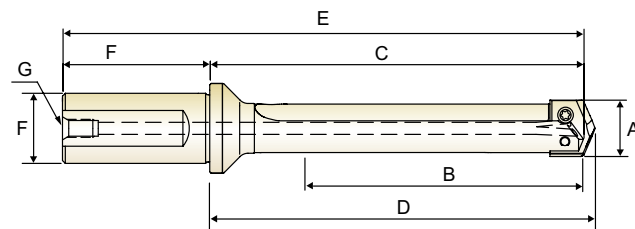
**FLANGED STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
- Porte-plaquette à colerette queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**STUB LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap	
							Dia. F	Length G	Rear H	Side I
Y	ZY0SBSF063I	3/8 ~ 27/64	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	1/8
Z	ZZ0SBSF063I	7/16 ~ 1/2	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	1/8
0	Z00SBSF075I	33/64 ~ 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	1/8
0.5	Z05SBSF075I	39/64 ~ 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	1/8
1	Z10SBSF100I	45/64 ~ 15/16	1-7/8	2-63/64	3-1/8	5-17/64	1	2-9/32	1/8	1/8
1.5	Z15SBSF100I	55/64 ~ 15/16	2-1/4	3-31/64	3-5/8	5-49/64	1	2-9/32	1/8	1/8
2	Z20SBSF125I	31/32 ~ 1-3/8	2-1/4	3-31/64	3-5/8	5-49/64	1-1/4	2-9/32	1/4	1/8
2.5	Z25SBSF125I	1-3/16 ~ 1-3/8	3-5/8	4-55/64	5	7-9/64	1-1/4	2-9/32	1/4	1/8
3	Z30SBSF150I	1-13/32 ~ 1-7/8	3	4-59/64	5-7/64	7-39/64	1-1/2	2-11/16	1/4	1/4

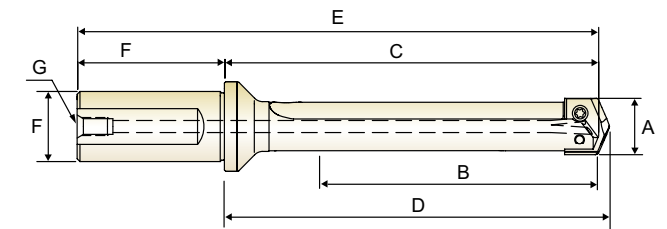


**SHORT LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length H	
Y	ZY0STSF075I	3/8 ~ 27/64	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8
Z	ZZ0STSF075I	7/16 ~ 1/2	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8
0	Z00STSF075I	33/64 ~ 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8
0.5	Z05STSF075I	39/64 ~ 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8
1	Z10STSF100I	45/64 ~ 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8
1.5	Z15STSF100I	55/64 ~ 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8
2	Z20STSF125I	31/32 ~ 1-3/8	3-3/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4
2.5	Z25STSF125I	1-3/16 ~ 1-3/8	3-3/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4
3	Z30STSF150I	1-13/32 ~ 1-7/8	4-3/4	6-13/16	7	9-1/2	1-1/2	2-11/16	1/4
4	Z40STSF150I	1-29/32 ~ 2-9/16	5-1/8	7-1/16	7-1/4	9-3/4	1-1/2	2-11/16	1/4

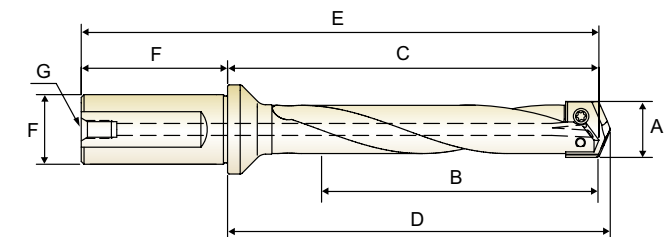
**FLANGED STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
- Porte-plaquette à colerette queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**INTERMEDIATE LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length H	
1	Z10ITSF100I	45/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
1.5	Z15ITSF100I	55/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
2	Z20ITSF125I	31/32 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
2.5	Z25ITSF125I	1-3/16 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
3	Z30ITSF150I	1-13/32 ~ 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4

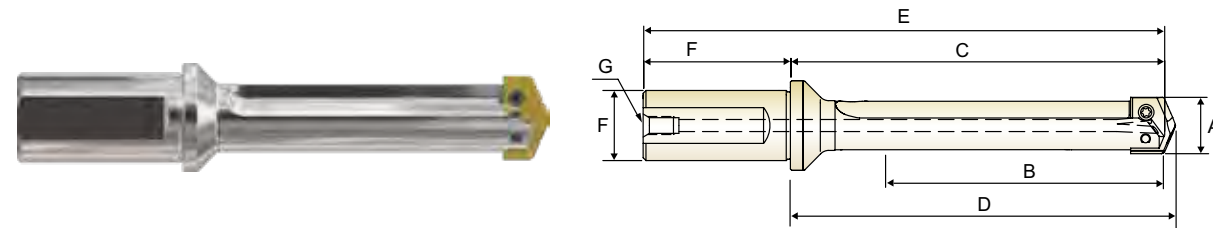


**INTERMEDIATE LENGTH - Helical Flute (Inch)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length H	
1	Z10ITHF100I	45/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
1.5	Z15ITHF100I	55/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
2	Z20ITHF125I	31/32 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
2.5	Z25ITHF125I	1-3/16 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
3	Z30ITHF150I	1-13/32 ~ 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4

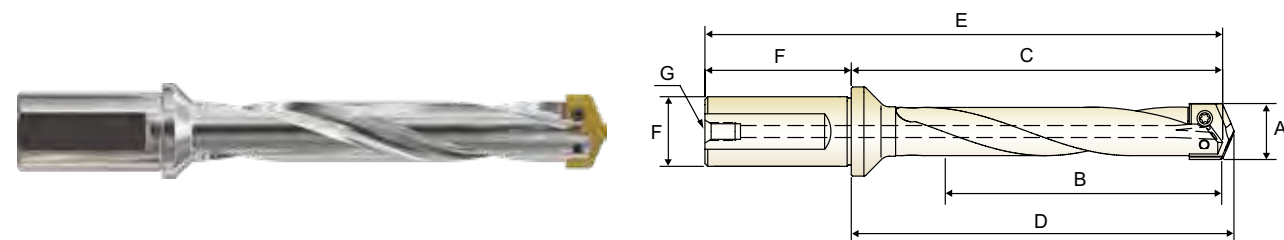
**FLANGED STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
- Porte-plaquette à colerette queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**STANDARD LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0SDSF075I	3/8 ~ 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
Z	ZZ0SDSF075I	7/16 ~ 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
0	Z00SDSF075I	33/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
0.5	Z05SDSF075I	39/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
1	Z10SDSF100I	45/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
1.5	Z15SDSF100I	55/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
2	Z20SDSF125I	31/32 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
2.5	Z25SDSF125I	1-3/16 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
3	Z30SDSF150I	1-13/32 ~ 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4
4	Z40SDSF150I	1-29/32 ~ 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4

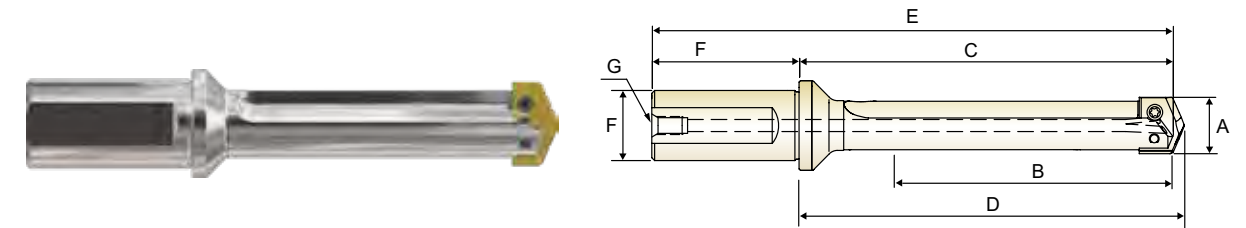


**STANDARD LENGTH - Helical Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0SDHF075I	3/8 ~ 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
Z	ZZ0SDHF075I	7/16 ~ 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
0	Z00SDHF075I	33/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
0.5	Z05SDHF075I	39/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
1	Z10SDHF100I	45/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
1.5	Z15SDHF100I	55/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
2	Z20SDHF125I	31/32 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
2.5	Z25SDHF125I	1-3/16 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
3	Z30SDHF150I	1-13/32 ~ 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4
4	Z40SDHF150I	1-29/32 ~ 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4

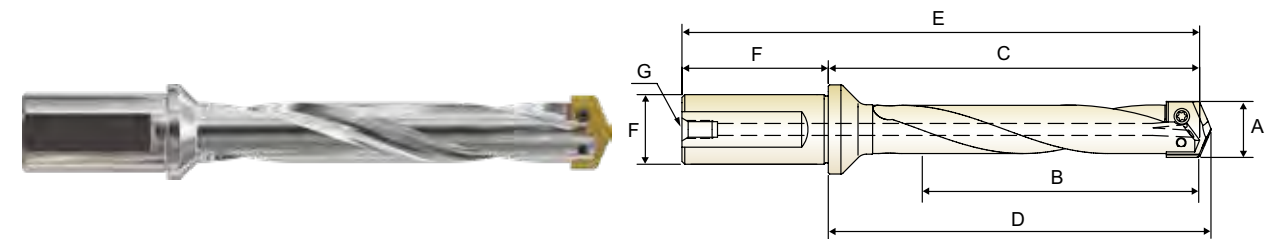
**FLANGED STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
- Porte-plaquette à colerette queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**EXTENDED LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0EXSF075I	3/8 ~ 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
Z	ZZ0EXSF075I	7/16 ~ 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
0	Z00EXSF075I	33/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
0.5	Z05EXSF075I	39/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
1	Z10EXSF100I	45/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
1.5	Z15EXSF100I	55/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
2	Z20EXSF125I	31/32 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4
2.5	Z25EXSF125I	1-3/16 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4



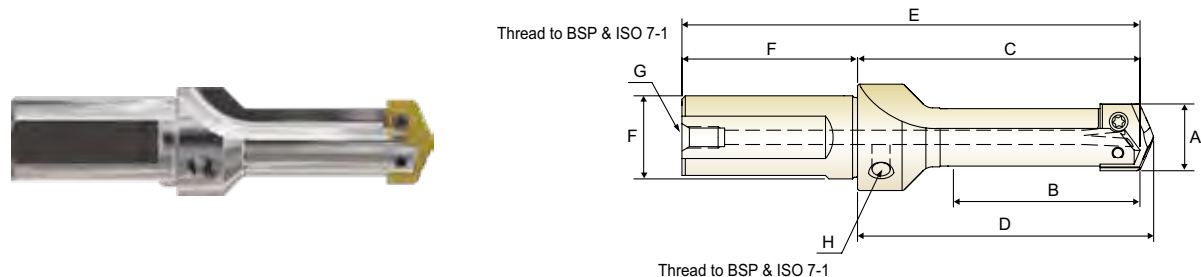
**EXTENDED LENGTH - Helical Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0EXHF075I	3/8 ~ 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
Z	ZZ0EXHF075I	7/16 ~ 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
0	Z00EXHF075I	33/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
0.5	Z05EXHF075I	39/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
1	Z10EXHF100I	45/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
1.5	Z15EXHF100I	55/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
2	Z20EXHF125I	31/32 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4
2.5	Z25EXHF125I	1-3/16 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4



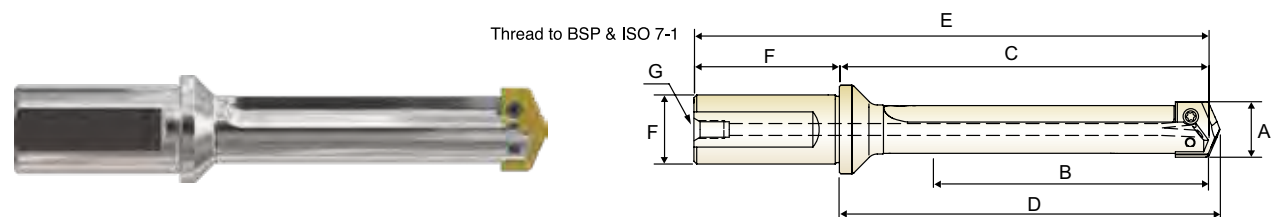
**FLANGED STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
- Porte-plaquette à colerette queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**STUB LENGTH - Straight Flute (Metric)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap	
							Dia. F	Length G	Rear H	Side
Y	ZY0SBSF016M	9.5 ~ 11.0	19.1	47.6	50.0	95.6	16.0	48.0	1/16	1/8
Z	ZZ0SBSF016M	11.5 ~ 12.5	19.1	47.6	50.0	95.6	16.0	48.0	1/16	1/8
0	Z00SBSF020M	13.0 ~ 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8	1/8
0.5	Z05SBSF020M	15.5 ~ 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8	1/8
1	Z10SBSF025M	18.0 ~ 24.0	47.6	75.8	79.4	131.8	25.0	56.0	1/8	1/8
1.5	Z15SBSF025M	22.0 ~ 24.0	57.2	88.5	92.1	144.5	25.0	56.0	1/8	1/8
2	Z20SBSF032M	25.0 ~ 35.0	57.2	88.5	92.1	148.5	32.0	60.0	1/4	1/8
2.5	Z25SBSF032M	30.0 ~ 35.0	92.1	123.4	127.0	183.4	32.0	60.0	1/4	1/8
3	Z30SBSF040M	36.0 ~ 47.0	76.2	125.0	129.8	195.0	40.0	70.0	1/4	1/4



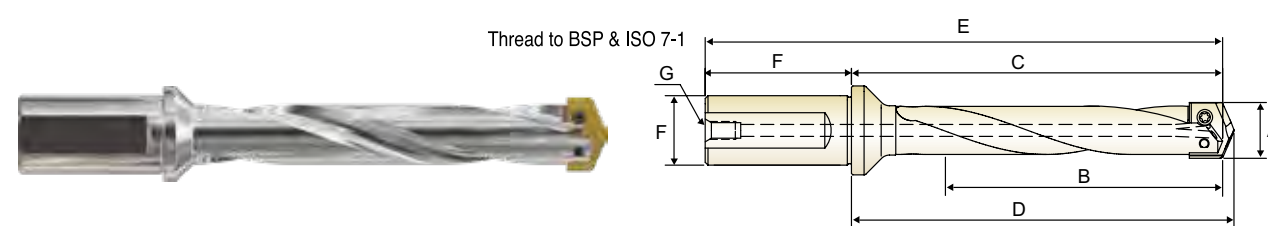
**SHORT LENGTH - Straight Flute (Metric)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length H	
Y	ZY0STSF020M	9.5 ~ 11.0	31.8	61.1	63.5	111.1	20.0	50.0	1/8
Z	ZZ0STSF020M	11.5 ~ 12.5	31.8	61.1	63.5	111.1	20.0	50.0	1/8
0	Z00STSF020M	13.0 ~ 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8
0.5	Z05STSF020M	15.5 ~ 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8
1	Z10STSF025M	18.0 ~ 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8
1.5	Z15STSF025M	22.0 ~ 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8
2	Z20STSF032M	25.0 ~ 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4
2.5	Z25STSF032M	30.0 ~ 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4
3	Z30STSF040M	36.0 ~ 47.0	120.7	173.0	177.8	243.0	40.0	70.0	1/4
4	Z40STSF040M	48.0 ~ 65.0	130.2	179.4	184.0	249.4	40.0	70.0	1/4



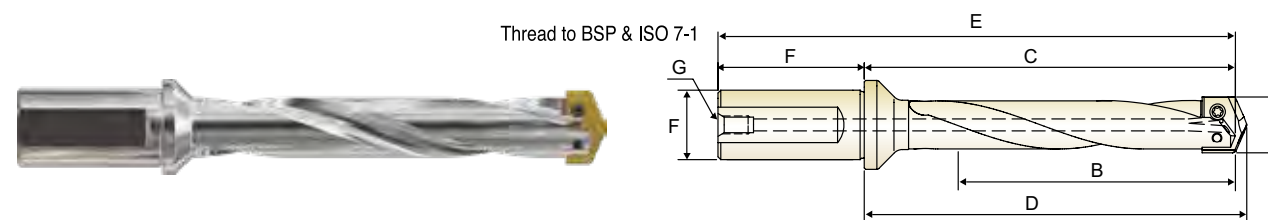
**FLANGED STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
- Porte-plaquette à colerette queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**INTERMEDIATE LENGTH - Helical Flute (Metric)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length H	
1	Z10ITHF025M	18.0 ~ 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8
1.5	Z15ITHF025M	22.0 ~ 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8
2	Z20ITHF032M	25.0 ~ 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4
2.5	Z25ITHF032M	30.0 ~ 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4
3	Z30ITHF040M	36.0 ~ 47.0	165.1	217.5	222.3	287.5	40.0	70.0	1/4

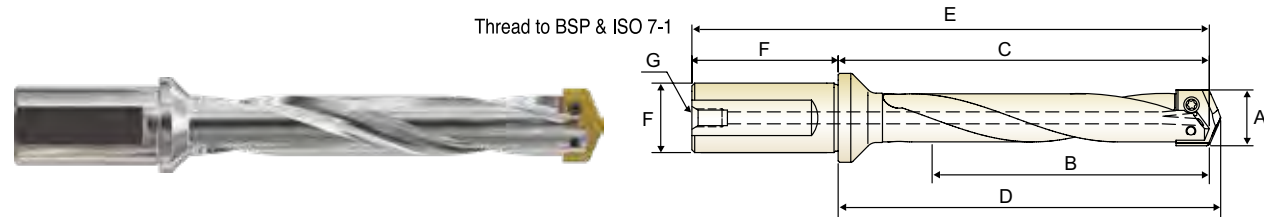


**STANDARD LENGTH - Helical Flute (Metric)**

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length H	
Y	ZY0SDHF020M	9.5 ~ 11.0	60.3	89.7	92.1	139.7	20.0	50.0	1/8
Z	ZZ0SDHF020M	11.5 ~ 12.5	60.3	89.7	92.1	139.7	20.0	50.0	1/8
0	Z00SDHF020M	13.0 ~ 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8
0.5	Z05SDHF020M	15.5 ~ 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8
1	Z10SDHF025M	18.0 ~ 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8
1.5	Z15SDHF025M	22.0 ~ 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8
2	Z20SDHF032M	25.0 ~ 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4
2.5	Z25SDHF032M	30.0 ~ 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4
3	Z30SDHF040M	36.0 ~ 47.0	209.6	261.9	266.7	331.9	40.0	70.0	1/4
4	Z40SDHF040M	48.0 ~ 65.0	231.8	281.0	285.8	351.0	40.0	70.0	1/4

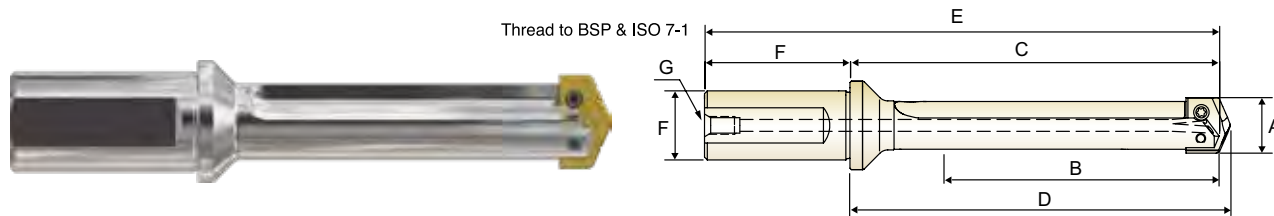
**FLANGED STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
- Porte-plaquette à colerette queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**EXTENDED LENGTH - Helical Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0EXHF020M	9.5 ~ 11.0	111.1	140.5	142.9	190.5	20.0	50.0	1/8
Z	ZZ0EXHF020M	11.5 ~ 12.5	111.1	140.5	142.9	190.5	20.0	50.0	1/8
0	Z00EXHF020M	13.0 ~ 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8
0.5	Z05EXHF020M	15.5 ~ 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8
1	Z10EXHF025M	18.0 ~ 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8
1.5	Z15EXHF025M	22.0 ~ 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8
2	Z20EXHF032M	25.0 ~ 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4
2.5	Z25EXHF032M	30.0 ~ 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4

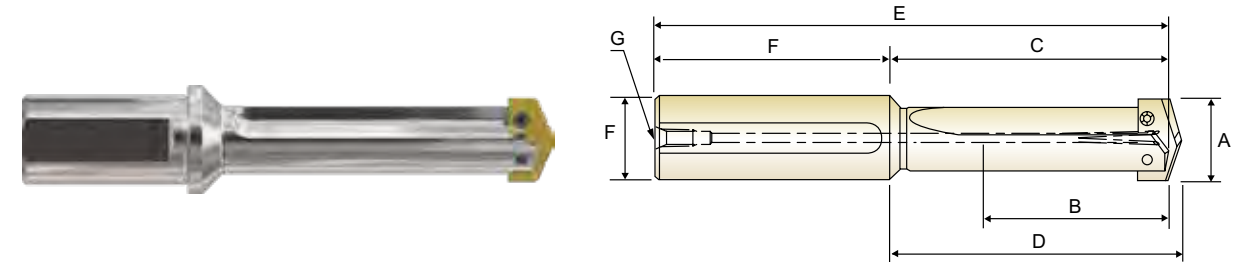


**EXTENDED LENGTH - Straight Flute (Metric)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
3	Z30EXSF040M	36.0 ~ 47.0	349.3	401.6	406.4	471.6	40.0	70.0	1/4
4	Z40EXSF040M	48.0 ~ 65.0	422.3	471.5	476.3	541.5	40.0	70.0	1/4

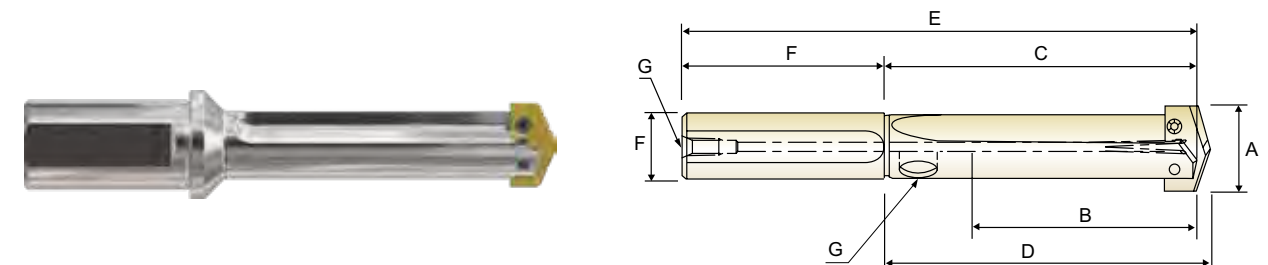
**STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT
- Porte-plaquette à queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**SHORT LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0STSS075I	3/8 ~ 27/64	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8
Z	ZZ0STSS075I	7/16 ~ 1/2	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8
0	Z00STSS075I	33/64 ~ 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8
0.5	Z05STSS075I	39/64 ~ 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8



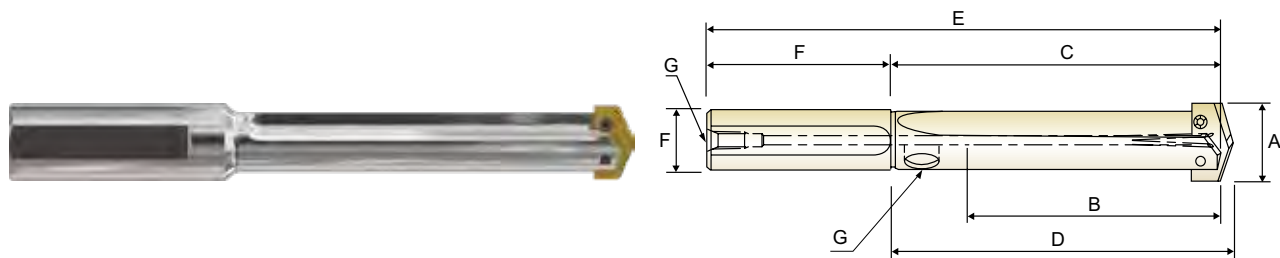
**SHORT LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
1	* Z10STSS075I	45/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8
	Z10STSS100I	45/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8
1.5	* Z15STSS075I	55/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8
	Z15STSS100I	55/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8
2	Z20STSS100I	31/32 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8
	Z20STSS125I	31/32 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8
2.5	* Z25STSS100I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8
	Z25STSS125I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8
3	Z30STSS125I	1-13/32 ~ 1-7/8	4-3/4	6	6-3/16	10	1-1/4	4	1/4
	Z30STSS150I	1-13/32 ~ 1-7/8	4-3/4	6	6-3/16	10	1-1/2	4	1/4
4	Z40STSS150I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-1/2	4	1/4
	Z40STSS175I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-3/4	4	1/4
5	Z50STSS200I	2-1/2 ~ 3-1/2	6-3/4	8-1/2	8-3/4	12-1/2	2	4	1/2

► \* Flanged type

**STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT
- Porte-plaquette à queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO

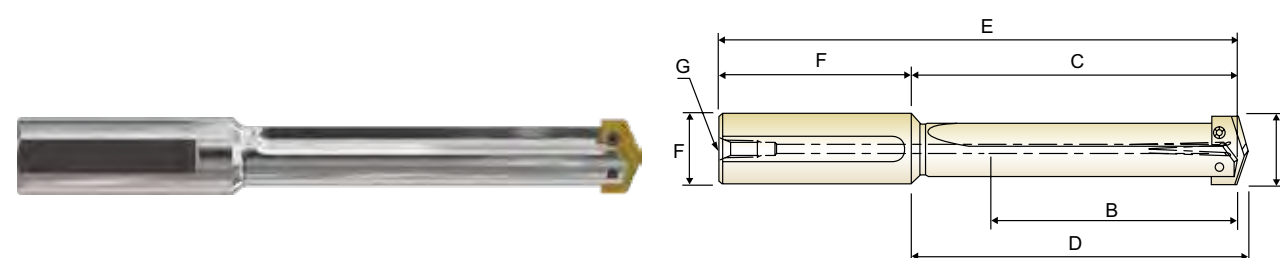


**INTERMEDIATE LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
1	Z10ITSS100I	45/64 ~ 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8
1.5	Z15ITSS100I	55/64 ~ 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8
2	Z20ITSS125I	31/32 ~ 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8
2.5	Z25ITSS125I	1-3/16 ~ 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8
3	Z30ITSS150I	1-13/32 ~ 1-7/8	6-1/2	7-3/4	7-15/16	11-3/4	1-1/2	4	1/4

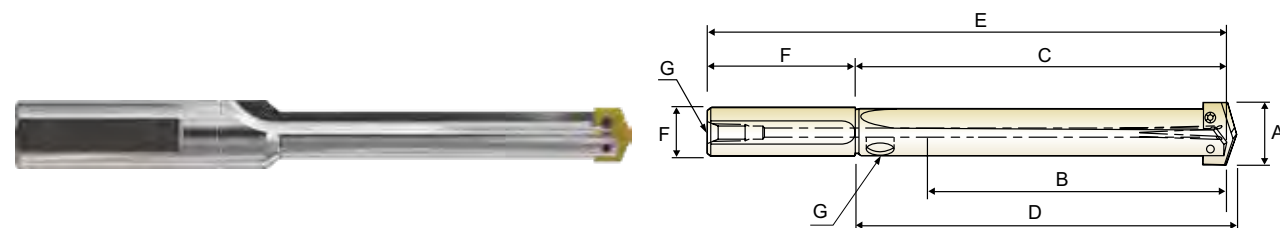
**STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT
- Porte-plaquette à queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**STANDARD LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0SDSS075I	3/8 ~ 27/64	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8
Z	<td>7/16 ~ 1/2</td> <td>2-3/8</td> <td>3-5/32</td> <td>3-1/4</td> <td>5-17/32</td> <td>3/4</td> <td>2-3/8</td> <td>1/8</td>	7/16 ~ 1/2	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8
o	Z00SDSS075I	33/64 ~ 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8
0.5	Z05SDSS075I	39/64 ~ 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8



**STANDARD LENGTH - Straight Flute (Inch)**

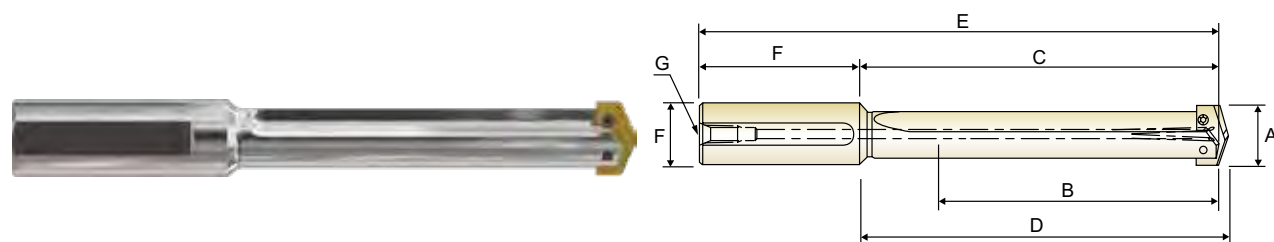
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
1	* Z10SDSS075I	45/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8
	Z10SDSS100I	45/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8
1.5	* Z15SDSS075I	55/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8
	Z15SDSS100I	55/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8
2	Z20SDSS100I	31/32 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8
	Z20SDSS125I	31/32 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8
2.5	* Z25SDSS100I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8
	Z25SDSS125I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8
3	Z30SDSS125I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/4	4	1/4
	Z30SDSS150I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/2	4	1/4
4	Z40SDSS150I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-1/2	4	1/4
	Z40SDSS175I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-3/4	4	1/4
5	Z50SDSS200I	2-1/2 ~ 3-1/2	10-3/4	12-1/2	12-3/4	16-1/2	2	4	1/2
7	Z70SDSS300I	3-17/32 ~ 4-1/2	10-3/4	12-7/8	13-1/8	17-7/8	3	5	1/2

▶ \* Flanged type



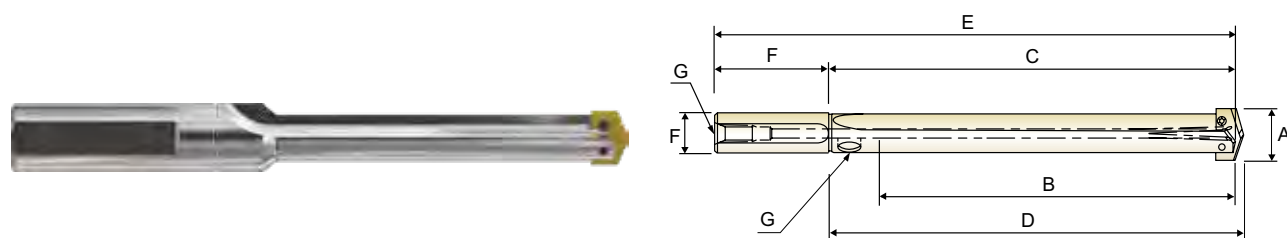
**STRAIGHT SHANK HOLDERS**

- HALTER MIT ZYLINDERSCHAFT
- Porte-plaquette à queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**EXTENDED LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	ZY0EXSS075I	3/8 ~ 27/64	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8
Z	ZZ0EXSS075I	7/16 ~ 1/2	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8
0	Z00EXSS075I	33/64 ~ 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8
0.5	Z05EXSS075I	39/64 ~ 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8



**EXTENDED LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
1	Z10EXSS100I	45/64 ~ 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8
1.5	Z15EXSS100I	55/64 ~ 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8
2	Z20EXSS125I	31/32 ~ 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8
2.5	Z25EXSS125I	1-3/16 ~ 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8
3	Z30EXSS125I	1-13/32 ~ 1-7/8	13-3/4	15	15-3/16	19	1-1/4	4	1/4
4	Z40EXSS150I	1-29/32 ~ 2-9/16	16-5/8	18	18-3/16	22	1-1/2	4	1/4
5	Z50EXSS200I	2-1/2 ~ 3-1/2	18-1/4	20	20-1/4	24	2	4	1/2
7	Z70EXSS300I	3-17/32 ~ 4-1/2	21-7/8	24	24-1/4	29	3	5	1/2

**STRAIGHT SHANK HOLDERS**

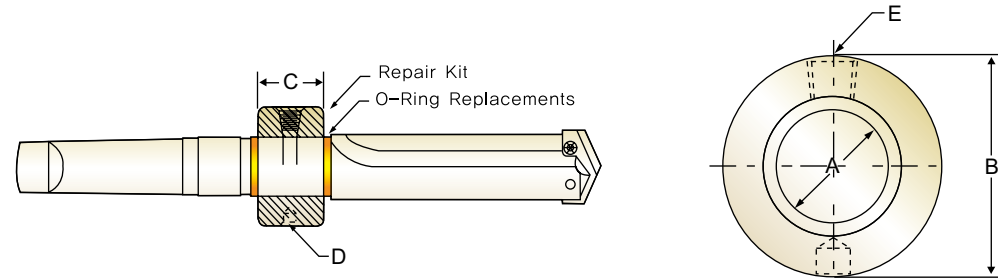
- HALTER MIT ZYLINDERSCHAFT
- Porte-plaquette à queue cylindrique
- PUNTE ATTACCO CILINDRICO FLANGIATO



**LONG LENGTH - Straight Flute (Inch)**

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
0	Z00LGSS075I	33/64 ~ 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8
0.5	Z05LGSS075I	39/64 ~ 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8

**HOLDER ACCESSORIES**  
**ROTARY COOLANT ADAPTER (RCA) AND ACCESSORIES**



Inch

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B					
PR110048	3/4	1-3/4	7/8	5/16-NC	1/8	PR210048	PR310048
PR110100	1	2-1/8	1-1/8	5/16-NC	1/8	PR210100	PR310100
PR110116	1-1/4	2-1/2	1-3/8	3/8-NC	1/4	PR210116	PR310116
PR110148	1-3/4	3	1-3/8	3/8-NC	1/4	PR210148	PR310148
PR110216	2-1/4	3-3/4	1-3/4	1/2-NC	1/2	PR210216	PR310216

Metric

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B					
PR120190	19.05	44.45	22.23	M8 × 1.25	1/8	PR220190	PR320190
PR120254	25.40	53.97	28.57	M8 × 1.25	1/8	PR220254	PR320254
PR120317	31.75	63.50	34.92	M10 × 1.5	1/4	PR220317	PR320317
PR120444	44.45	76.20	34.92	M10 × 1.5	1/4	PR220444	PR320444
PR120571	57.15	95.27	44.45	M12 × 1.75	1/2	PR220571	PR320571

◆ Thread to BSP & ISO 7-1

**TORX SCREWS**

Holder Series	Item No.	TORX Hand Driver	Drill Range Used With	
			Inch	Metric
Y	J07Y0010	J05Y0070	3/8 ~ 27/64	9.5 mm ~ 11.0 mm
Z	J07Z0110		7/16 ~ 1/2	11.5 mm ~ 12.5 mm
0	J0800210	J0500080	33/64 ~ 11/16	13.0 mm ~ 17.5 mm
0.5	J0805310		39/64 ~ 11/16	15.5 mm ~ 17.5 mm
1	J0910410	J0510090	45/64 ~ 15/16	18.0 mm ~ 24.0 mm
1.5	J0915510		55/64 ~ 15/16	22.0 mm ~ 24.0 mm
2	J1520610	J0520150	31/32 ~ 1-3/8	25.0 mm ~ 35.0 mm
2.5	J1525710		1-3/16 ~ 1-3/8	30.0 mm ~ 35.0 mm
3,4	J2030810	J0530200	1-13/32 ~ 2-9/16	36.0 mm ~ 65.0 mm
5 ~ 8	J2550910		J0550250	2-1/2 ~ 4-1/2

\*\* Note : Replacement screws sold in packages(10 screws per package)

**SPADE DRILL HSS-M4**

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)						
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	Ø48-65	Ø66-114
P	1	Non-alloy steel	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	6	Low alloy steel	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	12		Stainless steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36
13	20	23		29	0.12	0.18	0.20	0.24	0.30	0.36	0.46	
14	24	29		34	0.14	0.20	0.23	0.26	0.36	0.41	0.50	
K	15	Grey cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	16		29	35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	17	Nodular cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	18		35	44	52	0.13	0.17	0.23	0.3	0.35	0.43	0.50
	19		Malleable cast iron	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69
20	35	44		52	0.13	0.17	0.23	0.30	0.35	0.43	0.50	
N	21	Aluminum-wrought alloy	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	95	128	142	0.19	0.31	0.43	0.53	0.64	0.74	0.79

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

SPADE DRILL HSS-T15

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)						
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	Ø48-65	Ø66-114
P	1	Non-alloy steel	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4	45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58	
	6	Low alloy steel	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	8		39	47	53	0.09	0.15	0.22	0.28	0.38	0.41	0.50
	9		36	43	46	0.08	0.15	0.21	0.27	0.38	0.40	0.51
	10	High alloyed steel, and tool steel	25	34	36	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	11		19	27	29	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	M	12	Stainless steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36
13		20		23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46
14		24		29	34	0.14	0.20	0.23	0.26	0.36	0.41	0.50
K	15	Grey cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	16		29	35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	17	Nodular cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	18		35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
	19	Malleable cast iron	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
	20		35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
N	21	Aluminum-wrought alloy	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	95	128	142	0.19	0.31	0.43	0.53	0.64	0.74	0.79
S	31	Heat Resistant Super Alloys	9	11	12	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	32		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	33		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	34		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	35		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
H	38	Hardened steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

SPADE DRILL HSS-M48

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)						
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	Ø48-65	Ø66-114
P	1	Non-alloy steel	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4	45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58	
	6	Low alloy steel	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	8		39	47	53	0.09	0.15	0.22	0.28	0.38	0.41	0.50
	9		36	43	46	0.08	0.15	0.21	0.27	0.38	0.40	0.51
	10	High alloyed steel, and tool steel	25	34	36	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	11		19	27	29	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	K	15	Grey cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64
16		29		35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
17		Nodular cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
18			35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
19		Malleable cast iron	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
20	35		44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50	
N	21	Aluminum-wrought alloy	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	95	128	142	0.19	0.31	0.43	0.53	0.64	0.74	0.79
S	31	Heat Resistant Super Alloys	9	11	12	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	32		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	33		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	34		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
H	38	Hardened steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.





RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDKONDITIONEN

**SPADE DRILL CARBIDE-K10**

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)				
			TiN	TiCN	TiAlN	Ø9.5~12.5	Ø13~17.5	Ø18~24	Ø25~35	Ø36~47
<b>K</b>	15	Grey cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	16		56	70	79	0.13	0.18	0.23	0.28	0.33
	17	Nodular cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	18		66	81	93	0.13	0.15	0.28	0.33	0.37
	19	Malleable cast iron	98	125	137	0.18	0.30	0.37	0.46	0.56
	20		66	81	93	0.13	0.15	0.28	0.33	0.37

**SPADE DRILL CARBIDE-K20**

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)					
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	
<b>P</b>	1	Non-alloy steel	94	110	119	0.20	0.24	0.31	0.42	0.46	
	2		76	82	96	0.15	0.22	0.29	0.36	0.40	
	3		66	70	84	0.15	0.22	0.28	0.36	0.40	
	4		66	70	84	0.15	0.22	0.28	0.36	0.40	
	6	Low alloy steel	73	81	88	0.15	0.23	0.29	0.38	0.42	
	7		66	73	81	0.15	0.21	0.28	0.37	0.41	
	8		62	70	78	0.12	0.20	0.27	0.33	0.40	
	9		53	58	64	0.10	0.18	0.23	0.30	0.38	
	10		High alloyed steel, and tool steel	50	56	67	0.09	0.18	0.22	0.28	0.31
	11			37	46	50	0.09	0.18	0.22	0.28	0.31
	12			38	43	47	0.10	0.18	0.20	0.24	0.30
<b>M</b>	13	Stainless steel	38	43	47	0.10	0.18	0.20	0.24	0.30	
	14		43	49	55	0.12	0.20	0.23	0.27	0.35	
<b>K</b>	15	Grey cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53	
	16		56	70	79	0.13	0.18	0.23	0.28	0.33	
	17	Nodular cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53	
	18		66	81	93	0.13	0.15	0.28	0.33	0.37	
	19	Malleable cast iron	98	125	137	0.18	0.30	0.37	0.46	0.56	
	20		66	81	93	0.13	0.15	0.28	0.33	0.37	
<b>N</b>	21	Aluminum-wrought alloy	366	396	427	0.24	0.38	0.45	0.50	0.53	
	22	244	290	291	0.22	0.33	0.40	0.45	0.48		
	27	Copper and Copper Alloys (Bronze / Brass)	136	168	193	0.15	0.24	0.29	0.39	0.47	
<b>S</b>	31	Heat Resistant Super Alloys	50	55	62	0.19	0.19	0.21	0.24	0.30	
	32		38	44	46	0.15	0.17	0.20	0.21	0.25	
	33		38	44	46	0.15	0.17	0.20	0.21	0.25	
	34		38	44	46	0.15	0.17	0.20	0.21	0.25	
	35		38	44	46	0.15	0.17	0.20	0.21	0.25	
<b>H</b>	38	Hardened steel	38	43	47	0.10	0.18	0.20	0.24	0.30	

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.



RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDKONDITIONEN

**SPADE DRILL FLAT BOTTOM HSS-T15**

ISO	VDI 3323	Material Description	Vc(m/min)		Feed(mm/rev)			
			TiN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35
<b>P</b>	1	Non-alloy steel	54	60	0.12	0.18	0.22	0.30
	2		46	55	0.10	0.15	0.19	0.27
	3		45	50	0.10	0.15	0.18	0.27
	4		42	46	0.08	0.14	0.17	0.22
	6	Low alloy steel	45	46	0.10	0.16	0.19	0.29
	7		40	45	0.10	0.13	0.18	0.28
	8		38	42	0.07	0.12	0.18	0.22
	9		34	37	0.06	0.12	0.17	0.22
	10		High alloyed steel, and tool steel	27	29	0.07	0.12	0.15
	11	22		23	0.07	0.12	0.15	0.20
	<b>M</b>	12	Stainless steel	23	25	0.13	0.15	0.18
13		23		25	0.13	0.15	0.18	0.22
14		26		29	0.17	0.18	0.20	0.23
<b>K</b>	15	Grey cast iron	51	60	0.12	0.21	0.29	0.40
	16		38	48	0.10	0.14	0.20	0.25
	17	Nodular cast iron	51	60	0.12	0.21	0.29	0.40
	18		38	48	0.10	0.14	0.20	0.25
	19	Malleable cast iron	56	66	0.13	0.25	0.35	0.41
20	38		48	0.10	0.14	0.20	0.25	
<b>N</b>	21	Aluminum-wrought alloy	208	213	0.17	0.28	0.36	0.43
	22	112	121	0.17	0.28	0.36	0.41	
	27	Copper and Copper Alloys (Bronze / Brass)	48	70	0.15	0.26	0.37	0.45
<b>S</b>	31	Heat Resistant Super Alloys	20	10	0.06	0.14	0.16	0.19
	32		7	9	0.06	0.11	0.14	0.15
	33		7	9	0.06	0.11	0.14	0.15
	34		7	9	0.06	0.11	0.14	0.15
	35		7	9	0.06	0.11	0.14	0.15
<b>H</b>	38	Hardened steel	23	25	0.13	0.15	0.18	0.22

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.



**SPADE DRILL CARBIDE-P40**

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)				
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47
<b>P</b>	1	Non-alloy steel	<b>94</b>	<b>110</b>	<b>119</b>	0.20	0.24	0.31	0.42	0.46
	2		<b>76</b>	<b>82</b>	<b>96</b>	0.15	0.22	0.29	0.36	0.40
	3		<b>66</b>	<b>70</b>	<b>84</b>	0.15	0.22	0.28	0.36	0.40
	4		<b>66</b>	<b>70</b>	<b>84</b>	0.15	0.22	0.28	0.36	0.40
	6	Low alloy steel	<b>73</b>	<b>81</b>	<b>88</b>	0.15	0.23	0.29	0.38	0.42
	7		<b>66</b>	<b>73</b>	<b>81</b>	0.15	0.21	0.28	0.37	0.41
	8		<b>62</b>	<b>70</b>	<b>78</b>	0.12	0.20	0.27	0.33	0.40
	9		<b>53</b>	<b>58</b>	<b>64</b>	0.10	0.18	0.23	0.30	0.38
	10	High alloyed steel, and tool steel	<b>50</b>	<b>56</b>	<b>67</b>	0.09	0.18	0.22	0.28	0.31
	11		<b>37</b>	<b>46</b>	<b>50</b>	0.09	0.18	0.22	0.28	0.31
	<b>M</b>	12	Stainless steel	<b>38</b>	<b>43</b>	<b>47</b>	0.10	0.18	0.20	0.24
13		<b>38</b>		<b>43</b>	<b>47</b>	0.10	0.18	0.20	0.24	0.30
14		<b>43</b>		<b>49</b>	<b>55</b>	0.12	0.20	0.23	0.27	0.35
<b>K</b>	15	Grey cast iron	<b>95</b>	<b>101</b>	<b>125</b>	0.17	0.26	0.32	0.42	0.53
	16		<b>56</b>	<b>70</b>	<b>79</b>	0.13	0.18	0.23	0.28	0.33
	17	Nodular cast iron	<b>95</b>	<b>101</b>	<b>125</b>	0.17	0.26	0.32	0.42	0.53
	18		<b>66</b>	<b>81</b>	<b>93</b>	0.13	0.15	0.28	0.33	0.37
	19		Malleable cast iron	<b>98</b>	<b>125</b>	<b>137</b>	0.18	0.30	0.37	0.46
20	<b>66</b>	<b>81</b>		<b>93</b>	0.13	0.15	0.28	0.33	0.37	
<b>N</b>	21	Aluminum-wrought alloy	<b>366</b>	<b>396</b>	<b>427</b>	0.24	0.38	0.45	0.50	0.53
	22		<b>244</b>	<b>290</b>	<b>291</b>	0.22	0.33	0.40	0.45	0.48
	27	Copper and Copper Alloys (Bronze / Brass)	<b>136</b>	<b>168</b>	<b>193</b>	0.15	0.24	0.29	0.39	0.47
<b>S</b>	31	Heat Resistant Super Alloys	<b>50</b>	<b>55</b>	<b>62</b>	0.19	0.19	0.21	0.24	0.30
	32		<b>38</b>	<b>44</b>	<b>46</b>	0.15	0.17	0.20	0.21	0.25
	33		<b>38</b>	<b>44</b>	<b>46</b>	0.15	0.17	0.20	0.21	0.25
	34		<b>38</b>	<b>44</b>	<b>46</b>	0.15	0.17	0.20	0.21	0.25
	35		<b>38</b>	<b>44</b>	<b>46</b>	0.15	0.17	0.20	0.21	0.25
<b>H</b>	38	Hardened steel	<b>38</b>	<b>43</b>	<b>47</b>	0.10	0.18	0.20	0.24	0.30

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.  
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.





Leading Through Innovation

CARBIDE, HSS & HSS-E

# REAMERS

## REIBAHLEN

- Carbide NC Machine Reamers  
HSS Hand Reamers, HSS-E Chucking Reamers
- Hartmetall NC Maschinenreibahlen  
HSS-Handreibahlen, HSS-E Spannfutter-Reibahlen







SERIES	K4101	K4111
HOLETYPE		
FLUTETYPE	Straight	LH Spiral
SIZE MIN	D2.0	D2.0
SIZE MAX	D20.0	D20.0
PAGE	A384	A385

SURFACE TREATMENT

Bright

# CARBIDE, HSS & HSS-E REAMERS

Carbide NC Machine Reamers  
HSS Hand Reamers  
HSS-E Chucking Reamers



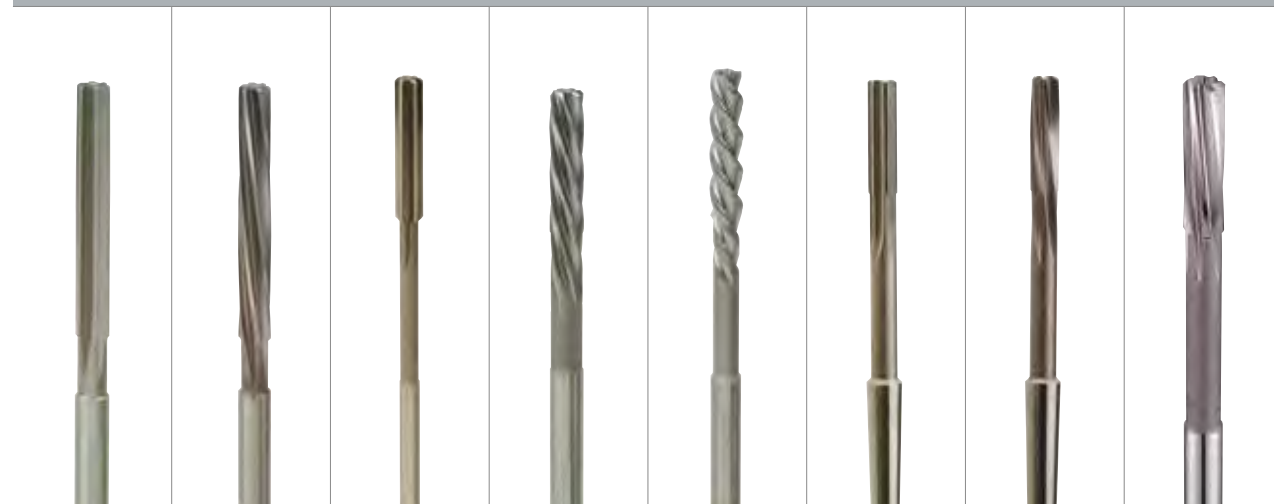
◎ : Excellent ○ : Good  
Recommended cutting conditions : p.A405

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	K4101	K4111
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C Annealed	270	28	○	○
	5		About 0.75% C Quenched & Tempered	300	32	○	○
	6	Low alloy steel	Annealed	180	10	◎	◎
	7		Quenched & Tempered	275	29	◎	◎
	8		Quenched & Tempered	300	32	○	○
	9		Quenched & Tempered	350	38	○	○
	10		High alloyed steel, and tool steel	Annealed	200	15	○
	11		Quenched & Tempered	325	35	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○
	13		Martensitic Quenched & Tempered	240	23	○	○
	14	Austenitic	180	10	○	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎
	16		Pearlitic (Martensitic)	260	26	○	○
	17	Nodular cast iron	Ferritic	160	3	◎	◎
	18		Pearlitic	250	25	○	○
	19	Malleable cast iron	Ferritic	130		◎	◎
	20		Pearlitic	230	21	○	○
N	21	Aluminum-wrought alloy	Not Curable	60		○	○
	22		Curable Hardened	100		○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○
	24		≤ 12% Si, Curable Hardened	90		○	○
	25		> 12% Si, Not Curable	130		○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○
	27		CuZn, CuSnZn (Brass)	90		○	○
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100		○	○
	29		Duroplastic, Fiber Reinforced Plastic				
	30	Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		
	32		Cured	280	30		
	33		Annealed	250	25		
	34		Ni or Co Based Cured	350	38		
	35	Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm			
	37		Alpha + Beta Alloys Hardened	1050 Rm			
H	38	Hardened steel	Hardened	550	55		
	39		Hardened	630	60		
	40	Hardened Cast Iron	Cast	400	42		
	41		Hardened	550	55		



K1143	K1153	K2101	K2111	K2121	K2102	K2112	K21B1
Straight	LH Spiral	Straight	LH Spiral	LH Spiral (Quick Spiral)	Straight	LH Spiral	LH Spiral
D2.0	D2.0	D2.0	D2.0	D4.0	D10.0	D10.0	D2.0
D60.0	D60.0	D20.0	D20.0	D20.0	D50.0	D50.0	D20.0
A386	A388	A390	A392	A394	A395	A397	A399

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○	○	◎	◎	○	◎	◎	◎	1
○	○	◎	◎	○	◎	◎	◎	2
		○	○		○	○	○	3
		○	○		○	○	○	4
								5
○	○	◎	◎	○	◎	◎	◎	6 P
		○	○		○	○	○	7
								8
								9
		○	○		○	○	○	10
								11
		○	○		○	○	○	12
		○	○		○	○	○	13 M
		○	○		○	○	○	14
		○	○		○	○	○	15
		○	○		○	○	○	16
		○	○		○	○	○	17 K
		○	○		○	○	○	18
		○	○		○	○	○	19
		○	○		○	○	○	20
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○	○	○	○	◎	○	○	○	22
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○	○	○	○	◎	○	○	○	24
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○	○	○	○	◎	○	○	○	26
○	○	○	○	◎	○	○	○	27
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								41

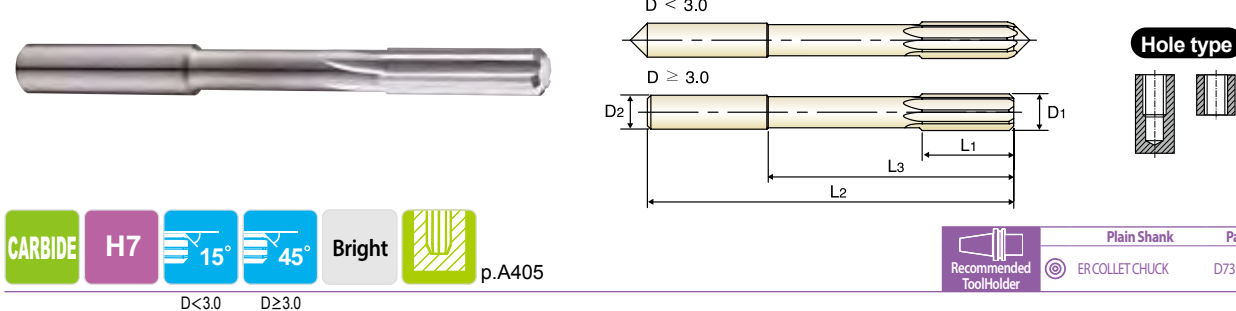
- i-ONE DRILLS
- i-DREAM DRILLS
- DREAM DRILLS -PRO
- DREAM DRILLS -GENERAL
- DREAM DRILLS -HIGH FEED
- DREAM DRILLS -FLAT BOTTOM
- DREAM DRILLS -INOX
- DREAM DRILLS -ALU
- DREAM DRILLS -MQL
- DREAM DRILLS for HIGH HARDENED STEELS
- GENERAL CARBIDE DRILLS
- MULTI-1 DRILLS
- HPD DRILLS
- GOLD-P DRILLS
- SUPER-GP DRILLS
- STRAIGHT SHANK DRILLS
- TAPER SHANK DRILLS
- NC-SPOTTING DRILLS
- CENTER DRILLS
- SPADE DRILLS
- REAMERS
- COUNTER SINKS
- COUNTER BORES
- TECHNICAL DATA

**CARBIDE, NC MACHINE REAMERS - STRAIGHT FLUTES**

- VHM, NC-MASCHINENREIBAHLEN - GERADEGENUTET
- ALÉSOIRS CARBURE MACHINE CN - ENTRÉE DROITE
- ALESATORI A MACCHINA IN MD - ELICA DRIITA

- ▶ Material - Up to Ø12.0 : Solid Carbide  
- Over Ø12.0 : Carbide Head Brazed
- ▶ Straight Flutes, Right Hand Cut
- ▶ Unequal Flute Spacing
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank : DIN 6535-HA
- ▶ Chamfer Angle - D<3.0 : 15°  
- D≥3.0 : 45°

- ▶ Material - bis Ø12,0 : VHM  
- über Ø12,0 : gelötete VHM-Köpfe
- ▶ geradegenutet, rechtsschneidend
- ▶ Ungleichteilung
- ▶ Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft : DIN 6535-HA
- ▶ Anschnittwinkel - bis Ø3,0 : 15°  
- über Ø3,0 : 45°



CARBIDE H7 15° 45° Bright p.A405

Plain Shank Page ER COLLET CHUCK D73-115 Recommended ToolHolder

EDP No.	Reamer Diameter	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flute
	D1	D2	L1	L3	L2	
K410100200	2.0	4	11	20	50	4
K410100250	2.5	4	14	26	57	4
K410100300	3.0	4	15	31	61	6
K410100350	3.5	4	18	36	70	6
K410100400	4.0	4	19	42	75	6
K410100450	4.5	6	21	46	80	6
K410100500	5.0	6	23	51	86	6
K410100550	5.5	6	26	56	93	6
K410100600	6.0	6	26	56	93	6
K410100650	6.5	8	28	62	101	6
K410100700	7.0	8	31	68	109	6
K410100750	7.5	8	31	68	109	6
K410100800	8.0	8	33	74	117	6
K410100850	8.5	10	33	74	117	6
K410100900	9.0	10	36	80	125	6
K410100950	9.5	10	36	80	125	6
K410101000	10.0	10	38	86	133	6
K410101050	10.5	12	38	86	133	6
K410101100	11.0	12	41	95	142	6
K410101200	12.0	12	44	104	151	6
K410101300	13.0	16	44	104	151	6
K410101400	14.0	16	47	108	160	8
K410101500	15.0	16	50	110	162	8
K410101600	16.0	16	52	118	170	8
K410101700	17.0	20	54	121	175	8
K410101800	18.0	20	56	128	182	8
K410101900	19.0	20	58	129	189	8
K410102000	20.0	20	60	135	195	8

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

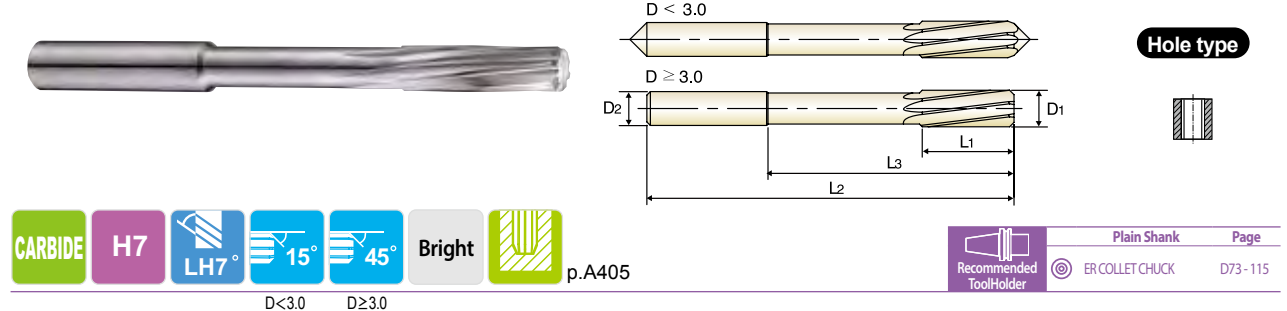


**CARBIDE, NC MACHINE REAMERS - LH SPIRAL FLUTES**

- VHM, NC-MASCHINENREIBAHLEN - SPIRALGENUTET mit LINKSDRALL
- ALÉSOIRS CARBURE MACHINE CN - HÉLICE À GAUCHE
- ALESATORI A MACCHINA IN MD - ELICA SINISTRA

- ▶ Material - Up to Ø12.0 : Solid Carbide  
- Over Ø12.0 : Carbide Head Brazed
- ▶ Left Spiral Flutes, Right Hand Cut
- ▶ Unequal Flute Spacing
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank : DIN 6535-HA
- ▶ Chamfer Angle - D<3.0 : 15°  
- D≥3.0 : 45°

- ▶ Material - bis Ø12,0 : VHM  
- über Ø12,0 : gelötete VHM-Köpfe
- ▶ linksspiralig, rechtsschneidend
- ▶ Ungleichteilung
- ▶ Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft : DIN 6535-HA
- ▶ Anschnittwinkel - bis Ø3,0 : 15°  
- über Ø3,0 : 45°



CARBIDE H7 LH7 15° 45° Bright p.A405

Plain Shank Page ER COLLET CHUCK D73-115 Recommended ToolHolder

EDP No.	Reamer Diameter	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flute
	D1	D2	L1	L3	L2	
K411100200	2.0	4	11	20	50	4
K411100250	2.5	4	14	26	57	4
K411100300	3.0	4	15	31	61	6
K411100350	3.5	4	18	36	70	6
K411100400	4.0	4	19	42	75	6
K411100450	4.5	6	21	46	80	6
K411100500	5.0	6	23	51	86	6
K411100550	5.5	6	26	56	93	6
K411100600	6.0	6	26	56	93	6
K411100650	6.5	8	28	62	101	6
K411100700	7.0	8	31	68	109	6
K411100750	7.5	8	31	68	109	6
K411100800	8.0	8	33	74	117	6
K411100850	8.5	10	33	74	117	6
K411100900	9.0	10	36	80	125	6
K411100950	9.5	10	36	80	125	6
K411101000	10.0	10	38	86	133	6
K411101050	10.5	12	38	86	133	6
K411101100	11.0	12	41	95	142	6
K411101200	12.0	12	44	104	151	6
K411101300	13.0	16	44	104	151	6
K411101400	14.0	16	47	108	160	8
K411101500	15.0	16	50	110	162	8
K411101600	16.0	16	52	118	170	8
K411101700	17.0	20	54	121	175	8
K411101800	18.0	20	56	128	182	8
K411101900	19.0	20	58	129	189	8
K411102000	20.0	20	60	135	195	8

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

CARBIDE, NC MACHINE REAMERS - STRAIGHT FLUTES

- VHM, NC-MASCHINENREIBAHLEN - GERADEGENUTET
- ALÉSOIRS CARBURE MACHINE CN - ENTRÉE DROITE
- ALESATORI A MACCHINA IN MD - ELICA DRIITA

- ▶ Material - Up to Ø12.0 : Solid Carbide  
- Over Ø12.0 : Carbide Head Brazed
- ▶ Straight Flutes, Right Hand Cut
- ▶ Unequal Flute Spacing
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank : DIN 6535-HA
- ▶ Chamfer Angle - D<3.0 : 15°  
- D≥3.0 : 45°



CARBIDE H7 15° 45° Bright p.A405

Plain Shank Page ER COLLET CHUCK D73-115 Recommended ToolHolder

EDP No.	Reamer Diameter	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flute
	D1	D2	L1	L3	L2	
K410100200	2.0	4	11	20	50	4
K410100250	2.5	4	14	26	57	4
K410100300	3.0	4	15	31	61	6
K410100350	3.5	4	18	36	70	6
K410100400	4.0	4	19	42	75	6
K410100450	4.5	6	21	46	80	6
K410100500	5.0	6	23	51	86	6
K410100550	5.5	6	26	56	93	6
K410100600	6.0	6	26	56	93	6
K410100650	6.5	8	28	62	101	6
K410100700	7.0	8	31	68	109	6
K410100750	7.5	8	31	68	109	6
K410100800	8.0	8	33	74	117	6
K410100850	8.5	10	33	74	117	6
K410100900	9.0	10	36	80	125	6
K410100950	9.5	10	36	80	125	6
K410101000	10.0	10	38	86	133	6
K410101050	10.5	12	38	86	133	6
K410101100	11.0	12	41	95	142	6
K410101200	12.0	12	44	104	151	6
K410101300	13.0	16	44	104	151	6
K410101400	14.0	16	47	108	160	8
K410101500	15.0	16	50	110	162	8
K410101600	16.0	16	52	118	170	8
K410101700	17.0	20	54	121	175	8
K410101800	18.0	20	56	128	182	8
K410101900	19.0	20	58	129	189	8
K410102000	20.0	20	60	135	195	8

◎ : Excellent ○ : Good

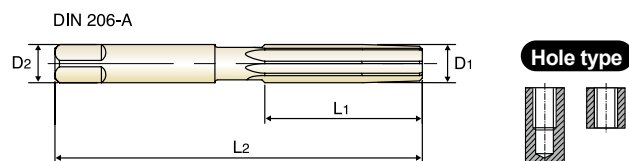
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

**HSS, HAND REAMERS - STRAIGHT FLUTES**

- HSS, HANDREIBAHLEN - GERADEGENUTET
- ALÉSOIRS HSS À MAIN - HÉLICE À GAUCHE
- ALESATORI A MANO IN HSS - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter ≈ Nominal Reamer Diameter
- ▶ Straight Flutes / Right Hand Cut
- ▶ Chamfer Angle- tapered
- ▶ Type of center - Up to Ø3.75 : external centers  
- Over Ø3.75 : internal centers

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø = Nomineller Reibahlen-Ø
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen  
- über Ø3,75 mm : Zentrierung



Hole type

D<sub>1</sub>=D<sub>2</sub>

HSS DIN 206 H7 Bright

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter	Flute Length	Overall Length	No. of Flute
	D	L1	L2	
K114300200	2.0	25	50	4
K114300220	2.2	27	54	4
K114300250	2.5	29	58	4
K114300280	2.8	31	62	4
K114300300	3.0	31	62	6
K114300320	3.2	33	66	6
K114300350	3.5	35	71	6
K114300400	4.0	38	76	6
K114300450	4.5	41	81	6
K114300500	5.0	44	87	6
K114300550	5.5	47	93	6
K114300600	6.0	47	93	6
K114300700	7.0	54	107	6
K114300800	8.0	58	115	6
K114300900	9.0	62	124	6
K114301000	10.0	66	133	6
K114301100	11.0	71	142	6
K114301200	12.0	76	152	6
K114301300	13.0	76	152	6
K114301400	14.0	81	163	8
K114301500	15.0	81	163	8
K114301600	16.0	87	175	8
K114301700	17.0	87	175	8
K114301800	18.0	93	188	8
K114301900	19.0	93	188	8
K114302000	20.0	100	201	8
K114302200	22.0	107	215	8
K114302400	24.0	115	231	8

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	230
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○				○														

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	33	34	34	34	34	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

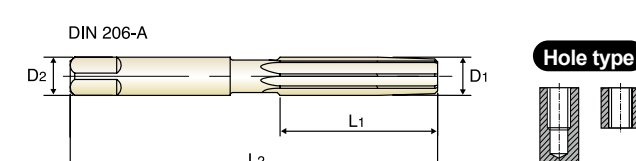


**HSS, HAND REAMERS - STRAIGHT FLUTES**

- HSS, HANDREIBAHLEN - GERADEGENUTET
- ALÉSOIRS HSS À MAIN - ENTRÉE DROITE
- ALESATORI A MANO IN HSS - ELICA DRITTA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter ≈ Nominal Reamer Diameter
- ▶ Straight Flutes / Right Hand Cut
- ▶ Chamfer Angle- tapered
- ▶ Type of center - Up to Ø3.75 : external centers  
- Over Ø3.75 : internal centers

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø = Nomineller Reibahlen-Ø
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen  
- über Ø3,75 mm : Zentrierung



Hole type

D<sub>1</sub>=D<sub>2</sub>

HSS DIN 206 H7 Bright

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter	Flute Length	Overall Length	No. of Flute
	D	L1	L2	
K114302500	25.0	115	231	8
K114302600	26.0	115	231	8
K114302700	27.0	124	247	10
K114302800	28.0	124	247	10
K114302900	29.0	124	247	10
K114303000	30.0	124	247	10
K114303100	31.0	133	265	10
K114303200	32.0	133	265	10
K114303300	33.0	133	265	10
K114303400	34.0	142	284	10
K114303500	35.0	142	284	10
K114303600	36.0	142	284	10
K114303700	37.0	142	284	10
K114303800	38.0	152	305	10
K114303810	38.1	152	305	10
K114303900	39.0	152	305	10
K114304000	40.0	152	305	10
K114304100	41.0	152	305	12
K114304200	42.0	152	305	12
K114304300	43.0	163	326	12
K114304400	44.0	163	326	12
K114304500	45.0	163	326	12
K114304600	46.0	163	326	12
K114304700	47.0	163	326	12
K114304800	48.0	174	347	12
K114304900	49.0	174	347	12
K114305200	52.0	174	347	12
K114306000	60.0	184	367	12

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	230
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○				○														

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	33	34	34	34	34	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA





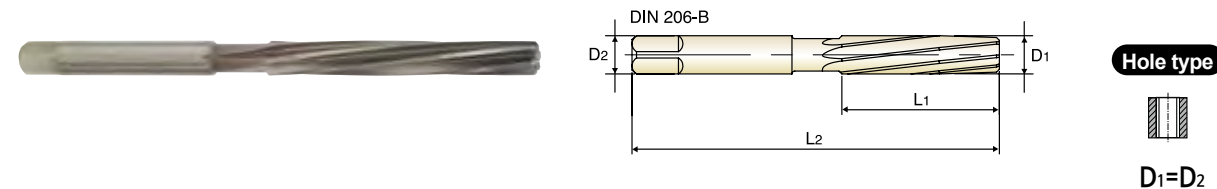
K1153 SERIES

**HSS, HAND REAMERS - LH SPIRAL FLUTES**

- HSS, HAND REAMERS - LH SPIRAL FLUTES
- ALÉSOIRS HSS À MAIN - HÉLICE À GAUCHE
- ALESATORI A MANO IN HSS - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420, H7
- ▶ Shank Diameter ≈ Nominal Reamer Diameter
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle- tapered
- ▶ Type of center - Up to Ø3.75 : external centers  
- Over Ø3.75 : internal centers

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø = Nomineller Reibahlen-Ø
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneidend
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen  
- über Ø3,75 mm : Zentrierung



HSS DIN 206 H7 LH7° Bright

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter	Flute Length	Overall Length	No. of Flute
	D	L1	L2	
K115300200	2.0	25	50	4
K115300220	2.2	27	54	4
K115300250	2.5	29	58	4
K115300280	2.8	31	62	4
K115300300	3.0	31	62	6
K115300320	3.2	33	66	6
K115300350	3.5	35	71	6
K115300400	4.0	38	76	6
K115300450	4.5	41	81	6
K115300500	5.0	44	87	6
K115300550	5.5	47	93	6
K115300600	6.0	47	93	6
K115300700	7.0	54	107	6
K115300800	8.0	58	115	6
K115300900	9.0	62	124	6
K115301000	10.0	66	133	6
K115301100	11.0	71	142	6
K115301200	12.0	76	152	6
K115301300	13.0	76	152	6
K115301400	14.0	81	163	8
K115301500	15.0	81	163	8
K115301600	16.0	87	175	8
K115301700	17.0	87	175	8
K115301800	18.0	93	188	8
K115301900	19.0	93	188	8
K115302000	20.0	100	201	8
K115302200	22.0	107	215	8
K115302400	24.0	115	231	8

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○				○															

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													



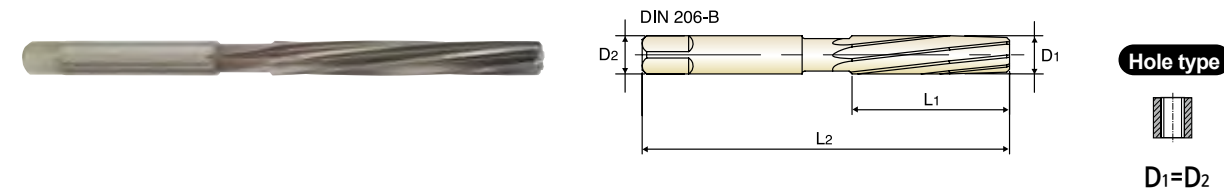
K1153 SERIES

**HSS, HAND REAMERS - LH SPIRAL FLUTES**

- HSS, HAND REAMERS - LH SPIRAL FLUTES
- ALÉSOIRS HSS À MAIN - HÉLICE À GAUCHE
- ALESATORI A MANO IN HSS - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420, H7
- ▶ Shank Diameter ≈ Nominal Reamer Diameter
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle- tapered
- ▶ Type of center - Up to Ø3.75 : external centers  
- Over Ø3.75 : internal centers

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø = Nomineller Reibahlen-Ø
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen  
- über Ø3,75 mm : Zentrierung



HSS DIN 206 H7 LH7° Bright

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter	Flute Length	Overall Length	No. of Flute
	D	L1	L2	
K115302500	25.0	115	231	8
K115302600	26.0	115	231	8
K115302700	27.0	124	247	10
K115302800	28.0	124	247	10
K115302900	29.0	124	247	10
K115303000	30.0	124	247	10
K115303100	31.0	133	265	10
K115303200	32.0	133	265	10
K115303300	33.0	133	265	10
K115303400	34.0	142	284	10
K115303500	35.0	142	284	10
K115303600	36.0	142	284	10
K115303700	37.0	142	284	10
K115303800	38.0	152	305	10
K115303810	38.1	152	305	10
K115303900	39.0	152	305	10
K115304000	40.0	152	305	10
K115304100	41.0	152	305	12
K115304200	42.0	152	305	12
K115304300	43.0	163	326	12
K115304400	44.0	163	326	12
K115304500	45.0	163	326	12
K115304600	46.0	163	326	12
K115304700	47.0	163	326	12
K115304800	48.0	174	347	12
K115304900	49.0	174	347	12
K115305200	52.0	174	347	12
K115306000	60.0	184	367	12

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○				○															

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

HSS, HAND REAMERS - LH SPIRAL FLUTES

- HSS, HAND REAMERS - LH SPIRAL FLUTES
- ALÉSOIRS HSS À MAIN - HÉLICE À GAUCHE
- ALESATORI A MANO IN HSS - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420, H7
- ▶ Shank Diameter ≈ Nominal Reamer Diameter
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle- tapered
- ▶ Type of center - Up to Ø3.75 : external centers  
- Over Ø3.75 : internal centers



HSS DIN 206 H7 LH7° Bright

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter	Flute Length	Overall Length	No. of Flute
	D	L1	L2	
K115302500	25.0	115	231	8
K115302600	26.0	115	231	8
K115302700	27.0	124	247	10
K115302800	28.0	124	247	10
K115302900	29.0	124	247	10
K115303000	30.0	124	247	10
K115303100	31.0	133	265	10
K115303200	32.0	133	265	10
K115303300	33.0	133	265	10
K115303400	34.0	142	284	10
K115303500	35.0	142	284	10
K115303600	36.0	142	284	10
K115303700	37.0	142	284	10
K115303800	38.0	152	305	10
K115303810	38.1	152	305	10
K115303900	39.0	152	305	10
K115304000	40.0	152	305	10
K115304100	41.0	152	305	12
K115304200	42.0	152	305	12
K115304300	43.0	163	326	12
K115304400	44.0	163	326	12
K115304500	45.0	163	326	12
K115304600	46.0	163	326	12
K115304700	47.0	163	326	12
K115304800	48.0	174	347	12
K115304900	49.0	174	347	12
K115305200	52.0	174	347	12
K115306000	60.0	184	367	12

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○				○															

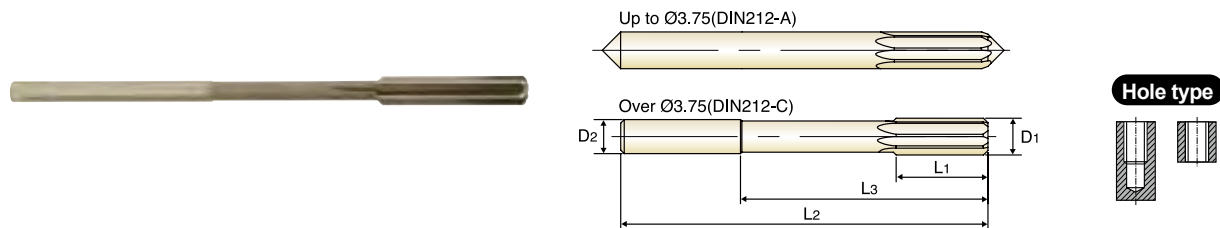
ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

**HSS-E, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTES**

- HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - GERADEGENUTET
- ALÉSOIRS HSS-E MACHINE DROIT- ENTRÉE DROITE
- ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA DRITTA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ Straight Flute / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø Toleranzen : h8
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Anschnittwinkel - bis Ø3,75 mm : 15°  
- über Ø3,75 mm : 45°



HSS-E DIN 212 H7 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73-115

Plain Shank Page D73-115

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter		Shank Diameter		Cutting Length		Neck Length		Overall Length		No. of Flute
	D1	D2	D2	D2	L1	L3	L3	L2	L2		
K210100200	2.0	2	2	2	11	-	-	49	4		
K210100220	2.2	2.2	2.2	2.2	12	-	-	53	4		
K210100250	2.5	2.5	2.5	2.5	14	-	-	57	4		
K210100260	2.6	2.6	2.6	2.6	14	-	-	57	4		
K210100280	2.8	2.8	2.8	2.8	15	-	-	61	4		
K210100300	3.0	3	3	3	15	-	-	61	6		
K210100310	3.1	3.1	3.1	3.1	16	-	-	65	6		
K210100320	3.2	3.2	3.2	3.2	16	-	-	65	6		
K210100350	3.5	3.5	3.5	3.5	18	-	-	70	6		
K210100360	3.6	3.6	3.6	3.6	18	-	-	70	6		
K210100370	3.7	3.7	3.7	3.7	18	-	-	70	6		
K210100400	4.0	4	4	4	19	42	42	75	6		
K210100430	4.3	4.5	4.5	4.5	21	46	46	80	6		
K210100450	4.5	4.5	4.5	4.5	21	46	46	80	6		
K210100460	4.6	4.5	4.5	4.5	21	46	46	80	6		
K210100500	5.0	5	5	5	23	51	51	86	6		
K210100550	5.5	5.6	5.6	5.6	26	56	56	93	6		
K210100560	5.6	5.6	5.6	5.6	26	56	56	93	6		
K210100600	6.0	5.6	5.6	5.6	26	56	56	93	6		
K210100650	6.5	6.3	6.3	6.3	28	62	62	101	6		
K210100700	7.0	7.1	7.1	7.1	31	68	68	109	6		
K210100720	7.2	7.1	7.1	7.1	31	68	68	109	6		
K210100800	8.0	8	8	8	33	74	74	117	6		
K210100830	8.3	8	8	8	33	74	74	117	6		
K210100850	8.5	8	8	8	33	74	74	117	6		
K210100900	9.0	9	9	9	36	80	80	125	6		

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	35	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

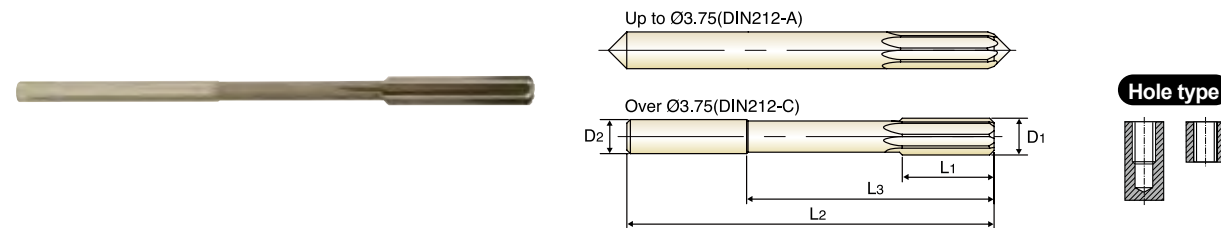


**HSS-E, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTES**

- HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - GERADEGENUTET
- ALÉSOIRS HSS-E MACHINE DROIT- ENTRÉE DROITE
- ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA DRITTA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ Straight Flute / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø Toleranzen : h8
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Anschnittwinkel - bis Ø3,75 mm : 15°  
- über Ø3,75 mm : 45°



HSS-E DIN 212 H7 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73-115

Plain Shank Page D73-115

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter		Shank Diameter		Cutting Length		Neck Length		Overall Length		No. of Flute
	D1	D2	D2	D2	L1	L3	L3	L2	L2		
K210100950	9.5	9	9	9	36	80	80	125	6		
K210101000	10.0	10	10	10	38	86	86	133	6		
K210101050	10.5	10	10	10	38	86	86	133	6		
K210101100	11.0	10	10	10	41	95	95	142	6		
K210101200	12.0	10	10	10	44	104	104	151	6		
K210101300	13.0	10	10	10	44	104	104	151	6		
K210101400	14.0	12.5	12.5	12.5	47	108	108	160	8		
K210101500	15.0	12.5	12.5	12.5	50	110	110	162	8		
K210101600	16.0	12.5	12.5	12.5	52	118	118	170	8		
K210101700	17.0	14	14	14	54	121	121	175	8		
K210101800	18.0	14	14	14	56	128	128	182	8		
K210101900	19.0	16	16	16	58	129	129	189	8		
K210102000	20.0	16	16	16	60	135	135	195	8		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	35	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS-E, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTES

- HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - GERADEGENUTET
- ALÉSOIRS HSS-E MACHINE DROIT- ENTRÉE DROITE
- ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA DRITTA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ Straight Flute / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°



HSS-E DIN 212 H7 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73-115

Plain Shank Page D73-115

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter		Shank Diameter		Cutting Length		Neck Length		Overall Length		No. of Flute
	D1	D2	D2	D2	L1	L3	L3	L2	L2		
K210100950	9.5	9	9	9	36	80	80	125	6		
K210101000	10.0	10	10	10	38	86	86	133	6		
K210101050	10.5	10	10	10	38	86	86	133	6		
K210101100	11.0	10	10	10	41	95	95	142	6		
K210101200	12.0	10	10	10	44	104	104	151	6		
K210101300	13.0	10	10	10	44	104	104	151	6		
K210101400	14.0	12.5	12.5	12.5	47	108	108	160	8		
K210101500	15.0	12.5	12.5	12.5	50	110	110	162	8		
K210101600	16.0	12.5	12.5	12.5	52	118	118	170	8		
K210101700	17.0	14	14	14	54	121	121	175	8		
K210101800	18.0	14	14	14	56	128	128	182	8		
K210101900	19.0	16	16	16	58	129	129	189	8		
K210102000	20.0	16	16	16	60	135	135	195	8		

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	35	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

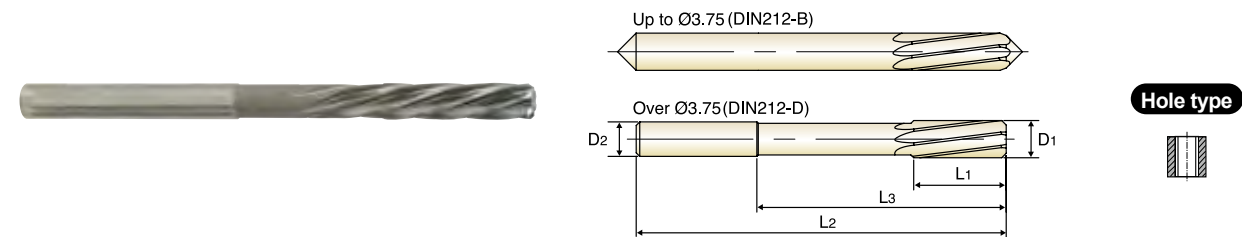
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	105				

**HSS-E, STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES**

● HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRALL  
 ○ ALÉSOIRS HSS-E MACHINE DROIT- HÉLICE À GAUCHE  
 ○ ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø Toleranzen : h8
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneidend
- ▶ Anschnittwinkel - bis Ø3,75 mm : 15°  
- über Ø3,75 mm : 45°



HSS-E DIN 212 H7 LH7° 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73 - 115

Plain Shank Page

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flute
	D1	D2	L1	L3	L2	
K211100200	2.0	2	11	-	49	4
K211100220	2.2	2.2	12	-	53	4
K211100250	2.5	2.5	14	-	57	4
K211100260	2.6	2.6	14	-	57	4
K211100280	2.8	2.8	15	-	61	4
K211100300	3.0	3	15	-	61	6
K211100310	3.1	3.1	16	-	65	6
K211100320	3.2	3.2	16	-	65	6
K211100350	3.5	3.5	18	-	70	6
K211100360	3.6	3.6	18	-	70	6
K211100370	3.7	3.7	18	-	70	6
K211100400	4.0	4	19	42	75	6
K211100430	4.3	4.5	21	46	80	6
K211100450	4.5	4.5	21	46	80	6
K211100460	4.6	4.5	21	46	80	6
K211100500	5.0	5	23	51	86	6
K211100550	5.5	5.6	26	56	93	6
K211100560	5.6	5.6	26	56	93	6
K211100600	6.0	5.6	26	56	93	6
K211100650	6.5	6.3	28	62	101	6
K211100700	7.0	7.1	31	68	109	6
K211100720	7.2	7.1	31	68	109	6
K211100800	8.0	8	33	74	117	6
K211100830	8.3	8	33	74	117	6

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

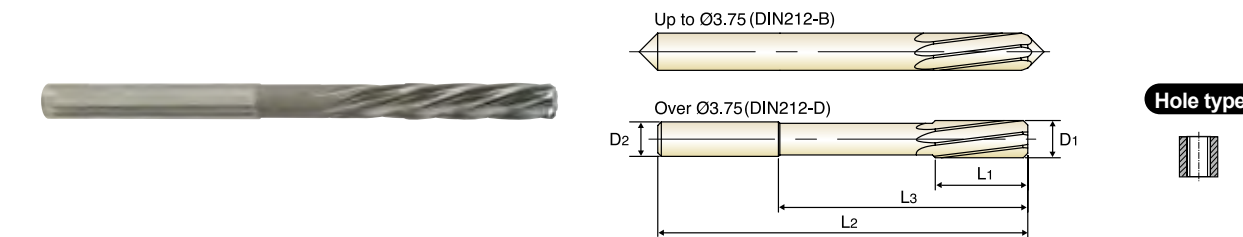


**HSS-E, STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES**

● HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRALL  
 ○ ALÉSOIRS HSS-E MACHINE DROIT- HÉLICE À GAUCHE  
 ○ ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø Toleranzen : h8
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneidend
- ▶ Anschnittwinkel - bis Ø3,75 mm : 15°  
- über Ø3,75 mm : 45°



HSS-E DIN 212 H7 LH7° 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73 - 115

Plain Shank Page

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flute
	D1	D2	L1	L3	L2	
K211100850	8.5	8	33	74	117	6
K211100900	9.0	9	36	80	125	6
K211100950	9.5	9	36	80	125	6
K211101000	10.0	10	38	86	133	6
K211101050	10.5	10	38	86	133	6
K211101100	11.0	10	41	95	142	6
K211101200	12.0	10	44	104	151	6
K211101300	13.0	10	44	104	151	6
K211101400	14.0	12.5	47	108	160	8
K211101500	15.0	12.5	50	110	162	8
K211101600	16.0	12.5	52	118	170	8
K211101700	17.0	14	54	121	175	8
K211101800	18.0	14	56	128	182	8
K211101900	19.0	16	58	129	189	8
K211102000	20.0	16	60	135	195	8

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

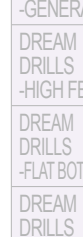
  

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS-E, STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES

● HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRALL  
 ○ ALÉSOIRS HSS-E MACHINE DROIT- HÉLICE À GAUCHE  
 ○ ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°



HSS-E DIN 212 H7 LH7° 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73 - 115

Plain Shank Page

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flute
	D1	D2	L1	L3	L2	
K211100850	8.5	8	33	74	117	6
K211100900	9.0	9	36	80	125	6
K211100950	9.5	9	36	80	125	6
K211101000	10.0	10	38	86	133	6
K211101050	10.5	10	38	86	133	6
K211101100	11.0	10	41	95	142	6
K211101200	12.0	10	44	104	151	6
K211101300	13.0	10	44	104	151	6
K211101400	14.0	12.5	47	108	160	8
K211101500	15.0	12.5	50	110	162	8
K211101600	16.0	12.5	52	118	170	8
K211101700	17.0	14	54	121	175	8
K211101800	18.0	14	56	128	182	8
K211101900	19.0	16	58	129	189	8
K211102000	20.0	16	60	135	195	8

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





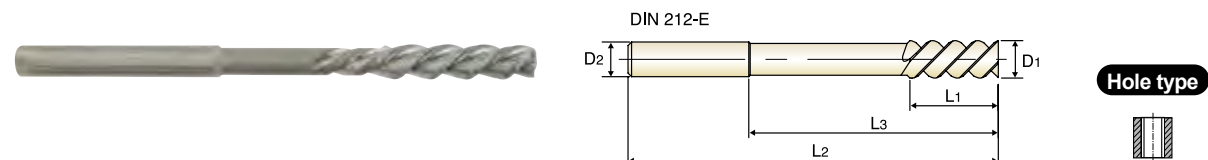
K2121 SERIES

**HSS-E, STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES (QUICK SPIRAL)**

- HSS-E, MASCHINEN - SCHÄLREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRAL
- ALÉSOIRS HSS-E MACHINE DROIT- HÉLICE À GAUCHE (HÉLICE RAPIDE)
- ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA RAPIDA, SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ Chamfer Angle - tapered
- ▶ LH High Spiral Flutes / Right Hand Cut

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø Toleranzen : h8
- ▶ Ansnittwinkel - Konisch
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneidend



HSS-E DIN 212 H7 LH45° FORM E Bright P.A406

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Reamer Diameter	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flute
	D1	D2	L1	L3	L2	
K212100400	4.0	4	19	42	75	3
K212100450	4.5	4.5	21	46	80	3
K212100500	5.0	5	23	51	86	3
K212100550	5.5	5.6	26	56	93	3
K212100600	6.0	5.6	26	56	93	3
K212100650	6.5	6.3	28	62	101	3
K212100700	7.0	7.1	31	68	109	3
K212100800	8.0	8	33	74	117	3
K212100850	8.5	8	33	74	117	3
K212100900	9.0	9	36	80	125	3
K212100950	9.5	9	36	80	125	3
K212101000	10.0	10	38	86	133	3
K212101100	11.0	10	41	95	142	3
K212101200	12.0	10	44	104	151	3
K212101300	13.0	10	44	104	151	3
K212101400	14.0	12.5	47	108	160	4
K212101500	15.0	12.5	50	110	162	4
K212101600	16.0	12.5	52	118	170	4
K212101700	17.0	14	54	121	175	4
K212101800	18.0	14	56	128	182	4
K212101900	19.0	16	58	129	189	4
K212102000	20.0	16	60	135	195	4

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



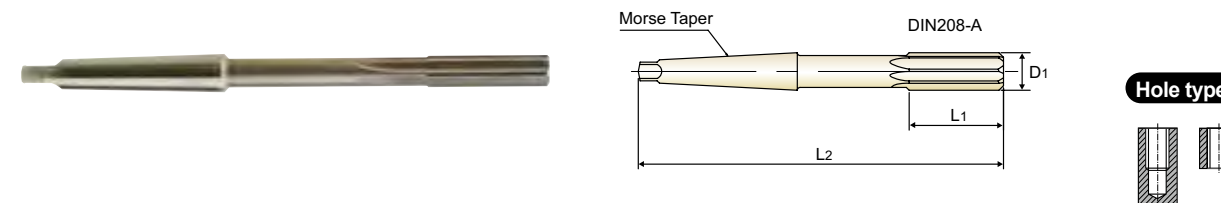
K2102 SERIES

**HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - STRAIGHT FLUTES**

- HSS-E, MASCHINENREIBAHLE mit MK - GERADEGENUTET
- ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - ENTRÉE DROITE
- ALESATORI IN HSS-E, ATTACCO CONICO - TAGLIENTI DRITTI

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Straight Flute / Right Hand Cut
- ▶ Chamfer Angle : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Ansnittwinkel : 45°



HSS-E DIN 208 H7 45° Bright p.A406

Plain Shank Page  
Recommended ToolHolder ER COLLET CHUCK D73 - 115

Unit : mm

EDP No.	Reamer Diameter	No. of Morse Taper	Cutting Length	Overall Length	No. of Flute
	D1		L1	L2	
K210201000	10.0	1	38	168	6
K210201100	11.0	1	41	175	6
K210201200	12.0	1	44	182	6
K210201300	13.0	1	44	182	6
K210201400	14.0	1	47	189	8
K210201500	15.0	2	50	204	8
K210201600	16.0	2	52	210	8
K210201700	17.0	2	54	214	8
K210201800	18.0	2	56	219	8
K210201900	19.0	2	58	223	8
K210202000	20.0	2	60	228	8
K210202100	21.0	2	62	232	8
K210202200	22.0	2	64	237	8
K210202300	23.0	2	66	241	8
K210202400	24.0	3	68	268	8
K210202500	25.0	3	68	268	8
K210202600	26.0	3	70	273	8
K210202700	27.0	3	71	277	10
K210202800	28.0	3	71	277	10
K210202900	29.0	3	73	281	10
K210203000	30.0	3	73	281	10
K210203100	31.0	3	75	285	10
K210203200	32.0	4	77	317	10
K210203400	34.0	4	78	321	10
K210203500	35.0	4	78	321	10
K210203600	36.0	4	79	325	10

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



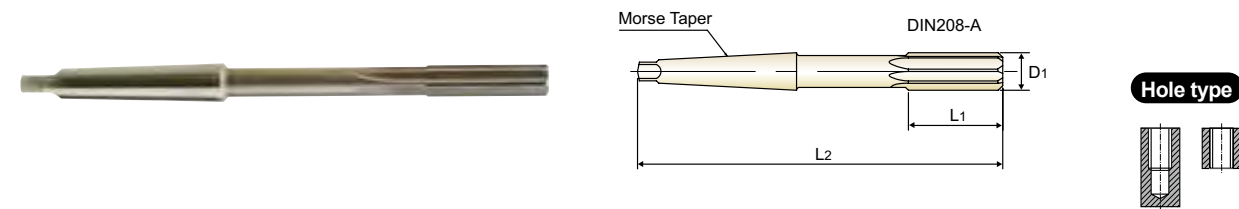
K2102 SERIES

**HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - STRAIGHT FLUTES**

- HSS-E, MASCHINENREIBAHLE mit MK - GERADEGENUTET
- ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - ENTRÉE DROITE
- ALESATORI IN HSS-E, ATTACCO CONICO - TAGLIENTI DRITTI

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Straight Flute / Right Hand Cut
- ▶ Chamfer Angle : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Anschnittwinkel : 45°



HSS-E DIN 208 H7 45° Bright p.A406

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter D1	No. of Morse Taper	Cutting Length		Overall Length L2	No. of Flute
			L1	L2		
K210203800	38.0	4	81	329	10	
K210204000	40.0	4	81	329	10	
K210204100	41.0	4	82	333	12	
K210204200	42.0	4	82	333	12	
K210204300	43.0	4	83	336	12	
K210204400	44.0	4	83	336	12	
K210204500	45.0	4	83	336	12	
K210204600	46.0	4	84	340	12	
K210204700	47.0	4	84	340	12	
K210204800	48.0	4	86	344	12	
K210205000	50.0	4	86	344	12	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○



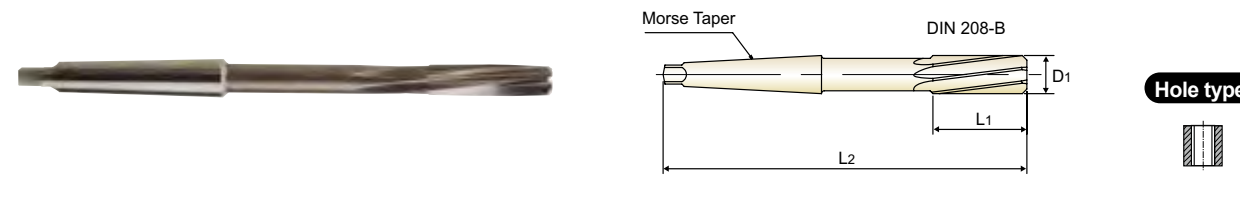
K2112 SERIES

**HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - LH SPIRAL FLUTES**

- HSS-E, MASCHINENREIBAHLE mit MK - SPIRALGENUTET mit LINKSDRALL
- ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - HÉLICE À GAUCHE
- ALESATORI IN HSS-E, ATTACCO CONICO - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneidend
- ▶ Anschnittwinkel : 45°



HSS-E DIN 208 H7 LH7° 45° Bright p.A406

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter D1	No. of Morse Taper	Cutting Length		Overall Length L2	No. of Flute
			L1	L2		
K211201000	10.0	1	38	168	6	
K211201100	11.0	1	41	175	6	
K211201200	12.0	1	44	182	6	
K211201300	13.0	1	44	182	6	
K211201400	14.0	1	47	189	8	
K211201500	15.0	2	50	204	8	
K211201600	16.0	2	52	210	8	
K211201700	17.0	2	54	214	8	
K211201800	18.0	2	56	219	8	
K211201900	19.0	2	58	223	8	
K211202000	20.0	2	60	228	8	
K211202100	21.0	2	62	232	8	
K211202200	22.0	2	64	237	8	
K211202300	23.0	2	66	241	8	
K211202400	24.0	3	68	268	8	
K211202500	25.0	3	68	268	8	
K211202600	26.0	3	70	273	8	
K211202700	27.0	3	71	277	10	
K211202800	28.0	3	71	277	10	
K211202900	29.0	3	73	281	10	
K211203000	30.0	3	73	281	10	
K211203100	31.0	3	75	285	10	
K211203200	32.0	4	77	317	10	
K211203400	34.0	4	78	321	10	
K211203500	35.0	4	78	321	10	
K211203600	36.0	4	79	325	10	

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○



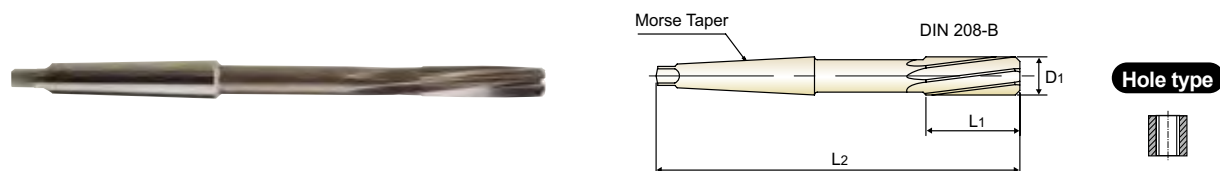
K2112 SERIES

**HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - LH SPIRAL FLUTES**

- HSS-E, MASCHINENREIBAHLE mit MK - SPIRALGENUTET mit LINKSDRALL
- ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - HÉLICE À GAUCHE
- ALESATORI IN HSS-E, ATTACCO CONICO - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneidend
- ▶ Anschnittwinkel : 45°



HSS-E DIN 208 H7 LH7° 45° Bright p.A406

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

Unit : mm

EDP No.	Reamer Diameter	No. of Morse Taper	Cutting Length	Overall Length	No. of Flute
	D1		L1	L2	
K211203800	38.0	4	81	329	10
K211204000	40.0	4	81	329	10
K211204100	41.0	4	82	333	12
K211204200	42.0	4	82	333	12
K211204300	43.0	4	83	336	12
K211204400	44.0	4	83	336	12
K211204500	45.0	4	83	336	12
K211204600	46.0	4	84	340	12
K211204700	47.0	4	84	340	12
K211204800	48.0	4	86	344	12
K211205000	50.0	4	86	344	12



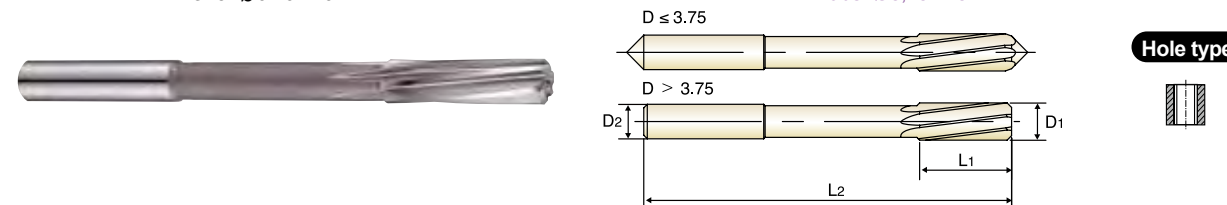
K21B1 SERIES

**HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø**

- HSS-E, NC-MASCHINENREIBAHLEN mit GERADZÄHLIGEN SCHAFT Ø
- ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
- ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- ▶ O.D. Tolerances  
Whole-number Ø and 1/10 size : DIN 1420 for H7  
1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm  
from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- ▶ Shank Diameter Tolerances : h6
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°

- ▶ Ø Toleranzen:  
ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7  
1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm  
von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- ▶ Schaft-Durchmesser Toleranzen : h6
- ▶ linksspiralig/ rechtsschneidend
- ▶ Anschnittwinkel - bis Ø3,75 : 15°  
- über Ø3,75 : 45°



HSS-E H7 LH7° 15° 45° Bright p.A406

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73-115

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter	Shank Diameter	Flute Length	Overall Length
	D1	D2	L1	L2
K21B100200	2.0	2	11	49
K21B100201	2.01	2	11	49
K21B100202	2.02	2	11	49
K21B100203	2.03	2	11	49
K21B100210	2.1	2	11	49
K21B100220	2.2	3	12	53
K21B100230	2.3	3	12	53
K21B100240	2.4	3	14	57
K21B100247	2.47	3	14	57
K21B100248	2.48	3	14	57
K21B100249	2.49	3	14	57
K21B100250	2.5	3	14	57
K21B100251	2.51	3	14	57
K21B100252	2.52	3	14	57
K21B100253	2.53	3	14	57
K21B100260	2.6	3	14	57
K21B100270	2.7	3	15	61
K21B100280	2.8	3	15	61
K21B100290	2.9	3	15	61
K21B100297	2.97	3	15	61
K21B100298	2.98	3	15	61
K21B100299	2.99	3	15	61
K21B100300	3.0	3	15	61
K21B100301	3.01	4	16	65

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◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	○	○	○	○	○	○	○	○													



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	○	○	○	○	○	○	○	○													





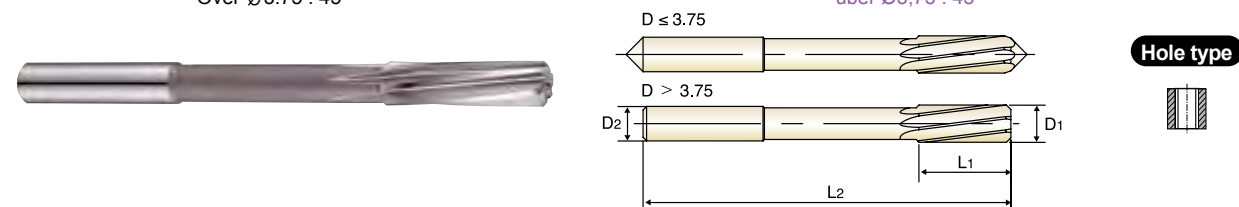
K21B1 SERIES

**HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø**

- HSS-E, NC-MASCHINENREIBAHLEN mit GERADZÄHLIGEN SCHAFT Ø
- ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
- ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- ▶ O.D. Tolerances  
Whole-number Ø and 1/10 size : DIN 1420 for H7  
1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm  
from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- ▶ Shank Diameter Tolerances : h6
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°

- ▶ Ø Toleranzen:  
ganzahlige Ø und 1/10 Größen : DIN 1420 für H7  
1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm  
von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- ▶ Schaft-Durchmesser Toleranzen : h6
- ▶ linksspiralig/ rechtsscheidend
- ▶ Anschnittwinkel - bis Ø3,75 : 15°  
- über Ø3,75 : 45°



HSS-E H7 LH7° 15° 45° Bright p.A406

Plain Shank Page ER COLLET CHUCK D73-115

up to Ø3.75 over Ø3.75

EDP No.	Reamer Diameter	Shank Diameter	Flute Length	Overall Length
	D1	D2	L1	L2
K21B100302	3.02	4	16	65
K21B100303	3.03	4	16	65
K21B100310	3.1	4	16	65
K21B100320	3.2	4	16	65
K21B100330	3.3	4	16	65
K21B100340	3.4	4	18	70
K21B100350	3.5	4	18	70
K21B100360	3.6	4	18	70
K21B100370	3.7	4	18	70
K21B100380	3.8	4	19	75
K21B100390	3.9	4	19	75
K21B100397	3.97	4	19	75
K21B100398	3.98	4	19	75
K21B100399	3.99	4	19	75
K21B100400	4.0	4	19	75
K21B100401	4.01	4	19	75
K21B100402	4.02	4	19	75
K21B100403	4.03	4	19	75
K21B100410	4.1	4	19	75
K21B100420	4.2	4	19	75
K21B100430	4.3	5	21	80
K21B100440	4.4	5	21	80
K21B100450	4.5	5	21	80
K21B100460	4.6	5	21	80

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◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	200	280	250	350	320	400Rm 1050Rm 550 630 400 550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



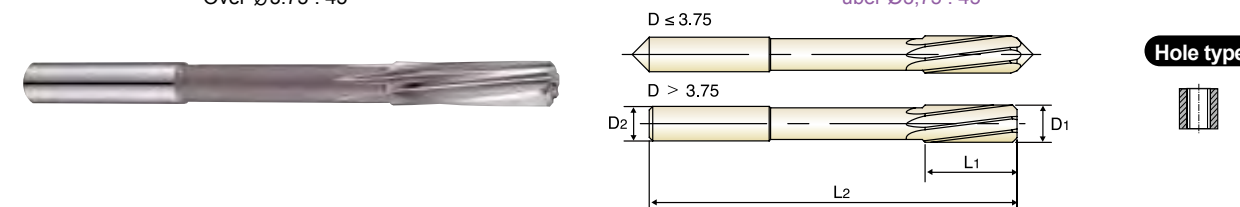
K21B1 SERIES

**HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø**

- HSS-E, NC-MASCHINENREIBAHLEN mit GERADZÄHLIGEN SCHAFT Ø
- ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
- ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- ▶ O.D. Tolerances  
Whole-number Ø and 1/10 size : DIN 1420 for H7  
1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm  
from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- ▶ Shank Diameter Tolerances : h6
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
- Over Ø3.75 : 45°

- ▶ Ø Toleranzen:  
ganzahlige Ø und 1/10 Größen : DIN 1420 für H7  
1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm  
von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- ▶ Schaft-Durchmesser Toleranzen : h6
- ▶ linksspiralig/ rechtsscheidend
- ▶ Anschnittwinkel - bis Ø3,75 : 15°  
- über Ø3,75 : 45°



HSS-E H7 LH7° 15° 45° Bright p.A406

Plain Shank Page ER COLLET CHUCK D73-115

up to Ø3.75 over Ø3.75

EDP No.	Reamer Diameter	Shank Diameter	Flute Length	Overall Length
	D1	D2	L1	L2
K21B100470	4.7	5	21	80
K21B100480	4.8	5	23	86
K21B100490	4.9	5	23	86
K21B100497	4.97	5	23	86
K21B100498	4.98	5	23	86
K21B100499	4.99	5	23	86
K21B100500	5.0	5	23	86
K21B100501	5.01	5	23	86
K21B100502	5.02	5	23	86
K21B100503	5.03	5	23	86
K21B100510	5.1	5	23	86
K21B100520	5.2	5	23	86
K21B100530	5.3	5	23	86
K21B100540	5.4	6	26	93
K21B100550	5.5	6	26	93
K21B100560	5.6	6	26	93
K21B100570	5.7	6	26	93
K21B100580	5.8	6	26	93
K21B100590	5.9	6	26	93
K21B100597	5.97	6	26	93
K21B100598	5.98	6	26	93
K21B100599	5.99	6	26	93
K21B100600	6.0	6	26	93
K21B100601	6.01	6	28	101

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	200	280	250	350	320	400Rm 1050Rm 550 630 400 550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

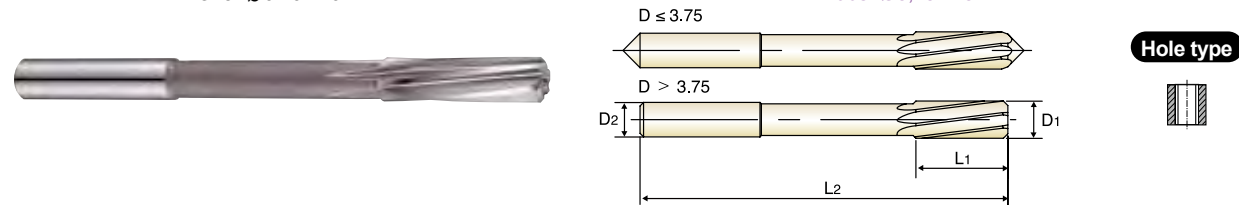
i-ONE DRILLS  
i-DREAM DRILLS  
DREAM DRILLS -PRO  
DREAM DRILLS -GENERAL  
DREAM DRILLS -HIGH FEED  
DREAM DRILLS -FLAT BOTTOM  
DREAM DRILLS -INOX  
DREAM DRILLS -ALU  
DREAM DRILLS -MQL  
DREAM DRILLS for HIGH HARDENED STEELS  
GENERAL CARBIDE DRILLS  
MULTI-1 DRILLS  
HPD DRILLS  
GOLD-P DRILLS  
SUPER-GP DRILLS  
STRAIGHT SHANK DRILLS  
TAPER SHANK DRILLS  
NC-SPOTTING DRILLS  
CENTER DRILLS  
SPADE DRILLS  
REAMERS  
COUNTER SINKS  
COUNTER BORES  
TECHNICAL DATA

**HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø**

● **HSS-E, NC-MASCHINENREIBAHLEN mit GERADZÄHLIGEN SCHAFT Ø**  
 ○ **ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE**  
 ○ **ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI**

- ▶ O.D. Tolerances  
 Whole-number Ø and 1/10 size : DIN 1420 for H7  
 1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm  
 from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- ▶ Shank Diameter Tolerances : h6
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
 - Over Ø3.75 : 45°

- ▶ Ø Toleranzen:  
 ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7  
 1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm  
 von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- ▶ Schaft-Durchmesser Toleranzen : h6
- ▶ linksspiralig/ rechtsscheidend
- ▶ Ansnittwinkel - bis Ø3,75 : 15°  
 - über Ø3,75 : 45°



HSS-E H7 LH7° 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73-115

Plain Shank Page

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter		Shank Diameter		Flute Length		Overall Length	
	D1	D2	D2	D1	L1	L2	L2	L2
K21B100602	6.02	6	6	6	28	101		
K21B100603	6.03	6	6	6	28	101		
K21B100610	6.1	6	6	6	28	101		
K21B100620	6.2	6	6	6	28	101		
K21B100630	6.3	6	6	6	28	101		
K21B100640	6.4	6	6	6	28	101		
K21B100650	6.5	6	6	6	28	101		
K21B100660	6.6	6	6	6	28	101		
K21B100670	6.7	6	6	6	28	101		
K21B100680	6.8	8	8	8	31	109		
K21B100690	6.9	8	8	8	31	109		
K21B100700	7.0	8	8	8	31	109		
K21B100710	7.1	8	8	8	31	109		
K21B100720	7.2	8	8	8	31	109		
K21B100730	7.3	8	8	8	31	109		
K21B100740	7.4	8	8	8	31	109		
K21B100750	7.5	8	8	8	31	109		
K21B100760	7.6	8	8	8	33	117		
K21B100770	7.7	8	8	8	33	117		
K21B100780	7.8	8	8	8	33	117		
K21B100790	7.9	8	8	8	33	117		
K21B100797	7.97	8	8	8	33	117		
K21B100798	7.98	8	8	8	33	117		
K21B100799	7.99	8	8	8	33	117		

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

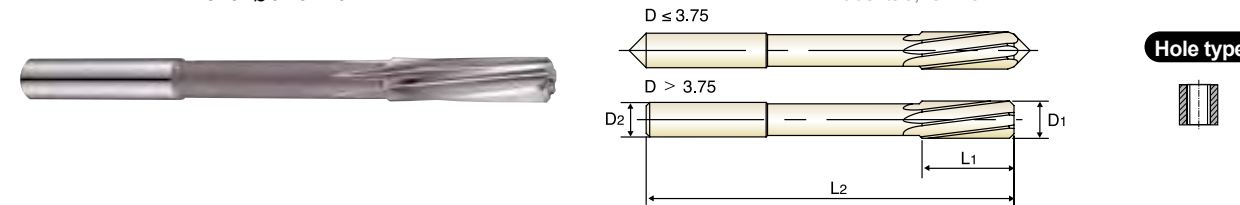


**HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø**

● **HSS-E, NC-MASCHINENREIBAHLEN mit GERADZÄHLIGEN SCHAFT Ø**  
 ○ **ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE**  
 ○ **ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI**

- ▶ O.D. Tolerances  
 Whole-number Ø and 1/10 size : DIN 1420 for H7  
 1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm  
 from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- ▶ Shank Diameter Tolerances : h6
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
 - Over Ø3.75 : 45°

- ▶ Ø Toleranzen:  
 ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7  
 1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm  
 von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- ▶ Schaft-Durchmesser Toleranzen : h6
- ▶ linksspiralig/ rechtsscheidend
- ▶ Ansnittwinkel - bis Ø3,75 : 15°  
 - über Ø3,75 : 45°



HSS-E H7 LH7° 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73-115

Plain Shank Page

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter		Shank Diameter		Flute Length		Overall Length	
	D1	D2	D2	D1	L1	L2	L2	L2
K21B100800	8.0	8	8	8	33	117		
K21B100801	8.01	8	8	8	33	117		
K21B100802	8.02	8	8	8	33	117		
K21B100803	8.03	8	8	8	33	117		
K21B100810	8.1	8	8	8	33	117		
K21B100820	8.2	8	8	8	33	117		
K21B100830	8.3	8	8	8	33	117		
K21B100840	8.4	8	8	8	33	117		
K21B100850	8.5	8	8	8	33	117		
K21B100860	8.6	10	10	10	36	125		
K21B100870	8.7	10	10	10	36	125		
K21B100880	8.8	10	10	10	36	125		
K21B100890	8.9	10	10	10	36	125		
K21B100900	9.0	10	10	10	36	125		
K21B100901	9.01	10	10	10	36	125		
K21B100902	9.02	10	10	10	36	125		
K21B100903	9.03	10	10	10	36	125		
K21B100910	9.1	10	10	10	36	125		
K21B100920	9.2	10	10	10	36	125		
K21B100930	9.3	10	10	10	36	125		
K21B100940	9.4	10	10	10	36	125		
K21B100950	9.5	10	10	10	36	125		
K21B100960	9.6	10	10	10	38	133		
K21B100970	9.7	10	10	10	38	133		

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◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø**

● **HSS-E, NC-MASCHINENREIBAHLEN mit GERADZÄHLIGEN SCHAFT Ø**  
 ○ **ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE**  
 ○ **ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI**

- ▶ O.D. Tolerances  
 Whole-number Ø and 1/10 size : DIN 1420 for H7  
 1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm  
 from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- ▶ Shank Diameter Tolerances : h6
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
 - Over Ø3.75 : 45°



HSS-E H7 LH7° 15° 45° Bright p.A406

Recommended ToolHolder ER COLLET CHUCK D73-115

Plain Shank Page

up to Ø3.75 over Ø3.75

Unit : mm

EDP No.	Reamer Diameter		Shank Diameter		Flute Length		Overall Length	
	D1	D2	D2	D1	L1	L2	L2	L2
K21B100800	8.0	8	8	8	33	117		
K21B100801	8.01	8	8	8	33	117		
K21B100802	8.02	8	8	8	33	117		
K21B100803	8.03	8	8	8	33	117		
K21B100810	8.1	8	8	8	33	117		
K21B100820	8.2	8	8	8	33	117		
K21B100830	8.3	8	8	8	33	117		
K21B100840	8.4	8	8	8	33	117		
K21B100850	8.5	8	8	8	33	117		
K21B100860	8.6	10	10	10	36	125		
K21B100870	8.7	10	10	10	36	125		
K21B100880	8.8	10	10	10	36	125		
K21B100890	8.9	10	10	10	36	125		
K21B100900	9.0	10	10	10	36	125		
K21B100901	9.01	10	10	10	36	125		
K21B100902	9.02	10	10	10	36	125		
K21B100903	9.03	10	10	10	36	125		
K21B100910	9.1	10	10	10	36	125		
K21B100920	9.2	10	10	10	36	125		
K21B100930	9.3	10	10	10	36	125		
K21B100940	9.4	10	10	10	36	125		
K21B100950	9.5	10	10	10	36	125		
K21B100960	9.6	10	10	10	38	133		
K21B100970	9.7	10	10	10	38	133		

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◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19</	



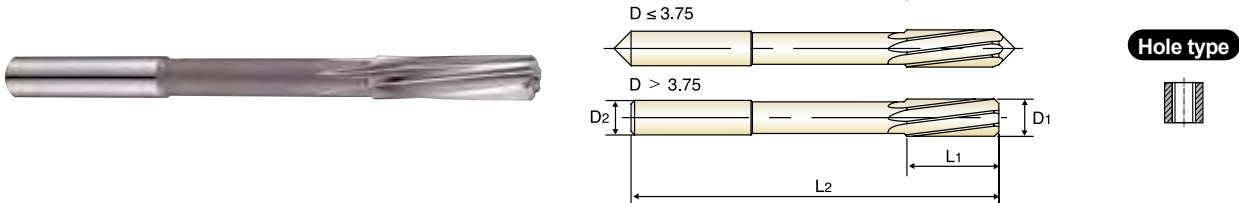
K21B1 SERIES

**HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø**

● **HSS-E, NC-MASCHINENREIBAHLEN mit GERADZÄHLIGEN SCHAFT Ø**  
● **ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE**  
● **ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI**

- ▶ O.D. Tolerances  
 Whole-number Ø and 1/10 size : DIN 1420 for H7  
 1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm  
 from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- ▶ Shank Diameter Tolerances : h6
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°  
 - Over Ø3.75 : 45°

- ▶ Ø Toleranzen:  
 ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7  
 1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm  
 von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- ▶ Schaft-Durchmesser Toleranzen : h6
- ▶ linksspiralig/ rechtsscheidend
- ▶ Anschnittwinkel - bis Ø3,75 : 15°  
 - über Ø3,75 : 45°



HSS-E
H7
LH7°
15°
45°
Bright
p.A406

Plain Shank
ER COLLET CHUCK
D73-115

up to Ø3.75 over Ø3.75

EDP No.	Reamer Diameter	Shank Diameter	Flute Length	Overall Length
	D1	D2	L1	L2
K21B100980	9.8	10	38	133
K21B100990	9.9	10	38	133
K21B100997	9.97	10	38	133
K21B100998	9.98	10	38	133
K21B100999	9.99	10	38	133
K21B101000	10.0	10	38	133
K21B101001	10.01	10	38	133
K21B101002	10.02	10	38	133
K21B101003	10.03	10	38	133
K21B101100	11.0	10	41	142
K21B101197	11.97	10	41	151
K21B101198	11.98	10	41	151
K21B101199	11.99	10	41	151
K21B101200	12.0	10	44	151
K21B101201	12.01	10	44	151
K21B101202	12.02	10	44	151
K21B101203	12.03	10	44	151
K21B101300	13.0	10	44	151
K21B101400	14.0	14	47	160
K21B101500	15.0	14	50	162
K21B101600	16.0	14	52	170
K21B101700	17.0	14	54	175
K21B101800	18.0	14	56	182
K21B101900	19.0	16	58	189
K21B102000	20.0	16	60	195

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	10	26	3	25	130	230
Recommended	◎	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N								S							H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○



RECOMMENDED CUTTING CONDITIONS  
 EMPFOHLENE SCHNEIDPARAMETER

**K4101, K4111 SERIES CARBIDE, NC MACHINE REAMERS**

Vc = m/min  
 FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed									
				2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	
P	1	Non-alloy steel	18	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	2		17	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	3		15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	4		15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	5	15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40		
	6	Low alloy steel	17	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	
	7		14	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	
	8		14	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	
	10		High alloyed steel, and tool steel	13	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	M	12	Stainless steel	8	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
13		7		0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	
14		6		0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	
15		20		0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
K	16	Grey cast iron	15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	17	Nodular cast iron	18	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	18		13	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	19	Malleable cast iron	18	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
	20		13	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.2-0.240	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40	
N	21	Aluminum-wrought alloy	30	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50	
	22		30	0.1-0.130	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50	
	23	Aluminum-cast, alloyed	30	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50	
	24		25	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50	
	26	Copper and Copper Alloys (Bronze / Brass)	25	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50	
	27		22	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50	
	28		23	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50	



**K2101, K2111, K21B1, K2102, K2112** SERIES

**HSS-E, STRAIGHT & LH SPIRAL FLUTE CHUCKING REAMERS**  
**HSS-E, NC MACHINE REAMERS**

RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed															
				2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0	45.0	50.0
<b>P</b>	1	Non-alloy steel	14	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
			14	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
			10	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
			8	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	6	Low alloy steel	12	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
			8	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
			6	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
<b>M</b>	13	Stainless steel	5	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
			4	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
			14	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
<b>K</b>	15	Grey cast iron	14	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
			11	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	17	Nodular cast iron	12	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
			10	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
			12	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
19	Malleable cast iron	10	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40	
		10	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40	
<b>N</b>	21	Aluminum-wrought alloy	18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
			18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	23	Aluminum-cast, alloyed	18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
			17	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	26	Copper and Copper Alloys (Bronze / Brass)	18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
			16	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
28	20	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60		

**K2121** SERIES

**HSS-E, CHUCKING REAMERS - QUICK SPIRAL**

ISO	VDI 3323	Material Description	Vc	Feed							
				2.0	4.0	8.0	10.0	12.0	14.0	16.0	20.0
<b>P</b>	1	Non-alloy steel	18	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32	0.32-0.36	0.36-0.40
			16	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	6	Low alloy steel	14	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
<b>N</b>	21	Aluminum-wrought alloy	20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
			20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	23	Aluminum-cast, alloyed	20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
			18	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	26	Copper and Copper Alloys (Bronze / Brass)	19	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
			18	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
28	20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60		



HSS & HSSCo8

# COUNTERSINKS

## SENKER

- For Deburring, Chamfering and Countersinking
- Zum Entgraten, Anfasen und Senken

SELECTION GUIDE



SERIES	C1109 C3109	C1119 C3119
STANDARD	-	-
POINT ANGLE	90°	90°
SIZE MIN	D10.0	D10.0
SIZE MAX	D50.0	D50.0
PAGE	A410	A411

SERIES	C1136 C3136	C1139 C3139	C1132 C3132
STANDARD	DIN334C	DIN335C	-
POINT ANGLE	60°	90°	120°
SIZE MIN	D6.3	D4.3	D8.0
SIZE MAX	D25.0	D31.0	D25.0
PAGE	A412	A413	A414

SURFACE TREATMENT Bright

SURFACE TREATMENT Bright

# HSS & HSSCo8 COUNTERSINKS

For Deburring, Chamfering and Countersinking



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A415

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	C1109 C3109	C1119 C3119
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○
	2		About 0.45% C Annealed	190	13	○	○
	3		About 0.45% C Quenched & Tempered	250	25	○	○
	4		About 0.75% C Annealed	270	28	○	○
	5		About 0.75% C Quenched & Tempered	300	32	○	○
	6	Low alloy steel	Annealed	180	10		
	7		Quenched & Tempered	275	29		
	8		Quenched & Tempered	300	32		
	9		Quenched & Tempered	350	38		
	10		High alloyed steel, and tool steel	Annealed	200	15	
	11		Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○
	13		Martensitic Quenched & Tempered	240	23	○	○
	14		Austenitic	180	10	○	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○
	16		Pearlitic (Martensitic)	260	26	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○
	18		Pearlitic	250	25	○	○
	19	Malleable cast iron	Ferritic	130		○	○
	20		Pearlitic	230	21	○	○
N	21	Aluminum-wrought alloy	Not Curable	60		○	○
	22		Curable Hardened	100		○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○
	24		≤ 12% Si, Curable Hardened	90		○	○
	25		> 12% Si, Not Curable	130		○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○
	27		CuZn, CuSnZn (Brass)	90		○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				
	30		Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		
	32		Cured	280	30		
	33		Annealed	250	25		
	34		Ni or Co Based Cured	350	38		
	35		Cast	320	34		
	36	Titanium Alloys	Pure Titanium	400 Rm			
	37		Alpha + Beta Alloys Hardened	1050 Rm			
H	38	Hardened steel	Hardened	550	55		
	39		Hardened	630	60		
	40		Chilled Cast Iron	Cast	400	42	
	41	Hardened Cast Iron	Hardened	550	55		

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	C1136 C3136	C1139 C3139	C1132 C3132
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	○	○
	4		About 0.75% C Annealed	270	28	○	○	○
	5		About 0.75% C Quenched & Tempered	300	32	○	○	○
	6	Low alloy steel	Annealed	180	10			
	7		Quenched & Tempered	275	29			
	8		Quenched & Tempered	300	32			
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15		
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○
	13		Martensitic Quenched & Tempered	240	23	○	○	○
	14		Austenitic	180	10	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎
	16		Pearlitic (Martensitic)	260	26	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○
	18		Pearlitic	250	25	○	○	○
	19	Malleable cast iron	Ferritic	130		○	○	○
	20		Pearlitic	230	21	○	○	○
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎	◎
	22		Curable Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○
	24		≤ 12% Si, Curable Hardened	90		○	○	○
	25		> 12% Si, Not Curable	130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Ni or Co Based Cured	350	38			
	35		Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys Hardened	1050 Rm				
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40		Chilled Cast Iron	Cast	400	42		
	41	Hardened Cast Iron	Hardened	550	55			





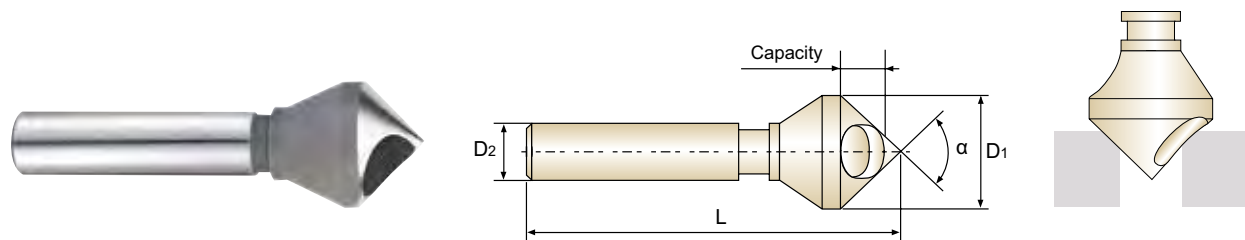
C1109 SERIES

C3109 SERIES

**HSS & HSSCo8, DEBURRING TOOL with HOLE**

- HSS, QUERLOCHSENKER
- FRAISE HSS À ÉBAVURER À TROU
- SVASATORI CON FORO - HSS

- ▶ For light metals and plastics.
- ▶ For deburring and small chamfers.
- ▶ Best surface finish.
- ▶ Works without vibrations.
- ▶ Für Leichtmetall und Plastik
- ▶ Zum Entgraten und Abfasen
- ▶ Bestes Oberflächenfinish
- ▶ Arbeitet ohne Vibration



YG STD Bright p.A415

Plain Shank Page ER COLLET CHUCK D73-115

Unit : mm

EDP No. (uncoating)		Point Angle	Cutter Diameter	Shank Diameter	Overall Length	Capacity
HSSCo8	HSS	α	D1	D2	L(±1)	min/max
C1109100	C3109100	90°	10.0	6	45	2 - 5
C1109150	C3109150	90°	15.0	8	55	6 - 14
C1109200	C3109200	90°	20.0	10	65	8 - 18
C1109250	C3109250	90°	25.0	12	78	10 - 23
C1109300	C3109300	90°	30.0	12	88	12 - 28
C1109350	C3109350	90°	35.0	16	110	14 - 33
C1109400	C3109400	90°	40.0	16	115	16 - 38
C1109450	C3109450	90°	45.0	16	120	18 - 43
C1109500	C3109500	90°	50.0	16	130	20 - 48

▶ TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
+0.3/-0	h9	+0/-1

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

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YG-1 CO., LTD.



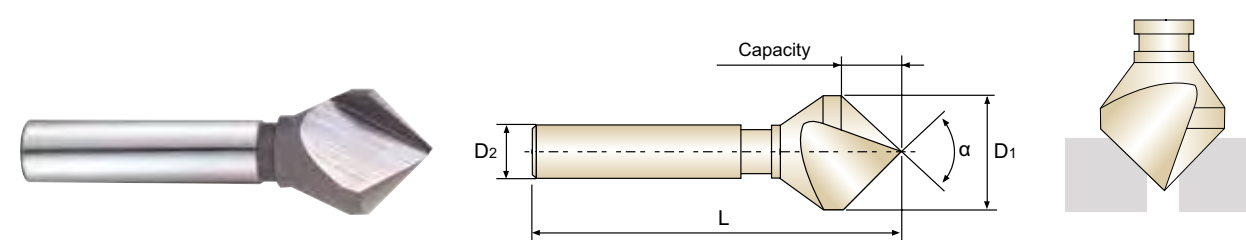
C1119 SERIES

C3119 SERIES

**HSS & HSSCo8, SINGLE FLUTE CHAMFERING CUTTERS**

- HSS, EINSCHNEIDEN KEGELSENKER
- FRAISE HSS À CHANFREINER 1 DENT
- SVASATORI MONOTAGLIENTE - HSS

- ▶ For wood and hard plastics.
- ▶ Can drill in sheet materials.
- ▶ Easy to resharpen.
- ▶ Works without vibrations.
- ▶ Für Holz und Hartplastik
- ▶ Kann in Bleche bohren
- ▶ Leicht nachzuschärfen
- ▶ Arbeitet ohne Vibration



YG STD Bright p.A415

Plain Shank Page ER COLLET CHUCK D73-115

Unit : mm

EDP No. (uncoating)		Point Angle	Cutter Diameter	Shank Diameter	Overall Length	Capacity
HSSCo8	HSS	α	D1	D2	L(±1)	min/max
C1119100	C3119100	90°	10.0	6	45	1 - 10
C1119150	C3119150	90°	15.0	8	55	2 - 15
C1119200	C3119200	90°	20.0	10	65	2 - 20
C1119250	C3119250	90°	25.0	12	78	3 - 25
C1119300	C3119300	90°	30.0	12	88	3 - 30
C1119350	C3119350	90°	35.0	16	110	4 - 35
C1119400	C3119400	90°	40.0	16	115	5 - 40
C1119450	C3119450	90°	45.0	16	120	10 - 45
C1119500	C3119500	90°	50.0	16	130	12 - 50

▶ TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
+0.3/-0	h9	+0/-1

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

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A411

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TECHNICAL DATA





C1136 SERIES

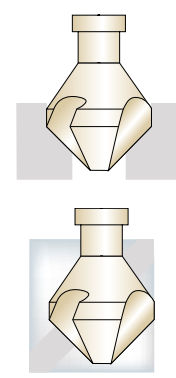
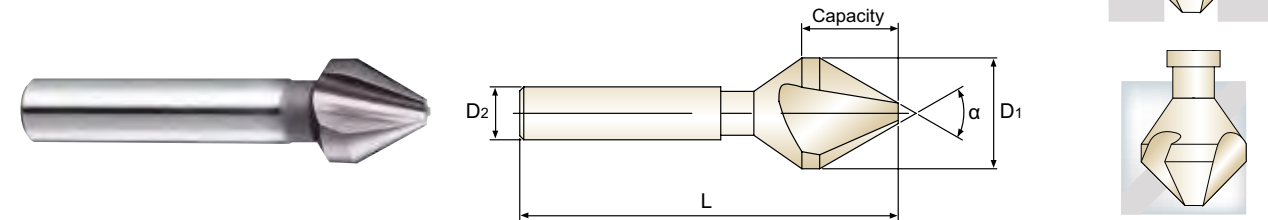
C3136 SERIES

**HSS & HSSCo8, THREE FLUTE COUNTERSINKS (60°)**

- HSS, DREISCHNEIDEN KEGELSENKER (60°)
- FRAISE HSS À CHANFREINER 3 DENTS (60°)
- SVASATORI A TRE TAGLIENTI - HSS (60°)

- ▶ Self-centering(3 flutes)
- ▶ For deburring, chamfering and countersinking
- ▶ Hand using
- ▶ Longitudinal chamfers and contouring
- ▶ Works without vibrations

- ▶ Selbstzentrierend
- ▶ Besonders geeignet zum 90° Ansenken für Senkkopfschrauben
- ▶ Manueller Einsatz möglich
- ▶ Zum Entgraten von Längs- und Profilkanten
- ▶ Arbeitet ohne Vibration



DIN 334 C Bright p.A416

Plain Shank Page ER COLLET CHUCK D73-115

Unit : mm

EDP No. (uncoating)		Point Angle	Cutter Diameter	Shank Diameter	Overall Length	Capacity
HSSCo8	HSS	α	D1	D2	L(±1)	min/max
C1136063	C3136063	60°	6.3	5	45	1.6~6.3
C1136080	C3136080	60°	8.0	6	50	2.0~8.0
C1136100	C3136100	60°	10.0	6	50	2.5~10.0
C1136125	C3136125	60°	12.5	8	56	3.2~12.5
C1136160	C3136160	60°	16.0	10	63	4.0~16.0
C1136200	C3136200	60°	20.0	10	67	5.0~20.0
C1136250	C3136250	60°	25.0	10	71	6.3~25.0

▶ TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
±0.05	h9	+0/-1

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



C1139 SERIES

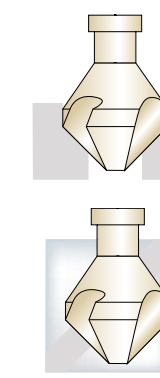
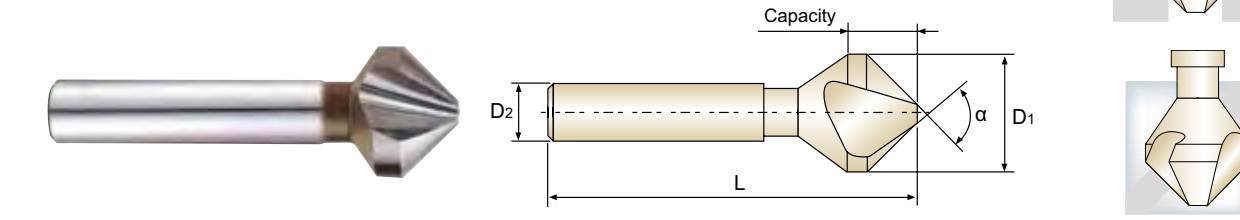
C3139 SERIES

**HSS & HSSCo8, THREE FLUTE COUNTERSINKS (90°)**

- HSS, DREISCHNEIDEN KEGELSENKER (90°)
- FRAISE HSS À CHANFREINER 3 DENTS (90°)
- SVASATORI A TRE TAGLIENTI - HSS (90°)

- ▶ Self-centering(3 flutes).
- ▶ Designed for 90°capscrews countersinking.
- ▶ Hand using.
- ▶ Longitudinal chamfers and contouring.
- ▶ Works without vibrations

- ▶ Selbstzentrierend
- ▶ Besonders geeignet zum 90° Ansenken für Senkkopfschrauben
- ▶ Manueller Einsatz möglich
- ▶ Zum Entgraten von Längs- und Profilkanten
- ▶ Arbeitet ohne Vibration



DIN 334 C Bright p.A416

Plain Shank Page ER COLLET CHUCK D73-115

Unit : mm

EDP No. (uncoating)		Point Angle	Cutter Diameter	Shank Diameter	Overall Length	Capacity
HSSCo8	HSS	α	D1	D2	L(±1)	min/max
C1139043	C3139043	90°	4.3	4	40	1.3 - 4.3
C1139050	C3139050	90°	5.0	4	40	1.5 - 5.0
C1139060	C3139060	90°	6.0	5	45	1.5 - 6.0
C1139063	C3139063	90°	6.3	5	45	1.5 - 6.3
C1139070	C3139070	90°	7.0	6	50	1.8 - 7.0
C1139080	C3139080	90°	8.0	6	50	2.0 - 8.0
C1139083	C3139083	90°	8.3	6	50	2.0 - 8.3
C1139100	C3139100	90°	10.0	6	50	2.5 - 10.0
C1139104	C3139104	90°	10.4	6	50	2.5 - 10.4
C1139115	C3139115	90°	11.5	8	56	2.8 - 11.5
C1139124	C3139124	90°	12.4	8	56	2.8 - 12.4
C1139150	C3139150	90°	15.0	10	60	3.2 - 15.0
C1139165	C3139165	90°	16.5	10	60	3.2 - 16.5
C1139190	C3139190	90°	19.0	10	63	3.5 - 19.0
C1139205	C3139205	90°	20.5	10	63	3.5 - 20.5
C1139230	C3139230	90°	23.0	10	67	3.8 - 23.0
C1139250	C3139250	90°	25.0	10	67	3.8 - 25.0
C1139300	C3139300	90°	30.0	12	71	4.2 - 30.0
C1139310	C3139310	90°	31.0	12	71	4.2 - 31.0

▶ TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
±0.05	h9	+0/-1

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



C1132 SERIES

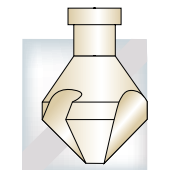
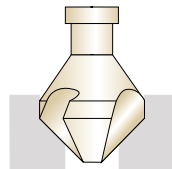
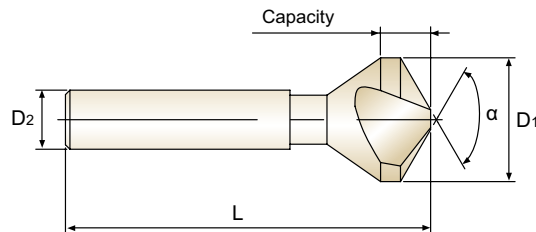
C3132 SERIES

**HSS & HSSCo8, THREE FLUTE COUNTERSINKS (120°)**

- HSS, DREISCHNEIDEN KEGELSENKER (120°)
- FRAISE HSS À CHANFREINER 3 DENTS (120°)
- SVASATORI A TRE TAGLIENTI - HSS (120°)

- ▶ Self-centering(3 flutes)
- ▶ For deburring, chamfering and countersinking
- ▶ Hand using
- ▶ Longitudinal chamfers and contouring
- ▶ Works without vibrations

- ▶ Selbstzentrierend
- ▶ Zum Entgraten, Abfasen und Senkkopfschrauben
- ▶ Manueller Einsatz möglich
- ▶ Zum Entgraten von Längs- und Profilkanten
- ▶ Arbeitet ohne Vibration



Unit : mm

EDP No. (uncoating)		Point Angle	Cutter Diameter	Shank Diameter	Overall Length	Capacity
HSSCo8	HSS	α	D1	D2	L(±1)	min/max
C1132080	C3132080	120°	8.0	6	49	2.0~8.0
C1132125	C3132125	120°	12.5	8	54	2.8~12.5
C1132160	C3132160	120°	16.0	10	57	3.2~16.0
C1132200	C3132200	120°	20.0	10	59	3.5~20.0
C1132250	C3132250	120°	25.0	10	65	3.8~25.0

▶ TIN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
±0.05	h9	+0/-1

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO	N								S					H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	○	○	○	○	○	○	○													



RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDPARAMETER

**C1109, C3109, C1119, C3119 SERIES DEBURRING TOOL with HOLE 1 FLUTE CHAMFERING CUTTERS**

RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed							
				10.0	15.0	20.0	25.0	30.0	40.0	50.0	
P	1	Non-alloy steel	40	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	
	2		40	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	
	3		25	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	
	4		18	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	
	5		18	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	
M	12	Stainless steel	8	0.05-0.07	0.07-0.09	0.07-0.09	0.09-0.11	0.09-0.11	0.11-0.14	0.11-0.14	
	13		7	0.05-0.07	0.07-0.09	0.07-0.09	0.09-0.11	0.09-0.11	0.11-0.14	0.11-0.14	
	14		6	0.05-0.07	0.07-0.09	0.07-0.09	0.09-0.11	0.09-0.11	0.11-0.14	0.11-0.14	
K	15	Grey cast iron	28	0.13-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.34	
	16		24	0.12-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	
	17	Nodular cast iron	24	0.13-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.34	
	18		20	0.12-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	
	19		Malleable cast iron	24	0.13-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.34
	20			20	0.12-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33
N	21	Aluminum-wrought alloy	56	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36	
	22		56	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36	
	23	Aluminum-cast, alloyed	54	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36	
	24		52	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36	
	25		50	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36	
	26		Copper and Copper Alloys (Bronze / Brass)	38	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37
	27	35		0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	
	28	25		0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36	

C1136, C3136, C1139,  
C3139, C1132, C3132 SERIES

**3 FLUTE COUNTERSINKS**

RPM = rev./min.  
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed							
				5.0	10.0	15.0	20.0	25.0	30.0	40.0	50.0
<b>P</b>	1	Non-alloy steel	20	0.12-0.16	0.16-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	0.33-0.37	0.37-0.41
	2		20	0.12-0.16	0.16-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	0.33-0.37	0.37-0.41
	3		13	0.10-0.14	0.14-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.39
	4		10	0.06-0.10	0.10-0.14	0.14-0.17	0.17-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35
	5		10	0.06-0.10	0.10-0.14	0.14-0.17	0.17-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35
<b>M</b>	12	Stainless steel	6	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15
	13		5	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15
	14		4	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15
<b>K</b>	15	Grey cast iron	22	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32
	16		17	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31
	17	Nodular cast iron	17	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32
	18		15	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31
	19		Malleable cast iron	17	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28
20	15	0.08-0.10		0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	
<b>N</b>	21	Aluminum-wrought alloy	42	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	22		42	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	23	Aluminum-cast, alloyed	39	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	24		37	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42
	25		35	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	26		Copper and Copper Alloys (Bronze / Brass)	28	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37
	27	25		0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42
	28	15		0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42



HSS-E

# COUNTERBORES

## FLACHSENKER

- For Machining Screw Head Seats
- Zur Herstellung von Schraubenkopfsenkungen



SELECTION GUIDE



SERIES	EL950		
TYPE	MEDIUM	FINE	BEOFRE THREADING
PILOT DIA.	3.4~14.0	3.2~13.0	2.5~10.2
CUTTER DIA.	6.0~20.0		
PAGE	A419		
SURFACE TREATMENT	Bright		

# HSS-E COUNTERBORES

For Machining Screw Head Seats



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A421

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎
	2		About 0.45% C Annealed	190	13	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎
	4		About 0.75% C Annealed	270	28	◎
	5		About 0.75% C Quenched & Tempered	300	32	◎
	6	Low alloy steel	Annealed	180	10	◎
	7		Quenched & Tempered	275	29	◎
	8		Quenched & Tempered	300	32	◎
	9		Quenched & Tempered	350	38	○
	10		High alloyed steel, and tool steel	Annealed	200	15
	11	Quenched & Tempered	325	35	○	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	
	13		Martensitic Quenched & Tempered	240	23	
	14		Austenitic	180	10	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	
	16		Pearlitic (Martensitic)	260	26	
	17	Nodular cast iron	Ferritic	160	3	
	18		Pearlitic	250	25	
	19		Ferritic	130		
20	Malleable cast iron	Pearlitic	230	21		
N	21	Aluminum-wrought alloy	Not Curable	60		○
	22		Curable Hardened	100		○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○
	24		≤ 12% Si, Curable Hardened	90		○
	25		> 12% Si, Not Curable	130		
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		
	27		CuZn, CuSnZn (Brass)	90		
	28		CuSn, lead-free copper and electrolytic copper	100		
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.		
30						
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	
	32		Cured	280	30	
	33		Annealed	250	25	
	34		Ni or Co Based Cured	350	38	
	35		Cast	320	34	
36	Titanium Alloys	Pure Titanium	400 Rm			
37		Alpha + Beta Alloys Hardened	1050 Rm			
H	38	Hardened steel	Hardened	550	55	
	39		Hardened	630	60	
	40		Cast	400	42	
41	Hardened Cast Iron	Hardened	550	55		



## YG COUNTERBORES

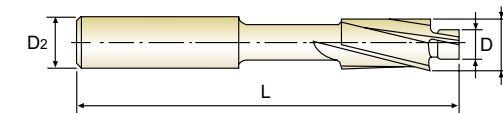
EL950 SERIES

### HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

- HSS-E, 3 SCHNEIDEN FLACHSENKER MIT FESTEM FÜHRUNGSPAPFEN
- FRAISES À LAMER HSS-E 3 DENTS TÊTE DE VIS À 180°
- LAMATORI A TRE TAGLIANTI IN HSS-E per sedi di viti a testa cilindrica a 180°

The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.

Die Flachsenker mit festem Führungspapfen dienen dem 180° Ansenken für Zylinderkopfschrauben und Auswerferstiften in Formen



HSS-E DIN 373 3 PLAIN Bright p.A421

Plain Shank Page ER COLLET CHUCK D73-115

#### MEDIUM

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
EL950003	YG54M3-M	M3	3.4	6.0	5	71
EL950035	YG54M3.5-M	M3.5	3.9	6.5	5	71
EL950004	YG54M4-M	M4	4.5	8.0	5	71
EL950005	YG54M5-M	M5	5.5	10.0	8	80
EL950006	YG54M6-M	M6	6.6	11.0	8	80
EL950008	YG54M8-M	M8	9.0	15.0	12.5	100
EL950010	YG54M10-M	M10	11.0	18.0	12.5	100
EL950012	YG54M12-M	M12	14.0	20.0	12.5	100

#### FINE

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
EL950901	YG54M3-F	M3	3.2	6.0	5	71
EL950902	YG54M3.5-F	M3.5	3.7	6.5	5	71
EL950903	YG54M4-F	M4	4.3	8.0	5	71
EL950904	YG54M5-F	M5	5.3	10.0	8	80
EL950905	YG54M6-F	M6	6.4	11.0	8	80
EL950906	YG54M8-F	M8	8.4	15.0	12.5	100
EL950907	YG54M10-F	M10	10.5	18.0	12.5	100
EL950908	YG54M12-F	M12	13.0	20.0	12.5	100

▶NEXT PAGE

ISO	P											M				K					
	Non-alloy steel					Low alloy steel			High alloyed steel, and tool steel			Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○										
ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○																

◎ : Excellent ○ : Good

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

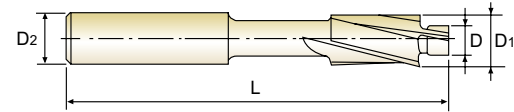
TECHNICAL DATA

**HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW**

- HSS-E, 3 SCHNEIDEN FLACHSENKER MIT FESTEM FÜHRUNGSPAPFEN
- FRAISES À LAMER HSS-E 3 DENTS TÊTE DE VIS À 180°
- LAMATORI A TRE TAGLIANTI IN HSS-E per sedi di viti a testa cilindrica a 180°

▶ The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.

▶ Die Flachsenker mit festem Führungspapfen dienen dem 180° Ansenken für Zylinderkopfschrauben und Auswerferstiften in Formen



HSS-E DIN 373 3 PLAIN Bright p.A421

Plain Shank Page Recommended ToolHolder ER COLLET CHUCK D73 - 115

**BEFORE THREADING**

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
EL950909	YG54M3-T	M3	2.5	6.0	5	71
EL950910	YG54M3.5-T	M3.5	2.9	6.5	5	71
EL950911	YG54M4-T	M4	3.3	8.0	5	71
EL950912	YG54M5-T	M5	4.2	10.0	8	80
EL950913	YG54M6-T	M6	5.0	11.0	8	80
EL950914	YG54M8-T	M8	6.8	15.0	12.5	100
EL950915	YG54M10-T	M10	8.5	18.0	12.5	100
EL950916	YG54M12-T	M12	10.2	20.0	12.5	100

**Tolerances according to DIN 7160 & 7161**  
Toleranzen nach DIN 7160 & 7161

	Nominal-Diameter in mm / Nennmaßbereich in mm				Nominal-Diameter in mm / Nennmaßbereich in mm			
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	from 6 to 10 von 6 bis 10	over 10 to 14 über 10 bis 14	over 14 to 18 über 14 bis 18	over 18 to 24 über 18 bis 24
<b>e8</b>	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	+ 78 + 42	+ 93 + 50	+ 103 + 60	+ 125 + 73
<b>h9</b>	0 - 25	0 - 30	0 - 36	0 - 43				

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**EL950 SERIES HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW**

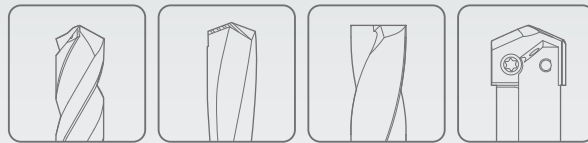
Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Cutter Diameter (Ø)									
				6.0	6.5	8.0	10.0	11.0	15.0	18.0	20.0		
P	1	Non-alloy steel	Vc	25	25	25	25	25	25	25	25	25	25
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13
			RPM	1326	1224	995	796	723	531	442	398	398	398
	2		FEED	322	297	242	258	234	172	167	150	150	150
			Vc	24	24	24	24	24	24	24	24	24	24
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13
	3		RPM	1273	1175	955	764	694	509	424	382	382	382
			FEED	309	286	232	248	225	165	160	144	144	144
			Vc	18	18	18	18	18	18	18	18	18	18
	4		fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13
			RPM	955	881	716	573	521	382	318	286	286	286
FEED		232	214	174	186	169	124	120	108	108	108		
5	Vc	18	18	18	18	18	18	18	18	18	18		
	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
	RPM	955	881	716	573	521	382	318	286	286	286		
6	FEED	232	214	174	186	169	124	120	108	108	108		
	Vc	24	24	24	24	24	24	24	24	24	24		
	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
7	RPM	1273	1175	955	764	694	509	424	382	382	382		
	FEED	309	286	232	248	225	165	160	144	144	144		
	Vc	18	18	18	18	18	18	18	18	18	18		
8	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
	RPM	955	881	716	573	521	382	318	286	286	286		
	FEED	232	214	174	186	169	124	120	108	108	108		
9	Vc	15	15	15	15	15	15	15	15	15	15		
	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
	RPM	796	735	597	477	434	318	265	239	239	239		
10	FEED	193	178	145	155	141	103	100	90	90	90		
	Vc	24	24	24	24	24	24	24	24	24	24		
	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
11	RPM	1273	1175	955	764	694	509	424	382	382	382		
	FEED	309	286	232	248	225	165	160	144	144	144		
	Vc	18	18	18	18	18	18	18	18	18	18		
21	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
	RPM	1592	1469	1194	955	868	637	531	477	477	477		
	FEED	382	353	286	315	286	210	207	186	186	186		
22	Vc	30	30	30	30	30	30	30	30	30	30		
	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
	RPM	1592	1469	1194	955	868	637	531	477	477	477		
23	FEED	382	353	286	315	286	210	207	186	186	186		
	Vc	20	20	20	20	20	20	20	20	20	20		
	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
24	RPM	1061	979	796	637	579	424	354	318	318	318		
	FEED	255	235	191	210	191	140	138	124	124	124		
	Vc	20	20	20	20	20	20	20	20	20	20		
24	fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.13		
	RPM	1061	979	796	637	579	424	354	318	318	318		
	FEED	255	235	191	210	191	140	138	124	124	124		





Global Cutting Tool Leader **YG-1**



# HOLEMAKING





Leading Through Innovation



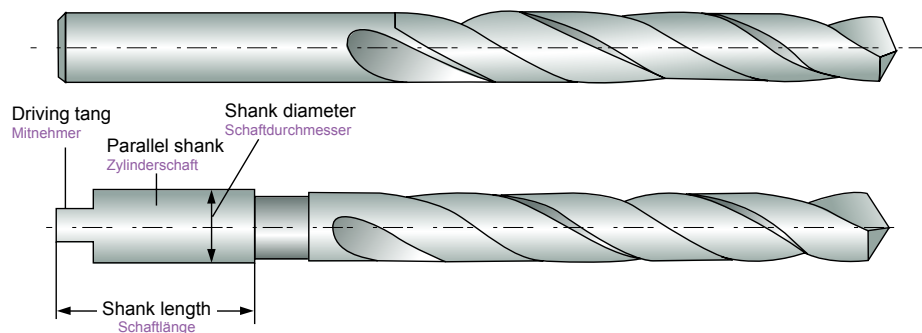
DRILLS

# TECHNICAL DATA

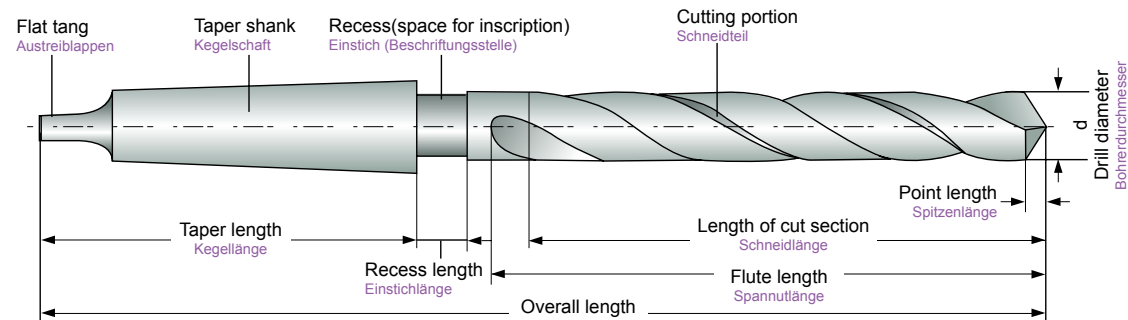
TECHNISCHE DATEN



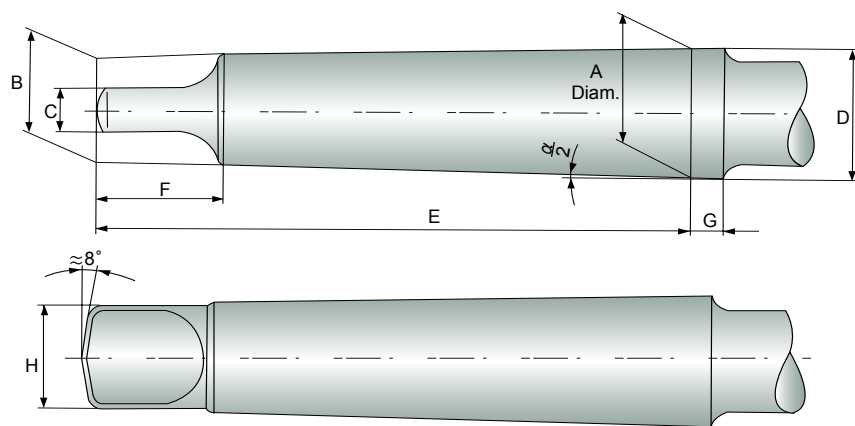
### 1 TWIST DRILL WITH PARALLEL SHANK SPIRALBOHRER MIT ZYLINDERSCHAFT



### 2 TWIST DRILL WITH TAPER SHANK SPIRALBOHRER MIT KEGELSCHAFT

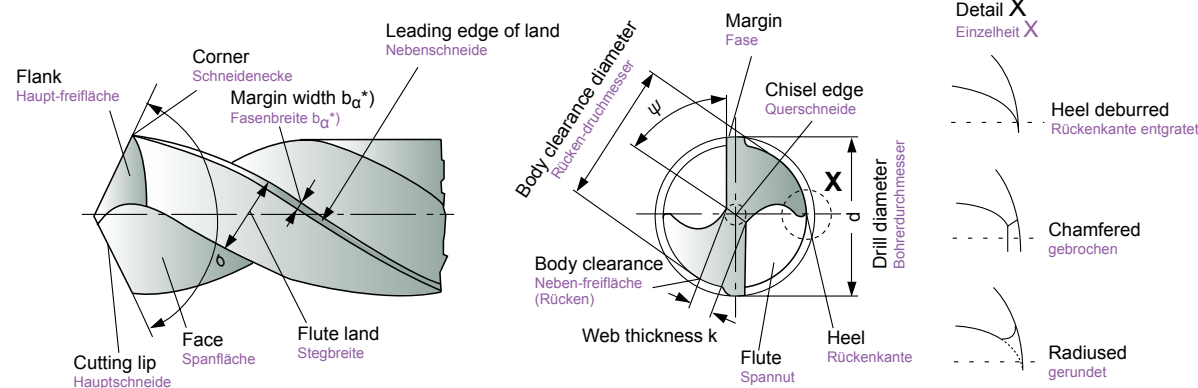


### 3 GENERAL DIMENSIONS OF MORSE TAPER SHANKS TOLERANZEN DES KEGELSCHAFTES



Morse Taper Shank Morsekegelschaft	A mm	B mm	C(h13) mm	D mm	E mm	F(max.) mm	G mm	H(max.) mm	$\alpha/2$
No.1	12.065	9	5.2	12.2	62	13.5	3.5	8.7	1°25'43"
No.2	17.780	14	6.3	18.0	75	16	5	13.5	1°25'50"
No.3	23.825	19.1	7.9	24.1	94	20	5	18.5	1°26'16"
No.4	31.267	25.2	11.9	31.6	117.5	24	6.5	24.5	1°29'15"
No.5	44.399	36.5	15.9	44.7	149.5	29	6.5	35.7	1°30'26"
No.6	63.348	52.4	19	63.8	210	40	8	51	1°29'36"

### 4 CUTTING PORTION SCHNEIDTEIL



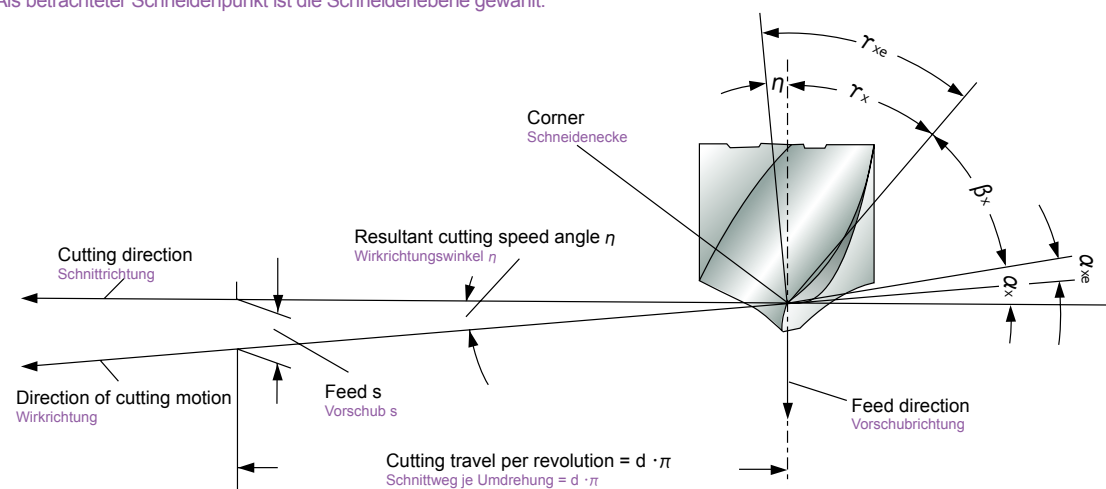
$\sigma$  = Point angle (sigma) Spitzenwinkel (Sigma)

$\psi$  = Chisel edge angle (psi) Querschneidenwinkel (Psi)

\* In the context of cutting technology, land width  $b_g$  is the body clearance land width which is to be by  $b_{fan}$ , see DIN 6581.  
Die Fasbreite  $b_g$  ist bei zerspannungstechnischen Betrachtungen die Fasbreite der Nebenfreifläche und mit  $b_{fan}$  zu bezeichnen, siehe DIN 6581.

### 5 ANGLE AT THE CUTTING EDGES WINKEL AN DEN SCHNEIDEN

The corner has been adopted as the observed edge point.  
Als betrachteter Schnittpunkt ist die Schneidenebene gewählt.



$\alpha_x$  = Side clearance angle (alpha) Seitenfreiwinkel (Alpa)

$\alpha_{xe}$  = Effective side clearance angle Wirk-Seitenfreiwinkel

$\beta_x$  = Side wedge angle (beta) Seitenkeilwinkel (Beta)

$\gamma_x$  = Front rake angle (gamma) Seitenspanwinkel (Gamma)

$\gamma_{xe}$  = Working front rake angle Wirk-Seitenspanwinkel

$\eta$  = Resultant cutting speed angle (eta) Wirkrichtungswinkel (Eta)

Clearance angle  $\alpha$ , wedge angle  $\beta$  and rake angle  $\gamma$  are measured in the tool orthogonal plane. For details, see DIN 6581, definitions of metal-cutting technology; geometry at the tool edge.

Freiwinkel  $\alpha$ , keilwinkel  $\beta$  und Spanwinkel  $\gamma$  werden in der keilme $\beta$ ebene gemessen.  
Einzelheiten siehe DIN 6581, Begriffe der Zerspanntechnik; Geometrie am Schneidkeil des Werkzeuges.



### 6 WEB THICKNESS K KERNDICKE K

**Test values :** The web thickness according to Fig. 1 shall not be less than the minimum value  $k_{min}$  indicated in Fig. 2.  
**Prüfwerte :** Die kerndicke nach Bild 1 soll den Bild 2 angegebenen Mindestwert  $k_{min}$  nicht unterschreiten.  
**Test point :** At the point of the drill. **Prüfstelle :** An der Bohrer Spitze  
**Testing equipment :** Slide gauge with measuring points. **Prüfmittel :** Meßschieber (Schieblehre) mit Messerspitzen

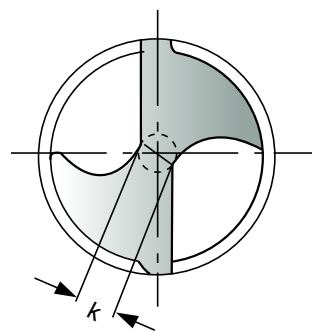


Figure 1. Web thickness k  
Bild 1. kerndicke k

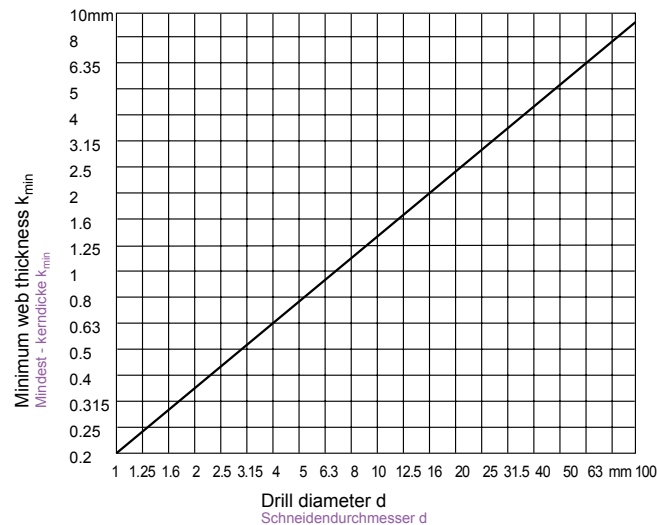


Figure 2. Web thickness  $k_{min}$   
Bild 2. Kerndicke  $k_{min}$

### MARGIN WIDTH $b_\alpha$ FASENBREITE $b_\alpha$

**Test values :** The land width as in Fig. 3 shall lie within the limiting values indicated in Fig. 4.  
**Prüfwerte :** Die Fasenbreite nach Bild 3 soll im Bereich der Grenzwerte liegen, die im Bild 4 angegeben sind.  
**Test point :** 5mm behind the corner **Prüfstell :** 5mm hinter der Schneidenecke  
**Testing equipment :** Slide gauge **Prüfmittel :** Meßschieber

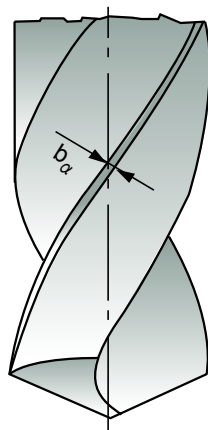


Figure 3. Margin width  $b_\alpha$   
Bild 3. Fasenbreite  $b_\alpha$

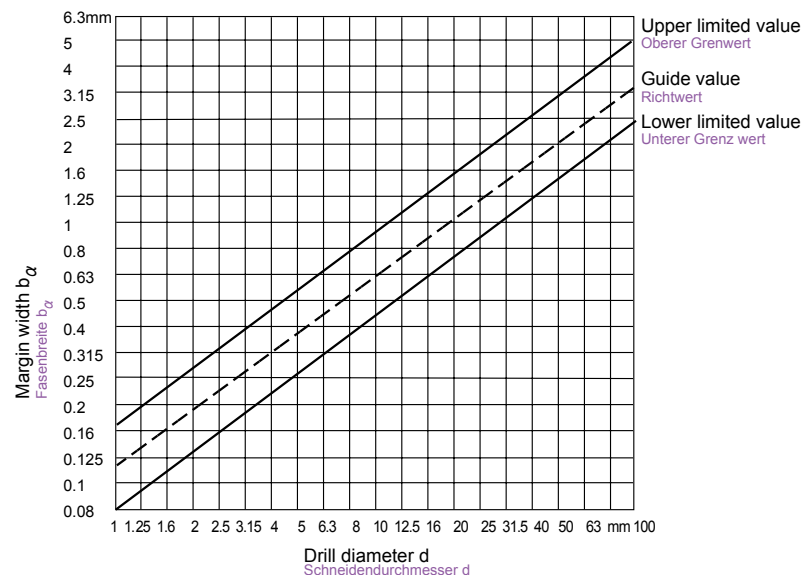


Figure 4. Margin width  $b_\alpha$   
Bild 4. Fasenbreite  $b_\alpha$

### 8 ANGLE ON TWIST DRILLS WINKEL AN SPIRALBOHRERN

#### (1) Side rake angle $\gamma_f$ (Helix angle) Seitenspanwinkel (Spiralwinkel) $\gamma_f$

**Recommended test value :** Recommended ranges depending on the tool types N,H and W according to DIN 1836 and the diameter of the drill included in Fig. 5.

**Empfohlene Prüfwerte :** Empfohlene Bereiche in Abhängigkeit der Werkzeugtypen N, H und W nach DIN 1836 und des Schneiddurchmessers sind in Bild 5.

**Test point :** At the corner, see Fig. 6.

**Prüfstell :** An der Schneidenecke, siehe Bild 6

**Testing equipment :** According to VDI Guideline 3331 Part 1, Section Margin width  $b_\alpha$

**Prüfmittel :** Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite  $b_\alpha$

**Note :** The side rake angle  $\gamma_f$  is measured in place of the orthogonal rake angle  $\gamma_0$  found in the wedge measuring plane (see DIN 6581), as this changes along the cutting edge (becoming smaller towards the point of the drill).

**Anmerkung :** Der Seitenspanwinkel  $\gamma_f$  wird an Stelle des in der Keilmeßebeine befindlichen Orthogonal-Spanwinkels  $\gamma_0$  (Siehe DIN 6581) gemessen, da sich dieser entlang der Hauptschneide verändert (er wird zur Bohrer Spitze hin kleiner)

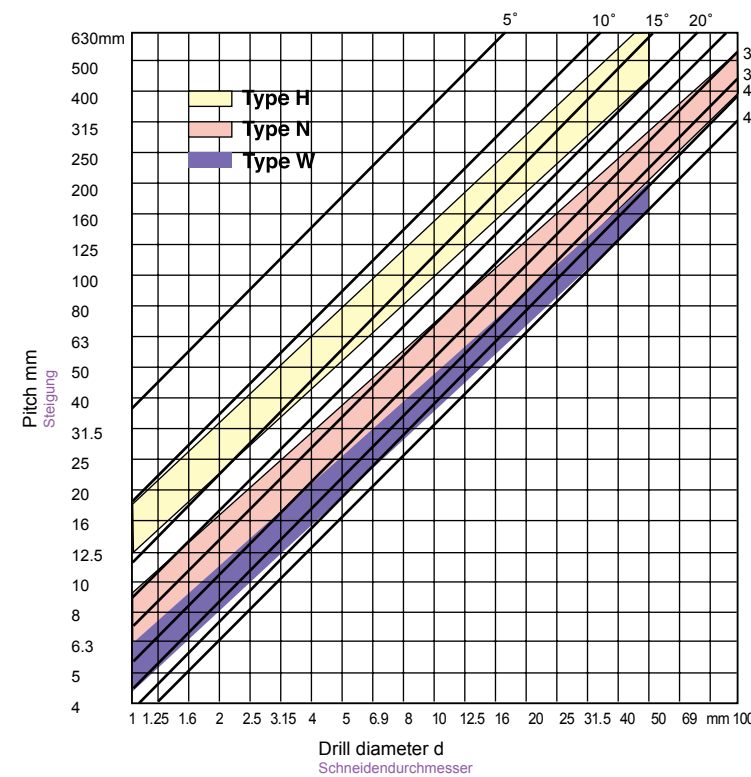


Figure 6. Side rake angle  $\gamma_f$   
Bild 6. Seitenspanwinkel  $\gamma_f$

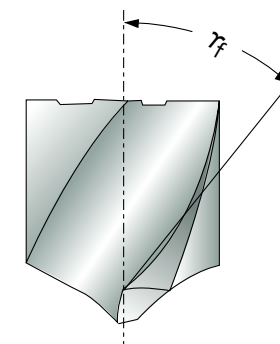


Figure 5. Side rake angle  $\gamma_f$   
Bild 5. Seitenspanwinkel  $\gamma_f$



**(2) Point angle  $\sigma$** **Spitzenwinkel  $\sigma$** 

**Test value** : Usual execution for tool types N and H :  $\sigma=118^\circ$ ,  
for tool type W :  $\sigma=130^\circ$

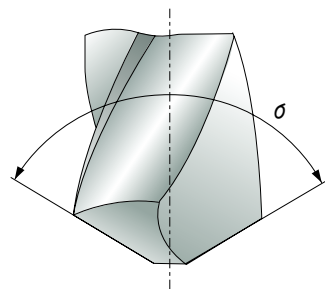
**Prüfwerte** : Regelausführung bei Werkzeugtyp N und H :  $\sigma=118^\circ$   
bei Werkzeugtyp W :  $\sigma=130^\circ$

**Test point** : At the cutting, see Fig. 7.

**Prüfstelle** : An den Hauptschneiden, siehe Bild 7.

**Testing equipment** : According to VDI Guideline 3331 Part 1,  
Section Margin width  $b_\alpha$ .

**Prüfmittel** : Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite  $b_\alpha$ .



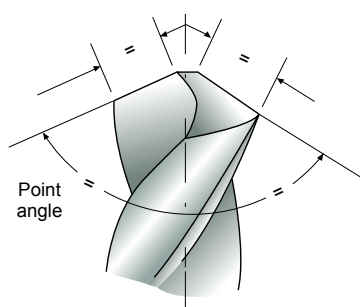
**Figure 7. Point angle  $\sigma$**   
Bild 7. Spitzenwinkel  $\sigma$


**RESHARPENING TWIST DRILLS**  
**NACHSCHLEIFEN VON SPIRALBOHRERN**

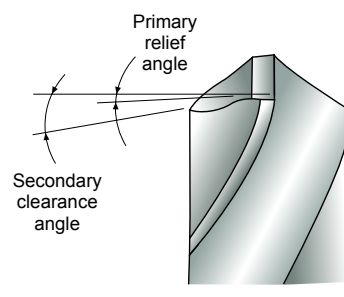
**(1) Drills are worn off irregularly. It should be sharpened prior to developing into excessive wear.**  
Unregelmäßiger Verschleiß von Bohrern. Bohrer soll vor übermäßigem Verschleiß nachgeschliffen werden.

**(2) Resharpening (Nachschleifen)**

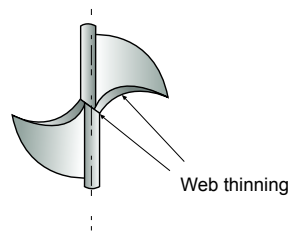
- Grind the correct point angle to suit your application.(figure 8)  
Den für Ihre Anwendung passenden korrekten Spitzenwinkel schleifen (Bild 8)
- Check that both cutting lips have the same angle. On a  $130^\circ$  point, each lip should be  $65^\circ$  toward the axis. The point must be on center, i.e., the chisel edge must produce cutting lips of equal length.(figure 8)  
Überprüfen, dass beide Hauptschneiden den gleichen Winkel haben. Bei einem  $130^\circ$  Spitzenwinkel, sollte jede Hauptschneide  $65^\circ$  haben (Bild 8)
- Grind Primary relief and Secondary clearance.(figure 9)  
Primärer Hinterschliff und Sekundärer Freiwinkel (Bild 9)
- Grind web thinning. (figure 10)  
Den ausgespitzten Kern schleifen (Bild 10)



**Figure 8**  
Bild 8



**Figure 9**  
Bild 9



**Figure 10**  
Bild 10


**WEB THINNING**  
**KEGELMANTELSCHLIFF**
**(1) Without thinning****Normalanschliff**

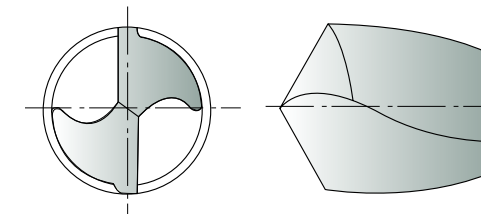
Suitable for drill of general purpose.

Thanks to thin web thickness, web thinning is not needed.  
This without web thinning type is applied to design of drills  
for mild steels, alloy steels, cast iron, stainless steels,  
titanium, inconel, etc. and conventional cutting conditons.

Zum Bohren für allgemeine Zwecke.

Dank dünner Kerndicke, ist Kegelmantelschliff nicht nötig.

Geeignet für Stahl, Stahl-Legierungen, Gusseisen, Edleisahl, Tian, Inconel usw. und für konventionelle Schneidbedingungen

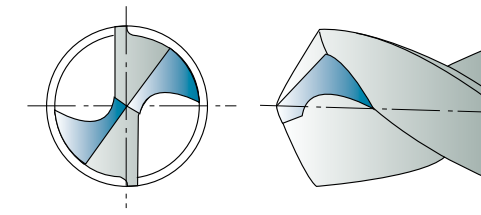
**(2) Type C thinning (DIN1412 FORM C, SPLIT POINT)****DiN 1412 Form C kegelmantelschliff mit Kreuzanschliff**

Because Split point enables good centering when drilling  
and breaks the chips, chip removals are easy.

Suitable for drill design in high hardened tough materials,  
i.e. heat treated steels, titanium alloys, stainless steels,  
incoroy inconel, nimonic, etc.

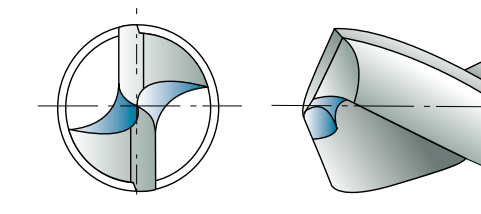
Da Kreuzanschliff gute Zentrierung und Spanbruch während des  
Bohrens ermöglicht, wird die Spanentfernung erleichtert.

Geeignet für zähe Werkstücke oder Werkstücke mit hoher Härte, z.B. hitzebehandelten Stahl, Titan-Legierungen, Edelstahl, Inconoy  
Inconel, Nimonic usw.

**(3) Type R thinning (HELICAL THINNING)****Form R Kegelmantelschliff (Spiralanschliff)**

Helical thinning ensures to frequent chip breaking and  
removal. The different direction force of cutting edges and  
helical thinning parts enable that chips curl, break and  
remove through the flutes. In addition, helical thinning  
makes the chip room up to center, remove the chisel and  
enables good centering

Häufiger Spanbruch und Spanentfernung durch Spiralanschliff, es wird  
ausreichend Raum für Späne geschaffen, und gute Zentrierung ist möglich.

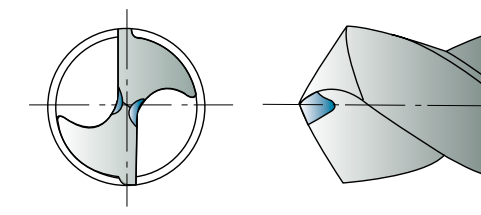
**(4) Type A thinning (DIN1412 FORM A)****DiN 1412 Form A Kegelmantelschliff mit ausgespitzter Querschneide**

A type thinning makes thin chisel, good chip removal and  
favorable centering.

This type is the easiest type to grind the thinning. In narrow  
web and wide fluted drills, keeping of the rigidity and smooth  
chip removal are possible.

Diese Form hat eine dünne Querschneide, dadurch ist gute  
Spanentfernung und Zentrierung möglich.

Der Kegelmantelschliff ist bei dieser Form am einfachsten  
nachzuschleifen, Ein enger Kern und breite Schneiden erhalten die Stabilität.



### (5) Type B thinning (DIN1412 FORM B)

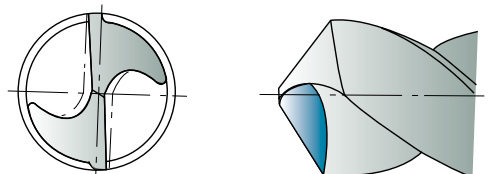
#### DIN 1412 Form B Kegelmantelschliff mit ausgesetzter Querschneide

In case of work materials with low cutting resistance and good chip removal, i.e., cast iron, aluminum, plastic etc., B type thinning is suitable.

Especially when drills for high hardened steels are designed, this type is applied to decrease rake angle and avoid chipping of cutting lips.

Geeignet für Werkstücke mit geringem Schneidwiderstand und guter Spanentfernung, z.B. Gusseisen, Aluminium, Plastik usw.

Diese Form wird besonders dann angewendet, wenn der Bohrer für Stähle mit hoher Härte produziert wurde, da dadurch der Seitenspanwinkel verkleinert wird und Brüche an der Schneidkante vermieden werden.



### (6) Type D thinning (DIN1412 FORM D)

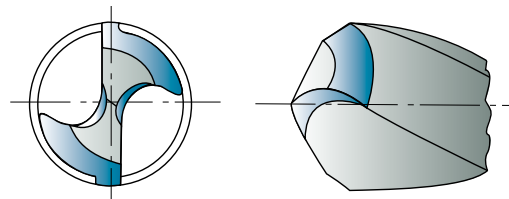
#### DIN 1412 Form D Kegelmantelschliff mit ausgesetztem Kern

Grey cast iron thinning; bevelling of external edges strengthens the cutting edge.

Used for medium to high grey cast iron hardness and for abrasives.

GG-Anschliff; Fasen auf dem Steg verstärken die Schneidkante.

Geeignet für medium bis hohe Härte GG und für abrasive Materialien.



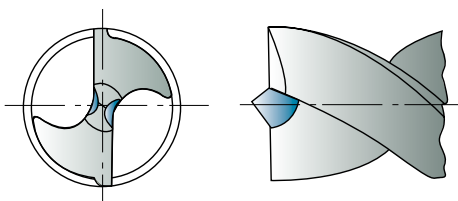
### (7) Type E thinning (DIN1412 FORM E)

#### DIN 1412 Form E Zentrumschneide

Center drill bit thinning; ensures optimal center drilling and does not leave burrs in through holes.

As the bit and cutting edges are delicate, this bit should be used for drilling thin sheet metal.

Zentrisches Bohren, Niedrige Gratbildung, Geeignet zum Bohren von dünnen Blechen und Rohren.



## Surface Finishes for high speed steels Twist Drills Oberflächenbeschaffenheit von HSS-Spiralbohrern

### (1) Bright Finish Helle Beschaffenheit

Drills with a bright finish are without surface treatment and ground condition. Especially bright finished drills are used in machining of non ferrous materials. Ohne Oberflächenbehandlung, geeignet zum Bearbeiten von Nichteisen Materialien.

### (2) Coloring (Gold color) Farbe (Bernstein)

The coloring is a thin oxide layer formed on the tool surfaces. Dies ist eine dünne Oxidschicht. This is often applied to cobalt high speed steels twist drills. Geeignet für Kobalt-HSS-Spiralbohrer.

### (3) Steam Tempered (black oxide finish) Dampfoxydierte Ausführung

This is a black oxide layer 1-2 $\mu$ m formed on the tool surfaces. Steam Tempered treated drill is the result of a steam tempering operation. Because the oxide layer retains some coolant on the tool surface, and aids chip flow, helps to dissipate heat, steam homo treated drills are recommended for ferrous applications. Eine schwarze Oxidschicht 1-2 $\mu$ m. Da die Oxidschicht Kühlmittleigenschaften auf der Werkzeugoberfläche beinhaltet und den Spanfluss verbessert und die Hitze verteilt, sind diese Bohrer für die Bearbeitung von Metal-Werkstücken empfohlen.



## COATING BESCHICHTUNGEN

The use of coated cutting tools reduce production costs.

For example

- Avoidance of machine downtime due to premature tool wear.
- Higher cutting capabilities to reduce actual machining times.
- Reproducible tool life.
- Improvement of component surface quality.

Durch den Gebrauch von beschichteten Werkzeugen werden Produktionskosten reduziert, z.B.

- Vermeidung von Maschinen-Ausfallzeiten wegen frühzeitigem Verschleiß des Bohrers.
- Höhere Bohrleistung, dadurch Verminderung von Arbeitszeit.
- Längere Standzeit.
- Verbesserte Oberflächengüte des Werkstücks.

### (1) TiN Coating TiN (Titan-Nitrid) Beschichtung

Titanium Nitride gives the tool a higher performance in comparison to traditional non-coated drills. TiN coating, with good all-around properties, is recommended for the general application.

Bessere Leistung im Vergleich zu unbeschichteten Werkzeugen

TiN-Beschichtung, mit guten Allround-Eigenschaften, empfohlen für die allgemeine Anwendung

### (2) TiCN (Titanium Carbon Nitride) coating TiCN (Titan karbon Nitrid) Beschichtung

TiCN coating should be employed when severe thermodynamic stress is expected, for example when drilling in high hardened steels or in mild steels with high speed and feed.

Diese Beschichtung soll bei extremen thermodynamischen Bedingungen verwendet werden, z.B. bei Bohren von Stählen mit hoher Härte und Stähle mit hoher Geschwindigkeit und Vorschub.

### (3) TiAlN (Titanium Aluminium Nitride) coating TiAlN (Titan Aluminium Nitrid) Beschichtung

The addition of Aluminum to the Titanium Nitride produces an increase in hardness and an exceptional increase in resistance to oxidation at high temperature. TiAlN coating is applied to drilling with severe thermal stress on cutting edges when continuous non-step feed, dry cutting or high speed cutting.

Der Zusatz von Aluminium zum Titan-Nitrid ermöglicht eine höhere Härte und einen auß erordentlich guten Widerstand gegen Oxidation und hohe Temperaturen.

Geeignet zum Bohren unter extremen thermischen Bedingungen auf der Hauptschneide bei kontinuierlichem Vorschub, Trockenschnitt oder Hochgeschwindigkeitsbohren.

### (4) X Coating X Beschichtung

- Coating with low hardness drop at high temperatures and stability against thermal oxidation
- Coating for superior dry and wet machining performance at high cutting speed
- Wide range of application field with stable layer structure
- Beschichtung mit geringem Härteverlust bei hohen Temperaturen und Stabilität gegen thermische Oxidation
- Hervorragende Beschichtung für Trocken- und Nassbearbeitung bei hohen Schnittgeschwindigkeiten
- Breites Anwendungsspektrum durch stabilem Schichtaufbau

**(5) H Coating H Beschichtung**

- AlCrN-based coating, superior mechanical properties compared to TiAl-based coating
- Improved wear resistance compared to TiAl-based, and superior physical properties (high temperature hardness and breaking strength)
- Superior adhesion and surface roughness, and uniform tool wear characteristics with multi-layer coating
- Possible machining with minimum quantity of coolant and dry machining to reduce production costs
- Beschichtung auf AlCrN-Basis, dadurch überlegene mechanische Eigenschaften im Vergleich zu Beschichtungen auf TiAl-Basis
- Verbesserte Verschleißfestigkeit im Vergleich zu TiAl-Beschichtungen und überlegene physikalische Eigenschaften (Hochtemperaturhärte und Bruchfestigkeit)
- Hervorragende Haftung und Oberflächenrauigkeit sowie gleichmäßiger Werkzeugverschleiß durch mehrlagige Beschichtung
- Ermöglicht Bearbeitung mit Minimalmengenschmierung und Trockenbearbeitung zur Senkung der Produktionskosten

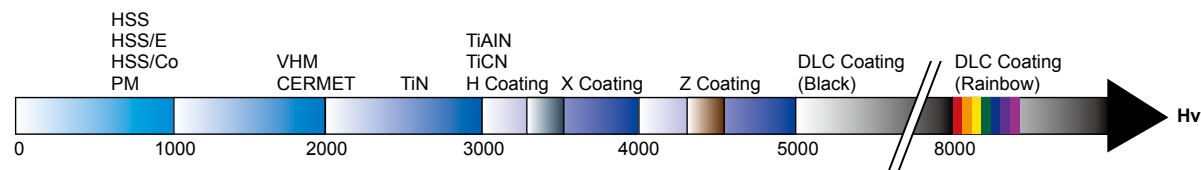
**(6) Z Coating Z Beschichtung**

- Nanocomposite optimized among coatings for high hardness steel machining with Si grade coating
- Superior machinability at high temperatures and used in milling and drilling finishing processes
- Superior surface roughness and wear resistance for a very wide machining application
- Superior physical properties of hardness, adhesion and oxidation resistance at high temperatures
- Optimierte nanokomposit Beschichtung mit Si-Anteil für die Bearbeitung von hochharten Stählen
- Hervorragende Zerspanleistung bei hohen Temperaturen und bei Fräs- und Bohrbearbeitungsprozessen
- Hervorragende Oberflächenrauigkeit und Verschleißfestigkeit für ein sehr breites Anwendungsspektrum
- Hervorragende physikalische Eigenschaften wie Härte, Haftung und Oxidationsbeständigkeit bei hohen Temperaturen

**(7) DLC Coating DLC Beschichtung**

- Suitable coating for extreme wear conditions and fast sliding speed without use of coolant
- Possible coating with high-speed machining and superior wear resistance
- Minimizes friction losses, suitable for engine components such as fuel injection system, valve train and piston
- Geeignete Beschichtung für extreme Verschleißbedingungen und hohe Gleitgeschwindigkeiten ohne Verwendung von Kühlmittel
- Beschichtung für die Hochgeschwindigkeitsbearbeitung bei überlegener Verschleißfestigkeit
- Minimale Reibung, für Motorkomponenten wie Kraftstoffeinspritzsystem, Ventiltrieb und Kolben

Properties	TiN	TiCN	TiAlN	X Coating	H Coating	Z Coating	DLC Coating	
<b>Coating color</b> Beschichtungsfarbe	Gold - yellow	Blue - grey	Violet - grey	Blue grey	Copper	Copper	Black	Rainbow
<b>Hardness (Hv 0.05)</b> härtegrad (Hv 0.05)	2300	3000	3000	3,200	3,000	4,500	5,000	8,000
<b>Coating thickness (µm)</b> Beschichtungsstärke (µm)	1~4	1~4	1~5	1~5	1~5	1~4	1~3	0.1~0.5
<b>Max. working temperature (°C)</b> Max. Arbeitstemperatur (°C)	600	400	800	1,100	1,100	900	500	600
<b>Coefficient of friction against steels (dry)</b> Reibungskoeffizient für stahl (trocken)	0.4	0.4	0.4	0.35	0.25	0.4	~0.1	~0.1



**(5) Selection of coating Verschiedene Beschichtungen**

Properties	HSS TWIST DRILLS	CARBIDE DRILLS
<b>Steels &lt; 1000 N/mm²</b> Stahls < 1000 N/mm²	H, Z, X Coating	H, Z, X Coating
<b>Steels &gt; 1000 N/mm²</b> Stahls > 1000 N/mm²	H, Z, X Coating	Z, H Coating
<b>Stainless steels</b> Edelstähle	H, Z, X Coating	Z, H Coating
<b>Cast iron</b> Gusseisen	H, Z, X Coating	H, Z, X Coating
<b>Al-wrought alloys</b> Al-Knetlegierungen	DLC	DLC
<b>Al-cast alloys</b> Al-Gusslegierungen	DLC	DLC
<b>Copper (pure)</b> Kupfer (pur)	DLC	DLC
<b>Brass</b> Messing	DLC	DLC
<b>Bronze</b> Bronze	DLC	DLC



**DRILL SIZES BEFORE TAPPING DURCHMESSER FÜR BOHRWERKZEUGE FÜR GEWINDEKERNLÖCHER**

**(1) Metric - ISO threads coarse pitch Metrisch - ISO Gewinde, grobverzahnt**

Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter
		<b>M3</b>	2.5	<b>M11</b>	9.5	<b>M30</b>	26.5
<b>M1</b>	0.75	<b>M3.5</b>	2.9	<b>M12</b>	10.2	<b>M33</b>	29.5
<b>M1.2</b>	0.95	<b>M4</b>	3.3	<b>M14</b>	12.0	<b>M36</b>	32.0
<b>M1.4</b>	1.1	<b>M5</b>	4.2	<b>M16</b>	14.0	<b>M39</b>	35.0
<b>M1.6</b>	1.25	<b>M6</b>	5.0	<b>M18</b>	15.5	<b>M42</b>	37.5
<b>M1.8</b>	1.45	<b>M7</b>	6.0	<b>M20</b>	17.5	<b>M45</b>	40.5
<b>M2</b>	1.6	<b>M8</b>	6.8	<b>M22</b>	19.5	<b>M48</b>	43.0
<b>M2.2</b>	1.75	<b>M9</b>	7.8	<b>M24</b>	21.0	<b>M52</b>	47.0
<b>M2.5</b>	2.05	<b>M10</b>	8.5	<b>M27</b>	24.0	<b>M56</b>	50.5



**(2) Metric ISO threads fine pitch**  
Metrisch - ISO Gewinde, feinverzahnt

Nominal diameter	Tap Pitch	Drill diameter	Nominal diameter	Tap Pitch	Drill diameter
2.5	0.35	2.15	25	2	23
3	0.35	2.65	26	1.5	24.5
3.5	0.35	3.15	27	1	26
4	0.5	3.5	27	1.5	25.5
4.5	0.5	4	27	2	25
5	0.5	4.5	28	1	27
5.5	0.5	5	28	1.5	26.5
6	0.75	5.2	28	2	26
7	0.75	6.2	30	1	29
8	0.75	7.2	30	1.5	28.5
8	1	7	30	2	28
9	0.75	8.2	30	3	27
9	1	8	32	1.5	30.5
10	0.75	9.2	32	2	30
10	1	9	33	1.5	31.5
10	1.25	8.8	33	2	31
11	0.75	10.2	33	3	30
11	1	10	35	1.5	33.5
12	1	11	36	1.5	34.5
12	1.25	10.8	36	2	34
12	1.5	10.5	36	3	33
14	1	13	38	1.5	36.5
14	1.25	12.8	39	1.5	37.5
14	1.5	12.5	39	2	37
15	1	14	39	3	36
15	1.5	13.5	40	1.5	38.5
16	1	15	40	2	38
16	1.5	14.5	40	3	37
17	1	16	42	1.5	40.5
17	1.5	15.5	42	2	40
18	1	17	42	3	39
18	1.5	16.5	45	1.5	43.5
18	2	16	45	2	43
20	1	19	45	3	42
20	1.5	18.5	48	1.5	46.5
20	2	18	48	2	46
22	1	21	48	3	45
22	1.5	20.5	50	1.5	48.5
22	2	20	50	2	48
24	1	23	50	3	47
24	1.5	22.5	52	1.5	50.5
24	2	22	52	2	50
25	1	24	52	3	49
25	1.5	23.5			

**(3) WITHWORTH pipe threads (BSP)**  
WITHWORTH Rohrgewinde (BSP)

Nominal size	Drill diameter	Nominal size	Drill diameter
inches	mm	inches	mm
G1/8	8.8	G1-1/4	39.5
G1/4	11.8	G1-3/8	42.0
G3/8	15.25	G1-1/2	45.0
G1/2	19.0	G1-3/4	51.0
G5/8	21.0	G2	57.0
G3/4	24.5	G2-1/4	63.0
G7/8	28.25	G2-1/2	73.0
G1	30.75	G2-3/4	79.0
G11/8	35.5	G3	85.0

**(4) American unified coarse threads** Amerikanischer Standard, Grobverzahnung

UNC	Drill diameter		UNC	Drill diameter	
	inches	mm		inches	mm
<b>No. 1</b>	53	1.51	<b>7/16</b>	U	9.35
<b>No. 2</b>	50	1.78	<b>1/2</b>	27/64	10.71
<b>No. 3</b>	47	1.99	<b>9/16</b>	31/64	12.30
<b>No. 4</b>	43	2.26	<b>5/8</b>	17/32	13.49
<b>No. 5</b>	38	2.58	<b>3/4</b>	21/32	16.67
<b>No. 6</b>	36	2.71	<b>7/8</b>	49/64	19.44
<b>No. 8</b>	29	3.45	<b>1</b>	7/8	22.22
<b>No. 10</b>	25	3.8	<b>1-1/8</b>	63/64	25.00
<b>No. 12</b>	16	4.5	<b>1-1/4</b>	1-7/64	28.18
<b>1/4</b>	7	5.11	<b>1-3/8</b>	1-7/32	30.95
<b>5/16</b>	F	6.53	<b>1-1/2</b>	1-11/32	34.13
<b>3/8</b>	5/16	7.94			

**(5) American unified fine threads** Amerikanischer Standard, Feinverzahnung

NF	Drill diameter		NF	Drill diameter	
	inches	mm		inches	mm
<b>No. 0</b>	3/64	1.19	<b>3/8</b>	Q	8.43
<b>No. 1</b>	53	1.51	<b>7/16</b>	25/64	9.92
<b>No. 2</b>	50	1.78	<b>1/2</b>	29/64	11.51
<b>No. 3</b>	45	2.08	<b>9/16</b>	33/64	13.10
<b>No. 4</b>	42	2.37	<b>5/8</b>	37/64	14.86
<b>No. 5</b>	37	2.64	<b>3/4</b>	11/16	17.46
<b>No. 6</b>	33	2.87	<b>7/8</b>	13/16	20.64
<b>No. 8</b>	29	3.45	<b>1</b>	59/64	23.42
<b>No. 10</b>	21	4.04	<b>1-1/8</b>	1-3/64	26.59
<b>No. 12</b>	14	4.62	<b>1-1/4</b>	1-11/32	29.76
<b>1/4</b>	3	5.41	<b>1-3/8</b>	1-19/32	32.94
<b>5/16</b>	1	6.91	<b>1-1/2</b>	1-27/64	36.11


**ISO TOLERANCE  
ISO TOLERANZ**

Diameter (mm)	$\mu\text{m}=1/1000\text{mm}$					
	1 - 3 from to	3 - 6 over to	6 - 10 over to	10 - 18 over to	18 - 30 over to	30 - 50 over to
Tolerance range in $\mu\text{m}$ / Toleranzwerte in $\mu\text{m}$						
<b>h6</b>	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16
<b>h7</b>	0 - 10	0 - 12	0 - 15	0 - 18	0 - 21	+0/-0.025
<b>h8</b>	0 - 14	0 - 18	0 - 22	0 - 27	0 - 33	+0/-0.039
<b>m7</b>	+ 12 + 2	+ 16 + 4	+ 21 + 6	+ 25 + 7	+ 29 + 8	+ 34 + 9


**TROUBLE SHOOTING IN DRILLING  
PROBLEME UND ABHILFE**

Occurrence of trouble	Cause of trouble	Countermeasures
<b>Drill will not enter work Bohrer dringt nicht durch werkstück</b>	1. Drill is dull. 2. Lip relief too small. 3. Too thick a web. 1. Bohrer ist stumpf 2. Hauptschneide ist zu klein 3. Kern ist zu dick	1. Grind lip relief sufficiently. 2. Grind web thinning. 3. Choose a drill with narrow web. 1. Schleifen der Hauptschneide 2. Kegeimantel schleifen 3. Bohrer mit engerem kern wählen
<b>Margin chipping Fasenbruch</b>	1. Oversized jig bushing. 1. Bohrbuchse ist zu ungleich.	1. Choose the suitable jig bushing for drill diameter 1. Den passenden Bohrbuchse wählen.
<b>Cutting lip breaks Bruch der Hauptschneide</b>	1. Lip relief too much. 2. Feed too heavy. 1. Zu große Entlastung der Hauptschneide 2. Vorschub zu stark	1. Grind lip relief sufficiently. 2. Decrease feed rate. 1. Schleifen der Hauptschneide 2. Vorschub verringern
<b>Tang breaks Bruch der Austrieblappen am kagelschaft</b>	1. Imperfect fit between taper shank and socket. 2. Burred or Badly worn sockets. 1. Befestigung zwischen Morsekegel und Aufnahme ungenügend 2. Verschleiß der Aufnahme	1. Clean the dirt or chips in sockets. 2. Change the worn sockets to new ones. 1. Schmutz oder Späne in der Aufnahme entfernen 2. Aufnahme wechseln

## Occurrence of trouble

## Cause of trouble

## Countermeasures

**Drill breaks in brass  
Bohrer bricht in Messing**

1. Unsuitable drill
2. Flutes clogged with chips
1. Unpassender Bohrer
2. Schneiden durch Späne verstopft

1. Choose the suitable drill for work material.
1. Den passenden Bohrer wählen

**Chipping of drill center  
Brüche auf der  
Querschneide**

1. Lip relief too much.
2. Feed too heavy.
1. Zu große Entlastung der Hauptschneide
2. Vorschub zu stark

1. Grind lip relief sufficiently.
2. Decrease feed rate.
1. Schleifen der Hauptschneide
2. Vorschub verringern

**Hole oversize  
Übergröße des Lochs**

1. Unequal angle or length of cutting edges.
2. Loosen spindle.
1. Ungleicher Winkel oder Länge der Hauptschneiden
2. Lockere Spindel

1. Resharpener point, choose correct drills.
2. Tighten spindle sufficiently.
1. Nachschleifen der Bohrspitze, passenden Bohrer wählen
2. Spindel ausreichend befestigen

**Outer corners  
broken down.  
Brüche in der  
Schneidenecke**

1. Cutting speed too high.
2. Hard spots in work material.
3. Flutes clogged with chips.
4. Too wear of drills.
1. Schnittgeschwindigkeit zu hoch
2. Harte Flächen im Werkstück
3. Schneiden durch Späne verstopft
4. Verschleiß des Bohrers zu groß

1. Grind point to suit work material.
2. Decrease the feed rates.
3. Resharpener early before too wear.
1. Bohrspitze nachschleifen und ans Werkstück anpassen
2. Vorschub verringern
3. Nachschleifen vor zu groß em Verschleiß

**Large chip of one  
flute and small chip  
of other flute  
Ungleiche Späne auf den  
Schneiden**

1. Improperly ground point.
2. Only one lip doing all the cutting
1. Bohrspitze nicht richtig geschliffen
2. Nur eine Schneide bohrt

1. Properly grind point.
2. Grind point with same point angle and length of lip
3. Grind with small lip height.
1. Bohrspitze richtig schleifen
2. Bohrspitze mit dem gleichen Spitzenwinkel und Länge nachschleifen
3. Schleifen mit geringer Hauptschneidenhöhe

**Hole rough  
Grobes Loch**

1. Improperly ground point.
2. Unenough coolant supply
3. Too much feed.
4. Fixture not rigid.
1. Bohrspitze nicht richtig geschliffen
2. Ungenügende Kühlmittelzufuhr
3. Vorschub zu hoch
4. Befestigung nicht stabil

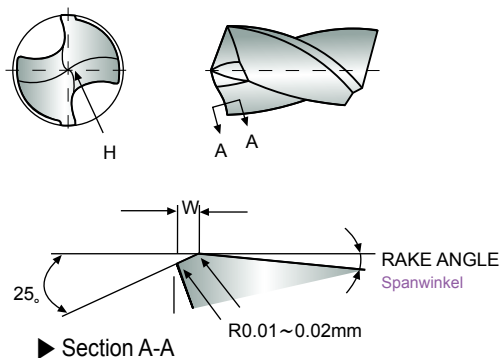
1. Properly grind point.
2. Supply coolant enough.
3. Decrease the feed rate.
4. Tighten the fixture or replace.
1. Bohrspitze richtig schleifen
2. Genügend Kühlmittel zuführen
3. Vorschub verringern
4. Befestigung stabilisieren oder erneuern

### 16 CHARACTERISTIC OF DREAM DRILLS MERKMALE VON DREAM BOHRER

- YG-1's Dream Drill Series are suitable for high speed and accurate drilling operations by special design and high quality.  
YG-1's DREAM Bohrer Serien sind durch ihre spezielle Konstruktion und höchste Genauigkeit geeignet zum Hochgeschwindigkeitsbohren und für genaue Bohrvorgänge.
- Good performance for Steels, Cast Irons, Tool steels, Alloy steels and Stainless steels.  
Gute Leistung bei Stählen, Grauguss, Werkzeugstählen, Stahllegierungen sowie bei Rost- und Säurebeständigen Stählen.
- Rapid chip evacuation and excellent chip breaking can be achieved by special designed cutting edges on point and chip breakers on leading edges.  
Schnelle Spanabfuhr und hervorragender Spanbruch durch speziell entwickelte Schneidengeometrien und Spanbrechern.
- High accuracy and stability.  
Hohe Genauigkeit und Stabilität.
- Longer tool life with TiAlN coating.  
Höhere Standzeiten mit TiAlN-Beschichtungen.
- Self-centering  
Selbstzentrierend

### 17 HONING GUIDE OF DREAM DRILLS HINWEIS ZUM HONEN VON DREAM BOHRER

#### Dimension of Honing Abmessung beim Honen



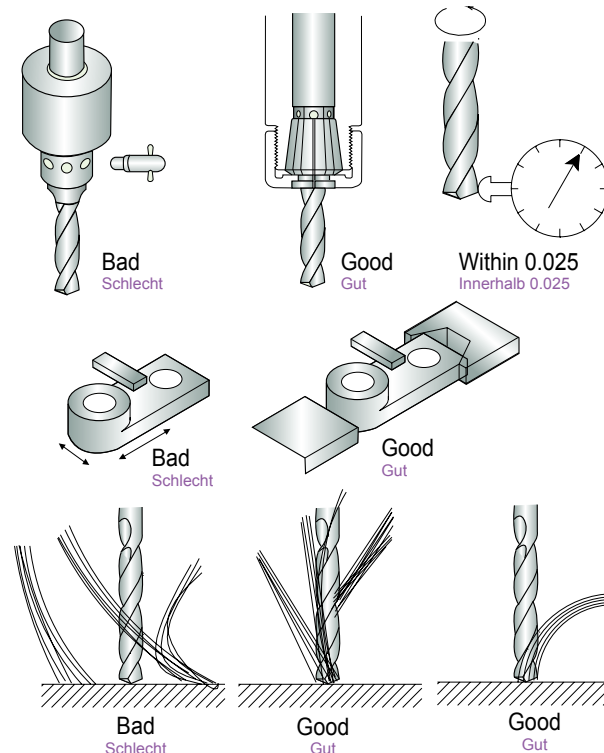
#### Scraper Schaben



Work Material	Alloy Steels	Mild Steels	Cast Iron
W(mm)	0.15~0.2	0.1~0.15	0.03

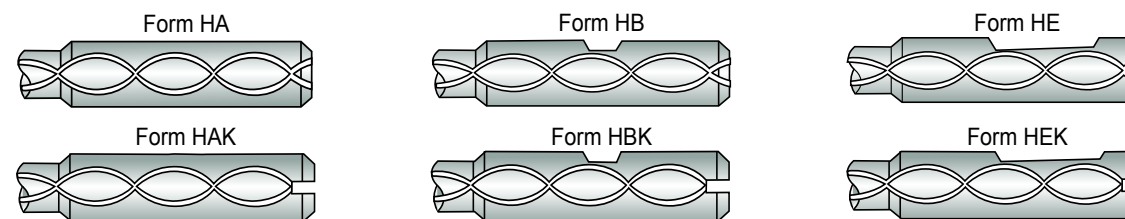
▶ The dimension W of stocked products is 0.1~0.15.  
Das Maß w ist bei lagerhaltigen Produkten 0.1~0.15.

### 18 USE OF DREAM DRILLS VERWENDUNG VON DREAM BOHRER



- ▶ Chucking with spring collet correctly.  
Richtiges Spannen mit Spannzangen.
- ▶ Radial run out at cutting lip must not exceed 0.025 mm.  
Radialer Rundlauf und der Schneidlippe darf nicht 0.025 überschreiten.
- ▶ Tighten clamp of work piece.  
Sicheres Spannen des Werkstückes
- ▶ Supply coolant enough to the entrance of hole.  
Ausreichend Kühlmittelzufluss am Bohrloch.
- ▶ When using Dream Drills with Coolant holes, supply high pressure coolant.  
Beim Verwenden von DREAM BOHRER mit Kühlkanal wird Hochdruckkühlung benötigt.

### 19 SHANK TYPE DREAM DRILLS WITH COOLANT HOLES SCHAFTAUSFÜHRUNG DREAM BOHRER MIT KÜHLKANAL



- ▶ Shank Type of stocked products is Form HA.  
Schaftausführung von lagerhaltigen Produkten ist HA.
- ▶ Other shank types are available on your request.  
Andere Schaftausführungen können geliefert werden.



**20 REAMING - ALLOWANCE**  
**REIBEN - AUFMASS**

Unit : mm

Size Range Größenbereich	Up to Ø6	Ø6 ~ Ø10	Ø10 ~ Ø16	Ø16 ~ Ø25	Over Ø25
Removal Amount Zu entfernender Bereich	0.1 ~ 0.2	0.2 ~ 0.3	0.2 ~ 0.4	0.3 ~ 0.5	0.3 ~ 0.6

**21 REAMING - TROUBLE SHOOTING**  
**REIBEN - FEHLERBEHEBUNG**

Problem Problem	Cause Ursache
<p><b>Hole diameter too large</b> Bohrungsdurchmesser zu groß</p>	<ol style="list-style-type: none"> <li>Run out error of the machine spindle, the chuck, or the tool.</li> <li>Damaged adaptor.</li> <li>Cutting speed and feed too high.</li> <li>Build-up edges.</li> </ol> <ol style="list-style-type: none"> <li>Rundlauffehler der Maschinenspindel, des Spannfutters oder des Werkzeugs.</li> <li>Beschädigte Aufnahme.</li> <li>Zu hohe Schnittgeschwindigkeit und zu hoher Vorschub.</li> <li>Aufbauschniede</li> </ol>
<p><b>Hole diameter too small</b> Bohrungsdurchmesser zu klein</p>	<ol style="list-style-type: none"> <li>Wrong tool tolerance or the tool is worn out.</li> <li>Ductile material, that tightens after the reaming.</li> <li>Insufficient cooling, or to low oil concentration.</li> <li>Reaming stock is too little.</li> <li>Cutting speed and feed too low.</li> </ol> <ol style="list-style-type: none"> <li>Falsche Werkzeugtoleranz oder das Werkzeug ist verschlissen.</li> <li>Duktiles Material, das sich nach dem Reiben verfestigt.</li> <li>Unzureichende Kühlung, oder zu geringe Ölkonzentration.</li> <li>Das Reibaufmaß ist zu gering.</li> <li>Schnittgeschwindigkeit und Vorschub zu niedrig.</li> </ol>

Problem Problem	Cause Ursache
<p><b>Reamer jams or breaks</b> Reibahle klemmt oder bricht</p>	<ol style="list-style-type: none"> <li>Back taper is too small.</li> <li>Position to pilot hole incorrect.</li> <li>Pre-hole is too small.</li> <li>Cutting speed and feed too high.</li> </ol> <ol style="list-style-type: none"> <li>Die Verjüngung ist zu klein.</li> <li>Position zur Vorbohrung ist falsch.</li> <li>Die Vorbohrung ist zu klein.</li> <li>Schnittgeschwindigkeit und Vorschub zu hoch.</li> </ol>
<p><b>Hole tapered</b> Bohrung kegelig</p>	<ol style="list-style-type: none"> <li>Concentricity of pilot hole and reaming tool unsatisfactory.</li> <li>Positioning accuracy of pre-hole insufficient.</li> </ol> <ol style="list-style-type: none"> <li>Konzentrität der Vorbohrung und Reibwerkzeug unbefriedigend.</li> <li>Positioniergenauigkeit der Vorbohrung ungenügend.</li> </ol>
<p><b>Hole out of center or Chatter marks in hole</b> Bohrung außerhalb der Mitte oder Rattermarken in der Bohrung</p>	<ol style="list-style-type: none"> <li>Cutting speed and feed too low.</li> <li>Reaming tool running out of center.</li> <li>Reaming stock is too small.</li> </ol> <ol style="list-style-type: none"> <li>Schnittgeschwindigkeit und Vorschub zu niedrig.</li> <li>Reibwerkzeug läuft aus der Mitte.</li> <li>Das Reibaufmaß ist zu klein.</li> </ol>
<p><b>Feed marks in hole</b> Vorschubspuren in der Bohrung</p>	<ol style="list-style-type: none"> <li>Cutting speed and feed too low</li> <li>Build-up edges.</li> <li>Inadequate chip evacuation</li> <li>Insufficient lubrication.</li> </ol> <ol style="list-style-type: none"> <li>Schnittgeschwindigkeit und Vorschub zu niedrig</li> <li>Aufbauschniede.</li> <li>Unzureichender Späneabtransport</li> <li>Unzureichende Schmierung.</li> </ol>

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# THREADING TOOLS

SOLID CARBIDE THREAD MILLS (with & without Coolant Holes)

HSS-PM SYNCHRO TAPS (Spiral Flute, Spiral Point, Straight Flute & Cold Forming)

HSS-PM PRIME TAPS (Spiral Flute & Spiral Point Tap)

HSS-E & HSS-PM COMBO TAPS (Spiral Flute & Spiral Point Tap)

HSS & HSS-E YG TAP GENERAL

HSS-E & HSS-PM YG TAP STEEL

SOLID CARBIDE & HSS-E YG TAP HARDENED

HSS-E & HSS-PM YG TAP INOX

SOLID CARBIDE & HSS-E YG TAP CAST IRON

HSS-E YG TAP ALU

HSS-PM YG TAP Ti Ni

HSS-E & HSS-PM YG TAP FORMING

HSS-E NUT TAPS

HSS-E SCREW THREAD INSERT TAPS

HSS & HSS-E PIPE TAPS

 **YG-1 CO., LTD.**





<b>SOLID CARBIDE THREAD MILLS</b>	<b>SOLID CARBIDE THREAD MILLS</b> (with & without Coolant Holes) Threading Large Diameter in High Quality / Available with Chamfer	THREAD MILLS
<b>HSS-PM &amp; HSS-E MACHINE TAPS</b>	<b>HSS-PM SYNCHRO TAPS</b> (Spiral Flute, Spiral Point, Straight Flute & Cold Forming) For High Speed Tapping on Rigid CNC Machine	SYNCHRO TAPS
<b>HSS MACHINE &amp; HAND TAPS</b>	<b>HSS-PM PRIME TAPS</b> (Spiral Flute & Spiral Point Tap) Excellent Performance on Various Work Materials	PRIME TAPS
<b>HSS MACHINE TAPS</b>	<b>HSS-E &amp; HSS-PM COMBO TAPS</b> (Spiral Flute & Spiral Point Tap) For Multi Purpose Tapping	COMBO TAPS
<b>SOLID CARBIDE &amp; HSS MACHINE TAPS</b>	<b>HSS &amp; HSS-E YG TAP GENERAL</b> Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation	YG TAP GENERAL
<b>HSS MACHINE TAPS</b>	<b>HSS-E &amp; HSS-PM YG TAP STEEL</b> For Steel Materials but also other Long Chip Forming Materials	YG TAP STEEL
<b>SOLID CARBIDE &amp; HSS MACHINE TAPS</b>	<b>SOLID CARBIDE &amp; HSS-E YG TAP HARDENED</b> For Hardened Steels Applications to Control the Continuous and Red-glowing Chips	YG TAP HARDENED
<b>HSS MACHINE TAPS</b>	<b>HSS-E &amp; HSS-PM YG TAP INOX</b> For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher	YG TAP INOX
<b>SOLID CARBIDE &amp; HSS MACHINE TAPS</b>	<b>SOLID CARBIDE &amp; HSS-E YG TAP CAST IRON</b> For Cast Iron or Similar Work Materials	YG TAP CAST IRON
<b>HSS MACHINE TAPS</b>	<b>HSS-E YG TAP ALU</b> For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations	YG TAP ALU
<b>HSS MACHINE TAPS</b>	<b>HSS-PM YG TAP Ti Ni</b> For Heat Resistant Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief	YG TAP Ti Ni
<b>HSS MACHINE TAPS</b>	<b>HSS-E &amp; HSS-PM YG TAP FORMING</b> Tapping by Forming Soft Materials	YG TAP FORMING
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<b>TECHNICAL DATA</b>	<b>TECHNICAL DATA</b>	TECHNICAL DATA







SELECTION GUIDE



THREADING TOOLS



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Table with columns: ISO, VDI 3323, Material Description, HB, HRC, and performance indicators for various materials.

COMBO TAPS

Main table for COMBO TAPS showing HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, and various tap models (TC814, TD814, TB814, etc.) with their respective performance indicators.

COMBO TAPS

Main table for COMBO TAPS showing HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, and various tap models (TBJ06, TCJ07, TDJ07, etc.) with their respective performance indicators.

COMBO TAP SETS

Combo Spiral Flute Taps

Table for Combo Spiral Flute Taps showing TB804SET5 and TC804SET7 with VAP and Bright finishes, 5pcs and 7pcs respectively.



Combo Spiral Flute Taps + Gold-P Drill

TD804SET7-GLP195

Table for Combo Spiral Flute Taps + Gold-P Drill showing TIN finish, 14pcs.



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SELECTION GUIDE



THREADING TOOLS



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◎ : Excellent ○ : Good

YG TAP GENERAL

Table with columns for HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), SURFACE TREATMENT, and MODEL. Includes icons for Max. 2.5xD Blind Hole and Max. 3.0xD Through Hole.

Material compatibility table with columns for ISO, VDI 3323, Material Description, HB, HRC, and a grid of suitability symbols (circles) for various materials like Non-alloy steel, Low alloy steel, Stainless steel, Cast iron, Aluminum, Titanium, and Hardened steel.

YG TAP GENERAL

Table with columns for HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), SURFACE TREATMENT, and MODEL. Includes icons for Max. 3.0xD Through Hole, Max. 2.5xD Blind/Through Hole, and Max. 2.0xD Blind/Through Hole.

Material compatibility table with columns for ISO, VDI 3323, Material Description, HB, HRC, and a grid of suitability symbols (circles) for various materials like Non-alloy steel, Low alloy steel, Stainless steel, Cast iron, Aluminum, Titanium, and Hardened steel.



SELECTION GUIDE



THREADING TOOLS

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◎ : Excellent ○ : Good

Table with columns: YG TAP GENERAL, YG TAP STEEL, HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), SURFACE TREATMENT, MODEL, ISO, VDI 3323, Material Description, HB, HRC.

Table with columns: YG TAP STEEL, HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), SURFACE TREATMENT, MODEL, ISO, VDI 3323, Material Description, HB, HRC.





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YG TAP HARDENED

Table with columns for Hole Type, Tool Material (CARBIDE, HSS-E), Chamfer Lead, Flute Type, Spiral Flute Angle, Series (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), Surface Treatment, Model, and Material Properties (ISO, VDI, Material Description, HB, HRC).

YG TAP INOX

Table with columns for Hole Type, Tool Material (HSS-E, HSS-PM), Chamfer Lead, Flute Type, Spiral Flute Angle, Series (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), Surface Treatment, Model, and Material Properties (ISO, VDI, Material Description, HB, HRC).



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Table for YG TAP INOX and YG TAP CAST IRON. Columns include Hole Type, Tool Material, Chamfer Lead, Flute Type, Spiral Flute Angle, Series (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), Surface Treatment, and Model. It lists various tap models like TB623, TCH23, T0993, TE821, TD821, TI821, TY821, TB123, TE403, TB264, TE434, TB274, TE454, and their compatibility with different materials.

Table for YG TAP ALU and YG TAP Ti Ni. Columns include ISO, VDI 3323, Material Description, HB, HRC, and compatibility indicators (◎, ○) for various materials like Non-alloy steel, Low alloy steel, High alloyed steel, Stainless steel, Grey cast iron, Nodular cast iron, Malleable cast iron, Aluminum-wrought alloy, Aluminum-cast alloyed, Copper and Copper Alloys, Heat Resistant Super Alloys, Titanium Alloys, Hardened steel, and Chilled Cast Iron.

Table for YG TAP ALU and YG TAP Ti Ni. Columns include Hole Type, Tool Material, Chamfer Lead, Flute Type, Spiral Flute Angle, Series (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF), Surface Treatment, and Model. It lists various tap models like TC163, TE953, TC622, TE943, TC433, TE443, TY433, TM903, TZ903, TM293, TZ293, TC963, TC169, TC170, and their compatibility with different materials.









# CUTTING SPEED TABLE

## CUTTING SPEED TABLE SCHNITTGESCHWINDIGKEITSTABELLE Cutting Speeds m/min. into revolutions per minute

Tool Dia.	TOOL R.P.M. (rev/min)															
	Cutting Speed (m/min)															
	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
1	318	637	955	1274	1592	1910	2548	3185	3822	4777	6396	7962	9554	12739	15924	19108
2	159	318	478	637	796	955	1274	1592	1911	2388	3185	3981	4777	6369	7962	9554
3	106	212	318	425	531	637	849	1062	1274	1592	2123	2654	3185	4246	5308	6369
4	80	159	239	318	398	478	637	796	955	1194	1592	1990	2389	3185	3981	4777
5	64	127	191	255	318	382	510	637	764	955	1274	1592	1911	2548	3185	3822
6	53	106	159	212	265	318	425	531	637	796	1062	1327	1592	2123	2653	3185
8	40	80	119	159	199	239	318	398	478	597	796	955	1194	1592	1990	2388
10	31	64	96	127	159	191	255	318	382	478	637	796	955	1274	1592	1911
12	26	53	80	106	133	159	212	265	318	398	531	663	796	1062	1327	1592
14	23	45	68	91	114	136	182	227	273	341	455	569	682	910	1137	1365
16	20	40	60	80	100	119	159	199	239	299	398	498	597	796	995	1194
18	18	35	53	71	88	106	142	177	212	265	354	442	531	708	885	1062
20	16	32	48	64	80	96	127	159	191	239	318	398	478	637	796	955
25	13	25	38	51	64	76	102	127	153	191	255	318	382	510	637	764
30	11	21	32	42	53	64	85	106	127	159	212	265	318	425	531	637
35	9	18	27	36	45	55	73	91	109	136	182	227	273	364	455	546
40	8	16	24	32	40	48	64	80	96	119	159	199	239	318	398	478

RPM = rev/min  
V = m/min  
D = Dia.(mm)

$$V = \frac{RPM \cdot \pi \cdot D}{1000}$$

$$RPM = \frac{1000 \cdot V}{\pi \cdot D}$$

# SURFACE TREATMENT AND COATING

The applied High Speed Steels holds a grant of good wear resistance and toughness. Therefore YG-1 normally delivers taps with bright and unfinished surface. For certain materials, various surface treatments provide higher advantage in machining.

### STEAM TEMPERED - Vap

Steam Tempered is a Fe<sub>3</sub>O<sub>4</sub>-oxyd-coating which reduces friction between the tool and workpiece, also preventing cold welding.

### NITRIDING - NI

Recommend surface treatment for machining materials that affect wear abrasion, such as grey cast iron, alu-alloys with high Si-percentages (more than 10%).

Below are the various surface treatments for excellent finish surfaces suitable for many applications. The surface treatments are produced and developed within the company.

### TiN-COATING

TiN-coating yields a hardness of approx. 2,300 HV and also a heat resistant up to approx. 600°C. The current coating is an excellent all-round coating for normal applications.

Colour : Golden Coefficient of friction against steel : 0.4

### TiCN-COATING

TiCN takes place of TiN when the conditions require the coating to have a different hardness and toughness.

The TiCN brings advantages for machining very difficult steels or cutting interrupted bores.

The TiCN-coating has a hardness of approx. 3,000 HV, but is heat resistance only holds up to approx. 400°C, meaning that the TiCN needs an excellent cooling system for a long service life.

Colour : Blue-Grey Coefficient of friction against steel : 0.4

### TiAlN-COATING

A special coating for machining abrasive materials such as grey cast iron, alu-alloys with silicon, fiber reinforced plastics, etc., or machining at high temperatures with insufficient cooling, or at high speeds ≥ 600m/min. TiAlN has a hardness of approx. 3,000 HV and is heat resistant up to approx. 800°C.

Colour : Violet-Grey Coefficient of friction against steel : 0.4

### Hardslick-COATING

Hardslick combines the advantages of an extremely hard, thermally stable TiAlN-coating with the sliding and lubricating properties of an outer WC/C(Tungsten carbide/carbon)-coating in a novel way. The Hardslick coating has a hardness of approx. 3,000 HV and is temperature-resistant up to approx. 800°C.

Colour : Violet-Grey Coefficient of friction against steel : 0.2

# EXAMPLES FOR APPLICATION MATERIAL GROUPS

<b>11</b> Magnetic Soft Steels < 400 N/mm <sup>2</sup> 1.1013 RFe 100 1.1014 RFe 80 1.1015 RFe 60 1.0718 9 S MnPb 28	<b>12</b> Structure/Case Carburizing Steels < 700 N/mm <sup>2</sup> 1.0037 St 37-2 1.0050 St 50-2 1.0060 St 60-2 1.0070 St 70-2 1.0401 C 15 1.1141 Ck 15	<b>13</b> Plain Carbon Steels < 850 N/mm <sup>2</sup> 1.0501 C 35 1.0503 C 45 1.0535 C 55 1.0601 C 60 1.1181 Ck 35 1.1191 Ck 45	<b>14</b> Alloy Steels < 850 N/mm <sup>2</sup> 1.2080 X210Cr12 1.2363 X100CrMoV5-1 1.3243 S 6-5-2-5 1.3343 S 6-5-2 1.7218 25CrMo4 1.7220 34CrMo4
<b>15</b> Alloy, Hardened & Tempered Steels < 1,200 N/mm <sup>2</sup> 1.2581 X30WCrV9 3 1.2622 X60WCrMoV9 1.2550 60WCrV7 1.6580 30CrNiMo8 1.7361 32CrMo12 1.8515 31CrMo12	<b>16</b> Alloy, Hardened & Tempered Steels > 1,200 N/mm <sup>2</sup> To this group belong most of the materials of group 15, but present a higher tensile strength.	<b>21</b> Free machining stainless Steels < 850 N/mm <sup>2</sup> 1.4005 X12CrS13 1.4006 X10Cr13 1.4016 X6Cr17 1.4104 X12CrMoS17 1.4305 X10CrNiS18 9	<b>22</b> Austenitic stainless Steels < 850 N/mm <sup>2</sup> 1.4301 X5CrNi18 10 1.4406 X2CrNiMoN17 12 2 1.4435 X2CrNiMo18 14 3 1.4541 X6CrNiTi18 10 1.4571 X6CrNiMoTi17 12 2 1.4828 X15CrNiSi20 12
<b>23</b> Martensitic/Ferritic/Fer.-Aus. Stainless Steels < 1,000 N/mm <sup>2</sup> 1.4112 X90CrMoV18 1.4125 X105CrMo17 1.4002 X6CrAl13 1.4512 X6CrTi12 1.4582 X4CrNiMoNb25 7 1.4821 X20CrNiSi25 4	<b>31</b> Grey graphite cast irons < 500 N/mm <sup>2</sup> 0.6015 GG-15 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	<b>32</b> Grey graphite cast irons < 1,000 N/mm <sup>2</sup> 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	<b>33</b> Nodular graphite, Malleable cast irons < 700 N/mm <sup>2</sup> 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.7070 GGG-70 0.7080 GGG-80
<b>34</b> Nodular graphite, Malleable cast irons < 1,000 N/mm <sup>2</sup> 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.7070 GGG-70 0.7080 GGG-80	<b>41</b> Titanium unalloys < 700 N/mm <sup>2</sup> 3.7024 Ti99.5 3.7034 Ti99.7 3.7035 Ti2 3.7055 Ti99.4 3.7064 Ti99.2 3.7065 Ti4	<b>42</b> Titanium alloys < 900 N/mm <sup>2</sup> TiA14Mn4 3.7114 TiA15Sn2 3.7124 TiCu2 3.7164 TiA16V4 3.7174 TiA16V6Sn2	<b>43</b> Titanium alloys < 1,300 N/mm <sup>2</sup> 3.7124 TiCu2 3.7144 TiA16Sn2Zr4Mo2 3.7154 TiAl6Zr5 3.7164 TiA16V4 3.7174 TiA16V6Sn2 3.7184 TiAl4Mo4Sn2
<b>51</b> Nickel unalloys < 500 N/mm <sup>2</sup> 2.1504 NiAlBz 2.4042 Ni99CSi 2.4060 Ni99.6 2.4062 Ni99.4Fe	<b>52</b> Heat resisting Nickel alloys < 900 N/mm <sup>2</sup> 2.4360 Monel 400 2.4374 Monel 500 2.4665 Hastelloy X 2.4812 Hastelloy C 2.4816 Inconel 600 1.4876 Incoloy 800	<b>53</b> Heat resisting Nickel alloys < 1,400 N/mm <sup>2</sup> 2.4631 Nimonic80A 2.4632 Nimonic90 2.4634 Nimonic105 2.4662 Nimonic901 2.4668 Inconel 718 2.4669 Inconel X-750	<b>61</b> Copper unalloys < 350 N/mm <sup>2</sup> 2.0060 E-Cu57 2.0070 SE-Cu 2.0090 SF-Cu 2.1356 CuMn3 2.1522 CuSi2Mn
<b>62</b> Short chip Brass, Bronze copper alloys < 700N/mm <sup>2</sup> 2.0360 CuZn40 (Ms60) 2.0380 CuZn39Pb2 (Ms58) 2.0410 CuZn44Pb2 2.0580 CuZn40Mn1Pb 2.1086 G-CuSn10Zn 2.1096 G-CuSn5ZnPb	<b>63</b> Long chip Brass, Bronze copper alloys < 700 N/mm <sup>2</sup> 2.0250 CuZn20 2.0321 CuZn37 2.1020 CuSn6 2.1080 CuSn6Zn6 2.1245 CuBel.7 2.1293 G-CrZr	<b>64</b> Cu-Al-Fe alloys < 1,500 N/mm <sup>2</sup>	<b>71</b> Aluminum-Magnesium unalloys < 350 N/mm <sup>2</sup> 3.0250 Al99.5H 3.0280 Al99.8H 3.0305 Al99.9 3.3308 Al99.9Mg0.5
<b>72</b> Aluminum alloys, Si < 1.5% < 600 N/mm <sup>2</sup> 3.0515 AlMn1 3.0525 AlMn1Mg0.5 3.1325 AlCuMg1 3.3315 AlMg1 3.3241 G-AlMg3Si 3.3292 GD-AlMg9	<b>73</b> Aluminum alloys, 0.5-10% Si < 600 N/mm <sup>2</sup> 3.2134 G-AISi5Cu1Mg 3.2152 GD-AISi6Cu4 3.2162 GD-AISi8Cu3 3.2373 G-AISi9Mg	<b>74</b> Aluminum alloys, Si > 10% < 600 N/mm <sup>2</sup> 3.2381 G-AISi10Mg 3.2383 G-AISi10Mg(Cu) 3.2581 G-AISi12 3.2583 G-AISi12(Cu) 3.5662 G-MgA16 3.5812 G-MgA18Zn1	<b>81</b> Thermoplastics Delrin(POM) Teflon Nylon
<b>82</b> Thermosetting plastics Bakelit Novopan	<b>83</b> Reinforced plastics materials Glass fiber reinforced Thermo and Duroplastics	<b>Reference: DIN</b>	

MATERIAL GROUP STANDARDS					
GERMANY		FRANCE	GREAT BRITAIN	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN	AFNOR	B.S.		
<b>10 - STEEL</b>					
<b>11 - Magnetic soft steels - Hardness &lt; 120 HB 30 - Tensile strength &lt; 400 N/mm<sup>2</sup></b>					
1.1013	RFe 100		OSOA12	EN2	
1.1014	RFe 80				
1.1015	RFe 60		230Mo7	EN1	
1.0718	9 S MnPb 28				
<b>12 - Structural steels - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
<b>12.1 - Structural steels</b>					
1.0034	RSt 34-2	A34-2 EN	1449 34/20 HR		
1.0035	St 33	A33	Fe 310-0		
1.0036	St 37-2		060A35	EN3A,4,5,6,7,8	
1.0037	RSt 37-2				
1.0044	St 44-2				
1.0050	St 50-2		4360-50B	EN 207	
1.0060	St 60-2				
1.0070	St 70-2				
1.0116	St 37-3				
1.0144	St 44-3				
<b>12.2 - Case carburizing steels</b>					
1.0301	C 10	AF 34 C 10	040 A 10		M 1010
1.0401	C 15	AF 37 C 12	080 A 15		M 1015
1.1121	Ck 10	XC 10	040 A 10		1010
1.1141	Ck 15	XC 12	040 A 15		1015
1.5732	14 Ni Cr 10	14 NC 11			3415
1.7015	15 Cr 3	12 C 3	523 M 15		5015
1.7131	16 Mn Cr 5	16 MC 4	527 M 17	EN 32	5115
1.7147	20 Mn Cr 5	20 MC 5			5120
<b>12.3 - Free machining steels</b>					
1.0710	15 S 10				
1.0715	9 S Mn 28	S 250	230 M 07		1213
1.0718	9 S Mn Pb 28	S 250 Pb			12 L 13
1.0721	10 S 20	10 F1	210 M 15		1108 1109
1.0722	10 S Pb 20	10 Pb F 2			11 L 08
1.0723	15 S 20	.....	210 A 15		
1.0726	35 S 20	35 MF 6	212 M 36		1140
1.0727	45 S 20	45 MF 4			1146
1.0736	9 S Mn 36	S 300			1215
1.0737	9 S Mn Pb 36	S 300 Pb			12 L 14
<b>12.4 - Cast structural steels</b>					
1.0416	GS - 38				
1.0446	GS - 45				
1.0552	GS - 52				
1.0553	GS - 60	E 36 - 3			
1.0554	GS - 70				
<b>13 - Plain carbon steels - tempered</b>					
<b>13.1 - Steels, tempered - Hardness &lt; 250 HB 30 - Tensile strength &lt; 850 N/mm<sup>2</sup></b>					
1.0402	C 22	1 C 22	070 M 20		M 1023
1.0501	C 35	1 C 35	080 A 32		1035
1.0503	C 45	1 C 45	060 A 47		1045
1.0535	C 55	1 C 55	070 M 55		1055
1.0601	C 60	1 C 60	060 A 62	EN 43	1060
1.1157	40 Mn 4	35 M 5	150 M 36		1035 1041
1.1151	Ck 22	2 C 22	055 M 15		1020 1023
1.1181	Ck 35	2 C 35	080 A 35		1035 1038
1.1191	Ck 45	2 C 45	080 M 46	EN 9, 10	1045
1.1203	Ck 55	2 C 55	060 A 57		1055
1.1221	Ck 60	2 C 60	060 A 62		1060 1064



MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>14 - Alloy steels - Hardness &lt; 250 HB 30, &lt; 25 HRC - Tensile strength &lt; 850 N/mm<sup>2</sup></b>					
<b>14.1 - Cold work tool steels</b>					
1.2056	90 Cr 3				
1.2067	100 Cr 6	Y 100 C 6	BL 3		L 1 L 3
1.2080	X 210 Cr 12	Z 200 C 12	BD 3		D3
1.2083	X 42 Cr 13	Z 40 C 14			420
1.2363	X 100 CrMoV5 1	Z 100 CDV 5	BA 2		A 2
1.2379	X 155 CrV Mo 12 1	Z 160 CDV 12	BD 2		D 2
1.2510	100 MnCrW 4	90 MWCV 5	BO 1		O1
1.2550	60 WCrV 7	55WC 20	BS 1		S1
1.2823	70 Si 7				
1.2826	60 Mn Si Cr 4				
1.2842	90 MnCrV 8	90 MV 8	BO 2		O 2
<b>14.2 - High speed steels</b>					
1.3202	S 12-4-4-5	Z 130 WKCV 12-05-04-04	BT 15		T 15
1.3207	S 10-4-3-10	Z130 WKCDV10-10-04-04-03	BT 42		T 42
1.3243	S 6-5-2-5	Z85 WDKCV 06-05-05-04-02	BM 35		M 35
1.3247	S 2-10-1-8	Z110 DKCWW 09-08-04-02-01	BM 42		M 42
1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2		M 2
1.3344	S 6-5-3	Z 120 WDCV 06-05-04-03			M 3 / 2
1.3348	S 2-9-2	Z 100 DCVV 09-04-02-02			M 7
ASP 23	(S 6-5-3)				
ASP 30					
ASP 60					
<b>14.3 - Alloy steels</b>					
1.5919	GS-15Cr Ni 6	16 NC 6			3115
1.7218	GS-25Cr Mo 4	25 C D 4	70 8A 25		4130
1.7220	GS-34Cr Mo 4	35 C D 4	70 8A 37		4135 4137
1.7379	GS-18 Cr Mo 9 10				
<b>14.4 - Tempered steels</b>					
1.0503	C 45	1 C 45	060 A 47		1045
1.7220	34 Cr Mo 4	34 Cr Mo 4	708 A 37		4135, 4137
1.7225	42 Cr Mo 4	42 CD 4	708 A 42	EN 16, 17, 19	4140, 4142
1.7228	50 Cr Mo 4	50 Cr Mo 4	708 A 47		4150
<b>14.5 - Nitriding steels</b>					
1.7779	20 Cr Mo V 13.5				
1.8504	34 Cr Al 6				
1.8506	34 Cr Al S 5				
1.8507	34 Cr Al Mo 5	30 CAD 6.12			A 355 Cl.D
1.8509	41 Cr Al Mo 7	40 CAD 6.12	905 M 39		A 355 Cl.A
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
<b>15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm<sup>2</sup></b>					
<b>15.1 - Alloy steels for tools</b>					
1.2311	40 Cr Mn Mo 7				
1.2312	40 Cr Mn Mo S 86				
1.2436	X 210 Cr W 12	Z 200 CW 12			
1.2711	54 Ni Cr Mo V 6				
1.2713	55 Ni Cr Mo V 6	55 NCDV 7	826 M 40	S 95, S 97, S 98	L 6
1.2714	56 Ni Cr Mo V 7				
1.2743	60 Ni Cr Mo V 12 4				
1.2766	35 Ni Cr Mo 16				
<b>15.2 - Alloy steels for hot work</b>					
1.2343	X 38 Cr Mo V 5 1	Z 38 CDV 5	BH 11		H 11
1.2344	X 40 Cr Mo V 5 1	Z 40 CDV 5	BH 13		H 13
1.2365	X 32 Cr Mo V 3 3	32 DCV 28	BH 10		H 10
1.2367	X 40 Cr Mo V 5 3	Z 38 CDV 5.3			
1.2581	X 30 W Cr V 9 3	Z 30 WCV 9.3	BH 21		H 21
1.2622	X 60 W Cr Mo V 9				
1.2678	X 45 CoCrWV 5 5 5				
1.2550	60 WCr V 7	55 WC 20	BS 1		S 1
1.2567	X 30 W Cr V 5 3	Z 32 WCV 5			

MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>15.3 - Hardened tempered steels - Hardness may be different according to presentation and dimensions of material</b>					
1.5864	35 Ni Cr 18				
1.6580	30 Cr Ni Mo 8	30 Cr Ni Mo 8			
1.7361	32 Cr Mo 12	30 CD 12	722 M 24		
1.7707	30 Cr Mo V 9				
1.8161	58 Cr V 4				
<b>15.4 - Nitriding steels</b>					
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
1.8519	31 Cr Mo V 9		830 M 31		
1.8523	39 Cr Mo V 13 9		897 M 39		
1.8550	34 Cr Al Ni 7		826 M 40		
<b>16 - Alloy steels / Hardened tempered steels - Hardness &gt; 38 HRC - Tensile strength &gt; 1,200 N/mm<sup>2</sup></b>					
To this group belong most of the materials of group 15, but present a higher tensile strength					
<b>20 - STAINLESS STEELS</b>					
<b>21 - Free machining stainless steels - Hardness &lt; 250 HB 30 - Tensile strength &lt; 850 N/mm<sup>2</sup></b>					
1.4104	X 12 Cr Mo S 17	Z 13 CF 17	416 S 37	EN 56	430 F
1.4305	X 10 Cr Ni S 18 09	Z 8 CNF 18-09	303 S 21	EN 60	303
<b>22 - Austenitic stainless steels - Hardness &lt; 250 HB 30 - Tensile strength &lt; 850 N/mm<sup>2</sup></b>					
1.4300	X 12 Cr Ni 18 8		320 S 12		
1.4301	X 5 Cr Ni 18 10	Z 6 CN 18-09	304 S 15	EN 80, EN 58 + C	304
1.4311	X 2 CrNiN 18 10	Z 3 CN 18-07 Az	304 S 61		304 LN
1.4406	X 2 CrNiMoN 17 12 2	Z 3 CND 17 11 02	316 S 61		316 LN
1.4433	X 2 CrNiMo 18 15		316 S		
1.4435	X 2 CrNiMo 18 14 3	Z3 CND 17-12-03	316 S 11		316 L
1.4539	X 1 CrNiMoCu 25 20 5	Z 1 NCDU 25-20	321 S 17		UNS N08904
1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18 10	321 S 18	EN 58 J, 316	321
1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNDT 17 12	320 S 18		316 Ti
1.4573	X 10 CrNiMoTi 18 12		320 S 33		
1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20-12	309 S 24		309
<b>22.1 - Cast austenitic stainless steels</b>					
1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M	304 C 15(LT196)		CF-8
1.4313	G-X 5 CrNi 13 4	Z 8 CD 17-01	425 C 12		CA 6 -NM
1.4408	G-X 6 CrNiMo 18 10		316 C 16(LT196)		CF-8M
1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12M	318 C 17		
<b>23 - Martensitic stainless steels - Hardness &lt; 320 HB 30 - Tensile strength &lt; 1,000 N/mm<sup>2</sup></b>					
1.4021	X 20 Cr 13	Z 20 C 13	420 S 37		420
1.4034	X 46 Cr 13	Z 44 C 14	(420 S 45)		
1.4057	X 20 CrNi 17 2	Z 15 CN 16-02	431 S 29		431
1.4112	X 90 CrMoV 18				
1.4116	X 45 CrMoV 15			EN 58, b.e.j.t	
1.4125	X 105 CrMo 17	Z 100 CD 17		Duplex alloys	440 C
1.4718	X 45 CrSi 9 3	Z 45 CS 9	401 S 45		HNV 3
1.4747	X 80 CrNiSi 20	Z 80 CSN 20-02	443 S 65		HNV 6
1.4086	G-X 120 Cr 29				
1.4106	G-X 10 CrMo 13				
1.4138	G-X 120 CrMo 29 2				
<b>24 - Ferritic stainless steels - Hardness &lt; 320 HB 30 - Tensile strength &lt; 1,100 N/mm<sup>2</sup></b>					
1.4002	X 6 Cr Al 13	Z 8 CA 12	405 S 17		405
1.4006	X 10 Cr 13	Z 10 C 13	410 C 21		410
1.4016	X 6 Cr 17	Z 8 C 17	430 S 17		430
1.4510	X 6 Cr Ti 17	Z 8 CT 17			430 Ti
1.4512	X 6 Cr Ti 12	Z 6 CT 12	409 S 19		409
<b>25 - Ferritic-Austenitic stainless steels - Hardness &lt; 320 HB 30 - Tensile strength &lt; 1,100 N/mm<sup>2</sup></b>					
1.4460	X 8 CrNiMo 27 5	Z 5 CND 27-05 Az			329
1.4582	X 4 CrNiMoNb 25 7				
1.4821	X 20 CrNiSi 25 4				

MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>30 - CAST IRONS</b>					
<b>31 - Grey graphite cast irons - Hardness &lt; 150 HB 30 - Tensile strength &lt; 500 N/mm<sup>2</sup></b>					
0.6010	GG-10	Ft 10 D			A 48-20 B
0.6015	GG-15	Ft 20 D	Grade 150	Grey cast iron soft	A 48-25 B
0.6020	GG-20	Ft 25 D	Grade 220		A 48-30 B
0.6025	GG-25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG-30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG-35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG-40	Ft 40 D	Grade 400		A 48-60 B
<b>31.1 - Meehanite - Hardness &lt; 150 HB 30 - Tensile strength &lt; 500 N/mm<sup>2</sup></b>					
.....	GF - 150				
.....	GD - 260				
<b>32 - Grey graphite cast irons - Hardness 150 - 300 HB 30 - Tensile strength 500 - 1,000 N/mm<sup>2</sup></b>					
0.6020	GG - 20	Ft 25 D	Grade 220	Grey cast iron hard	A 48-30 B
0.6025	GG - 25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG - 30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG - 35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG - 40	Ft 40 D	Grade 400		A 48-60 B
<b>32.1 - Meehanite - Hardness 150-300 HB 30 - Tensile strength 500-1,000 N/mm<sup>2</sup></b>					
.....	GF - 150				
.....	GD - 260				
<b>15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm<sup>2</sup></b>					
0.7033	GGG-35.3				
0.7040	GGG-40	FGS 400-12	420 / 12		60-40-18
0.7043	GGG-40.3	FGS 370-17	370 / 17		
0.7050	GGG-50	FGS 500-7	500 / 7		65-45-12
0.7060	GGG-60	FGS 600-3	600 / 3	S.G.iron, Meehanite	80-55-06
0.8035	GTW-35		700/2,30g/72	Black & White Heart	
0.8040	GTW-40				
0.8045	GTW-45				
0.8065	GTW-65				
0.8135	GTS-35				
0.8145	GTS-45				
0.8155	GTS-55				
0.8165	GTS-65				
<b>33.1 - Meehanite - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
SF 400					
SPF 600					
<b>34 - Nodular graphite, tempered malleable cast irons - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm<sup>2</sup></b>					
0.7070	GGG-70	FGS 700-2	700 / 2	S.G.iron,Meehanite	100-70-03
0.7080	GGG-80	FGS 800-2	800 / 2	Black & White Heart	120-90-02
And materials from group 33 tempered					
<b>34.1 - Meehanite - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm<sup>2</sup></b>					
	SH 800		420/12, P 440/7		
	SH 1000				
<b>40 - TITANIUM</b>					
<b>41 - Titanium, unalloys - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
3.7024.1LN	Ti 99.5				
3.7034.1LN	Ti 99.7				
3.7035	Ti 2				
3.7055	Ti 99.4		TA 1-9	Ti 99.0	
3.7064.1LN	Ti 99.2				
3.7065	Ti 4				
3.7255	Ti 3 Pd				

MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>42 - Titanium, alloys - Hardness &lt; 270 HB 30 - Tensile strength &lt; 900 N/mm<sup>2</sup></b>					
	Ti Al 4 Mn 4				
3.7144 LN	Ti Al 5 Sn 2				
3.7124 LN	Ti Cu 2		TA 10-14, TA 17	Ti - 2AL	
3.7164 LN	Ti Al 6 V 4		TA 18		
3.7174 LN	Ti Al 6 V 6 Sn 2				
<b>43 - Titanium, alloys - Hardness 270-300 HB 30 - Tensile strength 900-1,300 N/mm<sup>2</sup></b>					
3.7124 LN	Ti Cu 2				
3.7144 LN	Ti Al 6 Sn 2 Zr4 Mo2			Ti AL	
3.7154 LN	Ti Al 6 Zr 5		TA 10-13, TA 28	3.7174LN, 3.7148LN	
3.7164 LN	Ti Al 6 V 4				
3.7174 LN	Ti Al 6 V Sn 2				
3.7184 LN	Ti Al 4 Mo 4 Sn 2				
<b>50 - NICKEL</b>					
<b>51 - Nickel, unalloys - Hardness &lt; 150 HB 30 - Tensile strength &lt; 500 N/mm<sup>2</sup></b>					
2.1504 LN	Ni Al Bz				
2.4042	Ni 99 CSI		NA 11, NA 12	Nickel 200	
2.4060	Ni 99.6			Nickel 270	
2.4062	Ni 99.4 Fe				
<b>52 - Heat resisting nickel alloys - Hardness &lt; 270 HB 30 - Tensile strength &lt; 900 N/mm<sup>2</sup></b>					
2.4360 LN	Monel 400				
2.4374 LN	Monel 500				
2.4617	Hastelloy B 2			Nimonic 75	
2.4665	Hastelloy X		HR 203		
2.4812	Hastelloy C		3027-76	Hastelloy C	
2.4816	Inconel 600			Haynes Alloys 263	
1.4876	Incoloy 800				
2.4983	Udimet 500				
<b>53 - Heat resisting nickel alloys - Hardness 270-410 HB 30 - Tensile strength 900-1,400 N/mm<sup>2</sup></b>					
2.4631	Nimonic 80 A			Nimonic 80	
2.4632	Nimonic 90				
2.4634	Nimonic 105				
2.4662	Nimonic 901		HR 8		
2.4668	Inconel 718		HR 401, 601	Rene 41	
2.4669	Inconel X-750				
2.4670 LN	Nimocast 713				
2.4674 LN	Nimocast PK 24				
2.4856	Inconel 625				
2.6554 LN	Waspaloy				
<b>60 - COPPER</b>					
<b>61 - Copper, unalloys - Hardness &lt; 100 HB 30 - Tensile strength &lt; 350 N/mm<sup>2</sup></b>					
2.0060	E - Cu 57				
2.0070	SE - Cu			Commercially Pure	
2.0090	SF - Cu		C 101		
2.1356	Cu Mn 3				
2.1522	Cu Si 2 Mn				
<b>62 - Short chip copper alloys - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
<b>62.1 - Brass</b>					
2.0360	Cu Zn 40(MS 60)				
2.0380	Cu Zn 39 Pb 2 (MS 58)		CZ120, CZ109		
2.0410	Cu Zn 44 Pb 2		PB104		
2.0561	Cu Zn 40 Al 1			2.1030, 2.1080	
2.0580	Cu Zn 40 Mn 1 Pb				
2.0771	Cu Ni 7 Zn 39 Mn 5 Pb3				
<b>62.2 - Bronzes</b>					
2.1086	G-Cu Sn 10 Zn				
2.1093	G-Cu Sn 6 Zn Ni				
2.1096	G-Cu Sn 5 Zn Pb				

# MATERIAL GROUP

## STANDARDS

GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				

### 63 - Long chip copper alloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm<sup>2</sup>

#### 63.1 - Brass

2.0250	Cu Zn 20				
2.0265	Cu Zn 30				
2.0321	Cu Zn 37		CZ108, CZ106		
2.0335	Cu Zn 36 (Ms 63)				

#### 63.2 - Bronzes

2.1020	Cu Sn 6				
2.1030	Cu Sn 8				
2.1080	Cu Sn 6 Zn 6				

#### 63.3 - Copper alloys tempered by forging

2.1245	Cu Be 1.7				
2.1247	Cu Be 2				
2.1293	Cu Cr Zr				

### 64 - Cu - Al - Fe alloys Hardness < 440 HB 30 - Tensile strength < 1,500 N/mm<sup>2</sup>

## 70 - ALUMINIUM - MAGNESIUM

### 71 - Aluminum - Magnesium, unalloys - Hardness < 100 HB 30 - Tensile strength < 350 N/mm<sup>2</sup>

3.0250	Al 99.5 H				
3.0280	Al 99.8 H				
3.0305	Al 99.9				
3.3308	Al 99.9 Mg 0.5				

### 72 - Aluminum alloys, Si < 1.5% - Hardness < 180 HB 30 - Tensile strength < 600 N/mm<sup>2</sup>

#### 72.1 - Forging aluminum alloys

3.0515	Al Mn 1				
3.0516	S-Al Mn				
3.0525	Al Mn 1 Mg 0.5				
3.0615	Al Mg Si Pb				
3.1325	Al Cu Mg 1				
3.1355	Al Cu Mg 2				
3.3315	Al Mg 1				
3.3535	Al Mg 3				
3.4365	Al Zn Mg Cu 1.5				

#### 72.2 - Cast aluminum alloys

3.1841	G - Al Cu 4 Ti				
3.3241	G - Al Mg 3 Si				
3.3292	GD - Al Mg 9				

### 73 - Aluminum alloys, 0.5-10% Si - Hardness < 180 HB 30 - Tensile strength < 600 N/mm<sup>2</sup>

#### 73.1 - Cast aluminum alloys

3.2134	G - Al Si 5 Cu 1 Mg				
3.2152	GD - Al Si 6 Cu 4				
3.2162	GD - Al Si 8 Cu 3				
3.2373	G - Al Si 9 Mg				

### 74 - Aluminum alloys, Si > 10% - Hardness < 180 HB 30 - Tensile strength < 600 N/mm<sup>2</sup>

#### 74.1 - Cast aluminum alloys

3.2381	G - Al Si 10 Mg				
3.2383	G - Al Si 10 Mg (Cu)				
3.2581	G - Al Si 12				
3.2583	G - Al Si 12 (Cu)				
3.2982	GD - Al Si 12 (Cu)				

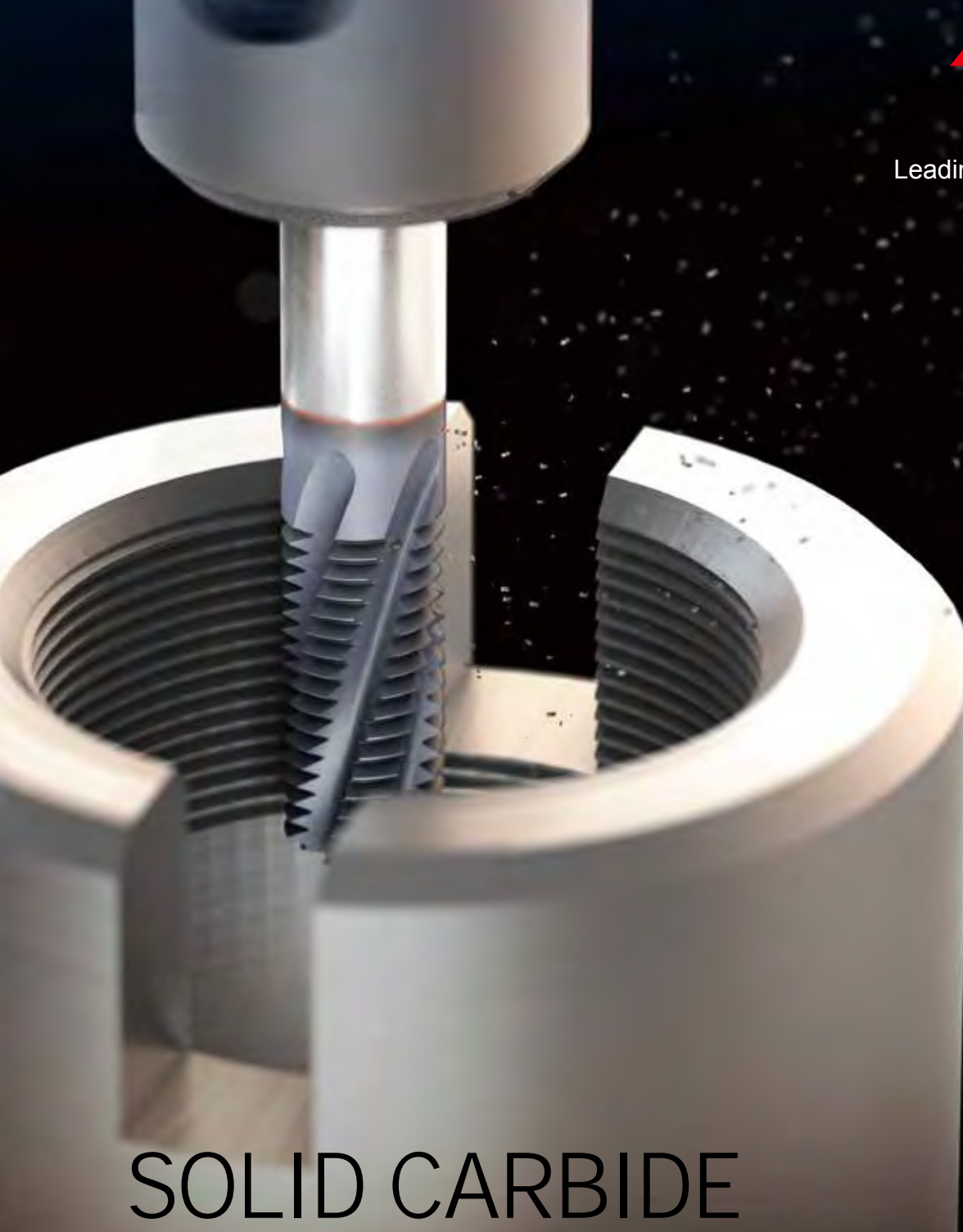
#### 74.2 - Cast aluminum - magnesium alloys

3.5106	G - Mg Ag 3 SE 2 Zr 1				
3.5662	G - Mg Al 6				
3.5812	G - Mg Al 8 Zn 1				
3.5912	G - Mg Al 9 Zn 1				





Leading Through Innovation



SOLID CARBIDE

# THREAD MILLS

## GEWINDEFRÄSER

- Threading Large Diameter in High Quality  
Available with Chamfer
- Zur Fertigung von Gewinden mit großen Durchmessern in hoher Qualität,  
verfügbar mit Fase





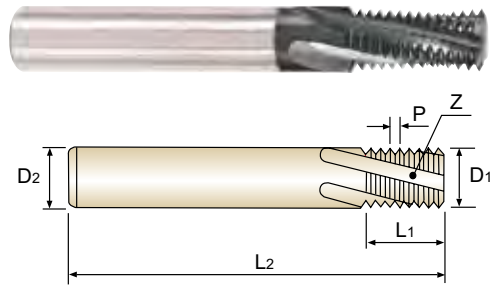
# YG THREAD MILLS

L1211 SERIES

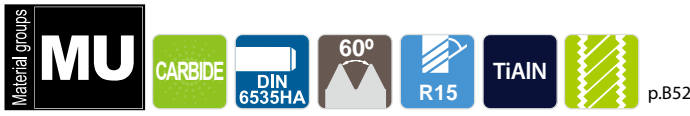
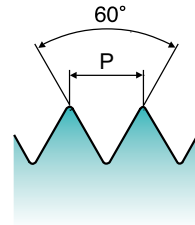
**M Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13**  
 ● VOLLHARTMETALL GEWINDEFÄHRER für ISO METRISCHES INNENGEWINDE - DIN 13  
 ● FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 ● Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SKSLIM CHUCK	D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN	D	P	D1	D2	L1	L2	Z
L1211200	M3	0.5	2.2	6	5	57	3
L1211240	M4	0.7	2.9	6	7	57	3
L1211280	M5	0.8	3.8	6	8	57	3
L1211310	M6	1.0	4.5	6	13	57	3
L1211360	M8	1.25	6.0	6	17.5	65	3
L1211420	M10	1.5	7.5	8	21	72	4
L1211500	M12	1.75	9.5	10	26.25	80	4
L1211540	M14	2.0	10.0	10	30	83	4
L1211600	M16	2.0	12.0	12	34	92	4
L1211650	M18	2.5	14.0	14	37.5	92	5
L1211700	M20	2.5	16.0	16	42.5	105	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel	Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○



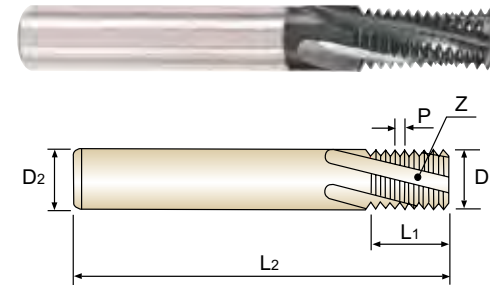
# YG THREAD MILLS

L1212 SERIES

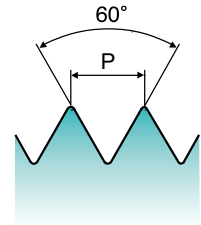
**MF Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13**  
 ● VOLLHARTMETALL GEWINDEFÄHRER für ISO METRISCH - FEIN INNENGEWINDE - DIN 13  
 ● FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 ● Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
1.5×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SKSLIM CHUCK	D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN	D	P	D1	D2	L1	L2	Z
L1212370	M8	1.0	6.0	6	13	57	3
L1212380	M8	0.75	6.0	6	12.75	57	3
L1212440	M10	1.0	8.0	8	16	63	4
L1212510	M12	1.5	9.5	10	19.5	72	4
L1212520	M12	1.25	9.5	10	18.75	72	4
L1212530	M12	1.0	9.5	10	19	72	4
L1212550	M14	1.5	10.0	10	22.5	83	4
L1212570	M14	1.0	10.0	10	22	83	4
L1212610	M16	1.5	12.0	12	25.5	83	4
L1212620	M16	1.0	12.0	12	25	83	4
L1212670	M18	1.5	14.0	14	28.5	92	5
L1212680	M18	1.0	14.0	14	28	92	5
L1212720	M20	1.5	16.0	16	31.5	92	5
L1212730	M20	1.0	16.0	16	31	92	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel	Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○



# YG THREAD MILLS

L1213 SERIES

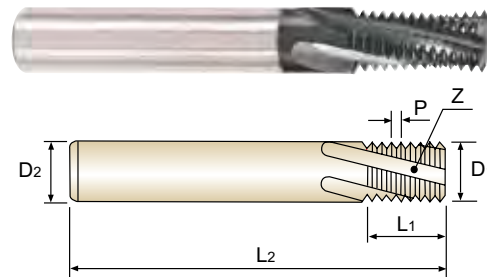
## UNC

### Solid Carbide Thread Mill for UNC Internal Thread - ANSI B 1.1

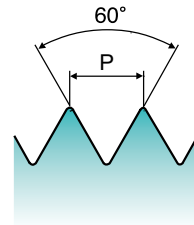
- VOLLHARTMETALL GEWINDEFÄHRER für UNC INNENGEWINDE, ANSI B 1.1
- FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE INTER UNC - ANSI B 1.1
- Filettature interne, unificato, passo grosso - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
○	POWER MILLING CHUCK		D161 - 176	
○	ER COLLET CHUCK SK.SLIM CHUCK		D73 - 115 D183 - 201	

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	No. of Flute Z
L1213400	1/4	20	4.5	6	14	57	3
L1213440	5/16	18	5.8	6	16.9	65	3
L1213480	3/8	16	7.0	8	20.6	72	4
L1213520	7/16	14	8.0	8	23.6	72	4
L1213560	1/2	13	9.5	10	27.4	80	4
L1213600	9/16	12	10.0	10	31.8	83	4
L1213640	5/8	11	12.0	12	34.6	92	4
L1213700	3/4	10	14.0	14	40.6	104	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG THREAD MILLS

L1214 SERIES

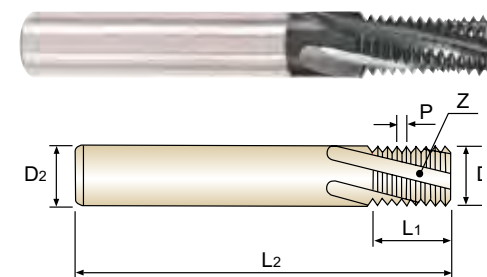
## UNF

### Solid Carbide Thread Mill for UNF Internal Thread - ANSI B 1.1

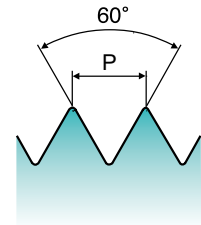
- VOLLHARTMETALL GEWINDEFÄHRER für UNF INNENGEWINDE, ANSI B 1.1
- FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE INTER UNC - ANSI B 1.1
- Filettature interne, unificato, passo grosso - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
○	POWER MILLING CHUCK		D161 - 176	
○	ER COLLET CHUCK SK.SLIM CHUCK		D73 - 115 D183 - 201	

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	No. of Flute Z
L1214420	1/4	28	5.0	6	13.6	57	3
L1214460	5/16	24	6.0	6	16.9	65	3
L1214500	3/8	24	8.0	8	20.1	72	4
L1214540	7/16	20	8.0	8	24.1	72	4
L1214580	1/2	20	10.0	10	26.7	80	4
L1214620	9/16	18	12.0	12	29.6	83	4
L1214660	5/8	18	12.0	12	33.9	92	4
L1214720	3/4	16	14.0	14	39.7	104	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

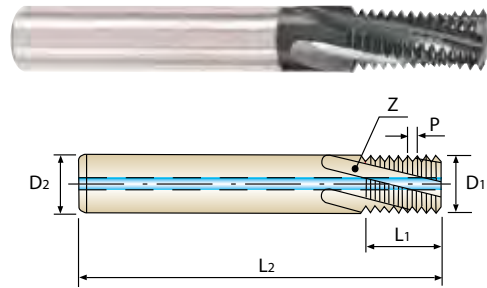
# YG THREAD MILLS

L4211 SERIES

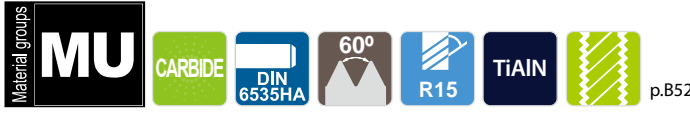
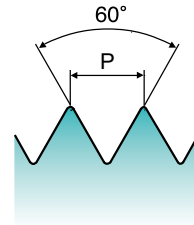
**M** Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13  
 VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL für ISO METRISCHES INNENGEWINDE - DIN 13  
 FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 Con fori di lubrificazione, Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SK SLIM CHUCK	D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAIN	D	P	D1	D2	L1	L2	Z
L4211310	M6	1.0	4.5	6	13.0	57	3
L4211360	M8	1.25	6.0	6	17.5	65	3
L4211420	M10	1.5	7.5	8	21.0	72	4
L4211500	M12	1.75	9.5	10	26.25	80	4
L4211540	M14	2.0	10.0	10	30.0	83	4
L4211600	M16	2.0	12.0	12	34.0	92	4
L4211700	M20	2.5	16.0	16	42.5	105	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	



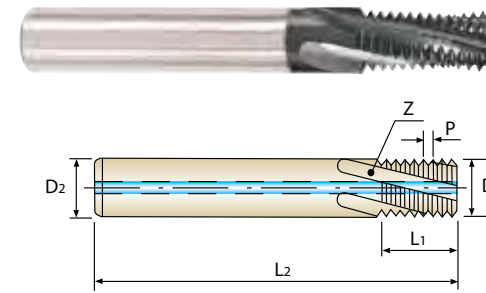
# YG THREAD MILLS

L4212 SERIES

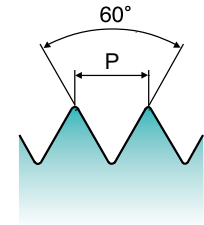
**MF** Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13  
 VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL für ISO METRISCH - FEIN INNENGEWINDE - DIN 13  
 FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 Con fori di lubrificazione, Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
1.5×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SK SLIM CHUCK	D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAIN	D	P	D1	D2	L1	L2	Z
L4212370	M8	1.0	6.0	6	13.0	57	3
L4212380	M8	0.75	6.0	6	12.75	57	3
L4212440	M10	1.0	8.0	8	16.0	63	4
L4212510	M12	1.5	9.5	10	19.5	72	4
L4212520	M12	1.25	9.5	10	18.75	72	4
L4212530	M12	1.0	9.5	10	19.0	72	4
L4212550	M14	1.5	10.0	10	22.5	83	4
L4212570	M14	1.0	10.0	10	22.0	83	4
L4212610	M16	1.5	12.0	12	25.5	83	4
L4212620	M16	1.0	12.0	12	25.0	83	4
L4212670	M18	1.5	14.0	14	28.5	92	5
L4212680	M18	1.0	14.0	14	28.0	92	5
L4212720	M20	1.5	16.0	16	31.5	92	5
L4212730	M20	1.0	16.0	16	31.0	92	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

# YG THREAD MILLS

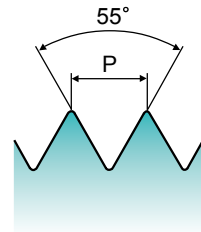
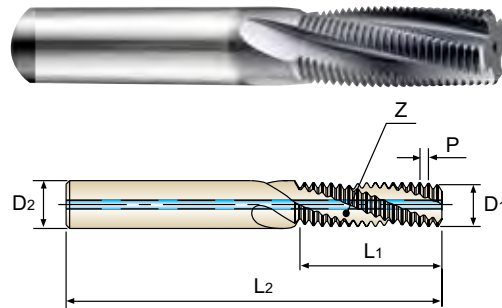
L6215 SERIES

## BSP(G) Solid Carbide Thread Mill with Coolant Hole for BSP(G) Internal/External Thread

● VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL für BSP (G) INNEN- /AUSSENGEWINDE  
● FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE INTERNE/EXTERNE BSP(G)  
● Fresa con fori di lubrificazione, filettature interne ed esterne, BSP(G)

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SK SLIM CHUCK	D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
L6215020	1/16	28	5.9	6	16.3	65	3
L6215200	1/8	28	7.9	8	20.0	70	4
L6215400	1/4	19	9.9	10	26.7	80	4
L6215480	3/8	19	13.9	14	33.4	92	4
L6215560	1/2	14	15.9	16	43.5	104	5
L6215700	3/4	14	17.9	18	34.5	100	5
L6215780	1	11	19.9	20	34.6	100	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG THREAD MILLS

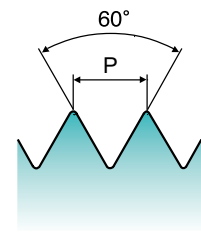
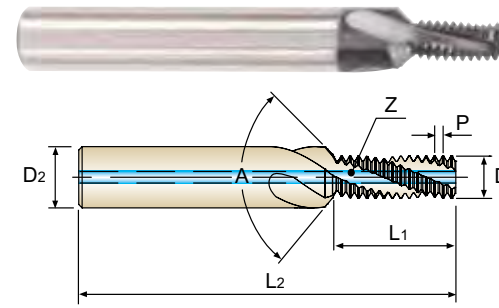
L4271 SERIES

## M Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13

● VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für METRISCHES INNENGEWINDE - DIN 13  
● FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE ISO INTER MÉTRIQUE DIN13  
● Con fori di lubrificazione e taglienti per smussi, filettature interne, ISO metriche - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SK SLIM CHUCK	D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
L4271310	M6	1.0	4.8	8	12.4	62	90°	3
L4271360	M8	1.25	6.5	10	16.8	74	90°	3
L4271420	M10	1.5	8.2	12	20.15	80	90°	4
L4271500	M12	1.75	9.9	14	25.25	90	90°	4
L4271540	M14	2.0	11.6	16	28.85	100	90°	4
L4271600	M16	2.0	13.6	18	32.85	102	90°	4

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



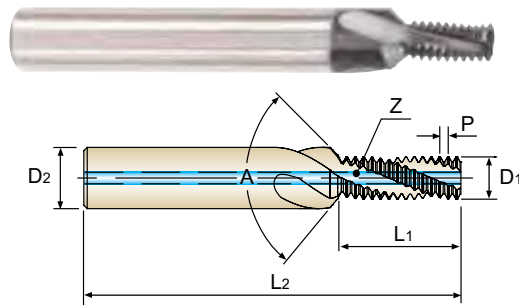
# YG THREAD MILLS

L4272 SERIES

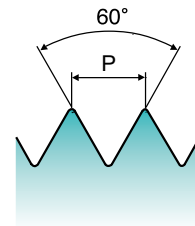
**MF** Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13  
 ● VOLLHARTMETALL GEWINDEFÄRER mit KÜHLKANAL & FASE für METRISCH - FEIN INNENGEWINDE - DIN 13  
 ○ FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE ISO INTER MÉTRIQUE DIN13  
 ○ Con fori di lubrificazione e taglianti per smussi, filettature interne, ISO metriche, passo fine - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
1.5×D



Material groups: **MU** CARBIDE DIN 6535HA 60° R15 TiAIN p.B52

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SK SLIM CHUCK	D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
TiAIN	D	P	D1	D2	L1	L2	A	Z
L4272370	M8	1.0	6.7	10	12.4	74	90°	3
L4272430	M10	1.25	8.3	12	15.9	80	90°	4
L4272440	M10	1.0	8.7	12	15.4	80	90°	4
L4272510	M12	1.5	10.0	14	18.65	90	90°	4
L4272520	M12	1.25	10.3	14	18.3	80	90°	4
L4272530	M12	1.0	10.7	14	18.4	90	90°	4
L4272550	M14	1.5	12.0	16	21.65	100	90°	4
L4272610	M16	1.5	14.0	18	24.65	102	90°	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



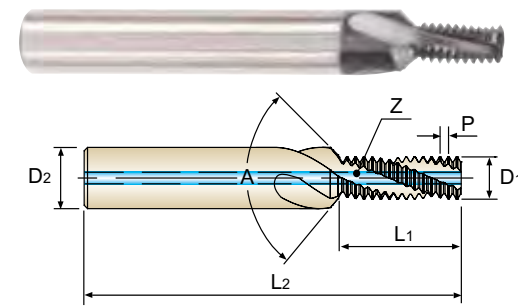
# YG THREAD MILLS

L4273 SERIES

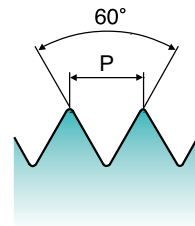
**UNC** Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNC Internal Thread - ANSI B 1.1  
 ● VOLLHARTMETALL GEWINDEFÄRER mit KÜHLKANAL & FASE für UNC INNENGEWINDE - ANSI B 1.1  
 ○ FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER UNC - ANSI B 1.1  
 ○ Con fori di lubrificazione e taglianti per smussi, filettature interne, unificato, passo grosso - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Material groups: **MU** CARBIDE DIN 6535HA 60° R15 TiAIN p.B53

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK		SK SLIM CHUCK	D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
TiAIN	D	T.P.I	D1	D2	L1	L2	A	Z
L4273400	1/4	20	4.8	8	13.3	62	90°	3
L4273440	5/16	18	6.2	10	16.18	74	90°	3
L4273480	3/8	16	7.6	12	19.8	80	90°	4
L4273520	7/16	14	8.9	12	22.62	80	90°	4
L4273560	1/2	13	10.3	14	26.32	90	90°	4
L4273600	9/16	12	11.7	16	30.63	100	90°	4
L4273640	5/8	11	13.1	18	33.41	102	90°	4
L4273700	3/4	10	16.0	20	39.29	110	90°	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG THREAD MILLS

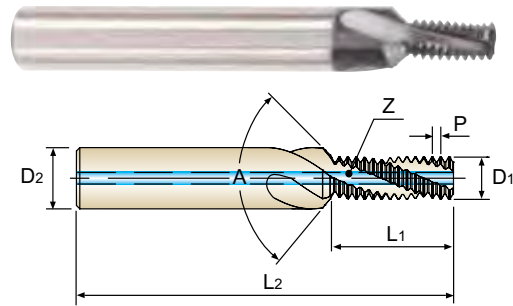
L4274 SERIES

## UNF Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNF Internal Thread - ANSI B 1.1

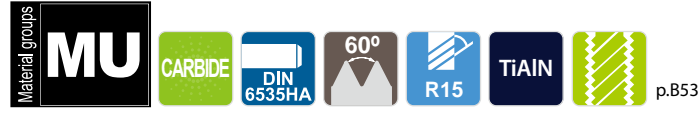
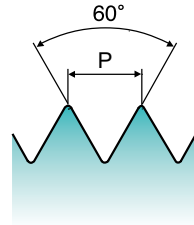
- VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL & FASE für UNF INNENGEWINDE - ANSI B 1.1
- FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER UNC - ANSI B 1.1
- Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo fine - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length		Angle A	No. of Flute Z
					L1	L2		
L4274420	1/4	28	5.1	8	13.21	62	90°	3
L4274460	5/16	24	6.5	10	16.37	74	90°	3
L4274500	3/8	24	8.1	12	19.54	80	90°	4
L4274540	7/16	20	9.4	12	22.19	80	90°	4
L4274580	1/2	20	11.0	14	26	90	90°	4
L4274620	9/16	18	12.4	16	28.88	100	90°	4
L4274660	5/8	18	14.0	18	33.12	102	90°	5
L4274720	3/4	16	17.0	20	38.86	110	90°	5

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	10	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○



# YG THREAD MILLS

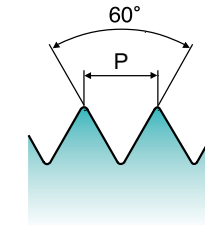
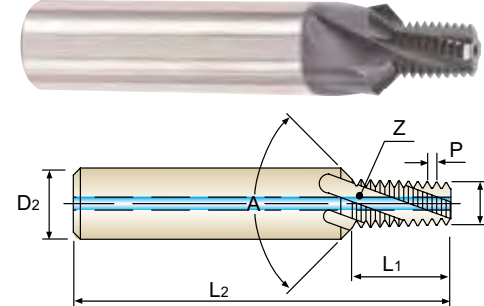
L4276 SERIES

## NPT Solid Carbide Thread Mill with Coolant Hole & Chamfer for NPT Thread - ANSI B 1.20.1

- VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL & FASE für NPT INNENGEWINDE - ANSI B 1.20.1
- FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER NPT - ANSI B 1.20.1
- Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo fine - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length		Angle A	No. of Flute Z
					L1	L2		
L4276020	NPT1/16	27	5.9	10	8.9	64	90°	3
L4276200	NPT1/8	27	7.8	12	8.9	70	90°	4
L4276400	NPT1/4	18	10.05	16	13.4	81	90°	4
L4276480	NPT3/8	18	13.45	18	13.4	81	90°	4

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	10	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

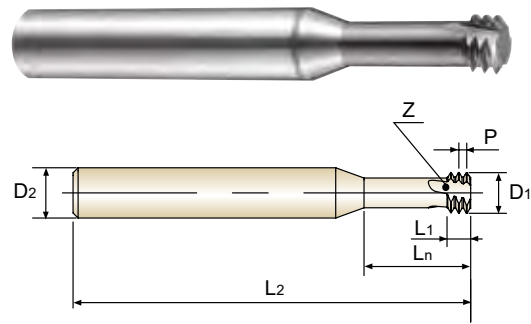
# YG THREAD MILLS

L12D1 SERIES

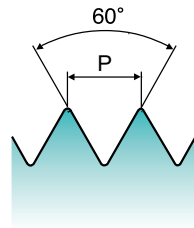
**M** Solid Carbide Miniature Thread Mill for ISO Metric Internal Thread - DIN13  
 ● VOLLHARTMETALL MINI-GEWINDEFÄHRER für ISO METRISCHE INNENGEWINDE - DIN13  
 ● FRAISES A FILETER À TOUBILLONNER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 ● Mini frese per filettature interne ISO metriche passo grosso - DIN 13

▶ Short thread length

▶ Kurze Gewindelänge



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
TiAlN	[D]	P	D1	D2	L1	Ln	L2	Z
L12D1010	M1	0.25	0.70	3	0.75	2.1	30	3
L12D1050	M1.2	0.25	0.90	3	0.75	2.5	30	3
L12D1070	M1.4	0.3	1.04	3	0.90	2.9	30	3
L12D1090	M1.6	0.35	1.18	3	1.05	3.4	30	3
L12D1130	M2	0.4	1.52	6	1.2	4.2	57	3
L12D1150	M2.2	0.45	1.66	6	1.35	4.6	57	3
L12D1170	M2.5	0.45	1.96	6	1.35	5.3	57	3
L12D1200	M3	0.5	2.4	6	1.5	6.3	57	3
L12D1240	M4	0.7	3.16	6	2.1	8.4	57	3
L12D1280	M5	0.8	4.04	6	2.4	10.5	57	3
L12D1310	M6	1.0	4.8	6	3.0	12.6	57	3
L12D1360	M8	1.25	6.5	8	3.75	16.8	63	3
L12D1420	M10	1.5	8.2	10	4.5	21.0	73	3
L12D1500	M12	1.75	9.9	10	5.25	25.2	73	3

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



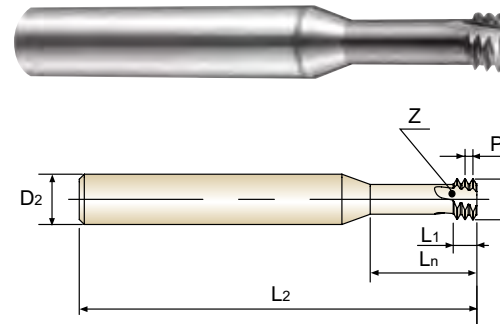
# YG THREAD MILLS

L12D3 SERIES

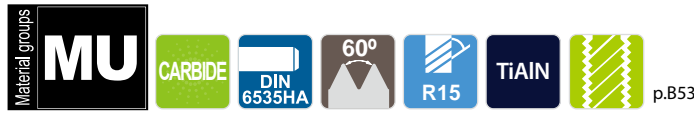
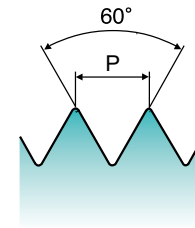
**UNC** Solid Carbide Miniature Thread Mill for UNC Internal Thread - ANSI B 1.1  
 ● VOLLHARTMETALL MINI-GEWINDEFÄHRER für UNC INNENGEWINDE - ANSI B 1.1  
 ● FRAISES A FILETER À TOUBILLONNER CARBURE MONOBLOC POUR FILETAGE POUR FILETAGE INTER UNC- ANSI B 1.1  
 ● Mini frese per filettature interne unificato passo grosso - ANSI B 1.1

▶ Short thread length

▶ Kurze Gewindelänge



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
TiAlN	[D]		D1	D2	L1	Ln	L2	Z
L12D3040	#1	64	1.38	6	1.19	3.9	57	3
L12D3080	#2	56	1.64	6	1.36	4.6	57	3
L12D3160	#4	40	2.08	6	1.91	6.0	57	3
L12D3240	#6	32	2.55	6	2.38	7.4	57	3
L12D3280	#8	32	3.21	6	2.38	8.7	57	3
L12D3320	#10	24	3.56	6	3.18	10.1	57	3
L12D3360	#12	24	4.22	6	3.18	11.5	57	3
L12D3400	1/4	20	4.83	6	3.81	13.3	57	3
L12D3440	5/16	18	6.24	8	4.23	16.7	63	3
L12D3480	3/8	16	7.62	8	4.76	20.0	63	3
L12D3520	7/16	14	8.94	10	5.44	23.3	73	3

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG THREAD MILLS

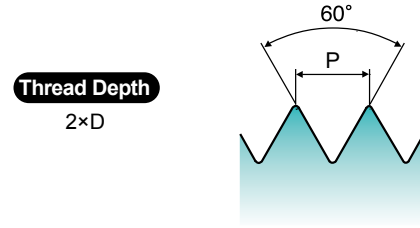
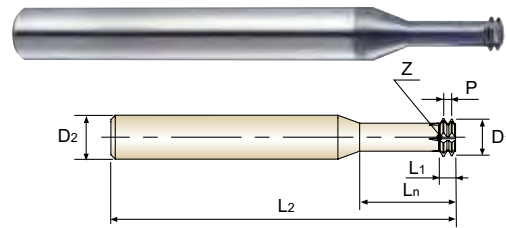
L19E1 SERIES

## M Solid Carbide Miniature Thread Mill for Hard Materials, ISO Metric Internal Thread - DIN13

- VOLLHARTMETALL MINI-GEWINDEFÄHRER für GEHÄRTETE MATERIALIEN, ISO METRISCHE INNENGEWINDE - DIN13
- FRAISES À TOURBILLONNER CARBURE MONOBLOC POUR MATÉRIEAUX DURS, FILETAGE ISO INTER MÉTRIQUE - DIN13
- Mini frese per acciai temprati ISO metriche passo grosso - DIN 13

- Short thread length
- Straight Flute
- Left hand Cut (CNC code : M04)
- The work direction is from top to bottom (Climb Milling)
- For hard materials up to HRC62

- Kurze Gewindelänge
- Linksschneidend, geradegenutet
- Linksschneidend (CNC Befehl : M04)
- Die Fräsrichtung ist von oben nach unten (Gleichlauf)
- Für gehärtete Materialien bis zu HRC62



Material groups: **HR** CARBIDE DIN 6535HA 60° AITIN p.B53

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
		POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 115
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
AITIN	P	D1	D2	L1	Ln	L2	Z	
L19E1130	M2	0.4	1.52	6	0.8	4.2	57	4
L19E1150	M2.2	0.45	1.66	6	0.9	4.6	57	4
L19E1170	M2.5	0.45	1.96	6	0.9	5.3	57	4
L19E1200	M3	0.5	2.4	6	1.0	6.3	57	4
L19E1240	M4	0.7	3.16	6	1.4	8.4	57	4
L19E1280	M5	0.8	4.04	6	1.6	10.5	57	4
L19E1310	M6	1.0	4.8	6	2.0	12.6	57	5
L19E1360	M8	1.25	6.5	8	2.5	16.8	63	5
L19E1420	M10	1.5	8.2	10	3.0	21.0	73	6
L19E1500	M12	1.75	9.9	10	3.5	25.2	73	6

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M				K										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21	3	25	10	26	3
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	160	250	130	230	160
Recommended						○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H														
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	400	550
Recommended											◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎



# YG THREAD MILLS

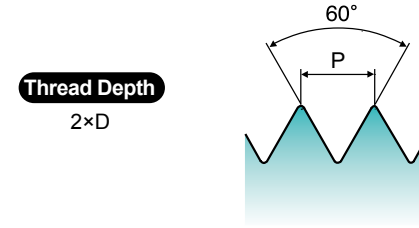
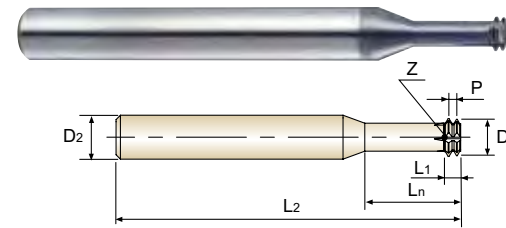
L19E3 SERIES

## UNC Solid Carbide Miniature Thread Mill for Hard Materials, UNC Internal Thread - ANSI B 1.1

- VOLLHARTMETALL MINI-GEWINDEFÄHRER für GEHÄRTETE MATERIALIEN, UNC INNENGEWINDE - ANSI B 1.1
- FRAISES À TOURBILLONNER CARBURE MONOBLOC POUR MATÉRIEAUX DURS POUR FILETAGE INTER UNC - ANSI B 1.1
- Mini frese per acciai temprati unificato passo grosso - ANSI B 1.1

- Short thread length
- Straight Flute
- Left hand Cut (CNC code : M04)
- The work direction is from top to bottom (Climb Milling)
- For hard materials up to HRC62

- Kurze Gewindelänge
- Linksschneidend, geradegenutet
- Linksschneidend (CNC Befehl : M04)
- Die Fräsrichtung ist von oben nach unten (Gleichlauf)
- Für gehärtete Materialien bis zu HRC62



Material groups: **HR** CARBIDE DIN 6535HA 60° AITIN p.B53

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
		POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 115
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
AITIN	D		D1	D2	L1	Ln	L2	Z
L19E3080	#2	56	1.64	6	0.91	4.6	57	4
L19E3160	#4	40	2.08	6	1.27	6.0	57	4
L19E3240	#6	32	2.55	6	1.59	7.4	57	4
L19E3280	#8	32	3.21	6	1.59	8.7	57	4
L19E3320	#10	24	3.56	6	2.12	10.1	57	4
L19E3360	#12	24	4.22	6	2.12	11.5	57	4
L19E3400	1/4	20	4.83	6	2.54	13.3	57	5
L19E3440	5/16	18	6.24	8	2.82	16.7	63	5
L19E3480	3/8	16	7.62	8	3.18	20.0	63	6
L19E3520	7/16	14	8.94	10	3.63	23.3	73	6

\* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO Material Description	P										M				K										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21	3	25	10	26	3
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	160	250	130	230	160
Recommended						○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H														
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	400	550
Recommended											◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎

# YG THREAD MILLS

UNCOATED L41A1 SERIES  
TiAIN L42A1 SERIES

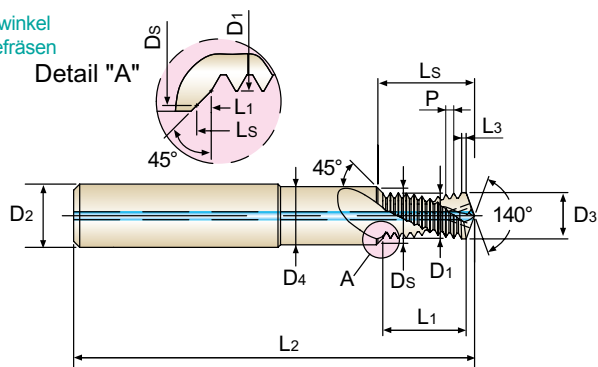
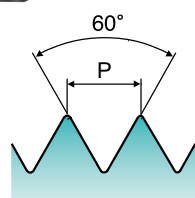
## M Solid Carbide Drill and Thread Mill with Chamfer for ISO Metric Internal Thread - DIN 13

**VOLLHARTMETALL BOHRGEWINDEFÄSER MIT SENKFASE für ISO METRISCHE INNENGEWINDE - DIN 13**  
**FRAISES À FILETER ET À PERCER CARBURE MONOBLOC AVEC CHANFREIN POUR FILETAGE INTER - DIN13**  
**Fresa fora, fileta e smussa , filettature interne, ISO metriche passo grosso - DIN 13**

- No. of Flute : 2
- Drill Point : 140° / Countersink : 90°
- Drilling, Chamfering and Thread milling
- Anz. der Nuten : 2
- 140° Spitzenwinkel, 90° Senkwinkel
- Bohren, Senken und Gewindefräsen



Thread Depth  
2xD



Material groups: **GG** (GG), **AI** (AI), CARBIDE, DIN 6535HA, 60°, Bright, TiAIN, p.B53

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK		D161 - 176
	ER COLLET CHUCK		D73 - 115
	SK SUM CHUCK		D183 - 201

EDP No.		Nominal Diameter [ D ]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Effect. Diameter Ds	Drill Diameter D3	Max. C'sink D4	Thread Length L1	Effect. Length Ls	Drill Length L3	Overall Length L2
L41A1310	L42A1310	M6	1.0	4.75	8	6.3	5.00	6.6	13.00	14.68	1.00	62
L41A1360	L42A1360	M8	1.25	6.35	10	8.3	6.75	9.0	16.27	18.48	1.25	74
L41A1420	L42A1420	M10	1.5	7.95	12	10.3	8.50	11.0	21.05	23.77	1.50	79
L41A1500	L42A1500	M12	1.75	9.95	14	12.3	10.25	13.5	24.21	27.25	1.50	89
L41A1540	L42A1540	M14	2.0	11.20	16	14.3	12.00	15.5	29.58	33.32	1.50	102

\* Other coatings are available on your request

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎											



# YG THREAD MILLS

RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDKONDITIONEN

## For Thread Mills

Materials	Hardness (HB)	Strength (N/mm <sup>2</sup> )	Feed per Tooth (fz) unit : mm	
			Cutter Diameter ≤Ø8.0	Cutter Diameter >Ø8.0
Low Carbon Steels	≤ 200	≤ 700	0.02 - 0.04	0.04 - 0.10
Medium Carbon Steels High Carbon Steels	≤ 250	≤ 850	0.02 - 0.04	0.04 - 0.10
Alloy Steels	≤ 250	≤ 850	0.02 - 0.04	0.04 - 0.10
Heat Treated Steels	≤ 400	≤ 1400	0.02 - 0.04	0.04 - 0.10
Stainless Steels	≤ 300	≤ 1000	0.01 - 0.02	0.02 - 0.06
Cast Iron	≤ 300	≤ 1000	0.02 - 0.04	0.04 - 0.10
Chrome-Nickel Alloys Titanium Alloys	≤ 350	≤ 1200	0.01 - 0.02	0.02 - 0.06
Non Ferrous Materials	≤ 200	≤ 700	0.03 - 0.07	0.05 - 0.10

## For Drill and Thread Mills

Material	Hardness (HB)	Strength (N/mm <sup>2</sup> )	Fz(Threading) - Feed per Tooth unit : mm		Fdr(Drilling) - Feed per revolution	
			Cutter Diameter ≤Ø8.0	Cutter Diameter >Ø8.0	Cutter Diameter ≤Ø8.0	Cutter Diameter >Ø8.0
Cast Iron	≤ 200	≤ 700	0.03-0.08	0.08-0.12	0.10-0.20	0.20-0.25
Aluminium Aluminium-alloy Magnesium	≤ 180	≤ 600	0.05-0.10	0.10-0.15	0.10-0.20	0.20-0.30
Plastics	-	-	0.05-0.10	0.10-0.15	0.10-0.20	0.20-0.30

## For Hard Material Miniature Thread Mills

Material	Hardness	Strength (N/mm <sup>2</sup> )	Feed(mm/tooth) unit : mm	
			Cutter Diameter ≤Ø6.0	Cutter Diameter >Ø6.0
Alloy Steel	295-415HB	1000-1400	0.02-0.04	0.04-0.06
Stainless Steel	280-415HB	950-1250	0.02-0.04	0.04-0.06
Cast Iron	≤ HB300	≤ 1000	0.03-0.05	0.05-0.07
Chrome-Nickel Alloys Titanium Alloys	≤ HB445	≤ 1500	0.02-0.03	0.03-0.05
Hardened Material	45-50HRc		0.03-0.05	0.05-0.07
	51-55HRc		0.02-0.04	0.04-0.06
	56-62HRc		0.01-0.03	0.03-0.05

THREAD MILLS

SYNCHRO TAPS

PRIME TAPS

COMBO TAPS

YG TAP GENERAL

YG TAP STEEL

YG TAP HARDENED

YG TAP INOX

YG TAP CAST IRON

YG TAP ALU

YG TAP Ti Ni

YG TAP FORMING

NUT TAPS

STI TAPS

PIPE TAPS

TECHNICAL DATA

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)								
					L1211	L1212	L1213	L1214	L4211	L4212	L6215	L4271	L4272
P	1	Non-alloy steel	125		80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	2		190	13	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	3		250	25	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	4		270	28	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	5		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	6	Low alloy steel	180	10	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	7		275	29	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	8		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	9		350	38	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	10		High alloyed steel, and tool steel	200	15	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	11	325	35	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
M	12	Stainless steel	200	15	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80
	13		240	23	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80
	14		180	10	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80
K	15	Grey cast iron	180	10	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	16	Nodular cast iron	260	26	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	17		160	3	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	18		250	25	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	19		Malleable cast iron	130		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
20	230	21		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	
N	21	Aluminum-wrought alloy	60		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	22		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	23	Aluminum-cast, alloyed	75		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	24		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	25		130		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	26		110		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	27		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	28		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	29				100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	30				100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
S	31	Heat Resistant Super Alloys	200	15	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	32		280	30	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	33		250	25	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	34		350	38	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	35		320	34	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	36	Titanium Alloys	400Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	37		1050Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
H	38	Hardened steel	550	55						25-60	25-60		
	39		630	60						25-50	25-50		
	40	Chilled Cast Iron	400	42						25-70	25-70		
	41	Hardened Cast Iron	550	55						25-60	25-60		

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)									
					L4273	L4274	L4276	L12D1	L12D3	L19E1	L19E3	L41A1 L42A1		
P	1	Non-alloy steel	125		80-120	80-120	80-120	80-120	80-120					
	2		190	13	80-120	80-120	80-120	80-120	80-120					
	3		250	25	80-120	80-120	80-120	80-120	80-120					
	4		270	28	80-120	80-120	80-120	80-120	80-120					
	5		300	32	80-120	80-120	80-120	80-120	80-120					
	6	Low alloy steel	180	10	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	7		275	29	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	8		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	9		350	38	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	10		High alloyed steel, and tool steel	200	15	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	11	325	35	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
M	12	Stainless steel	200	15	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80		
	13		240	23	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80		
	14		180	10	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80		
K	15	Grey cast iron	180	10	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	16	Nodular cast iron	260	26	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	17		160	3	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	18		250	25	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	19		Malleable cast iron	130		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
20	230	21		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150		
N	21	Aluminum-wrought alloy	60		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	22		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	23	Aluminum-cast, alloyed	75		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	24		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	25		130		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	26		110		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	27		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	28		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	29				100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	80-150
	30				100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	80-150
S	31	Heat Resistant Super Alloys	200	15	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	32		280	30	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	33		250	25	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	34		350	38	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	35		320	34	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	36	Titanium Alloys	400Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	37		1050Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
H	38	Hardened steel	550	55								25-60	25-60	
	39		630	60								25-50	25-50	
	40	Chilled Cast Iron	400	42								25-70	25-70	
	41	Hardened Cast Iron	550	55								25-60	25-60	

THREAD MILLS

SYNCHRO TAPS

PRIME TAPS

COMBO TAPS

YG TAP GENERAL

YG TAP STEEL

YG TAP HARDENED

YG TAP INOX

YG TAP CAST IRON

YG TAP ALU

YG TAP Ti Ni

YG TAP FORMING

NUT TAPS

STI TAPS

PIPE TAPS

TECHNICAL DATA

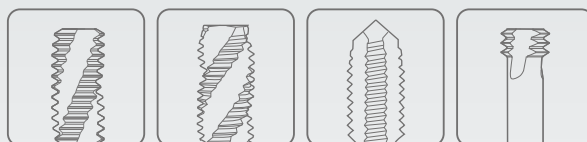
**TO CALCULATE SPEED & FEED RATES**  
SCHNITTGESCHWINDIGKEIT & VORSCHUB KALKULIEREN

Calculate R.P.M of Cutter	Calculate Feed per Revolution	Finally Calculate Feed at Tool Center Line
$n = \frac{1000 \times V}{d \times \pi}$	$F_1 = Fz \$	





Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation

HSS-PM

# SYNCHRO TAPS

## Synchro Gewindebohrer

- For High Speed Tapping on Rigid CNC Machine
- Für Hochgeschwindigkeits-Gewindebohren auf starren CNC-Maschinen



SELECTION GUIDE



**HSS-PM SYNCHRO TAPS**

For High Speed Tapping on Rigid CNC Machine

HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.0xD Blind/Through Hole	Max. 3.0xD Blind/Through Hole	
TOOL MATERIAL: <b>HSS-PM</b>						
CHAMFER LEAD ACC. TO DIN2197		C	B	C	C	
FLUTE TYPE		Spiral Flute	Spiral Point	Straight Flute	Cold Forming	
SPIRAL FLUTE ANGLE		R45	-	-	-	
SERIES	M	DIN371/376	TTS31 (p.857)	TTS33 (p.858)	TKS35 (p.859)	TTS37 (p.860)
		DIN352				
		DIN357/LONG				
	MF	DIN374				
		DIN2181				
	UNC	DIN371/376				
		DIN351				
	UNF	DIN371/374				
		DIN2181				
	BSW	DIN2182/2183				
DIN351						
G(BSP)	DIN5156/5157					
EG-M	DIN371/376					
EG-UNC	DIN371/376					
EG-UNF	DIN371/374					
SURFACE TREATMENT		TIN	TIN	TiCN	TIN	
MODEL						

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B61

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	TTS31	TTS33	TKS35	TTS37
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	○	◎
	2		About 0.45% C Annealed	190	13	◎	◎	○	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	○	◎
	4		About 0.75% C Annealed	270	28	◎	◎	○	◎
	5	About 0.75% C Quenched & Tempered	300	32	◎	◎	○	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	○	◎
	7		Quenched & Tempered	275	29	◎	◎	○	◎
	8		Quenched & Tempered	300	32	◎	◎	○	◎
	9		Quenched & Tempered	350	38	◎	◎	○	◎
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	○
	11	Quenched & Tempered		325	35	◎	◎	○	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	○	◎
	13		Martensitic Quenched & Tempered	240	23	◎	◎	○	◎
	14		Austenitic Quenched & Tempered	180	10	○	○	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	◎	○
	16		Pearlitic (Martensitic)	260	26	○	○	◎	○
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎	◎
	18		Pearlitic	250	25	◎	◎	◎	◎
	19		Ferritic	130		◎	◎	◎	◎
20	Malleable cast iron	Pearlitic	230	21	◎	◎	◎	◎	
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎	○	◎
	22		Curable Hardened	100		◎	◎	○	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	◎	○	◎
	24		≤ 12% Si, Curable Hardened	90		◎	◎	○	◎
	25		> 12% Si, Not Curable	130		◎	◎	○	◎
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		◎	◎	○	◎
	27		CuZn, CuSnZn (Brass)	90		◎	◎	○	◎
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	◎	◎
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.			○	○	◎
	S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	◎	◎	○
32		Cured		280	30	◎	◎	○	◎
33		Annealed		250	25	◎	◎	○	◎
34		Ni or Co Based Cured		350	38	◎	◎	○	◎
35		Cast	320	34	◎	◎	○	◎	
36	Titanium Alloys	Pure Titanium	400 Rm		◎	◎	○	◎	
37		Alpha + Beta Alloys Hardened	1050 Rm		◎	◎	○	◎	
H	38	Hardened steel	Hardened	550	55	◎	◎	○	◎
	39		Hardened	630	60	◎	◎	○	◎
	40	Chilled Cast Iron	Cast	400	42	◎	◎	○	◎
41	Hardened Cast Iron	Hardened	550	55	◎	◎	○	◎	



**YG SYNCHRO TAPS**

**TTS31 SERIES**

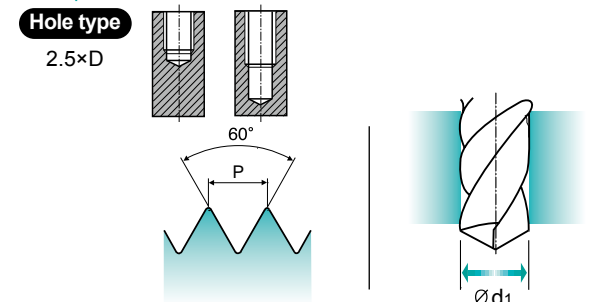
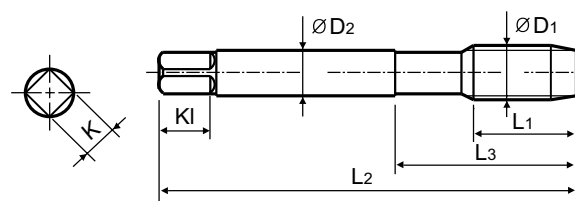
**ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- Up to 3 times faster in tapping compared to conventional taps
- For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- High precision threads

- Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindegüte empfohlen
- Hoch präzise Gewinde



Material groups: **GS** HSS PM DIN 371/376 6H 60° C R45 TiN p.B61

Recommended ToolHolder: Plain Shank Page SYNCHROTAPPING CHUCK D203-210

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M3 × 0.5		TTS31206	6	56	18	3.5	2.7	6	3	2.5
M4 × 0.7		TTS31246	7	63	21	4.5	3.4	6	3	3.3
M5 × 0.8		TTS31286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TTS31316	10	80	30	6	4.9	8	3	5
M8 × 1.25		TTS31366	13	90	35	8	6.2	9	3	6.8
M10 × 1.5		TTS31426	15	100	39	10	8	11	3	8.5
M12 × 1.75		TTS31506	18	110	44	9	7	10	3	10.2
M14 × 2		TTS31546	20	110	44	11	9	12	3	12
M16 × 2		TTS31606	20	110	44	12	9	12	3	14
M18 × 2.5		TTS31656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TTS31706	25	140	54	16	12	15	4	17.5

- DIN 371(M3~M10) and DIN 376(M11~M20)
- Coating(TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N									S						H					
	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	65	70	75	80	85	90	95	100		200	250	300	350	400	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



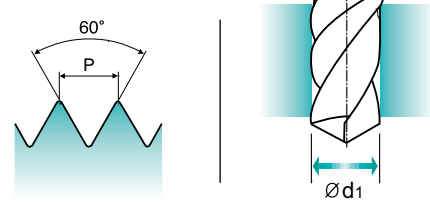
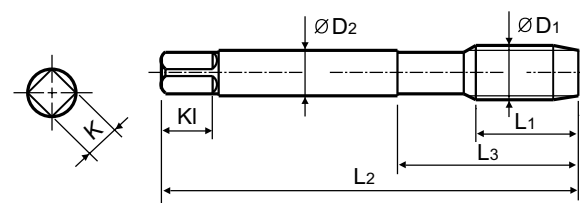
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- Up to 3 times faster in tapping compared to conventional taps
- For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- High precision threads

- Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- Hoch präzise Gewinde



Material groups: **GS** HSS PM DIN 371/376 6HX 60° B TiN p.B61

Plain Shank Page  
Recommended ToolHolder SYNCHROTAPPING CHUCK D203-210

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TTS33206	5	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	TTS33246	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	TTS33286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TTS33316	10	80	30	6	4.9	8	3	5
M8	× 1.25	TTS33366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TTS33426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TTS33506	18	110	44	9	7	10	4	10.2
M14	× 2	TTS33546	20	110	44	11	9	12	4	12
M16	× 2	TTS33606	20	110	44	12	9	12	4	14
M18	× 2.5	TTS33656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TTS33706	25	140	54	16	12	15	4	17.5

- DIN 371(M3~M10) and DIN 376(M11~M20)
- Coating(TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	260	160	250	130	230				
Recommended	◎	◎	◎	◎	◎	◎	◎			◎	◎	○	○		◎				◎	◎	○	○

ISO	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	42	55	
Recommended			◎	◎	◎	◎		○														



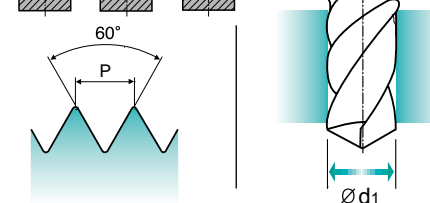
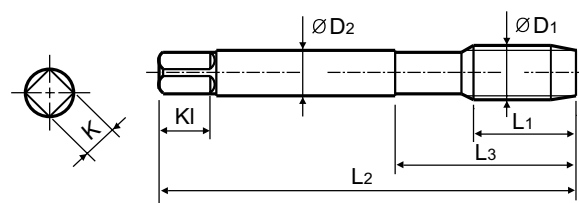
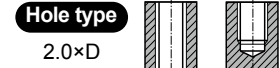
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

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- Hoch präzise Gewinde



Material groups: **GS** HSS PM DIN 371/376 6HX 60° C TiCN p.B61

Plain Shank Page  
Recommended ToolHolder SYNCHROTAPPING CHUCK D203-210

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TKS35206	5	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	TKS35246	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	TKS35286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TKS35316	10	80	30	6	4.9	8	3	5
M8	× 1.25	TKS35366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TKS35426	15	100	39	10	8	11	4	8.5
M12	× 1.75	TKS35506	18	110	44	9	7	10	4	10.2
M14	× 2	TKS35546	20	110	44	11	9	12	4	12
M16	× 2	TKS35606	20	110	44	12	9	12	4	14
M18	× 2.5	TKS35656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TKS35706	25	140	54	16	12	15	4	17.5

- DIN 371(M3~M10) and DIN 376(M11~M20)
- Coating(TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	260	160	250	130	230				
Recommended	○	○	○	○	○	○	○			○	○	○	○		◎	◎	◎	◎	○	○		

ISO	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	42	55	
Recommended			○	○	○																	

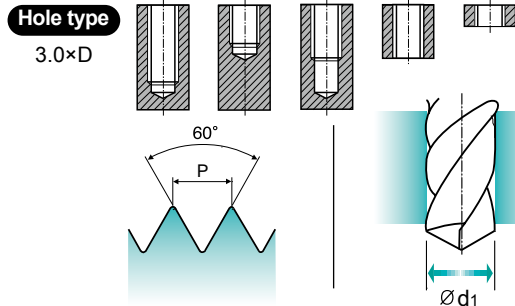
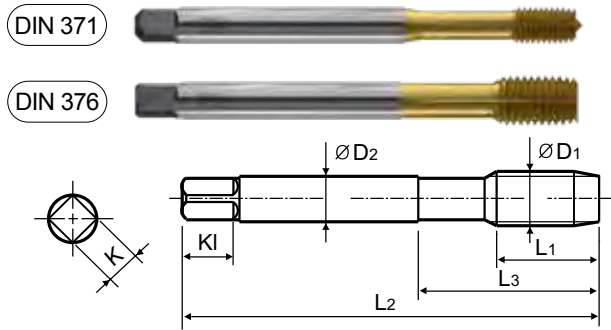
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps  
Gewindeformer

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- Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofußers zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- Hoch präzise Gewinde



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C TiN p.B61

Recommended ToolHolder: Plain Shank Page SYNCHRO TAPPING CHUCK D203-210

Recommended cutting : P.69 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Ød1
M3	× 0.5	TTS37206	5	56	18	3.5	2.7	6	2.8
M4	× 0.7	TTS37246	7	63	21	4.5	3.4	6	3.7
M5	× 0.8	TTS37286	8	70	25	6	4.9	8	4.65
M6	× 1	TTS37316	10	80	30	6	4.9	8	5.55
M8	× 1.25	TTS37366	13	90	35	8	6.2	9	7.4
M10	× 1.5	TTS37426	15	100	39	10	8	11	9.3
M12	× 1.75	TTS37506	18	110	44	9	7	10	11.2

►DIN 371(M3~M10) and DIN 376(M11~M12)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

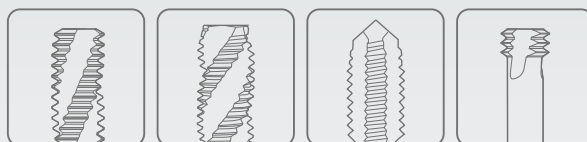
ISO	N								S							H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



ISO	VDI 3323	Material Description	HB	HRc	TTS31	TTS33	TKS35	TTS37
					Vc (m/min)			
P	1	Non-alloy steel	125		41-46	41-46	41-46	41-46
	2		190	13	41-46	41-46	41-46	41-46
	3		250	25	35-40	35-40	35-40	35-40
	4		270	28	28-33	28-33	28-33	28-33
	5		300	32				
	6	Low alloy steel	180	10	28-33	28-33	28-33	28-33
	7		275	29	28-33	28-33	28-33	28-33
M	12	Stainless steel	200	15	18-23	18-23		18-23
	13		240	23	13-18	13-18		13-18
	14		180	10	10-14	10-14		10-14
K	15	Grey cast iron	180	10	28-33	28-33		28-33
	16		260	26				13-18
	17	Nodular cast iron	160	3	28-33	28-33		28-33
	18		250	25				13-18
	19	Malleable cast iron	130					28-33
	20		230	21				13-18
N	21	Aluminum-wrought alloy	60					28-33
	22		100					28-33
	23	Aluminum-cast, alloyed	75		41-46	41-46	41-46	41-46
	24		90		41-46	41-46	41-46	41-46
	25		130		30-35	30-35	30-35	30-35
	26		110		45-50	45-50		
	27	Copper and Copper Alloys (Bronze / Brass)	90					
	28		100		25-30	25-30		25-30



Global Cutting Tool Leader **YG-1**



# THREADING





Leading Through Innovation

HSS-PM

# PRIME TAPS

## PRIME GEWINDEBOHRER

- Premium Spiral Point and Spiral Flute Taps for CNC Machines
- High and Reliable Performance on Various Ductile Materials
- Premium Gerade- und Spiralgenutete Gewindebohrer
- Ausgezeichnete und zuverlässige Leistung in verschiedenen Werkstoffen



SELECTION GUIDE



HSS-PM

PRIME TAPS

Premium Spiral Point and Spiral Flute Taps for CNC Machines  
High and Reliable Performance on Various Ductile Materials

HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
TOOL MATERIAL		HSS-PM	
CHAMFER LEAD ACC. TO DIN2197		C	E B
FLUTE TYPE		Spiral Flute	Spiral Point
SPIRAL FLUTE ANGLE		R45	R45 -
M	DIN371/376	TRE30 (p.B65)	TRE34 (p.B66) TRJ15 (p.B71)
	DIN352		
	DIN357/LONG		
MF	DIN374	TRE31 (p.B67)	TRJ16 (p.B72)
	DIN2181		
UNC	DIN371/376	TRE32 (p.B69)	TRJ17 (p.B74)
	DIN351		
UNF	DIN371/374	TRE33 (p.B70)	TRJ18 (p.B75)
	DIN2181		
BSW	DIN2182/2183		
	DIN351		
G(BSP)	DIN5156/5157		
EG-M	DIN371/376		
EG-UNC	DIN371/376		
EG-UNF	DIN371/374		

SURFACE TREATMENT X-coating



MODEL

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B76

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC				
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	
	8		Quenched & Tempered	300	32	◎	◎	◎	
	9		Quenched & Tempered	350	38	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○	○
	11			Quenched & Tempered	325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎	
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎	
	14		Austenitic	180	10	◎	◎	◎	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	◎	
	16		Pearlitic (Martensitic)	260	26	○	○	◎	
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎	
	18		Pearlitic	250	25	◎	◎	◎	
	19		Ferritic	130					
	20		Pearlitic	230	21				
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	
	22		Curable Hardened	100		○	○	○	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	◎	◎	
	24		≤ 12% Si, Curable Hardened	90		◎	◎	◎	
	25		> 12% Si, Not Curable	130		○	○	○	
	26		Cutting Alloys, PB>1%	110		◎	◎	◎	
	27		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90		◎	◎	◎
	28			CuSn, lead-free copper and electrolytic copper	100		◎	◎	◎
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30			Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15				
	32		Cured	280	30				
	33		Annealed	250	25				
	34		Cured	350	38				
	35	Cast	320	34					
	36	Titanium Alloys	Pure Titanium	400 Rm					
	37		Alpha + Beta Alloys Hardened	1050 Rm					
H	38	Hardened steel	Hardened	550	55				
	39		Hardened	630	60				
	40	Hardened Cast Iron	Cast	400	42				
	41		Hardened	550	55				



PRIME TAPS

TRE30 SERIES

M

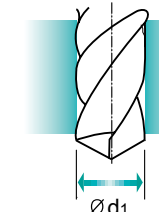
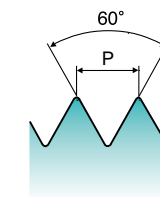
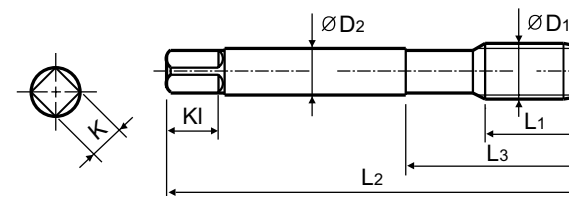
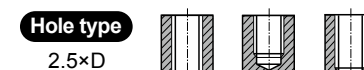
ISO Metric Coarse Threads DIN13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: MU, HSS PM, DIN 371/376, 6HX, 60°, C, R45, X Coating, p.B76

Recommended ToolHolder: Plain Shank, SYNCHRO TAPPING CHUCK, TAPPING CHUCK, ONE STEP TAPPING CHUCK

Page: D203-210, D215-220, D221-228, D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	x 0.4	TRE30136GS	3.2	45.0	13.0	2.8	2.1	5.0	2	1.6
M2.5	x 0.45	TRE30176GS	3.6	50.0	15.0	2.8	2.1	5.0	2	2.1
M3	x 0.5	TRE30206GS	4.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M3.5	x 0.6	TRE30226GS	4.8	56.0	20.0	4.0	3.0	6.0	3	2.9
M4	x 0.7	TRE30246GS	5.6	63.0	21.0	4.5	3.4	6.0	3	3.3
M5	x 0.8	TRE30286GS	6.4	70.0	25.0	6.0	4.9	8.0	3	4.2
M6	x 1.0	TRE30316GS	8.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M7	x 1.0	TRE30346GS	10.0	80.0	30.0	7.0	5.5	8.0	3	6.0
M8	x 1.25	TRE30366GS	13.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M9	x 1.25	TRE30396GS	13.0	90.0	35.0	9.0	7.0	10.0	3	7.8
M10	x 1.5	TRE30426GS	15.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12	x 1.75	TRE30506GS	18.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14	x 2.0	TRE30546GS	20.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16	x 2.0	TRE30606GS	20.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M18	x 2.5	TRE30656GS	25.0	125.0	50.0	14.0	11.0	14.0	4	15.5
M20	x 2.5	TRE30706GS	25.0	140.0	54.0	16.0	12.0	15.0	4	17.5
M22	x 2.5	TRE30746GS	25.0	140.0	54.0	18.0	14.5	17.0	4	19.5
M24	x 3.0	TRE30786GS	30.0	160.0	60.0	18.0	14.5	17.0	4	21.0

►DIN 371(M2~M10) and DIN 376(M12~M24)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323																				
HRC	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	190	250	270	300	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	○	○	◎	◎	◎		

ISO	N									S						H					
	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRC	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													



TRE34 SERIES

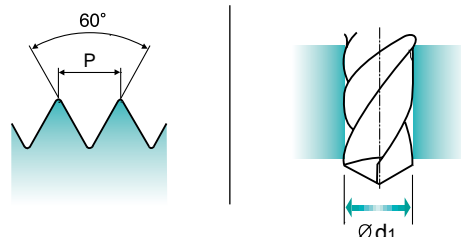
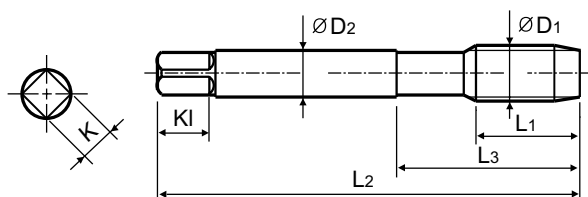
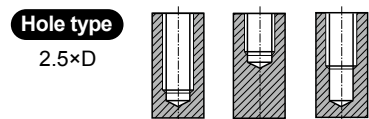
# M ISO Metric Coarse Threads DIN13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: **MU** HSS PM DIN 371/378 6HX 60° E R45 X Coating p.B76

Plain Shank Page  
SYNCHRO TAPPING CHUCK D203-210  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	x 0.4	TRE34136GS	3.2	45.0	13.0	2.8	2.1	5.0	2	1.6
M3	x 0.5	TRE34206GS	4.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M4	x 0.7	TRE34246GS	5.6	63.0	21.0	4.5	3.4	6.0	3	3.3
M5	x 0.8	TRE34286GS	6.4	70.0	25.0	6.0	4.9	8.0	3	4.2
M6	x 1.0	TRE34316GS	8.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M8	x 1.25	TRE34366GS	13.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M10	x 1.5	TRE34426GS	15.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12	x 1.75	TRE34506GS	18.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14	x 2.0	TRE34546GS	20.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16	x 2.0	TRE34606GS	20.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M20	x 2.5	TRE34706GS	25.0	140.0	54.0	16.0	12.0	15.0	4	17.5

►DIN 371(M2~M10) and DIN 376(M12~M20)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	○	○	◎	◎	◎	○	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎			○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎



TRE31 SERIES

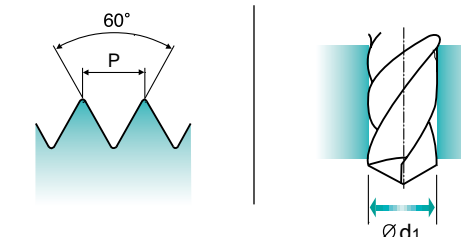
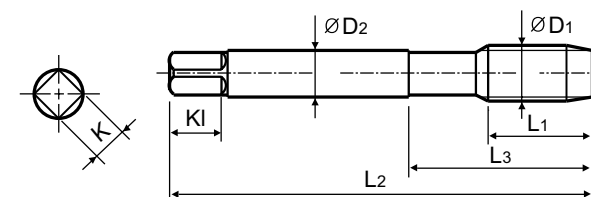
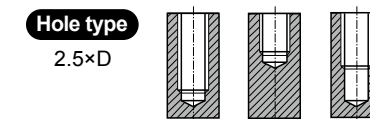
# MF ISO Metric Fine Threads DIN13

- MMetrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: **MU** HSS PM DIN 374 6HX 60° C R45 X Coating p.B76

Plain Shank Page  
SYNCHRO TAPPING CHUCK D203-210  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	x 0.5	TRE31256GS	5.6	63.0	21.0	2.8	2.1	5.0	3	3.5
M4	x 0.35	TRE31696GS	5.6	63.0	21.0	2.8	2.1	5.0	3	3.7
M5	x 0.5	TRE31296GS	6.4	70.0	25.0	3.5	2.7	6.0	3	4.5
M6	x 0.75	TRE31326GS	8.0	80.0	30.0	4.5	3.4	6.0	3	5.3
M6	x 0.5	TRE31336GS	8.0	80.0	30.0	4.5	3.4	6.0	3	5.5
M8	x 1.0	TRE31376GS	10.0	90.0	36.0	6.0	4.9	8.0	3	7.0
M8	x 0.75	TRE31386GS	10.0	80.0	30.0	6.0	4.9	8.0	3	7.3
M9	x 1.0	TRE31406GS	10.0	90.0	36.0	7.0	5.5	8.0	3	8.0
M9	x 0.75	TRE31416GS	10.0	80.0	30.0	7.0	5.5	8.0	3	8.3
M10	x 1.25	TRE31436GS	13.0	100.0	40.0	7.0	5.5	8.0	3	8.8
M10	x 1.0	TRE31446GS	10.0	90.0	36.0	7.0	5.5	8.0	3	9.0
M10	x 0.75	TRE31456GS	10.0	90.0	36.0	7.0	5.5	8.0	3	9.3
M12	x 1.5	TRE31516GS	15.0	100.0	40.0	9.0	7.0	10.0	3	10.5
M12	x 1.25	TRE31526GS	15.0	100.0	40.0	9.0	7.0	10.0	3	10.8
M12	x 1.0	TRE31536GS	15.0	100.0	40.0	9.0	7.0	10.0	3	11.0
M14	x 1.5	TRE31556GS	15.0	100.0	40.0	11.0	9.0	12.0	3	12.5
M14	x 1.25	TRE31566GS	15.0	100.0	40.0	11.0	9.0	12.0	3	12.8
M14	x 1.0	TRE31576GS	15.0	100.0	40.0	11.0	9.0	12.0	3	13.0
M16	x 1.5	TRE31616GS	15.0	100.0	40.0	12.0	9.0	12.0	3	14.5
M16	x 1.0	TRE31626GS	15.0	100.0	40.0	12.0	9.0	12.0	3	15.0

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	○	○	◎	◎	◎	○	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎			○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎




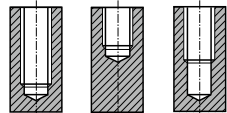
**MF ISO Metric Fine Threads DIN13**

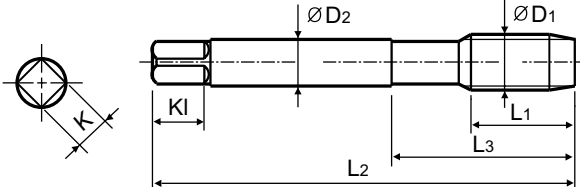
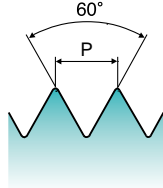
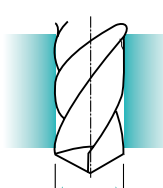
- M Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

**DIN 374**  **Hole type** 2.5×D 

**Material groups** **MU** **HSS PM** **DIN 374** **6HX** **60°** **C** **R45** **X Coating** **p.B76**

**Recommended ToolHolder** **Plain Shank** **SYNCHRO TAPPING CHUCK** **D203-210**  
**TAPPING ER CHUCK** **D215-220**  
**TAPPING CHUCK** **D221-228**  
**ONE STEP TAPPING CHUCK** **D211-213**

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M18 x 2.0	2.0	TRE31666GS	20.0	125.0	50.0	14.0	11.0	14.0	4	16.0
M18 x 1.5	1.5	TRE31676GS	15.0	110.0	44.0	14.0	11.0	14.0	4	16.5
M18 x 1.0	1.0	TRE31686GS	15.0	110.0	44.0	14.0	11.0	14.0	4	17.0
M20 x 2.0	2.0	TRE31716GS	20.0	140.0	54.0	16.0	12.0	15.0	4	18.0
M20 x 1.5	1.5	TRE31726GS	15.0	125.0	50.0	16.0	12.0	15.0	4	18.5
M20 x 1.0	1.0	TRE31736GS	15.0	125.0	50.0	16.0	12.0	15.0	4	19.0
M22 x 2.0	2.0	TRE31756GS	20.0	140.0	54.0	18.0	14.5	17.0	4	20.0
M22 x 1.5	1.5	TRE31766GS	15.0	125.0	50.0	18.0	14.5	17.0	4	20.5
M22 x 1.0	1.0	TRE31776GS	15.0	125.0	50.0	18.0	14.5	17.0	4	21.0
M24 x 2.0	2.0	TRE31796GS	20.0	140.0	54.0	18.0	14.5	17.0	4	22.0
M24 x 1.5	1.5	TRE31806GS	15.0	140.0	54.0	18.0	14.5	17.0	4	22.5
M24 x 1.0	1.0	TRE31816GS	15.0	140.0	54.0	18.0	14.5	17.0	4	23.0

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎




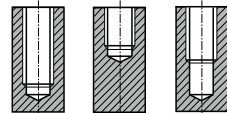
**UNC Unified Coarse Threads**


- Unified Grobgewinde
- UNC
- Unificato passo fine

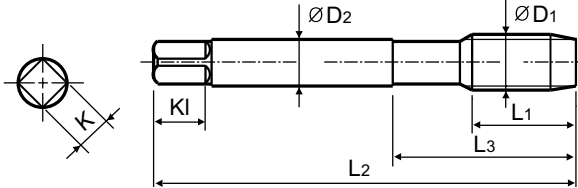
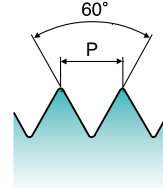
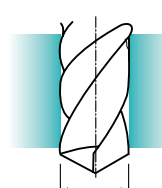
Machine taps  
Maschinengewindebohrer

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- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
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**DIN 371**  **Hole type** 2.5×D 

**DIN 376** 

**Material groups** **MU** **HSS PM** **DIN 371/378** **2BX** **60°** **C** **R45** **X Coating** **p.B76**

**Recommended ToolHolder** **Plain Shank** **SYNCHRO TAPPING CHUCK** **D203-210**  
**TAPPING ER CHUCK** **D215-220**  
**TAPPING CHUCK** **D221-228**  
**ONE STEP TAPPING CHUCK** **D211-213**

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC	40	TRE32162GS	5.1	56.0	18.0	3.5	2.7	6.0	2	2.30
#5 - 40 UNC	40	TRE32202GS	5.1	56.0	18.0	3.5	2.7	6.0	3	2.60
#6 - 32 UNC	32	TRE32242GS	6.4	56.0	20.0	4.0	3.0	6.0	3	2.80
#8 - 32 UNC	32	TRE32282GS	6.4	63.0	21.0	4.5	3.4	6.0	3	3.40
#10 - 24 UNC	24	TRE32322GS	8.5	70.0	25.0	6.0	4.9	8.0	3	3.90
#12 - 24 UNC	24	TRE32362GS	8.5	80.0	30.0	6.0	4.9	8.0	3	4.50
1/4 - 20 UNC	20	TRE32402GS	10.2	80.0	30.0	7.0	5.5	8.0	3	5.10
5/16 - 18 UNC	18	TRE32442GS	14.2	90.0	35.0	8.0	6.2	9.0	3	6.60
3/8 - 16 UNC	16	TRE32482GS	15.9	100.0	39.0	9.0	7.0	10.0	3	8.00
7/16 - 14 UNC	14	TRE32522GS	18.2	100.0	40.0	8.0	6.2	9.0	3	9.40
1/2 - 13 UNC	13	TRE32562GS	19.6	110.0	44.0	9.0	7.0	10.0	3	10.80
9/16 - 12 UNC	12	TRE32602GS	21.2	110.0	44.0	11.0	9.0	12.0	3	12.20
5/8 - 11 UNC	11	TRE32642GS	23.1	110.0	44.0	12.0	9.0	12.0	3	13.60
3/4 - 10 UNC	10	TRE32702GS	25.4	125.0	50.0	14.0	11.0	14.0	4	16.50
7/8 - 9 UNC	9	TRE32742GS	28.3	140.0	54.0	18.0	14.5	17.0	4	19.50
1 - 8 UNC	8	TRE32782GS	31.8	160.0	60.0	20.0	16.0	19.0	4	22.20

▶ DIN 371(#4~3/8) and DIN 376(7/16~1)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG PRIME TAPS

## TRE33 SERIES

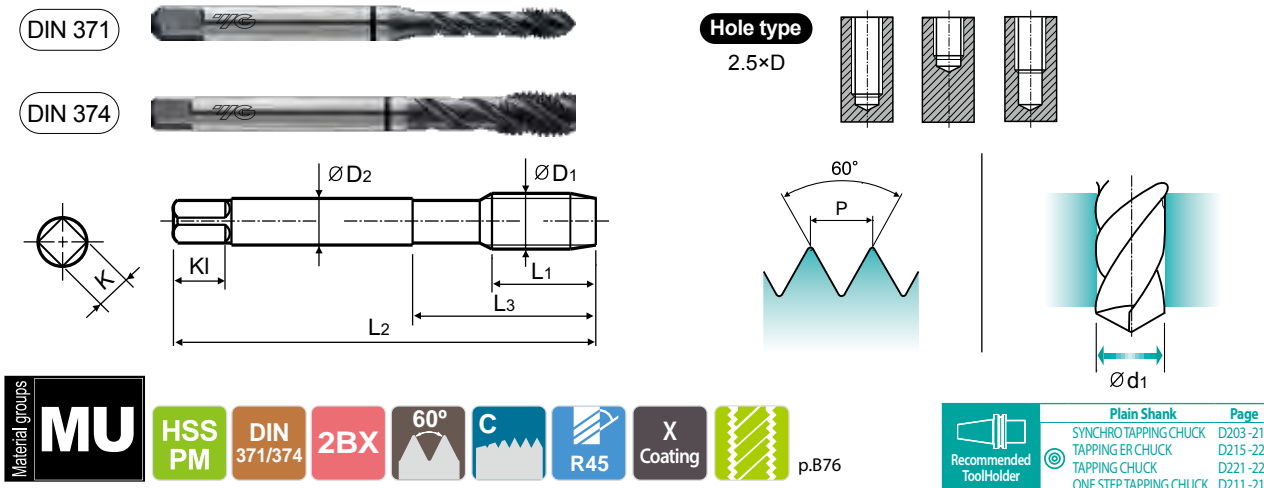
### UNF Unified Fine Threads

● Unified Grobgewinde  
○ UNF  
○ Unificato passo fine

Machine taps  
Maschinengewindebohrer

- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48 UNF		TRE33182GS	5.1	56.0	18.0	3.5	2.7	6.0	2	2.40
#5 - 44 UNF		TRE33222GS	5.1	56.0	18.0	3.5	2.7	6.0	3	2.70
#6 - 40 UNF		TRE33262GS	6.4	56.0	20.0	4.0	3.0	6.0	3	2.90
#8 - 36 UNF		TRE33302GS	6.4	63.0	21.0	4.5	3.4	6.0	3	3.50
#10 - 32 UNF		TRE33342GS	8.5	70.0	25.0	6.0	4.9	8.0	3	4.10
#12 - 28 UNF		TRE33382GS	8.5	80.0	30.0	6.0	4.9	8.0	3	4.60
1/4 - 28 UNF		TRE33422GS	10.2	80.0	30.0	7.0	5.5	8.0	3	5.50
5/16 - 24 UNF		TRE33462GS	10.6	90.0	35.0	8.0	6.2	9.0	3	6.90
3/8 - 24 UNF		TRE33502GS	10.6	100.0	39.0	9.0	7.0	10.0	3	8.50
7/16 - 20 UNF		TRE33542GS	12.7	100.0	40.0	8.0	6.2	9.0	3	9.90
1/2 - 20 UNF		TRE33582GS	12.7	100.0	40.0	9.0	7.0	10.0	3	11.50
9/16 - 18 UNF		TRE33622GS	14.2	100.0	40.0	11.0	9.0	12.0	3	12.90
5/8 - 18 UNF		TRE33662GS	14.2	100.0	40.0	12.0	9.0	12.0	3	14.50
3/4 - 16 UNF		TRE33722GS	15.9	110.0	44.0	14.0	11.0	14.0	4	17.50
7/8 - 14 UNF		TRE33762GS	18.2	125.0	50.0	18.0	14.5	17.0	4	20.50
1 - 12 UNF		TRE33802GS	21.2	140.0	54.0	20.0	16.0	19.0	4	23.20

▶ DIN 371(#4~3/8) and DIN 374(7/16~1)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	○	○	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													



# YG PRIME TAPS

## TRJ15 SERIES

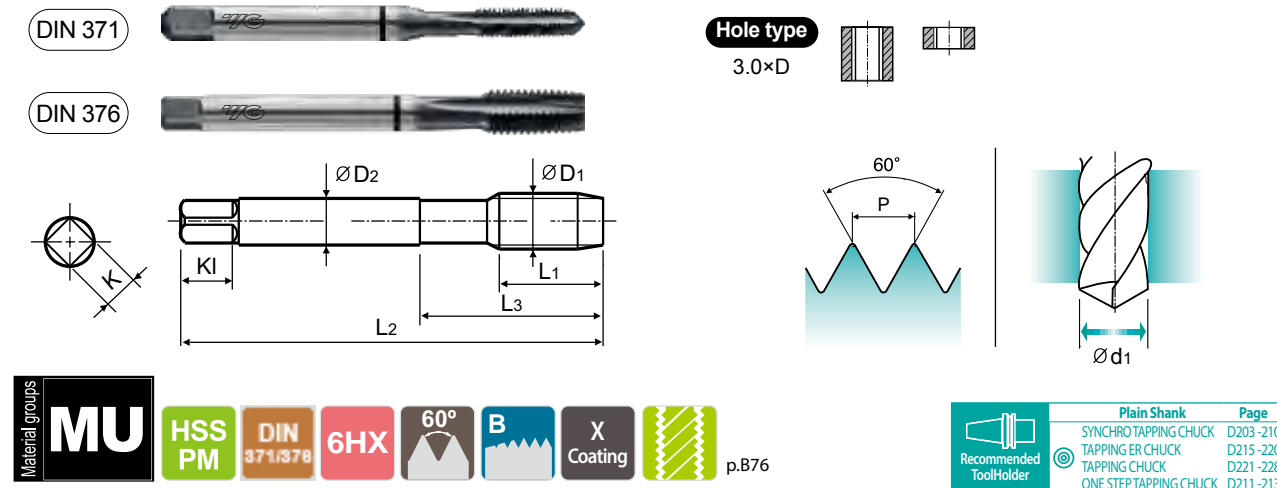
### M ISO Metric Coarse Threads DIN 13

● Metrisches ISO-Gewinde DIN 13  
○ ISO MÉTRIQUE DIN13  
○ ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
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SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 x 0.4		TRJ15136GS	8.0	45.0	13.0	2.8	2.1	5.0	2	1.6
M2.5 x 0.45		TRJ15176GS	9.0	50.0	15.0	2.8	2.1	5.0	2	2.1
M3 x 0.5		TRJ15206GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M3.5 x 0.6		TRJ15226GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.9
M4 x 0.7		TRJ15246GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.3
M5 x 0.8		TRJ15286GS	15.0	70.0	25.0	6.0	4.9	8.0	3	4.2
M6 x 1.0		TRJ15316GS	17.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M7 x 1.0		TRJ15346GS	17.0	80.0	30.0	7.0	5.5	8.0	3	6.0
M8 x 1.25		TRJ15366GS	20.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M9 x 1.25		TRJ15396GS	20.0	90.0	35.0	9.0	7.0	10.0	3	7.8
M10 x 1.5		TRJ15426GS	22.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12 x 1.75		TRJ15506GS	24.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14 x 2.0		TRJ15546GS	26.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16 x 2.0		TRJ15606GS	27.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M18 x 2.5		TRJ15656GS	30.0	125.0	50.0	14.0	11.0	14.0	3	15.5
M20 x 2.5		TRJ15706GS	32.0	140.0	54.0	16.0	12.0	15.0	3	17.5
M22 x 2.5		TRJ15746GS	32.0	140.0	54.0	18.0	14.5	17.0	3	19.5
M24 x 3.0		TRJ15786GS	34.0	160.0	60.0	18.0	14.5	17.0	3	21.0

▶ DIN 371(M2~M10) and DIN 376(M12~M24)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	○	○	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

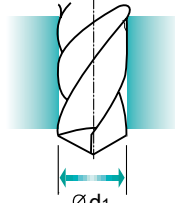
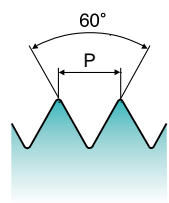
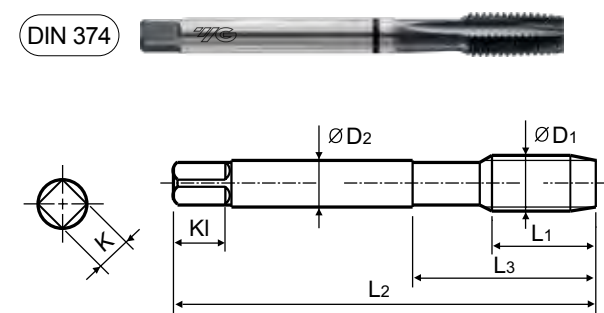
**MF ISO Metric Fine Threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

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- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: **MU** HSS PM DIN 374 6HX 60° B X Coating p.B76

Plain Shank Page  
SYNCHRO TAPPING CHUCK D203-210  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4 x 0.5		TRJ16256GS	10.0	63.0	21.0	2.8	2.1	5.0	3	3.5
M4 x 0.35		TRJ16696GS	10.0	63.0	21.0	2.8	2.1	5.0	3	3.7
M5 x 0.5		TRJ16296GS	11.0	70.0	25.0	3.5	2.7	6.0	3	4.5
M6 x 0.75		TRJ16326GS	13.0	80.0	30.0	4.5	3.4	6.0	3	5.3
M6 x 0.5		TRJ16336GS	13.0	80.0	30.0	4.5	3.4	6.0	3	5.5
M8 x 1.0		TRJ16376GS	17.0	90.0	36.0	6.0	4.9	8.0	3	7.0
M8 x 0.75		TRJ16386GS	14.0	80.0	30.0	6.0	4.9	8.0	3	7.3
M9 x 1.0		TRJ16406GS	20.0	90.0	36.0	7.0	5.5	8.0	3	8.0
M9 x 0.75		TRJ16416GS	17.0	80.0	36.0	7.0	5.5	8.0	3	8.3
M10 x 1.25		TRJ16436GS	22.0	100.0	40.0	7.0	5.5	8.0	3	8.8
M10 x 1.0		TRJ16446GS	18.0	90.0	36.0	7.0	5.5	8.0	3	9.0
M10 x 0.75		TRJ16456GS	18.0	90.0	36.0	7.0	5.5	8.0	3	9.3
M12 x 1.5		TRJ16516GS	22.0	100.0	40.0	9.0	7.0	10.0	3	10.5
M12 x 1.25		TRJ16526GS	22.0	100.0	40.0	9.0	7.0	10.0	3	10.8
M12 x 1.0		TRJ16536GS	18.0	100.0	40.0	9.0	7.0	10.0	3	11.0
M14 x 1.5		TRJ16556GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.5
M14 x 1.25		TRJ16566GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.8
M14 x 1.0		TRJ16576GS	18.0	100.0	40.0	11.0	9.0	12.0	3	13.0
M16 x 1.5		TRJ16616GS	22.0	100.0	40.0	12.0	9.0	12.0	3	14.5
M16 x 1.0		TRJ16626GS	18.0	100.0	40.0	12.0	9.0	12.0	3	15.0

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



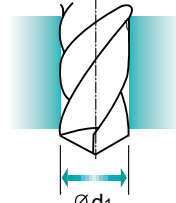
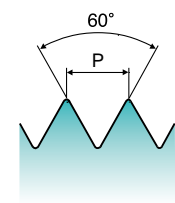
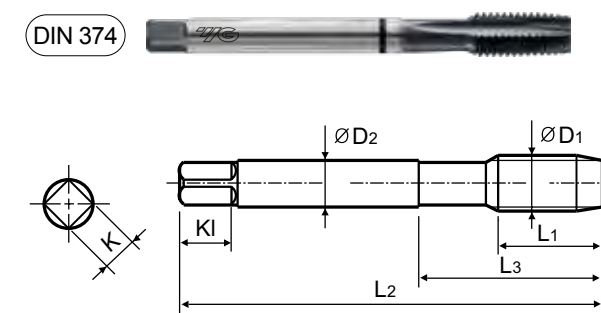
**MF ISO Metric Fine Threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: **MU** HSS PM DIN 374 6HX 60° B X Coating p.B76

Plain Shank Page  
SYNCHRO TAPPING CHUCK D203-210  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M18 x 2.0		TRJ16666GS	26.0	125.0	50.0	14.0	11.0	14.0	3	16.0
M18 x 1.5		TRJ16676GS	25.0	110.0	44.0	14.0	11.0	14.0	3	16.5
M18 x 1.0		TRJ16686GS	20.0	110.0	44.0	14.0	11.0	14.0	3	17.0
M20 x 2.0		TRJ16716GS	27.0	140.0	54.0	16.0	12.0	15.0	3	18.0
M20 x 1.5		TRJ16726GS	25.0	125.0	50.0	16.0	12.0	15.0	3	18.5
M20 x 1.0		TRJ16736GS	20.0	125.0	50.0	16.0	12.0	15.0	3	19.0
M22 x 2.0		TRJ16756GS	27.0	140.0	54.0	18.0	14.5	17.0	3	20.0
M22 x 1.5		TRJ16766GS	25.0	125.0	50.0	18.0	14.5	17.0	3	20.5
M22 x 1.0		TRJ16776GS	20.0	125.0	50.0	18.0	14.5	17.0	3	21.0
M24 x 2.0		TRJ16796GS	27.0	140.0	54.0	18.0	14.5	17.0	3	22.0
M24 x 1.5		TRJ16806GS	27.0	140.0	54.0	18.0	14.5	17.0	3	22.5
M24 x 1.0		TRJ16816GS	20.0	140.0	54.0	18.0	14.5	17.0	3	23.0

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

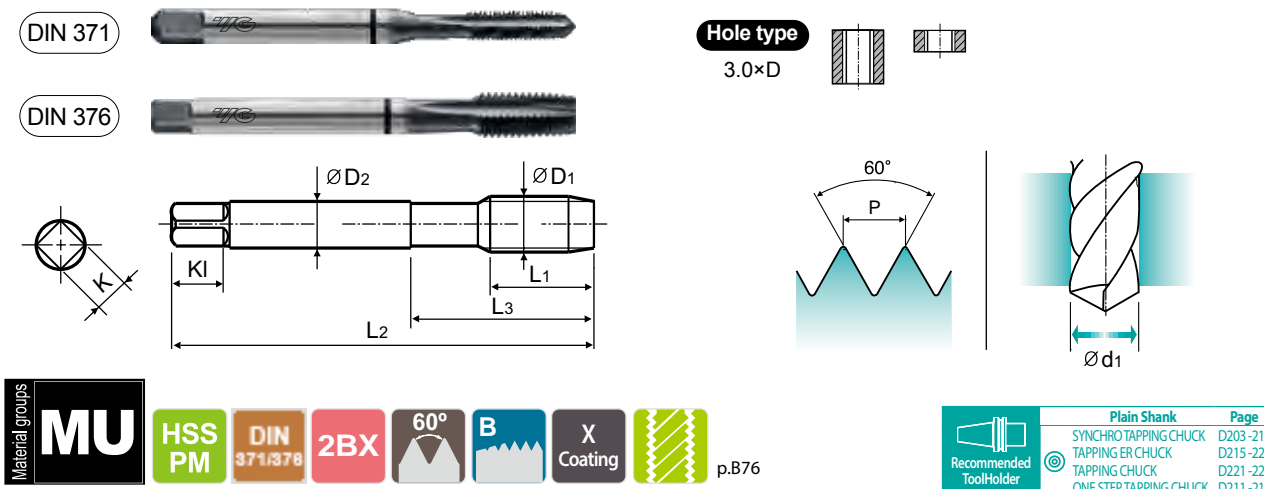


**UNC Unified Coarse Threads**  
 Unified Grobgewinde  
 UNC  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC		TRJ17162GS	11.0	56.0	18.0	3.5	2.7	6.0	2	2.30
#5 - 40 UNC		TRJ17202GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.60
#6 - 32 UNC		TRJ17242GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.80
#8 - 32 UNC		TRJ17282GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.40
#10 - 24 UNC		TRJ17322GS	15.0	70.0	25.0	6.0	4.9	8.0	3	3.90
#12 - 24 UNC		TRJ17362GS	16.0	80.0	30.0	6.0	4.9	8.0	3	4.50
1/4 - 20 UNC		TRJ17402GS	17.0	80.0	30.0	7.0	5.5	8.0	3	5.10
5/16 - 18 UNC		TRJ17442GS	20.0	90.0	35.0	8.0	6.2	9.0	3	6.60
3/8 - 16 UNC		TRJ17482GS	22.0	100.0	39.0	9.0	7.0	10.0	3	8.00
7/16 - 14 UNC		TRJ17522GS	22.0	100.0	40.0	8.0	6.2	9.0	3	9.40
1/2 - 13 UNC		TRJ17562GS	25.0	110.0	44.0	9.0	7.0	10.0	3	10.80
9/16 - 12 UNC		TRJ17602GS	26.0	110.0	44.0	11.0	9.0	12.0	3	12.20
5/8 - 11 UNC		TRJ17642GS	27.0	110.0	44.0	12.0	9.0	12.0	3	13.60
3/4 - 10 UNC		TRJ17702GS	30.0	125.0	50.0	14.0	11.0	14.0	3	16.50
7/8 - 9 UNC		TRJ17742GS	32.0	140.0	54.0	18.0	14.5	17.0	3	19.50
1 - 8 UNC		TRJ17782GS	36.0	160.0	60.0	20.0	16.0	19.0	3	22.20

▶DIN371 (#4~3/8) and DIN376 (7/16~1)

◎ : Excellent ○ : Good

ISO Material Description	P						M				K									
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

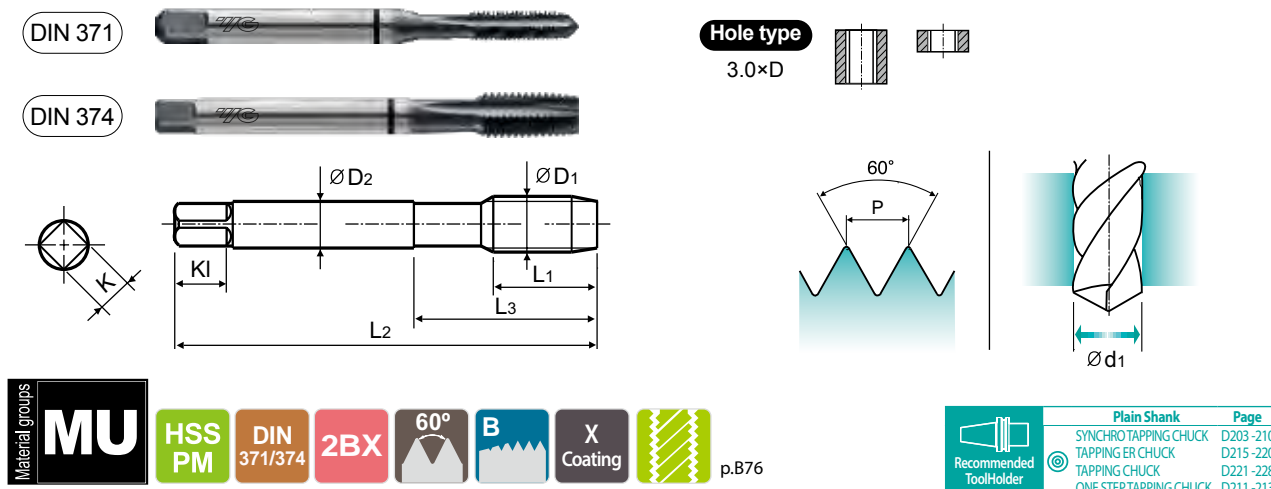


**UNF Unified Fine Threads**  
 Unified Grobgewinde  
 UNF  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48 UNF		TRJ18182GS	11.0	56.0	18.0	3.5	2.7	6.0	2	2.40
#5 - 44 UNF		TRJ18222GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.70
#6 - 40 UNF		TRJ18262GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.90
#8 - 36 UNF		TRJ18302GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.50
#10 - 32 UNF		TRJ18342GS	15.0	70.0	25.0	6.0	4.9	8.0	3	4.10
#12 - 28 UNF		TRJ18382GS	16.0	80.0	30.0	6.0	4.9	8.0	3	4.60
1/4 - 28 UNF		TRJ18422GS	17.0	80.0	30.0	7.0	5.5	8.0	3	5.50
5/16 - 24 UNF		TRJ18462GS	17.0	90.0	35.0	8.0	6.2	9.0	3	6.90
3/8 - 24 UNF		TRJ18502GS	18.0	100.0	39.0	9.0	7.0	10.0	3	8.50
7/16 - 20 UNF		TRJ18542GS	22.0	100.0	40.0	8.0	6.2	9.0	3	9.90
1/2 - 20 UNF		TRJ18582GS	22.0	100.0	40.0	9.0	7.0	10.0	3	11.50
9/16 - 18 UNF		TRJ18622GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.90
5/8 - 18 UNF		TRJ18662GS	22.0	100.0	40.0	12.0	9.0	12.0	3	14.50
3/4 - 16 UNF		TRJ18722GS	25.0	110.0	44.0	14.0	11.0	14.0	3	17.50
7/8 - 14 UNF		TRJ18762GS	26.0	125.0	50.0	18.0	14.5	17.0	3	20.50
1" - 12 UNF		TRJ18802GS	28.0	140.0	54.0	20.0	16.0	19.0	3	23.20

▶DIN371 (#4~3/8) and DIN374 (7/16~1)

◎ : Excellent ○ : Good

ISO Material Description	P						M				K									
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



					TRE30, TRE31, TRE32 TRE33, TRE34	TRJ15, TRJ16 TRJ17, TRJ18
ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)	
P	1	Non-alloy steel	125		5-20	15-45
	2		190	13	10-50	10-55
	3		250	25	10-50	10-55
	4		270	28	15-40	15-50
	5		300	32	15-40	15-50
	6	Low alloy steel	180	10	8-30	8-30
	7		275	29	8-30	8-30
	8		300	32	8-30	8-30
	9		350	38	8-30	8-30
	10		High alloyed steel, and tool steel	200	15	8-30
	11	325		35	8-30	8-30
M	12	Stainless steel	200	15	5-15	8-20
	13		240	23	5-15	8-20
	14		180	10	5-15	8-20
K	15	Grey cast iron	180	10	15-35	15-35
	16		260	26	15-35	15-35
	17	Nodular cast iron	160	3	15-35	15-35
	18		250	25	15-35	15-35
N	21	Aluminum- wrought alloy	60		15-35	15-35
	22		100		15-35	15-35
	23	Aluminum- cast, alloyed	75		15-35	15-35
	24		90		15-35	15-35
	25		130		15-35	15-35
	26		110		15-35	15-35
	27	Copper and Copper Alloys (Bronze / Brass)	90		15-35	15-35
	28		100		15-35	15-35



Leading Through Innovation

HSS-E & HSS-PM

# COMBO TAPS

## COMBO GEWINDEBOHRER

- For Multi Purpose Tapping
- Für Mehrbereichs-Gewindebohren







# HSS-E & HSS-PM COMBO TAPS

For Multi Purpose Tapping

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
◎ : Excellent ○ : Good  
Recommended cutting conditions : p.B110

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	Bright	TIN	VAP	Bright	TIN	VAP
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○	○	○	○
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	◎	◎
	5	About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎
	8		Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎	◎	◎	◎
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○	○	○	○
	11	Quenched & Tempered	325	35	○	○	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎	◎	◎	◎
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎	◎	◎	◎
	14	Austenitic	180	10	◎	◎	◎	◎	◎	◎	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎	◎	◎	◎
	16		Pearlitic (Martensitic)	260	26	◎	◎	◎	◎	◎	◎
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎	◎	◎	◎
	18		Pearlitic	250	25	◎	◎	◎	◎	◎	◎
	19		Ferritic	130							
20	Malleable cast iron	Pearlitic	230	21							
N	21	Aluminum-wrought alloy	Not Curable	60							
	22		Curable Hardened	100							
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	◎	◎	◎	◎	◎	◎	◎
	24		≤ 12% Si, Curable Hardened	90							
	25		> 12% Si, Not Curable	130							
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110	◎	◎	◎	◎	◎	◎	◎
	27		CuZn, CuSnZn (Brass)	90	◎	◎	◎	◎	◎	◎	◎
	28	CuSn, lead-free copper and electrolytic copper	100	◎	◎	◎	◎	◎	◎	◎	
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15						
	32		Cured	280	30						
	33		Annealed	250	25						
	34		Ni or Co Based Cured	350	38						
	35	Cast	320	34							
36	Titanium Alloys	Pure Titanium	400 Rm								
37		Alpha + Beta Alloys Hardened	1050 Rm								
H	38	Hardened steel	Hardened	550	55						
	39		Hardened	630	60						
	40	Hardened Cast Iron	Cast	400	42						
	41		Hardened	550	55						

HOLE TYPE		Max. 2.5xD Blind Hole						
TOOL MATERIAL		HSS-E						
CHAMFER LEAD ACC. TO DIN2197		C	C	C	C	C	C	
FLUTE TYPE		Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE		R40	R40	R40	R40	R40	R40	
SERIES	M	DIN371/376	TC804 (p.B82)	TD804 (p.B82)	TB804 (p.B82)	TCE05 (p.B84)	TDE05 (p.B84)	TBE05 (p.B84)
		DIN352						
		DIN357/LONG						
	MF	DIN374	TC844 (p.B89)	TD844 (p.B89)	TB844 (p.B89)	TCE09 (p.B91)	TDE09 (p.B91)	
		DIN2181						
	UNC	DIN371/376	TC824 (p.B99)	TD824 (p.B99)	TB824 (p.B99)	TCE01 (p.B100)	TDE01 (p.B100)	
		DIN351						
	UNF	DIN371/374	TC864 (p.B101)	TD864 (p.B101)	TB864 (p.B101)	TCE02 (p.B102)	TDE02 (p.B102)	
		DIN2181						
	BSW	DIN2182/2183						
DIN351								
G(BSP)	DIN5156/5157							
EG-M	DIN371/376							
EG-UNC	DIN371/376							
EG-UNF	DIN371/374							
SURFACE TREATMENT		Bright	TIN	VAP	Bright	TIN	VAP	
MODEL								

HOLE TYPE		Max. 2.5xD Blind Hole															
TOOL MATERIAL		HSS-E											HSS-PM				
CHAMFER LEAD ACC. TO DIN2197		C	C	C	C	C	C	C	C	C	C	E	C	C			
FLUTE TYPE		Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute			
SPIRAL FLUTE ANGLE		R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R45	R45			
SERIES	M	DIN371/376	TCE06 (p.B85)	TDE06 (p.B85)	TBE06 (p.B85)	TCE07 (p.B86)	TDE07 (p.B86)	TBE07 (p.B86)	TCE08 (p.B87)	TDE08 (p.B87)	TBE08 (p.B87)	TC804-IC (p.B93)		TC807 (p.B94)	TB744 (p.B96)	TQ744 (p.B96)	
		DIN352											TC633 (p.B95)				
		DIN357/LONG															
	MF	DIN374													TB754 (p.B98)	TQ754 (p.B83)	
		DIN2181															
	UNC	DIN371/376															
		DIN351															
	UNF	DIN371/374															
		DIN2181															
	BSW	DIN2182/2183															
DIN351																	
G(BSP)	DIN5156/5157																
EG-M	DIN371/376																
EG-UNC	DIN371/376																
EG-UNF	DIN371/374																
SURFACE TREATMENT		Bright	TIN	VAP	Bright	TIN	VAP	Bright	TIN	VAP	Bright	Bright	Bright	VAP	VAP		
MODEL																	

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THREAD MILLS

SYNCHRO TAPS

PRIME TAPS

COMBO TAPS

YG TAP GENERAL

YG TAP STEEL

YG TAP HARDENED

YG TAP INOX

YG TAP CAST IRON

YG TAP ALU

YG TAP Ti Ni

YG TAP FORMING

NUT TAPS

STI TAPS

PIPE TAPS

TECHNICAL DATA



# HSS-E & HSS-PM COMBO TAPS

For Multi Purpose Tapping

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B110

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC						
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○	○	○	○
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	◎	◎
	5	About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎
	8		Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎	◎	◎	◎
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○	○	○	○
	11	Quenched & Tempered		325	35	○	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎	◎	◎	◎
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎	◎	◎	◎
	14	Austenitic	180	10	◎	◎	◎	◎	◎	◎	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎	◎	◎	◎
	16		Pearlitic (Martensitic)	260	26	◎	◎	◎	◎	◎	◎
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎	◎	◎	◎
	18		Pearlitic	250	25	◎	◎	◎	◎	◎	◎
	19		Ferritic	130							
20	Malleable cast iron	Pearlitic	230	21							
N	21	Aluminum-wrought alloy	Not Curable	60							
	22		Curable Hardened	100							
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	◎	◎	◎	◎	◎
	24		≤ 12% Si, Curable Hardened	90							
	25	> 12% Si, Not Curable	130								
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		◎	◎	◎	◎	◎	◎
	27		CuZn, CuSnZn (Brass)	90		◎	◎	◎	◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper	100		◎	◎	◎	◎	◎	◎
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.							
	30										
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15						
	32		Cured	280	30						
	33		Annealed	250	25						
	34		Ni or Co Based Cured	350	38						
	35	Cast	320	34							
36	Titanium Alloys	Pure Titanium	400 Rm								
37		Alpha + Beta Alloys Hardened	1050 Rm								
H	38	Hardened steel	Hardened	550	55						
	39		Hardened	630	60						
	40	Hardened Cast Iron	Cast	400	42						
	41		Hardened	550	55						

HOLE TYPE		Max. 3.0xD Through Hole						
TOOL MATERIAL		HSS-E						
CHAMFER LEAD ACC. TO DIN2197		B	B	B	B	B	B	
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	
SPIRAL FLUTE ANGLE		-	-	-	-	-	-	
SERIES	M	DIN 371/376	TC814 (p.B104)	TD814 (p.B104)	TB814 (p.B104)	TCJ05 (p.B105)	TDJ05 (p.B105)	TBJ05 (p.B105)
		DIN352						
		DIN357/LONG						
	MF	DIN374	TC854 (p.B109)	TD854 (p.B109)	TB854 (p.B109)	TCJ09 (p.B112)	TDJ09 (p.B112)	
		DIN2181						
	UNC	DIN 371/376	TC834 (p.B119)	TD834 (p.B119)	TB834 (p.B119)	TCJ01 (p.B120)	TDJ01 (p.B120)	
		DIN351						
	UNF	DIN 371/374	TC874 (p.B121)	TD874 (p.B121)	TB874 (p.B121)	TCJ02 (p.B122)	TDJ02 (p.B122)	
		DIN2181						
	BSW	DIN2182/2183						
DIN351								
G(BSP)	DIN5156/5157							
EG-M	DIN 371/376							
EG-UNC	DIN 371/376							
EG-UNF	DIN 371/374							
SURFACE TREATMENT		Bright	TiN	VAP	Bright	TiN	VAP	
MODEL								

HOLE TYPE		Max. 3.0xD Through Hole												
TOOL MATERIAL		HSS-E										HSS-PM		
CHAMFER LEAD ACC. TO DIN2197		B	B	B	B	B	B	B	B	B	B	B	B	
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	
SPIRAL FLUTE ANGLE		-	-	-	-	-	-	-	-	-	-	-	-	
SERIES	M	DIN 371/376	TCJ06 (p.B106)	TDJ06 (p.B106)	TBJ06 (p.B106)	TCJ07 (p.B107)	TDJ07 (p.B107)	TBJ07 (p.B107)	TCJ08 (p.B108)	TDJ08 (p.B108)	TBJ08 (p.B108)	TC814-IC (p.B114)	TB428 (p.B116)	TQ428 (p.B116)
		DIN352												
		DIN357/LONG											TC445 (p.B115)	TB438 (p.B118)
	MF	DIN374												
		DIN2181												
	UNC	DIN 371/376												
		DIN351												
	UNF	DIN 371/374												
		DIN2181												
	BSW	DIN2182/2183												
DIN351														
G(BSP)	DIN5156/5157													
EG-M	DIN 371/376													
EG-UNC	DIN 371/376													
EG-UNF	DIN 371/374													
SURFACE TREATMENT		Bright	TiN	VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	Bright	VAP	VAP
MODEL														

**COMBO TAP SETS**

**Combo Spiral Flute Taps**

TB804SET5 TC804SET7

VAP Bright

5pcs 7pcs

**Combo Spiral Flute Taps + Gold-P Drill**

TD804SET7-GLP195

TiN

14pcs

P.493

THREAD MILLS

SYNCHRO TAPS

PRIME TAPS

COMBO TAPS

YG TAP GENERAL

YG TAP STEEL

YG TAP HARDENED

YG TAP INOX

YG TAP CAST IRON

YG TAP ALU

YG TAP Ti Ni

YG TAP FORMING

NUT TAPS

STI TAPS

PIPE TAPS

TECHNICAL DATA





Vap TB804 SERIES  
Bright TC804 SERIES  
TiN TD804 SERIES

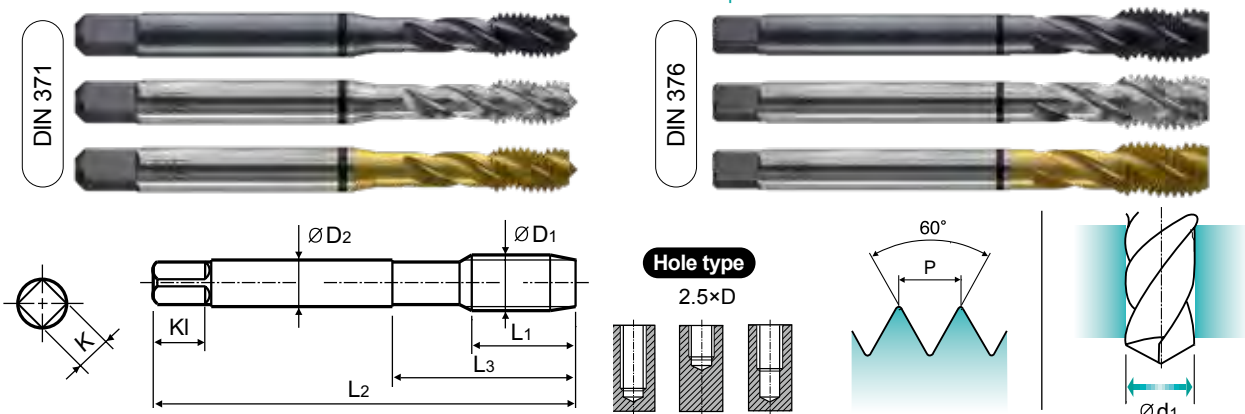
**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 6H, 60°, C, R40, Vap Bright TiN, p.B124

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK (D215-220), TAPPING CHUCK (D221-228), ONE STEP TAPPING CHUCK (D211-213)

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TB804136	TC804136	TD804136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB804156	TC804156	TD804156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TB804196	TC804196	TD804196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB804176	TC804176	TD804176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TB804496	TC804496	TD804496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB804206	TC804206	TD804206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB804226	TC804226	TD804226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TB804246	TC804246	TD804246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB804266	TC804266	TD804266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB804286	TC804286	TD804286	8	70	25	6	4.9	8	3	4.2
M6 × 1.0		TB804316	TC804316	TD804316	10	80	30	6	4.9	8	3	5
M7 × 1.0		TB804346	TC804346	TD804346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TB804366	TC804366	TD804366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB804396	TC804396	TD804396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TB804426	TC804426	TD804426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TB804466	TC804466	TD804466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB804506	TC804506	TD804506	18	110	44	9	7	10	3	10.2
M14 × 2.0		TB804546	TC804546	TD804546	20	110	44	11	9	12	3	12
M16 × 2.0		TB804606	TC804606	TD804606	20	110	44	12	9	12	3	14
M18 × 2.5		TB804656	TC804656	TD804656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TB804706	TC804706	TD804706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TB804746	TC804746	TD804746	25	140	54	18	14.5	17	4	19.5
M24 × 3.0		TB804786	TC804786	TD804786	30	160	60	18	14.5	17	4	21
M27 × 3.0		TB804866	TC804866	TD804866	30	160	60	20	16	19	4	24

► DIN 371(M2~M10) and DIN 376(M11~M52)  
\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Vap TB804 SERIES  
Bright TC804 SERIES  
TiN TD804 SERIES

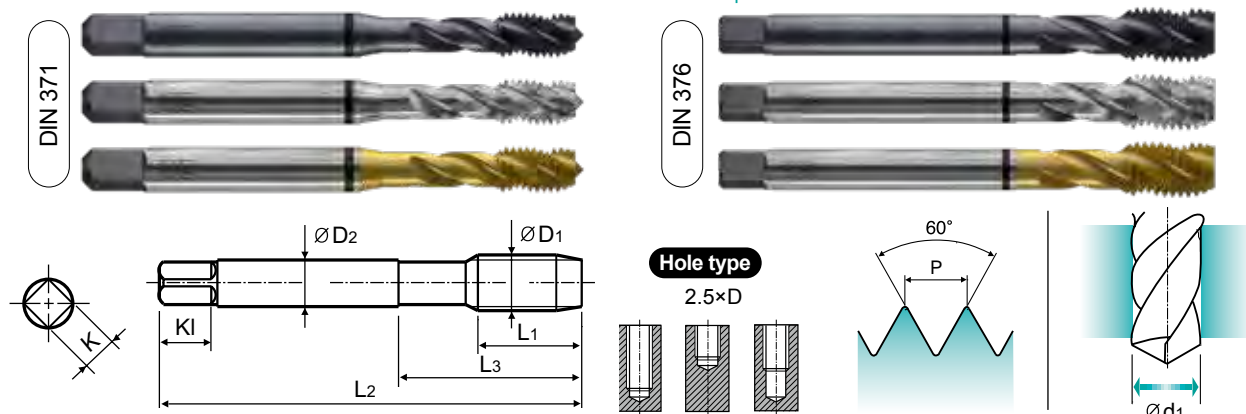
**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 6H, 60°, C, R40, Vap Bright TiN, p.B124

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK (D215-220), TAPPING CHUCK (D221-228), ONE STEP TAPPING CHUCK (D211-213)

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M30 × 3.5		TB804946	TC804946	TD804946	35	180	70	22	18	21	4	26.5
M33 × 3.5		-	TC804A46	TD804A46	35	180	70	25	20	23	4	29.5
M36 × 4.0		-	TC804B36	TD804B36	40	200	80	28	22	25	4	32.0
M39 × 4.0		-	TC804C06	TD804C06	40	200	80	32	24	27	4	35.0
M42 × 4.5		-	TC804C86	TD804C86	45	200	85	32	24	27	4	37.5
M45 × 4.5		-	TC804D56	TD804D56	45	220	85	36	29	32	4	40.5
M48 × 5.0		-	TC804E26	TD804E26	50	250	90	36	29	32	4	43.0
M52 × 5.0		-	TC804F36	TD804F36	50	250	90	40	32	35	4	47.0

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





Vap TBE05 SERIES  
Bright TCE05 SERIES  
TiN TDE05 SERIES

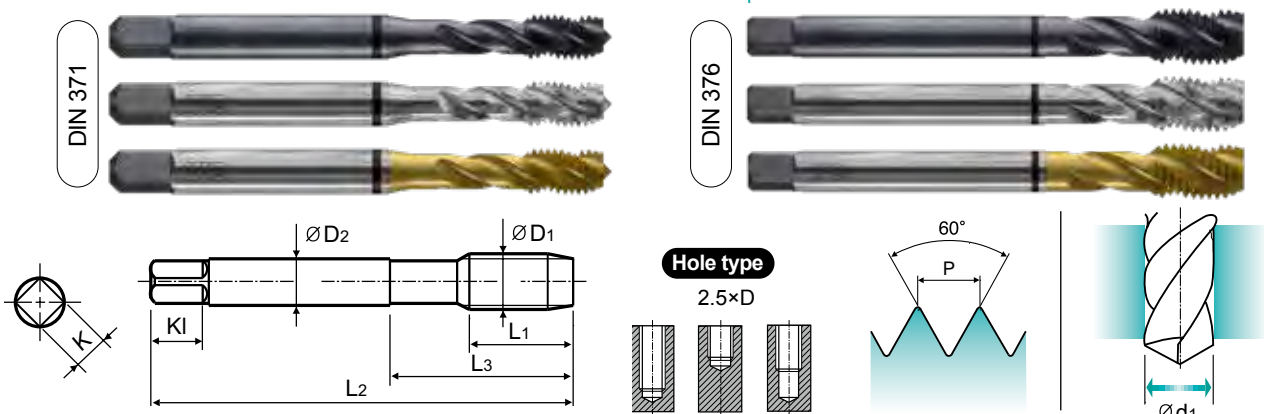
### M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 4H, 60°, C, R40, Vap Bright TiN, p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TBE05136	TCE05136	TDE05136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBE05156	TCE05156	TDE05156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBE05196	TCE05196	TDE05196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBE05176	TCE05176	TDE05176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBE05496	TCE05496	TDE05496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBE05206	TCE05206	TDE05206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBE05226	TCE05226	TDE05226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TBE05246	TCE05246	TDE05246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBE05266	TCE05266	TDE05266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBE05286	TCE05286	TDE05286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TBE05316	TCE05316	TDE05316	10	80	30	6	4.9	8	3	5
M7 × 1		TBE05346	TCE05346	TDE05346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TBE05366	TCE05366	TDE05366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBE05396	TCE05396	TDE05396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TBE05426	TCE05426	TDE05426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TBE05466	TCE05466	TDE05466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBE05506	TCE05506	TDE05506	18	110	44	9	7	10	3	10.2
M14 × 2		TBE05546	TCE05546	TDE05546	20	110	44	11	9	12	3	12
M16 × 2		TBE05606	TCE05606	TDE05606	20	110	44	12	9	12	3	14
M18 × 2.5		TBE05656	TCE05656	TDE05656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TBE05706	TCE05706	TDE05706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TBE05746	TCE05746	TDE05746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TBE05786	TCE05786	TDE05786	30	160	60	18	14.5	17	4	21
M27 × 3		TBE05866	TCE05866	TDE05866	30	160	60	20	16	19	4	24
M30 × 3.5		TBE05946	TCE05946	TDE05946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	M										K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S			H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Vap TBE06 SERIES  
Bright TCE06 SERIES  
TiN TDE06 SERIES

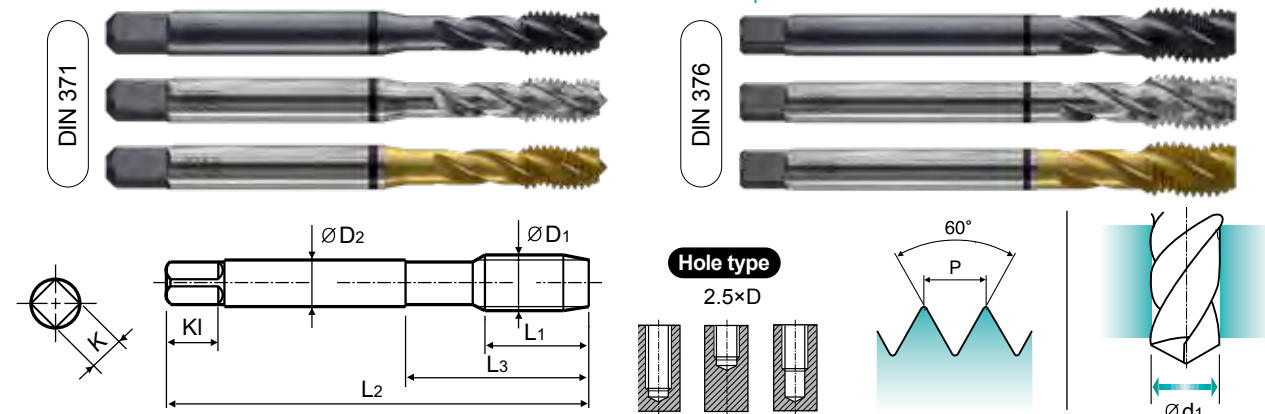
### M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 6H+0.1, 60°, C, R40, Vap Bright TiN, p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TBE06136	TCE06136	TDE06136	8	45	13	2.8	2.1	5	3	1.7
M2.2 × 0.45		TBE06156	TCE06156	TDE06156	8	45	13	2.8	2.1	5	3	1.85
M2.3 × 0.4		TBE06196	TCE06196	TDE06196	8	45	13	2.8	2.1	5	3	2
M2.5 × 0.45		TBE06176	TCE06176	TDE06176	9	50	15	2.8	2.1	5	3	2.15
M2.6 × 0.45		TBE06496	TCE06496	TDE06496	9	50	15	2.8	2.1	5	3	2.2
M3 × 0.5		TBE06206	TCE06206	TDE06206	6	56	18	3.5	2.7	6	3	2.6
M3.5 × 0.6		TBE06226	TCE06226	TDE06226	7	56	20	4	3	6	3	3
M4 × 0.7		TBE06246	TCE06246	TDE06246	7	63	21	4.5	3.4	6	3	3.4
M4.5 × 0.75		TBE06266	TCE06266	TDE06266	8	70	25	6	4.9	8	3	3.8
M5 × 0.8		TBE06286	TCE06286	TDE06286	8	70	25	6	4.9	8	3	4.3
M6 × 1		TBE06316	TCE06316	TDE06316	10	80	30	6	4.9	8	3	5.1
M7 × 1		TBE06346	TCE06346	TDE06346	10	80	30	7	5.5	8	3	6.1
M8 × 1.25		TBE06366	TCE06366	TDE06366	13	90	35	8	6.2	9	3	6.9
M9 × 1.25		TBE06396	TCE06396	TDE06396	13	90	35	9	7	10	3	7.9
M10 × 1.5		TBE06426	TCE06426	TDE06426	15	100	39	10	8	11	3	8.6
M11 × 1.5		TBE06466	TCE06466	TDE06466	17	100	40	8	6.2	9	3	9.6
M12 × 1.75		TBE06506	TCE06506	TDE06506	18	110	44	9	7	10	3	10.3
M14 × 2		TBE06546	TCE06546	TDE06546	20	110	44	11	9	12	3	12.1
M16 × 2		TBE06606	TCE06606	TDE06606	20	110	44	12	9	12	3	14.1
M18 × 2.5		TBE06656	TCE06656	TDE06656	25	125	50	14	11	14	4	15.6
M20 × 2.5		TBE06706	TCE06706	TDE06706	25	140	54	16	12	15	4	17.6
M22 × 2.5		TBE06746	TCE06746	TDE06746	25	140	54	18	14.5	17	4	19.6
M24 × 3		TBE06786	TCE06786	TDE06786	30	160	60	18	14.5	17	4	21.1
M27 × 3		TBE06866	TCE06866	TDE06866	30	160	60	20	16	19	4	24.1
M30 × 3.5		TBE06946	TCE06946	TDE06946	35	180	70	22	18	21	4	26.6

► DIN 371(M2~M10) and DIN 376(M11~M30)

\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	M										K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S			H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Vap TBE07 SERIES  
Bright TCE07 SERIES  
TiN TDE07 SERIES

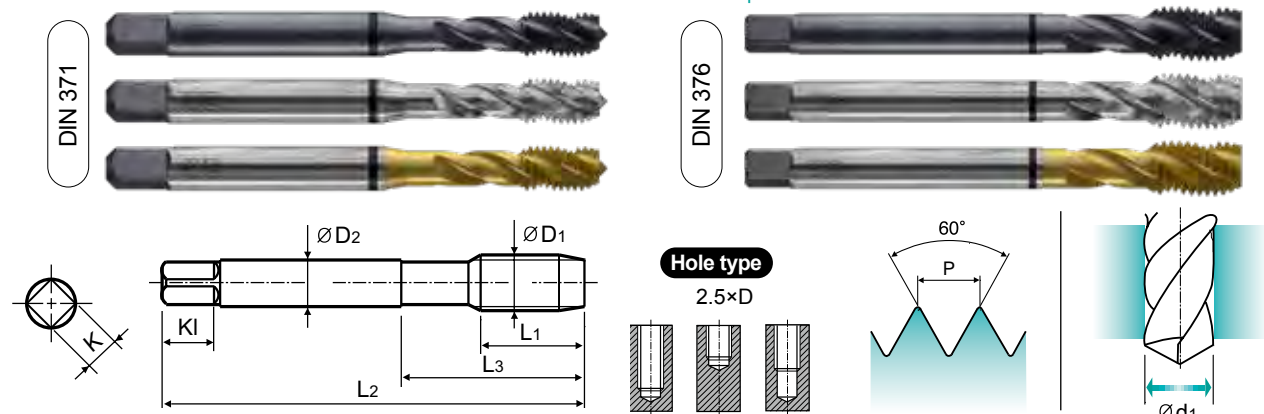
### M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 6G, 60°, C, R40, Vap Bright TiN, p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TBE07136	TCE07136	TDE07136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBE07156	TCE07156	TDE07156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBE07196	TCE07196	TDE07196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBE07176	TCE07176	TDE07176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBE07496	TCE07496	TDE07496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBE07206	TCE07206	TDE07206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBE07226	TCE07226	TDE07226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TBE07246	TCE07246	TDE07246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBE07266	TCE07266	TDE07266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBE07286	TCE07286	TDE07286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TBE07316	TCE07316	TDE07316	10	80	30	6	4.9	8	3	5
M7 × 1		TBE07346	TCE07346	TDE07346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TBE07366	TCE07366	TDE07366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBE07396	TCE07396	TDE07396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TBE07426	TCE07426	TDE07426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TBE07466	TCE07466	TDE07466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBE07506	TCE07506	TDE07506	18	110	44	9	7	10	3	10.2
M14 × 2		TBE07546	TCE07546	TDE07546	20	110	44	11	9	12	3	12
M16 × 2		TBE07606	TCE07606	TDE07606	20	110	44	12	9	12	3	14
M18 × 2.5		TBE07656	TCE07656	TDE07656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TBE07706	TCE07706	TDE07706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TBE07746	TCE07746	TDE07746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TBE07786	TCE07786	TDE07786	30	160	60	18	14.5	17	4	21
M27 × 3		TBE07866	TCE07866	TDE07866	30	160	60	20	16	19	4	24
M30 × 3.5		TBE07946	TCE07946	TDE07946	35	180	70	22	18	21	4	26.5

►DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	M										K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Vap TBE08 SERIES  
Bright TCE08 SERIES  
TiN TDE08 SERIES

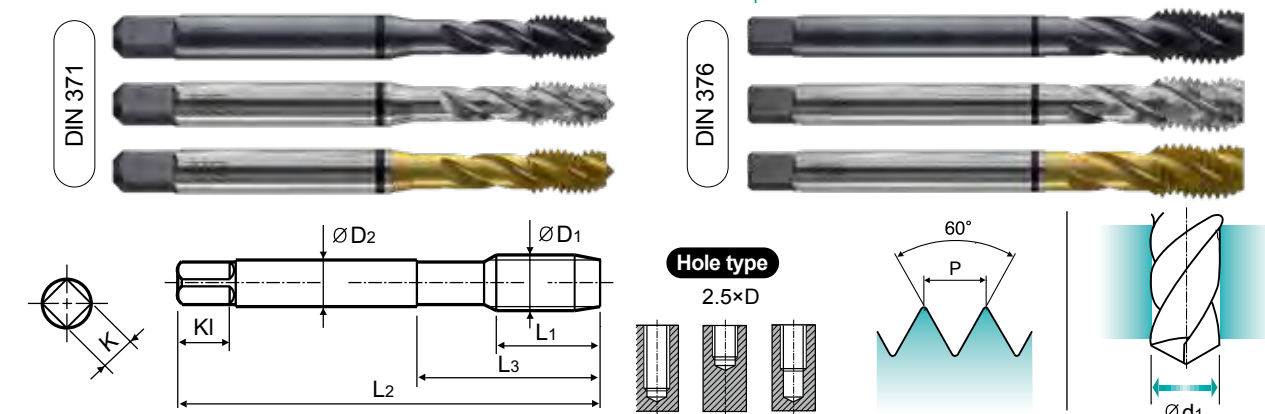
### M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 7G, 60°, C, R40, Vap Bright TiN, p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TBE08136	TCE08136	TDE08136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBE08156	TCE08156	TDE08156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBE08196	TCE08196	TDE08196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBE08176	TCE08176	TDE08176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBE08496	TCE08496	TDE08496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBE08206	TCE08206	TDE08206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBE08226	TCE08226	TDE08226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TBE08246	TCE08246	TDE08246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBE08266	TCE08266	TDE08266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBE08286	TCE08286	TDE08286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TBE08316	TCE08316	TDE08316	10	80	30	6	4.9	8	3	5
M7 × 1		TBE08346	TCE08346	TDE08346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TBE08366	TCE08366	TDE08366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBE08396	TCE08396	TDE08396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TBE08426	TCE08426	TDE08426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TBE08466	TCE08466	TDE08466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBE08506	TCE08506	TDE08506	18	110	44	9	7	10	3	10.2
M14 × 2		TBE08546	TCE08546	TDE08546	20	110	44	11	9	12	3	12
M16 × 2		TBE08606	TCE08606	TDE08606	20	110	44	12	9	12	3	14
M18 × 2.5		TBE08656	TCE08656	TDE08656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TBE08706	TCE08706	TDE08706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TBE08746	TCE08746	TDE08746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TBE08786	TCE08786	TDE08786	30	160	60	18	14.5	17	4	21
M27 × 3		TBE08866	TCE08866	TDE08866	30	160	60	20	16	19	4	24
M30 × 3.5		TBE08946	TCE08946	TDE08946	35	180	70	22	18	21	4	26.5

►DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	M										K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





Vap TB844 SERIES  
Bright TC844 SERIES  
TiN TD844 SERIES

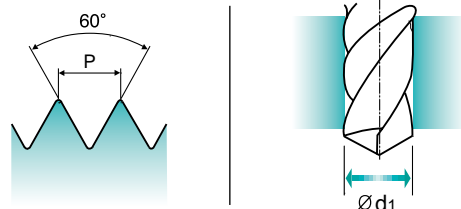
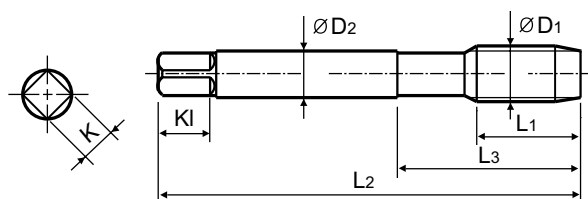
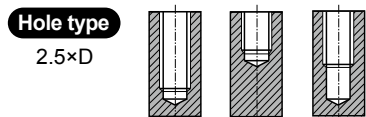
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 374 6H 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TB844256	TC844256	TD844256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB844296	TC844296	TD844296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB844326	TC844326	TD844326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB844336	TC844336	TD844336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB844356	TC844356	TD844356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1.0	TB844376	TC844376	TD844376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TB844386	TC844386	TD844386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB844436	TC844436	TD844436	16	100	40	7	5.5	8	3	8.8
M10	× 1.0	TB844446	TC844446	TD844446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TB844456	TC844456	TD844456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB844516	TC844516	TD844516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TB844526	TC844526	TD844526	15	100	40	9	7	10	3	10.8
M12	× 1.0	TB844536	TC844536	TD844536	11	100	40	9	7	10	3	11
M14	× 1.5	TB844556	TC844556	TD844556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TB844566	TC844566	TD844566	15	100	40	11	9	12	3	12.8
M14	× 1.0	TB844576	TC844576	TD844576	11	100	40	11	9	12	3	13
M16	× 1.5	TB844616	TC844616	TD844616	15	100	40	12	9	12	3	14.5
M16	× 1.0	TB844626	TC844626	TD844626	12	100	40	12	9	12	3	15
M18	× 1.5	TB844676	TC844676	TD844676	17	110	44	14	11	14	4	16.5
M18	× 1.0	TB844686	TC844686	TD844686	13	110	44	14	11	14	4	17
M20	× 1.5	TB844726	TC844726	TD844726	17	125	50	16	12	15	4	18.5
M20	× 1.0	TB844736	TC844736	TD844736	14	125	50	16	12	15	4	19
M22	× 1.5	TB844766	TC844766	TD844766	17	125	50	18	14.5	17	4	20.5
M22	× 1.0	TB844776	TC844776	TD844776	14	125	50	18	14.5	17	4	21

\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Vap TB844 SERIES  
Bright TC844 SERIES  
TiN TD844 SERIES

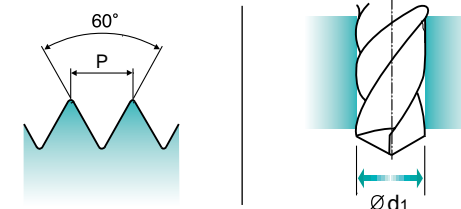
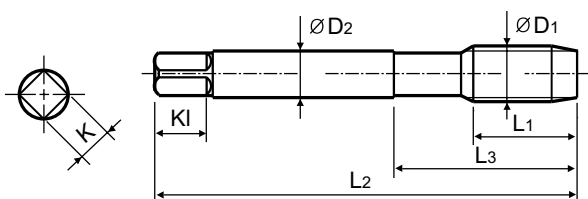
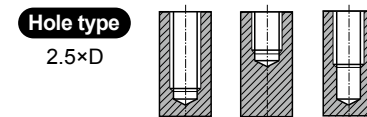
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 374 6H 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M24	× 2.0	TB844796	TC844796	TD844796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TB844806	TC844806	TD844806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TB844856	TC844856	TD844856	20	140	54	18	14.5	17	4	24.5
M27	× 2.0	TB844876	TC844876	TD844876	20	140	54	20	16	19	4	25
M27	× 1.5	TB844886	TC844886	TD844886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TB844916	TC844916	TD844916	20	140	54	20	16	19	4	26.5
M30	× 2	TB844966	TC844966	TD844966	22	150	57	22	18	21	4	28
M30	× 1.5	TB844976	TC844976	TD844976	22	150	57	22	18	21	4	28.5
M32	× 2.0	-	TC844A16	TD844A16	22	150	57	22	18	21	4	30.0
M32	× 1.5	-	TC844A26	TD844A26	22	150	57	22	18	21	4	30.5
M33	× 2.0	-	TC844A66	TD844A66	24	160	60	25	20	23	4	31.0
M33	× 1.5	-	TC844A76	TD844A76	24	160	60	25	20	23	4	31.5
M34	× 1.5	-	TC844A96	TD844A96	24	170	70	28	22	25	4	32.5
M35	× 1.5	-	TC844B16	TD844B16	24	170	70	28	22	25	4	33.5
M36	× 3.0	-	TC844B46	TD844B46	30	200	80	28	22	25	4	33.0
M36	× 2.0	-	TC844B56	TD844B56	24	170	70	28	22	25	4	34.0
M36	× 1.5	-	TC844B66	TD844B66	24	170	70	28	22	25	4	34.5
M38	× 1.5	-	TC844B86	TD844B86	24	170	70	28	22	25	4	36.5
M39	× 1.5	-	TC844C36	TD844C36	25	170	70	32	24	27	4	37.5
M40	× 1.5	-	TC844C66	TD844C66	25	170	70	32	24	27	4	38.5
M42	× 3.0	-	TC844D06	TD844D06	30	200	80	32	24	27	4	39.0
M42	× 2.0	-	TC844D16	TD844D16	25	170	70	32	24	27	4	40.0
M42	× 1.5	-	TC844D26	TD844D26	25	170	70	32	24	27	4	40.5
M45	× 1.5	-	TC844D96	TD844D96	26	180	80	36	29	32	4	43.5

\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





Vap TB844 SERIES  
Bright TC844 SERIES  
TiN TD844 SERIES

# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

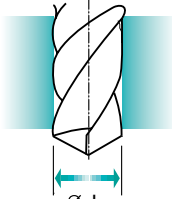
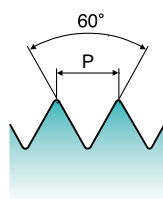
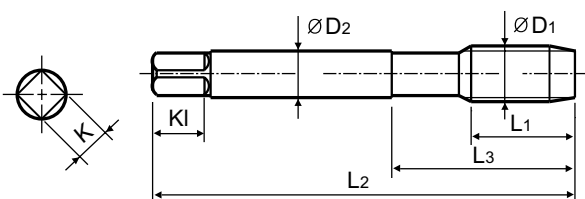
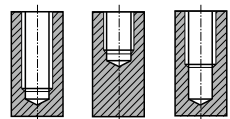
Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Hole type  
2.5×D



Material groups: MU HSS-E DIN 374 6H 60° C R40 Vap Bright TiN p.B124

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M48 x 3.0	-	TC844E56	TD844E56	36	225	90	36	29	32	4	45.0	
M48 x 2.0	-	TC844E66	TD844E66	28	190	80	36	29	32	4	46.0	
M48 x 1.5	-	TC844E76	TD844E76	28	190	80	36	29	32	4	46.5	
M50 x 1.5	-	TC844F16	TD844F16	28	190	80	36	29	32	4	48.5	
M52 x 3.0	-	TC844F56	TD844F56	36	225	90	40	32	35	4	49.0	
M52 x 2.0	-	TC844F66	TD844F66	28	190	80	40	32	35	4	50.0	
M52 x 1.5	-	TC844F76	TD844F76	28	190	80	40	32	35	4	50.5	

\* The other coating(TiCN or TiAlN) is available on your request.

\* The other coating(TiCN or TiAlN) is available on your request. ◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Bright TCE09 SERIES  
TiN TDE09 SERIES

# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

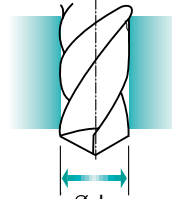
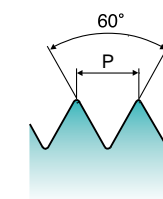
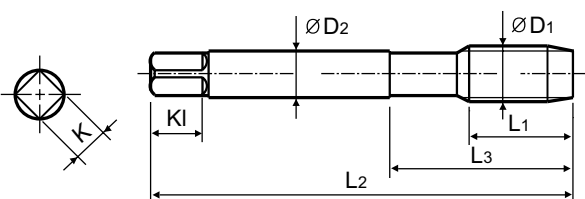
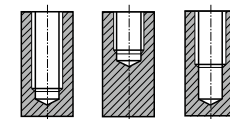
Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Hole type  
2.5×D



Material groups: MU HSS-E DIN 374 6G 60° C R40 Vap Bright TiN p.B124

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1		
M4 x 0.5	-	TCE09256	TDE09256	5	63	21	2.8	2.1	5	3	3.5
M5 x 0.5	-	TCE09296	TDE09296	5	70	25	3.5	2.7	6	3	4.5
M6 x 0.75	-	TCE09326	TDE09326	8	80	30	4.5	3.4	6	3	5.2
M6 x 0.5	-	TCE09336	TDE09336	5	80	30	4.5	3.4	6	3	5.5
M7 x 0.75	-	TCE09356	TDE09356	10	80	30	5.5	4.3	7	3	6.2
M8 x 1	-	TCE09376	TDE09376	10	90	36	6	4.9	8	3	7
M8 x 0.75	-	TCE09386	TDE09386	8	80	30	6	4.9	8	3	7.2
M10 x 1.25	-	TCE09436	TDE09436	16	100	40	7	5.5	8	3	8.8
M10 x 1	-	TCE09446	TDE09446	10	90	36	7	5.5	8	3	9
M10 x 0.75	-	TCE09456	TDE09456	10	90	36	7	5.5	8	3	9.2
M12 x 1.5	-	TCE09516	TDE09516	15	100	40	9	7	10	3	10.5
M12 x 1.25	-	TCE09526	TDE09526	15	100	40	9	7	10	3	10.8
M12 x 1	-	TCE09536	TDE09536	11	100	40	9	7	10	3	11
M14 x 1.5	-	TCE09556	TDE09556	15	100	40	11	9	12	3	12.5
M14 x 1.25	-	TCE09566	TDE09566	15	100	40	11	9	12	3	12.8
M14 x 1	-	TCE09576	TDE09576	11	100	40	11	9	12	3	13
M16 x 1.5	-	TCE09616	TDE09616	15	100	40	12	9	12	3	14.5
M16 x 1	-	TCE09626	TDE09626	12	100	40	12	9	12	3	15
M18 x 1.5	-	TCE09676	TDE09676	17	110	44	14	11	14	4	16.5
M18 x 1	-	TCE09686	TDE09686	13	110	44	14	11	14	4	17
M20 x 1.5	-	TCE09726	TDE09726	17	125	50	16	12	15	4	18.5
M20 x 1	-	TCE09736	TDE09736	14	125	50	16	12	15	4	19
M22 x 1.5	-	TCE09766	TDE09766	17	125	50	18	14.5	17	4	20.5
M22 x 1	-	TCE09776	TDE09776	14	125	50	18	14.5	17	4	21

\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request. ► NEXT PAGE

\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request. ◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron
Material Description	1	2	3	4	5 <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> <th>11</th> <th>12</th> <th>13</th> <th>14 <th>15</th><th>16</th><th>17</th><th>18</th><th>19</th><th>20</th> </th>	6	7	8	9	10	11	12	13	14 <th>15</th> <th>16</th> <th>17</th> <th>18</th> <th>19</th> <th>20</th>	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





Bright TCE09 SERIES  
TIN TDE09 SERIES

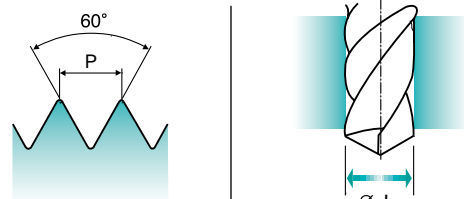
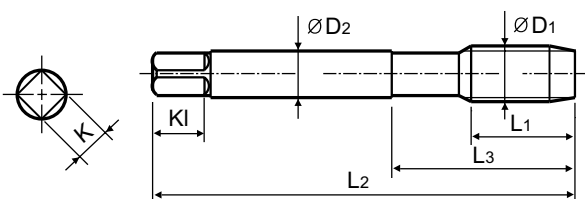
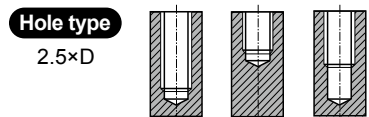
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 374 6G 60° C R40 Bright TiN p.B124

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M24 × 2		TCE09796	TDE09796	20	140	54	18	14.5	17	4	22
M24 × 1.5		TCE09806	TDE09806	20	140	54	18	14.5	17	4	22.5
M26 × 1.5		TCE09856	TDE09856	20	140	54	18	14.5	17	4	24.5
M27 × 2		TCE09876	TDE09876	20	140	54	20	16	19	4	25
M27 × 1.5		TCE09886	TDE09886	20	140	54	20	16	19	4	25.5
M28 × 1.5		TCE09916	TDE09916	20	140	54	20	16	19	4	26.5
M30 × 2		TCE09966	TDE09966	22	150	57	22	18	21	4	28
M30 × 1.5		TCE09976	TDE09976	22	150	57	22	18	21	4	28.5

\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	260	160	250	130	230		
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													



TC804-IC SERIES

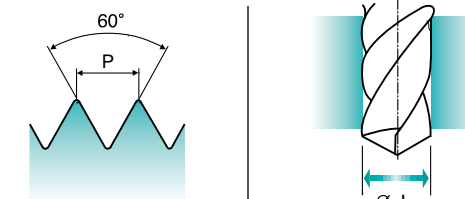
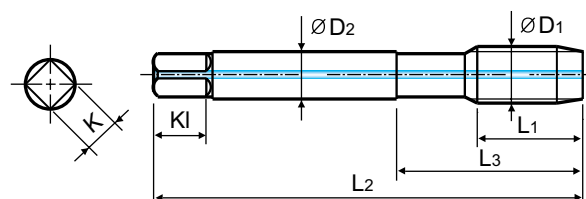
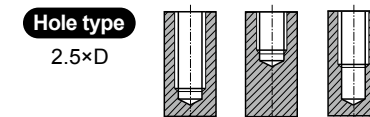
# M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13  
ISO MÉTRIQUE DIN13  
ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 371/376 6H 60° C R40 Bright p.B124

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M6 × 1		TC804316IC	10	80	30	6	4.9	8	3	5
M8 × 1.25		TC804366IC	13	90	35	8	6.2	9	3	6.8
M10 × 1.5		TC804426IC	15	100	39	10	8	11	3	8.5
M12 × 1.75		TC804506IC	18	110	44	9	7	10	3	10.2
M14 × 2		TC804546IC	20	110	44	11	9	12	3	12
M16 × 2		TC804606IC	20	110	44	12	9	12	3	14
M18 × 2.5		TC804656IC	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC804706IC	25	140	54	16	12	15	4	17.5

►DIN 371(M6~M10) and DIN 376(M12~M20)

\* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	260	160	250	130	230		
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

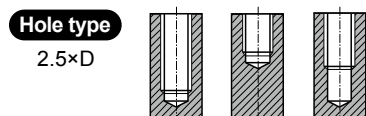
**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

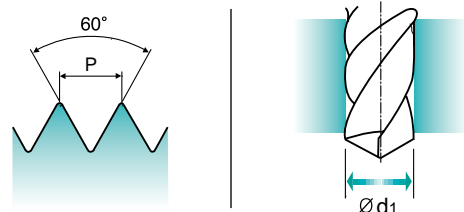
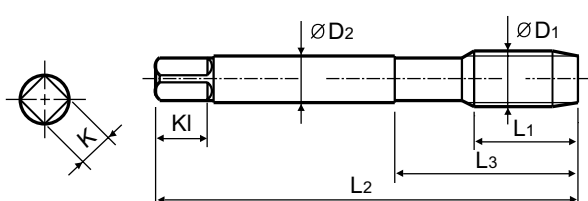
Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Short Chamfer



Material groups: **MU** HSS-E DIN 371/376 6H 60° E R40 Bright p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TC807136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC807156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TC807196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC807176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TC807496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC807206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC807226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TC807246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC807266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC807286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TC807316	10	80	30	6	4.9	8	3	5
M7 × 1		TC807346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TC807366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC807396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TC807426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TC807466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC807506	18	110	44	9	7	10	3	10.2
M14 × 2		TC807546	20	110	44	11	9	12	3	12
M16 × 2		TC807606	20	110	44	12	9	12	3	14
M18 × 2.5		TC807656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC807706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TC807746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TC807786	30	160	60	18	14.5	17	4	21
M27 × 3		TC807866	30	160	60	20	16	19	4	24
M30 × 3.5		TC807946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

\* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



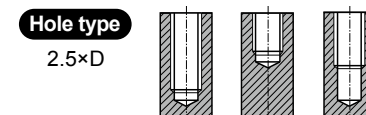
**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

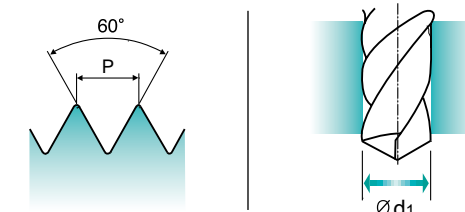
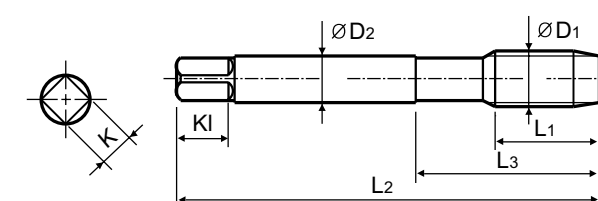
Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Long Shank



Material groups: **MU** HSS-E LONG 6H 60° C R40 Bright p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3 × 0.5		TC633206	11	100	18	3.5	2.7	6	3	2.5
M4 × 0.7		TC633246	13	125	21	4.5	3.4	6	3	3.3
M5 × 0.8		TC633286	15	140	25	6	4.9	8	3	4.2
M6 × 1		TC633316	17	160	30	6	4.9	8	3	5
M8 × 1.25		TC633366	20	180	35	6	4.9	8	3	6.8
M10 × 1.5		TC633426	22	200	39	7	5.5	8	3	8.5
M12 × 1.75		TC633506	24	220	44	9	7	10	3	10.2
M14 × 2		TC633546	26	220	44	11	9	12	3	12
M16 × 2		TC633606	27	220	44	12	9	12	3	14
M20 × 2.5		TC633706	32	280	54	16	12	15	4	17.5

\* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YIG COMBO TAPS

TQ744 SERIES  
TB744 SERIES

## M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

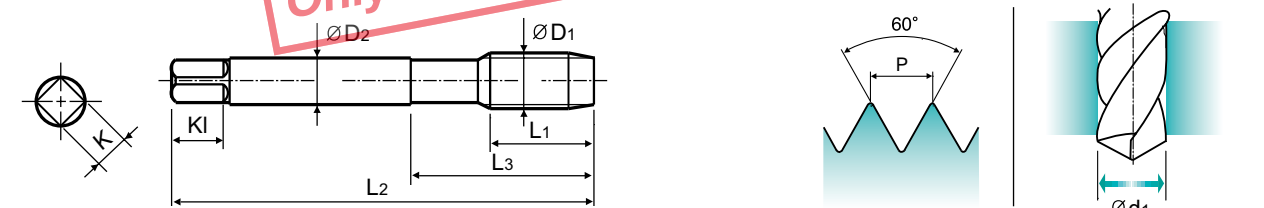
Machine taps  
Maschinengewindebohrer

► For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, HSS-E, DIN 371/376, 6H, 60°, E, R45, Vap, p.B125. Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK, TAPPING CHUCK, ONE STEP TAPPING CHUCK. Page: D215-220, D221-228, D211-213.

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M2 × 0.4		TQ744136	8	45	13	2.8	2.1	5	2	1.6
▲ M2.2 × 0.45		TQ744156	8	45	13	2.8	2.1	5	2	1.75
▲ M2.3 × 0.4		TQ744196	8	45	13	2.8	2.1	5	2	1.9
▲ M2.5 × 0.45		TQ744176	9	50	15	2.8	2.1	5	2	2.05
▲ M2.6 × 0.45		TQ744496	9	50	15	2.8	2.1	5	2	2.1
▲ M3 × 0.5		TQ744206	6	56	18	3.5	2.7	6	3	2.5
▲ M3.5 × 0.6		TQ744226	7	56	20	4	3	6	3	2.9
▲ M4 × 0.7		TQ744246	7	63	21	4.5	3.4	6	3	3.3
▲ M4.5 × 0.75		TQ744266	8	70	25	6	4.9	8	3	3.7
▲ M5 × 0.8		TQ744286	8	70	25	6	4.9	8	3	4.2
▲ M6 × 1		TQ744316	10	80	30	7	5.5	8	3	5
▲ M7 × 1		TQ744346	10	80	30	7	5.5	8	3	6
▲ M8 × 1.25		TQ744366	13	90	35	8	6.2	9	3	6.8
▲ M9 × 1.25		TQ744396	13	90	35	9	7	10	3	7.8
▲ M10 × 1.5		TQ744426	15	100	39	10	8	11	3	8.5
▲ M11 × 1.5		TQ744466	17	100	40	8	6.2	9	3	9.5
▲ M12 × 1.75		TQ744506	18	110	44	9	7	10	3	10.2
▲ M14 × 2		TB744546	20	110	44	11	9	12	3	12
▲ M16 × 2		TB744606	20	110	44	12	9	12	3	14
▲ M18 × 2.5		TB744656	25	125	50	14	11	14	4	15.5
▲ M20 × 2.5		TB744706	25	140	54	16	12	15	4	17.5
▲ M22 × 2.5		TB744746	25	140	54	18	14.5	17	4	19.5
▲ M24 × 3		TB744786	30	160	60	18	14.5	17	4	21
▲ M27 × 3		TB744866	30	160	60	20	16	19	4	24
▲ M30 × 3.5		TB744946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► HSS-PM(M2~M12/TQ744) and HSS-E(M14~M30/TB744)  
\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○		○		○	○	○			◎	◎	◎	◎							



# YIG COMBO TAPS

TQ754 SERIES

## MF ISO Metric fine threads DIN 13

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

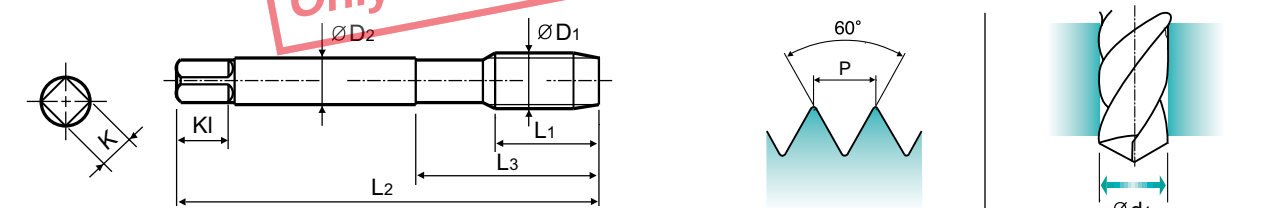
Machine taps  
Maschinengewindebohrer

► For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, DIN 374, 6H, 60°, C, R45, Vap, p.B125. Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK, TAPPING CHUCK, ONE STEP TAPPING CHUCK. Page: D215-220, D221-228, D211-213.

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M4 × 0.5		TQ754256	5	63	21	2.8	2.1	5	3	3.5
▲ M5 × 0.5		TQ754296	5	70	25	3.5	2.7	6	3	4.5
▲ M6 × 0.75		TQ754326	8	80	30	4.5	3.4	6	3	5.2
▲ M6 × 0.5		TQ754336	5	80	30	4.5	3.4	6	3	5.5
▲ M7 × 0.75		TQ754356	10	80	30	5.5	4.3	7	3	6.2
▲ M8 × 1		TQ754376	10	90	36	6	4.9	8	3	7
▲ M8 × 0.75		TQ754386	8	80	30	6	4.9	8	3	7.2
▲ M10 × 1.25		TQ754436	16	100	40	7	5.5	8	3	8.8
▲ M10 × 1		TQ754446	10	90	36	7	5.5	8	3	9
▲ M10 × 0.75		TQ754456	10	90	36	7	5.5	8	3	9.2
▲ M12 × 1.5		TQ754516	15	100	40	9	7	10	3	10.5
▲ M12 × 1.25		TQ754526	15	100	40	9	7	10	3	10.8
▲ M12 × 1		TQ754536	11	100	40	9	7	10	3	11

\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○		○		○	○	○			◎	◎	◎	◎							

# YG COMBO TAPS

TB754 SERIES

## MF ISO Metric fine threads DIN 13

**Metrisches ISO-Feingewinde DIN 13**  
**ISO MÉTRIQUE PAS FINS DIN13**  
**ISO Metrico passo fine DIN 13**

Machine taps  
Maschinengewindebohrer

► For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

**Only available till stock runs out!**

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
▲ M14 × 1.5		TB754556	15	100	40	11	9	12	3	12.5
▲ M14 × 1.25		TB754566	15	100	40	11	9	12	3	12.8
▲ M14 × 1		TB754576	11	100	40	11	9	12	3	13
▲ M16 × 1.5		TB754616	15	100	40	12	9	12	3	14.5
▲ M16 × 1		TB754626	12	100	40	12	9	12	3	15
▲ M18 × 1.5		TB754676	17	110	44	14	11	14	4	16.5
▲ M18 × 1		TB754686	13	110	44	14	11	14	4	17
▲ M20 × 1.5		TB754726	17	125	50	16	12	15	4	18.5
▲ M20 × 1		TB754736	14	125	50	16	12	15	4	19
▲ M22 × 1.5		TB754766	17	125	50	18	14.5	17	4	20.5
▲ M22 × 1		TB754776	14	125	50	18	14.5	17	4	21
▲ M24 × 2		TB754796	20	140	54	18	14.5	17	4	22
▲ M24 × 1.5		TB754806	20	140	54	18	14.5	17	4	22.5
▲ M26 × 1.5		TB754856	20	140	54	18	14.5	17	4	24.5
▲ M27 × 2		TB754876	20	140	54	20	16	19	4	25
▲ M27 × 1.5		TB754886	20	140	54	20	16	19	4	25.5
▲ M28 × 1.5		TB754916	20	140	54	20	16	19	4	26.5
▲ M30 × 2		TB754966	22	150	57	22	18	21	4	28
▲ M30 × 1.5		TB754976	22	150	57	22	18	21	4	28.5

\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron			Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N						S						H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG COMBO TAPS

Vap TB824 SERIES  
Bright TC824 SERIES  
TiN TD824 SERIES

## UNC Unified coarse threads

**Unified Grobgewinde**  
**UNC**  
**Unificato passo fine**

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Unit : mm

SIZE	TPI	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC		TB824162	TC824162	TD824162	6	56	18	3.5	2.7	6	3	2.3
#5 - 40 UNC		TB824202	TC824202	TD824202	7	56	18	3.5	2.7	6	3	2.6
#6 - 32 UNC		TB824242	TC824242	TD824242	7	56	20	4	3	6	3	2.85
#8 - 32 UNC		TB824282	TC824282	TD824282	8	63	21	4.5	3.4	6	3	3.5
#10 - 24 UNC		TB824322	TC824322	TD824322	10	70	25	6	4.9	8	3	3.9
#12 - 24 UNC		TB824362	TC824362	TD824362	10	80	30	6	4.9	8	3	4.5
1/4 - 20 UNC		TB824402	TC824402	TD824402	13	80	30	7	5.5	8	3	5.2
5/16 - 18 UNC		TB824442	TC824442	TD824442	14	90	35	8	6.2	9	3	6.6
3/8 - 16 UNC		TB824482	TC824482	TD824482	16	100	39	9	7	10	3	8
7/16 - 14 UNC		TB824522	TC824522	TD824522	17	100	40	8	6.2	9	3	9.4
1/2 - 13 UNC		TB824562	TC824562	TD824562	20	110	44	9	7	10	3	10.75
9/16 - 12 UNC		TB824602	TC824602	TD824602	20	110	44	11	9	12	3	12.25
5/8 - 11 UNC		TB824642	TC824642	TD824642	22	110	44	12	9	12	3	13.5
3/4 - 10 UNC		TB824702	TC824702	TD824702	25	125	50	14	11	14	4	16.5
7/8 - 9 UNC		TB824742	TC824742	TD824742	27	140	54	18	14.5	17	4	19.5
1 - 8 UNC		TB824782	TC824782	TD824782	30	160	60	20	16	19	4	22.25

► DIN 371(#4~3/8) and DIN 376(7/16~1)

\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron			Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N						S						H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





Bright TCE01 SERIES  
TIN TDE01 SERIES

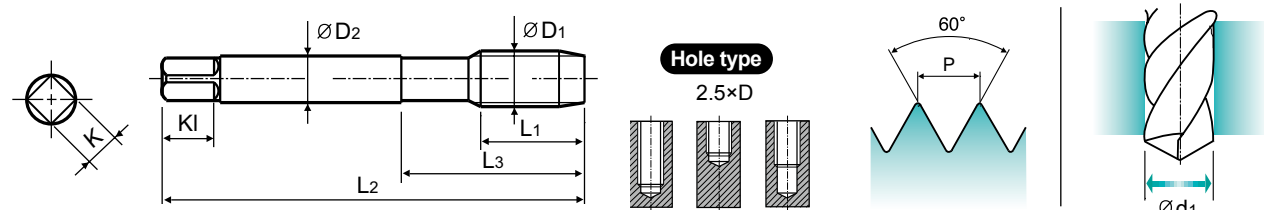
# UNC Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo fine

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 371/376 3B 60° C R40 Bright TiN p.B124

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN								
ØD1		L1	L2	L3	ØD2	K	KI	Z	Ød1		
#4	- 40 UNC	TCE01162	TDE01162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40 UNC	TCE01202	TDE01202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32 UNC	TCE01242	TDE01242	7	56	20	4	3	6	3	2.85
#8	- 32 UNC	TCE01282	TDE01282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24 UNC	TCE01322	TDE01322	10	70	25	6	4.9	8	3	3.9
#12	- 24 UNC	TCE01362	TDE01362	10	80	30	6	4.9	8	3	4.5
1/4	- 20 UNC	TCE01402	TDE01402	13	80	30	7	5.5	8	3	5.2
5/16	- 18 UNC	TCE01442	TDE01442	14	90	35	8	6.2	9	3	6.6
3/8	- 16 UNC	TCE01482	TDE01482	16	100	39	9	7	10	3	8
7/16	- 14 UNC	TCE01522	TDE01522	17	100	40	8	6.2	9	3	9.4
1/2	- 13 UNC	TCE01562	TDE01562	20	110	44	9	7	10	3	10.75
9/16	- 12 UNC	TCE01602	TDE01602	20	110	44	11	9	12	3	12.25
5/8	- 11 UNC	TCE01642	TDE01642	22	110	44	12	9	12	3	13.5
3/4	- 10 UNC	TCE01702	TDE01702	25	125	50	14	11	14	4	16.5
7/8	- 9 UNC	TCE01742	TDE01742	27	140	54	18	14.5	17	4	19.5
1	- 8 UNC	TCE01782	TDE01782	30	160	60	20	16	19	4	22.25

►DIN 371(#4~3/8) and DIN 376(7/16~1)

\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○	○



Vap TB864 SERIES  
Bright TC864 SERIES  
TiN TD864 SERIES

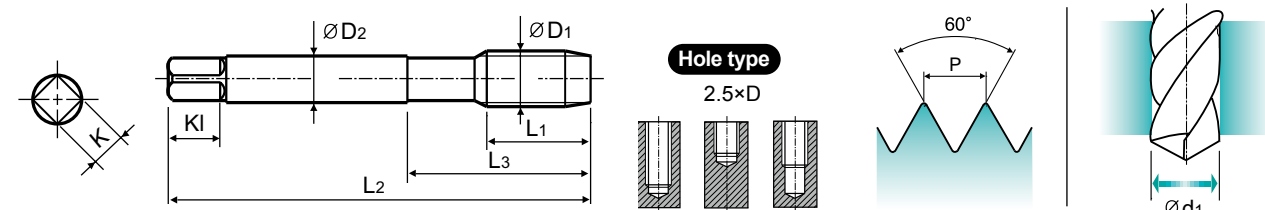
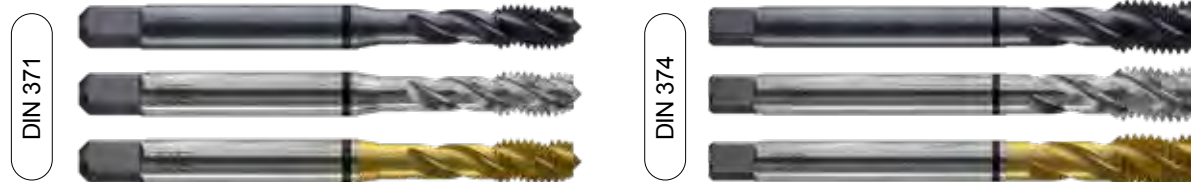
# UNF Unified fine threads

- Unified Grobgewinde
- UNF
- Unificato passo fine

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 371/376 2B 60° C R40 Vap Bright TiN p.B124

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1		L1	L2	L3	ØD2	K	KI	Z	Ød1			
#4	-48UNF	TB864182	TC864182	TD864182	6	56	18	3.5	2.7	6	3	2.4
#5	-44UNF	TB864222	TC864222	TD864222	7	56	18	3.5	2.7	6	3	2.7
#6	-40UNF	TB864262	TC864262	TD864262	7	56	20	4	3	6	3	3
#8	-36UNF	TB864302	TC864302	TD864302	8	63	21	4.5	3.4	6	3	3.5
#10	-32UNF	TB864342	TC864342	TD864342	10	70	25	6	4.9	8	3	4.1
#12	-28UNF	TB864382	TC864382	TD864382	10	80	30	6	4.9	8	3	4.7
1/4	-28UNF	TB864422	TC864422	TD864422	10	80	30	7	5.5	8	3	5.5
5/16	-24UNF	TB864462	TC864462	TD864462	10	90	35	8	6.2	9	3	6.9
3/8	-24UNF	TB864502	TC864502	TD864502	10	100	39	9	7	10	3	8.5
7/16	-20UNF	TB864542	TC864542	TD864542	13	100	40	8	6.2	9	3	9.9
1/2	-20UNF	TB864582	TC864582	TD864582	13	100	40	9	7	10	3	11.5
9/16	-18UNF	TB864622	TC864622	TD864622	15	100	40	11	9	12	3	12.9
5/8	-18UNF	TB864662	TC864662	TD864662	15	100	40	12	9	12	3	14.5
3/4	-16UNF	TB864722	TC864722	TD864722	17	110	44	14	11	14	4	17.5
7/8	-14UNF	TB864762	TC864762	TD864762	17	125	50	18	14.5	17	4	20.5
1	-12UNF	TB864802	TC864802	TD864802	20	140	54	20	16	19	4	23.25

►DIN 371(#4~3/8) and DIN 374(7/16~1)

\* The other coating(TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○	○





Bright TCE02 SERIES  
TIN TDE02 SERIES

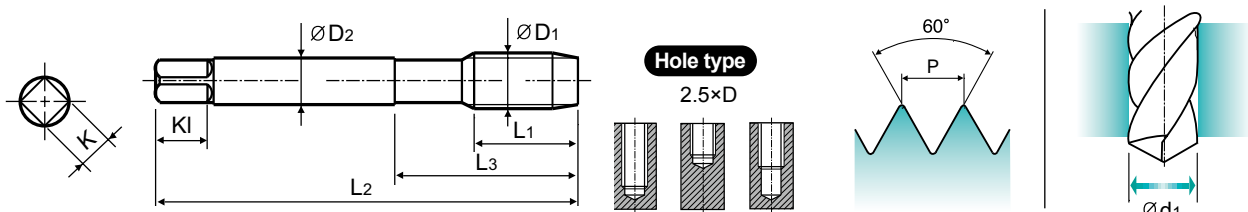
# UNF Unified fine threads

- Unified Grobgewinde
- UNF
- Unificato passo fine

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 3B, 60°, C, R40, Bright TiN, p.B124

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN								
ØD1		L1	L2	L3	ØD2	K	KI	Z	Ød1		
#4	48UNF	TCE02182	TDE02182	6	56	18	3.5	2.7	6	3	2.4
#5	44UNF	TCE02222	TDE02222	7	56	18	3.5	2.7	6	3	2.7
#6	40UNF	TCE02262	TDE02262	7	56	20	4	3	6	3	3
#8	36UNF	TCE02302	TDE02302	8	63	21	4.5	3.4	6	3	3.5
#10	32UNF	TCE02342	TDE02342	10	70	25	6	4.9	8	3	4.1
#12	28UNF	TCE02382	TDE02382	10	80	30	6	4.9	8	3	4.7
1/4	28UNF	TCE02422	TDE02422	10	80	30	7	5.5	8	3	5.5
5/16	24UNF	TCE02462	TDE02462	10	90	35	8	6.2	9	3	6.9
3/8	24UNF	TCE02502	TDE02502	10	100	39	9	7	10	3	8.5
7/16	20UNF	TCE02542	TDE02542	13	100	40	8	6.2	9	3	9.9
1/2	20UNF	TCE02582	TDE02582	13	100	40	9	7	10	3	11.5
9/16	18UNF	TCE02622	TDE02622	15	100	40	11	9	12	3	12.9
5/8	18UNF	TCE02662	TDE02662	15	100	40	12	9	12	3	14.5
3/4	16UNF	TCE02722	TDE02722	17	110	44	14	11	14	4	17.5
7/8	14UNF	TCE02762	TDE02762	17	125	50	18	14.5	17	4	20.5
1	12UNF	TCE02802	TDE02802	20	140	54	20	16	19	4	23.25

►DIN 371(#4~3/8) and DIN 374(7/16~1)  
\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



Vap TB814 SERIES  
Bright TC814 SERIES  
TIN TD814 SERIES

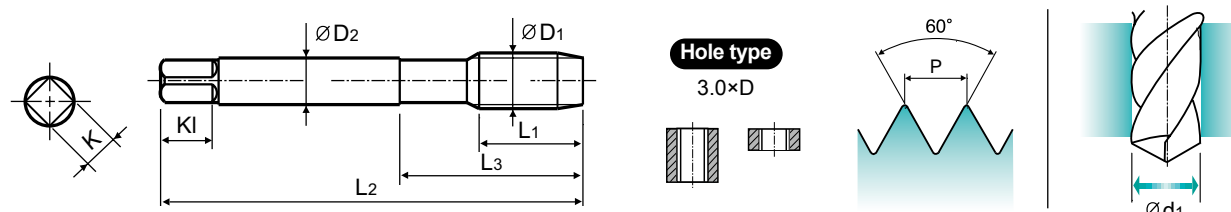
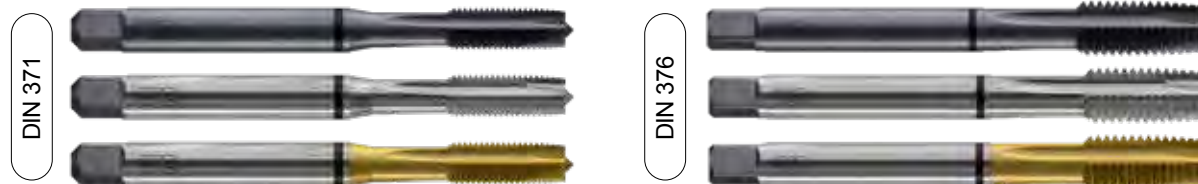
# M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 6H, 60°, B, Vap Bright TiN, p.B125

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4	TB814136	TC814136	TD814136	8	45	13	2.8	2.1	5	3	1.6	
M2.2 × 0.45	TB814156	TC814156	TD814156	8	45	13	2.8	2.1	5	3	1.75	
M2.3 × 0.4	TB814196	TC814196	TD814196	8	45	13	2.8	2.1	5	3	1.9	
M2.5 × 0.45	TB814176	TC814176	TD814176	9	50	15	2.8	2.1	5	3	2.05	
M2.6 × 0.45	TB814496	TC814496	TD814496	9	50	15	2.8	2.1	5	3	2.1	
M3 × 0.5	TB814206	TC814206	TD814206	11	56	18	3.5	2.7	6	3	2.5	
M3.5 × 0.6	TB814226	TC814226	TD814226	12	56	20	4	3	6	3	2.9	
M4 × 0.7	TB814246	TC814246	TD814246	13	63	21	4.5	3.4	6	3	3.3	
M4.5 × 0.75	TB814266	TC814266	TD814266	14	70	25	6	4.9	8	3	3.7	
M5 × 0.8	TB814286	TC814286	TD814286	15	70	25	6	4.9	8	3	4.2	
M6 × 1.0	TB814316	TC814316	TD814316	17	80	30	6	4.9	8	3	5	
M7 × 1.0	TB814346	TC814346	TD814346	17	80	30	7	5.5	8	3	6	
M8 × 1.25	TB814366	TC814366	TD814366	20	90	35	8	6.2	9	3	6.8	
M9 × 1.25	TB814396	TC814396	TD814396	20	90	35	9	7	10	3	7.8	
M10 × 1.5	TB814426	TC814426	TD814426	22	100	39	10	8	11	3	8.5	
M11 × 1.5	TB814466	TC814466	TD814466	22	100	40	8	6.2	9	3	9.5	
M12 × 1.75	TB814506	TC814506	TD814506	24	110	44	9	7	10	3	10.2	
M14 × 2.0	TB814546	TC814546	TD814546	26	110	44	11	9	12	3	12	
M16 × 2.0	TB814606	TC814606	TD814606	27	110	44	12	9	12	3	14	
M18 × 2.5	TB814656	TC814656	TD814656	30	125	50	14	11	14	4	15.5	
M20 × 2.5	TB814706	TC814706	TD814706	32	140	54	16	12	15	4	17.5	
M22 × 2.5	TB814746	TC814746	TD814746	32	140	54	18	14.5	17	4	19.5	

►DIN 371(M2~M10) and DIN 376(M11~M52)  
\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



Vap TB814 SERIES  
Bright TC814 SERIES  
TiN TD814 SERIES

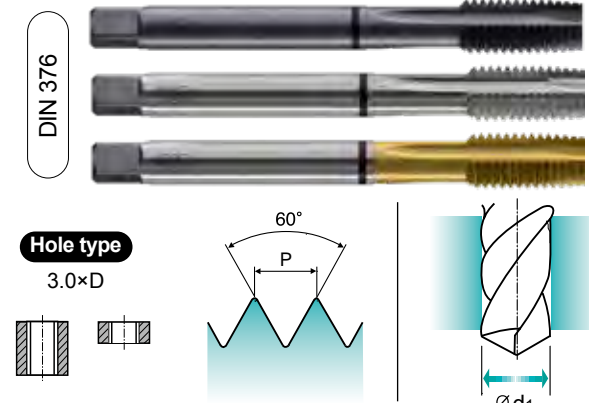
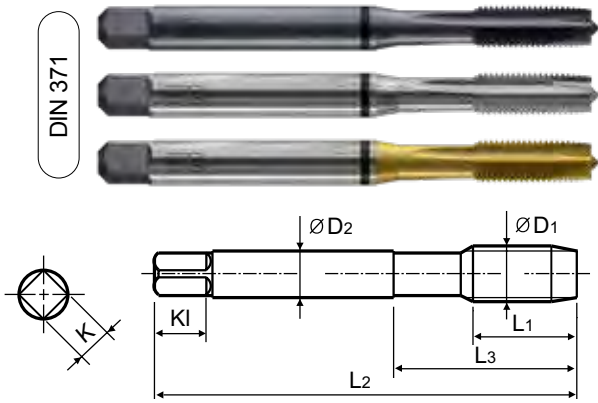
### M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU HSS-E DIN 371/376 6H 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M24 × 3.0		TB814786	TC814786	TD814786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TB814866	TC814866	TD814866	36	160	60	20	16	19	4	24
M30 × 3.5		TB814946	TC814946	TD814946	40	180	70	22	18	21	4	26.5
M33 × 3.5		-	TC814A46	TD814A46	40	180	70	25	20	23	4	29.5
M36 × 4.0		-	TC814B36	TD814B36	50	200	80	28	22	25	4	32.0
M39 × 4.0		-	TC814C06	TD814C06	50	200	80	32	24	27	4	35.0
M42 × 4.5		-	TC814C86	TD814C86	56	200	85	32	24	27	4	37.5
M45 × 4.5		-	TC814D56	TD814D56	58	220	85	36	29	32	4	40.5
M48 × 5.0		-	TC814E26	TD814E26	65	250	90	36	29	32	4	43.0
M52 × 5.0		-	TC814F36	TD814F36	65	250	90	40	32	35	4	47.0

► DIN 371(M2~M10) and DIN 376(M11~M52)  
\* The other coating(TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	34	55	60	42	55	55			
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			



Vap TBJ05 SERIES  
Bright TCJ05 SERIES  
TiN TDJ05 SERIES

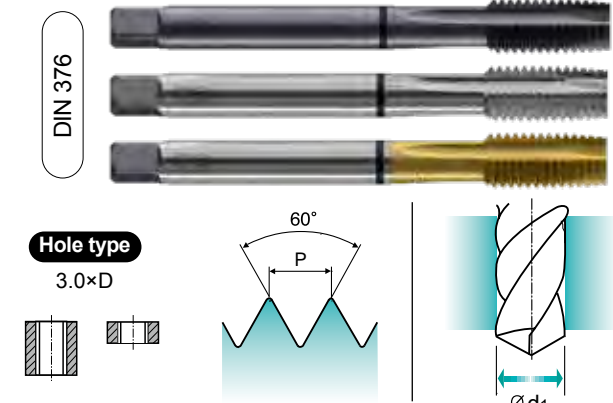
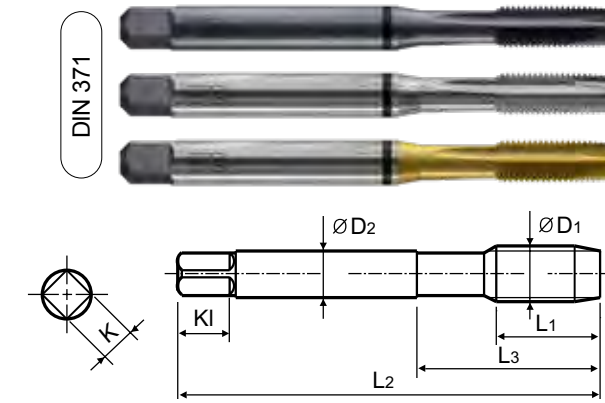
### M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU HSS-E DIN 371/376 4H 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TBJ05136	TCJ05136	TDJ05136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBJ05156	TCJ05156	TDJ05156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBJ05196	TCJ05196	TDJ05196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBJ05176	TCJ05176	TDJ05176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBJ05496	TCJ05496	TDJ05496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBJ05206	TCJ05206	TDJ05206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBJ05226	TCJ05226	TDJ05226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TBJ05246	TCJ05246	TDJ05246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBJ05266	TCJ05266	TDJ05266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBJ05286	TCJ05286	TDJ05286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TBJ05316	TCJ05316	TDJ05316	17	80	30	6	4.9	8	3	5
M7 × 1.0		TBJ05346	TCJ05346	TDJ05346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TBJ05366	TCJ05366	TDJ05366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBJ05396	TCJ05396	TDJ05396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TBJ05426	TCJ05426	TDJ05426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TBJ05466	TCJ05466	TDJ05466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBJ05506	TCJ05506	TDJ05506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TBJ05546	TCJ05546	TDJ05546	26	110	44	11	9	12	3	12
M16 × 2.0		TBJ05606	TCJ05606	TDJ05606	27	110	44	12	9	12	3	14
M18 × 2.5		TBJ05656	TCJ05656	TDJ05656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TBJ05706	TCJ05706	TDJ05706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TBJ05746	TCJ05746	TDJ05746	32	140	54	18	14.5	17	4	19.5
M24 × 3.0		TBJ05786	TCJ05786	TDJ05786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TBJ05866	TCJ05866	TDJ05866	36	160	60	20	16	19	4	24
M30 × 3.5		TBJ05946	TCJ05946	TDJ05946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	34	55	60	42	55	55			
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			





Vap TBJ06 SERIES  
Bright TCJ06 SERIES  
TiN TDJ06 SERIES

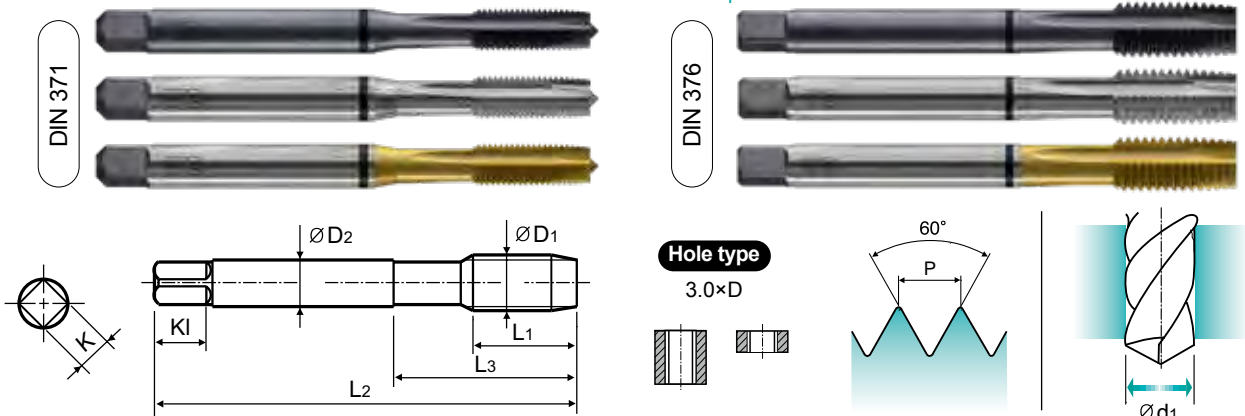
**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 6H+0.1, 60°, B, Vap Bright TiN, p.B125

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK (D215-220), TAPPING CHUCK (D221-228), ONE STEP TAPPING CHUCK (D211-213)

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TBJ06136	TCJ06136	TDJ06136	8	45	13	2.8	2.1	5	3	1.7
M2.2 × 0.45		TBJ06156	TCJ06156	TDJ06156	8	45	13	2.8	2.1	5	3	1.85
M2.3 × 0.4		TBJ06196	TCJ06196	TDJ06196	8	45	13	2.8	2.1	5	3	2
M2.5 × 0.45		TBJ06176	TCJ06176	TDJ06176	9	50	15	2.8	2.1	5	3	2.15
M2.6 × 0.45		TBJ06496	TCJ06496	TDJ06496	9	50	15	2.8	2.1	5	3	2.2
M3 × 0.5		TBJ06206	TCJ06206	TDJ06206	11	56	18	3.5	2.7	6	3	2.6
M3.5 × 0.6		TBJ06226	TCJ06226	TDJ06226	12	56	20	4	3	6	3	3
M4 × 0.7		TBJ06246	TCJ06246	TDJ06246	13	63	21	4.5	3.4	6	3	3.4
M4.5 × 0.75		TBJ06266	TCJ06266	TDJ06266	14	70	25	6	4.9	8	3	3.8
M5 × 0.8		TBJ06286	TCJ06286	TDJ06286	15	70	25	6	4.9	8	3	4.3
M6 × 1.0		TBJ06316	TCJ06316	TDJ06316	17	80	30	6	4.9	8	3	5.1
M7 × 1.0		TBJ06346	TCJ06346	TDJ06346	17	80	30	7	5.5	8	3	6.1
M8 × 1.25		TBJ06366	TCJ06366	TDJ06366	20	90	35	8	6.2	9	3	6.9
M9 × 1.25		TBJ06396	TCJ06396	TDJ06396	20	90	35	9	7	10	3	7.9
M10 × 1.5		TBJ06426	TCJ06426	TDJ06426	22	100	39	10	8	11	3	8.6
M11 × 1.5		TBJ06466	TCJ06466	TDJ06466	22	100	40	8	6.2	9	3	9.6
M12 × 1.75		TBJ06506	TCJ06506	TDJ06506	24	110	44	9	7	10	3	10.3
M14 × 2.0		TBJ06546	TCJ06546	TDJ06546	26	110	44	11	9	12	3	12.1
M16 × 2.0		TBJ06606	TCJ06606	TDJ06606	27	110	44	12	9	12	3	14.1
M18 × 2.5		TBJ06656	TCJ06656	TDJ06656	30	125	50	14	11	14	4	15.6
M20 × 2.5		TBJ06706	TCJ06706	TDJ06706	32	140	54	16	12	15	4	17.6
M22 × 2.5		TBJ06746	TCJ06746	TDJ06746	32	140	54	18	14.5	17	4	19.6
M24 × 3.0		TBJ06786	TCJ06786	TDJ06786	34	160	60	18	14.5	17	4	21.1
M27 × 3.0		TBJ06866	TCJ06866	TDJ06866	36	160	60	20	16	19	4	24.1
M30 × 3.5		TBJ06946	TCJ06946	TDJ06946	40	180	70	22	18	21	4	26.6

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



Vap TBJ07 SERIES  
Bright TCJ07 SERIES  
TiN TDJ07 SERIES

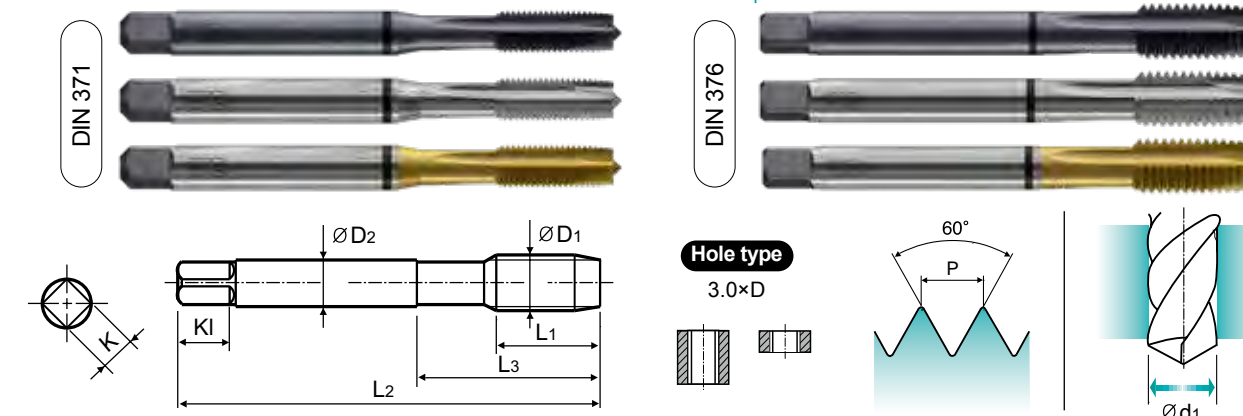
**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU, HSS-E, DIN 371/376, 6G, 60°, B, Vap Bright TiN, p.B125

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK (D215-220), TAPPING CHUCK (D221-228), ONE STEP TAPPING CHUCK (D211-213)

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TBJ07136	TCJ07136	TDJ07136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBJ07156	TCJ07156	TDJ07156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBJ07196	TCJ07196	TDJ07196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBJ07176	TCJ07176	TDJ07176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBJ07496	TCJ07496	TDJ07496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBJ07206	TCJ07206	TDJ07206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBJ07226	TCJ07226	TDJ07226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TBJ07246	TCJ07246	TDJ07246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBJ07266	TCJ07266	TDJ07266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBJ07286	TCJ07286	TDJ07286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TBJ07316	TCJ07316	TDJ07316	17	80	30	6	4.9	8	3	5
M7 × 1.0		TBJ07346	TCJ07346	TDJ07346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TBJ07366	TCJ07366	TDJ07366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBJ07396	TCJ07396	TDJ07396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TBJ07426	TCJ07426	TDJ07426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TBJ07466	TCJ07466	TDJ07466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBJ07506	TCJ07506	TDJ07506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TBJ07546	TCJ07546	TDJ07546	26	110	44	11	9	12	3	12
M16 × 2.0		TBJ07606	TCJ07606	TDJ07606	27	110	44	12	9	12	3	14
M18 × 2.5		TBJ07656	TCJ07656	TDJ07656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TBJ07706	TCJ07706	TDJ07706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TBJ07746	TCJ07746	TDJ07746	32	140	54	18	14.5	17	4	19.5
M24 × 3.0		TBJ07786	TCJ07786	TDJ07786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TBJ07866	TCJ07866	TDJ07866	36	160	60	20	16	19	4	24
M30 × 3.5		TBJ07946	TCJ07946	TDJ07946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





Vap TBJ08 SERIES  
Bright TCJ08 SERIES  
TiN TDJ08 SERIES

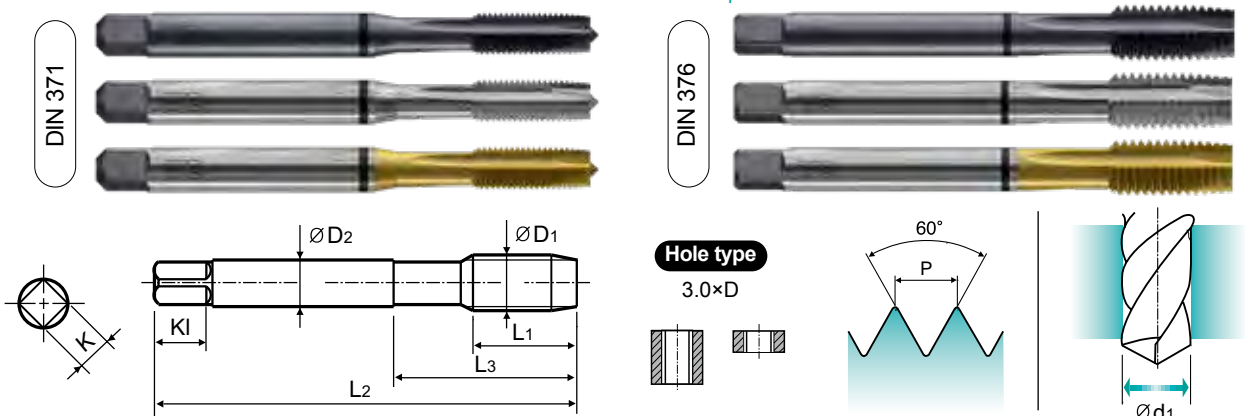
### M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU HSS-E DIN 371/376 7G 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TBJ08136	TCJ08136	TDJ08136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBJ08156	TCJ08156	TDJ08156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBJ08196	TCJ08196	TDJ08196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBJ08176	TCJ08176	TDJ08176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBJ08496	TCJ08496	TDJ08496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBJ08206	TCJ08206	TDJ08206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBJ08226	TCJ08226	TDJ08226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TBJ08246	TCJ08246	TDJ08246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBJ08266	TCJ08266	TDJ08266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBJ08286	TCJ08286	TDJ08286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TBJ08316	TCJ08316	TDJ08316	17	80	30	6	4.9	8	3	5
M7 × 1.0		TBJ08346	TCJ08346	TDJ08346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TBJ08366	TCJ08366	TDJ08366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBJ08396	TCJ08396	TDJ08396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TBJ08426	TCJ08426	TDJ08426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TBJ08466	TCJ08466	TDJ08466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBJ08506	TCJ08506	TDJ08506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TBJ08546	TCJ08546	TDJ08546	26	110	44	11	9	12	3	12
M16 × 2.0		TBJ08606	TCJ08606	TDJ08606	27	110	44	12	9	12	3	14
M18 × 2.5		TBJ08656	TCJ08656	TDJ08656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TBJ08706	TCJ08706	TDJ08706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TBJ08746	TCJ08746	TDJ08746	32	140	54	18	14.5	17	4	19.5
M24 × 3.0		TBJ08786	TCJ08786	TDJ08786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TBJ08866	TCJ08866	TDJ08866	36	160	60	20	16	19	4	24
M30 × 3.5		TBJ08946	TCJ08946	TDJ08946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			○			○	○	○													



Vap TB854 SERIES  
Bright TC854 SERIES  
TiN TD854 SERIES

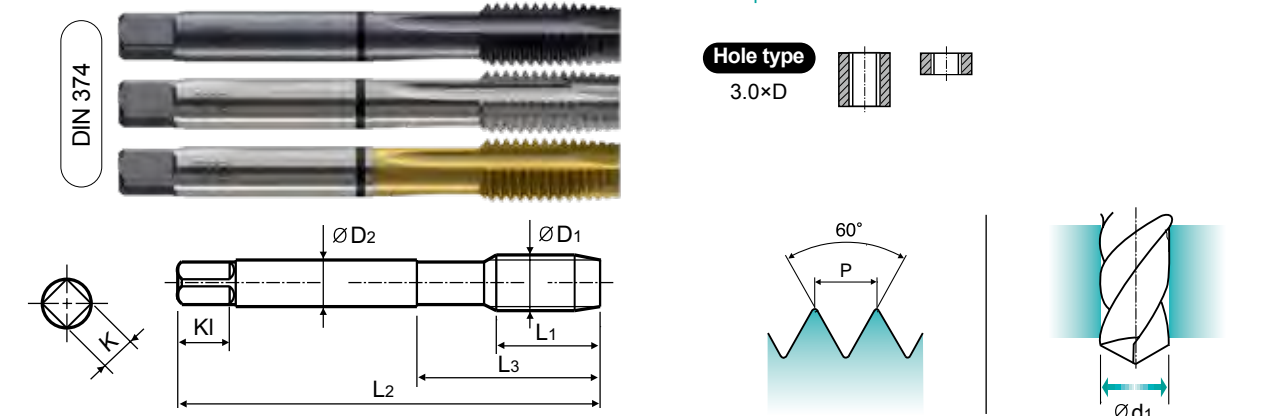
### MF ISO Metric fine threads DIN 13

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU HSS-E DIN 374 6H 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4 × 0.5		TB854256	TC854256	TD854256	10	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TB854296	TC854296	TD854296	11	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TB854326	TC854326	TD854326	13	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TB854336	TC854336	TD854336	13	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TB854356	TC854356	TD854356	14	80	30	5.5	4.3	7	3	6.2
M8 × 1.0		TB854376	TC854376	TD854376	17	90	36	6	4.9	8	3	7
M8 × 0.75		TB854386	TC854386	TD854386	14	80	30	6	4.9	8	3	7.2
M10 × 1.25		TB854436	TC854436	TD854436	22	100	40	7	5.5	8	3	8.8
M10 × 1.0		TB854446	TC854446	TD854446	18	90	36	7	5.5	8	3	9
M10 × 0.75		TB854456	TC854456	TD854456	18	90	36	7	5.5	8	3	9.2
M12 × 1.5		TB854516	TC854516	TD854516	22	100	40	9	7	10	3	10.5
M12 × 1.25		TB854526	TC854526	TD854526	22	100	40	9	7	10	3	10.8
M12 × 1.0		TB854536	TC854536	TD854536	18	100	40	9	7	10	3	11
M14 × 1.5		TB854556	TC854556	TD854556	22	100	40	11	9	12	3	12.5
M14 × 1.25		TB854566	TC854566	TD854566	22	100	40	11	9	12	3	12.8
M14 × 1.0		TB854576	TC854576	TD854576	22	100	40	11	9	12	3	13
M16 × 1.5		TB854616	TC854616	TD854616	22	100	40	12	9	12	3	14.5
M16 × 1.0		TB854626	TC854626	TD854626	18	100	40	12	9	12	3	15
M18 × 1.5		TB854676	TC854676	TD854676	25	110	44	14	11	14	4	16.5
M18 × 1.0		TB854686	TC854686	TD854686	20	110	44	14	11	14	4	17

\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			○			○	○	○													



Vap TB854 SERIES  
Bright TC854 SERIES  
TiN TD854 SERIES

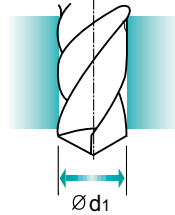
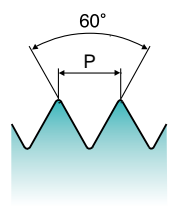
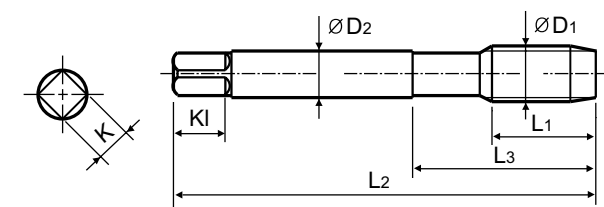
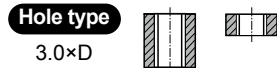
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU HSS-E DIN 374 6H 60° B Vap Bright TiN p.B125

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M20 x 1.5		TB854726	TC854726	TD854726	25	125	50	16	12	15	4	18.5
M20 x 1.0		TB854736	TC854736	TD854736	20	125	50	16	12	15	4	19
M22 x 1.5		TB854766	TC854766	TD854766	25	125	50	18	14.5	17	4	20.5
M22 x 1.0		TB854776	TC854776	TD854776	20	125	50	18	14.5	17	4	21
M24 x 2.0		TB854796	TC854796	TD854796	27	140	54	18	14.5	17	4	22
M24 x 1.5		TB854806	TC854806	TD854806	27	140	54	18	14.5	17	4	22.5
M26 x 1.5		TB854856	TC854856	TD854856	28	140	54	18	14.5	17	4	24.5
M27 x 2.0		TB854876	TC854876	TD854876	28	140	54	20	16	19	4	25
M27 x 1.5		TB854886	TC854886	TD854886	28	140	54	20	16	19	4	25.5
M28 x 1.5		TB854916	TC854916	TD854916	28	140	54	20	16	19	4	26.5
M30 x 2.0		TB854966	TC854966	TD854966	30	150	57	22	18	21	4	28
M30 x 1.5		TB854976	TC854976	TD854976	30	150	57	22	18	21	4	28.5
M32 x 2.0		-	TC854A16	TD854A16	30	150	57	22	18	21	4	30.0
M32 x 1.5		-	TC854A26	TD854A26	30	150	57	22	18	21	4	30.5
M33 x 2.0		-	TC854A66	TD854A66	33	160	60	25	20	23	4	31.0
M33 x 1.5		-	TC854A76	TD854A76	32	160	60	25	20	23	4	31.5
M34 x 1.5		-	TC854A96	TD854A96	33	170	70	28	22	25	4	32.5
M35 x 1.5		-	TC854B16	TD854B16	33	170	70	28	22	25	4	33.5
M36 x 3.0		-	TC854B46	TD854B46	45	200	80	28	22	25	4	33.0
M36 x 2.0		-	TC854B56	TD854B56	33	170	70	28	22	25	4	34.0
M36 x 1.5		-	TC854B66	TD854B66	33	170	70	28	22	25	4	34.5
M38 x 1.5		-	TC854B86	TD854B86	33	170	70	28	22	25	4	36.5

\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Vap TB854 SERIES  
Bright TC854 SERIES  
TiN TD854 SERIES

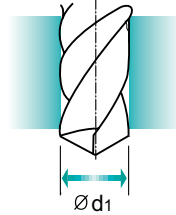
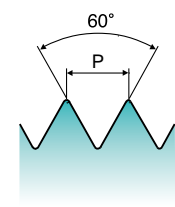
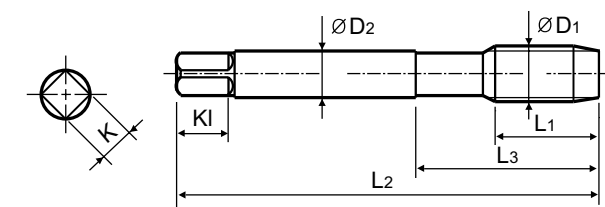
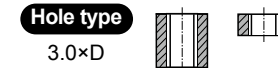
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: MU HSS-E DIN 374 6H 60° B Vap Bright TiN p.B125

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M39 x 1.5		-	TC854C36	TD854C36	33	170	70	32	24	27	4	37.5
M40 x 1.5		-	TC854C66	TD854C66	33	170	70	32	24	27	4	38.5
M42 x 3.0		-	TC854D06	TD854D06	45	200	80	32	24	27	4	39.0
M42 x 2.0		-	TC854D16	TD854D16	33	170	70	32	24	27	4	40.0
M42 x 1.5		-	TC854D26	TD854D26	33	170	70	32	24	27	4	40.5
M45 x 1.5		-	TC854D96	TD854D96	33	180	80	36	29	32	4	43.5
M48 x 3.0		-	TC854E56	TD854E56	45	225	90	36	29	32	4	45.0
M48 x 2.0		-	TC854E66	TD854E66	36	190	80	36	29	32	4	46.0
M48 x 1.5		-	TC854E76	TD854E76	36	190	80	36	29	32	4	46.5
M50 x 1.5		-	TC854F16	TD854F16	36	190	80	36	29	32	4	48.5
M52 x 3.0		-	TC854F56	TD854F56	45	225	90	40	32	35	4	49.0
M52 x 2.0		-	TC854F66	TD854F66	36	190	80	40	32	35	4	50.0
M52 x 1.5		-	TC854F76	TD854F76	36	190	80	40	32	35	4	50.5

\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





Bright TCJ09 SERIES  
TIN TDJ09 SERIES

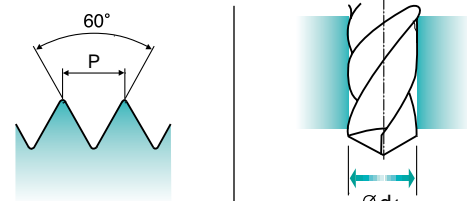
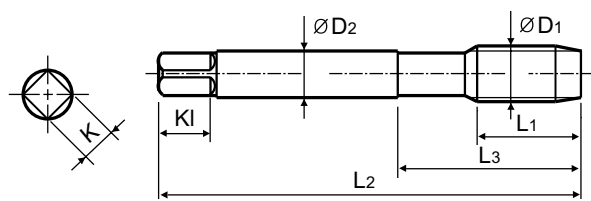
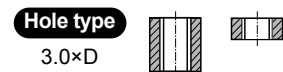
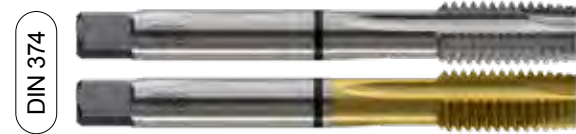
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 374 6G 60° B Bright TiN p.B125

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1		
M4 × 0.5		TCJ09256	TDJ09256	10	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TCJ09296	TDJ09296	11	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TCJ09326	TDJ09326	13	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TCJ09336	TDJ09336	13	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TCJ09356	TDJ09356	14	80	30	5.5	4.3	7	3	6.2
M8 × 1		TCJ09376	TDJ09376	17	90	36	6	4.9	8	3	7
M8 × 0.75		TCJ09386	TDJ09386	14	80	30	6	4.9	8	3	7.2
M10 × 1.25		TCJ09436	TDJ09436	22	100	40	7	5.5	8	3	8.8
M10 × 1		TCJ09446	TDJ09446	18	90	36	7	5.5	8	3	9
M10 × 0.75		TCJ09456	TDJ09456	18	90	36	7	5.5	8	3	9.2
M12 × 1.5		TCJ09516	TDJ09516	22	100	40	9	7	10	3	10.5
M12 × 1.25		TCJ09526	TDJ09526	22	100	40	9	7	10	3	10.8
M12 × 1		TCJ09536	TDJ09536	18	100	40	9	7	10	3	11
M14 × 1.5		TCJ09556	TDJ09556	22	100	40	11	9	12	3	12.5
M14 × 1.25		TCJ09566	TDJ09566	22	100	40	11	9	12	3	12.8
M14 × 1.0		TCJ09576	TDJ09576	22	100	40	11	9	12	3	13
M16 × 1.5		TCJ09616	TDJ09616	22	100	40	12	9	12	3	14.5
M16 × 1		TCJ09626	TDJ09626	18	100	40	12	9	12	3	15
M18 × 1.5		TCJ09676	TDJ09676	25	110	44	14	11	14	4	16.5
M18 × 1		TCJ09686	TDJ09686	20	110	44	14	11	14	4	17

\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request. ► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Bright TCJ09 SERIES  
TIN TDJ09 SERIES

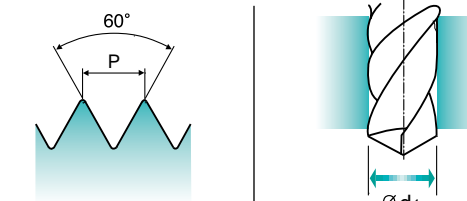
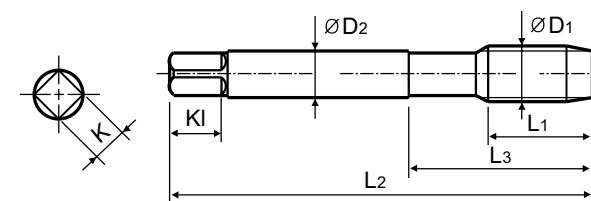
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 374 6G 60° B Bright TiN p.B125

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1		
M20 × 1.5		TCJ09726	TDJ09726	25	125	50	16	12	15	4	18.5
M20 × 1		TCJ09736	TDJ09736	20	125	50	16	12	15	4	19
M22 × 1.5		TCJ09766	TDJ09766	25	125	50	18	14.5	17	4	20.5
M22 × 1		TCJ09776	TDJ09776	20	125	50	18	14.5	17	4	21
M24 × 2		TCJ09796	TDJ09796	27	140	54	18	14.5	17	4	22
M24 × 1.5		TCJ09806	TDJ09806	27	140	54	18	14.5	17	4	22.5
M26 × 1.5		TCJ09856	TDJ09856	28	140	54	18	14.5	17	4	24.5
M27 × 2		TCJ09876	TDJ09876	28	140	54	20	16	19	4	25
M27 × 1.5		TCJ09886	TDJ09886	28	140	54	20	16	19	4	25.5
M28 × 1.5		TCJ09916	TDJ09916	28	140	54	20	16	19	4	26.5
M30 × 2		TCJ09966	TDJ09966	30	150	57	22	18	21	4	28
M30 × 1.5		TCJ09976	TDJ09976	30	150	57	22	18	21	4	28.5

\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG COMBO TAPS

TC814-IC SERIES

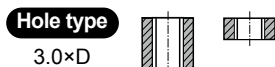
## M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13, AVEC ARROSAGE CENTRAL
- ISO Metrico passo grosso DIN 13

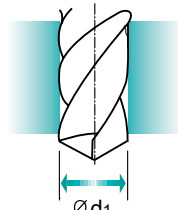
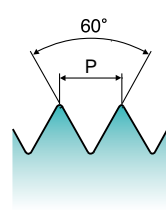
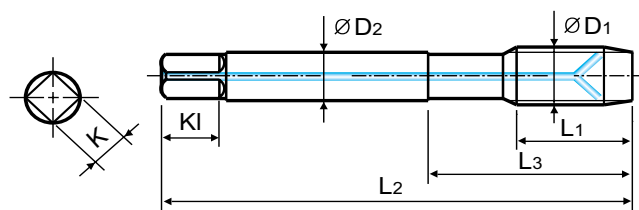
Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



with Internal Coolant



Material groups: **MU** HSS-E DIN 371/376 6H 60° B Bright p.B125

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M6 × 1		TC814316IC	17	80	30	6	4.9	8	3	5
M8 × 1.25		TC814366IC	20	90	35	8	6.2	9	3	6.8
M10 × 1.5		TC814426IC	22	100	39	10	8	11	3	8.5
M12 × 1.75		TC814506IC	24	110	44	9	7	10	3	10.2
M14 × 2		TC814546IC	26	110	44	11	9	12	3	12
M16 × 2		TC814606IC	27	110	44	12	9	12	3	14
M18 × 2.5		TC814656IC	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC814706IC	32	140	54	16	12	15	4	17.5

► DIN 371(M6~M10) and DIN 376(M12~M20)

\* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													



# YG COMBO TAPS

TC445 SERIES

## M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

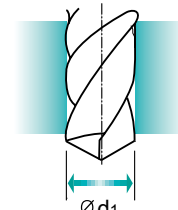
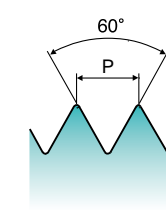
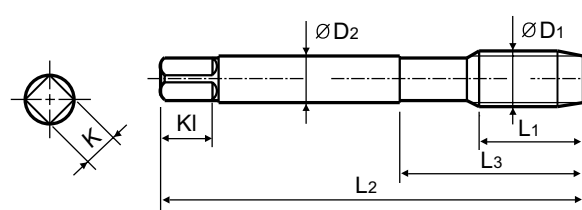
Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Long Shank



Material groups: **MU** HSS-E LONG 6H 60° B Bright p.B125

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3 × 0.5		TC445206	11	100	18	3.5	2.7	6	3	2.5
M4 × 0.7		TC445246	13	125	21	4.5	3.4	6	3	3.3
M5 × 0.8		TC445286	15	140	25	6	4.9	8	3	4.2
M6 × 1		TC445316	17	160	30	6	4.9	8	3	5
M8 × 1.25		TC445366	20	180	35	6	4.9	8	3	6.8
M10 × 1.5		TC445426	22	200	39	7	5.5	8	3	8.5
M12 × 1.75		TC445506	24	220	44	9	7	10	3	10.2
M14 × 2		TC445546	26	220	44	11	9	12	3	12
M16 × 2		TC445606	27	220	44	12	9	12	3	14
M20 × 2.5		TC445706	32	280	54	16	12	15	4	17.5

\* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

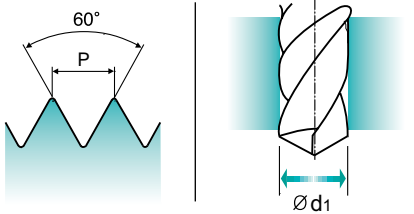
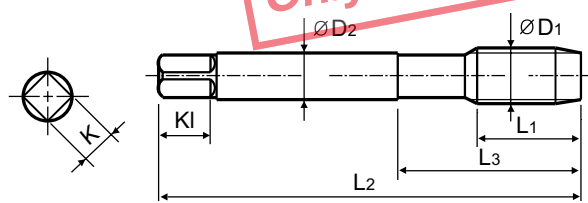
Machine taps  
Maschinengewindebohrer

► For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, HSS-E, DIN 371/376, 6H, 60°, B, Vap, p.B125

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK, TAPPING CHUCK, ONE STEP TAPPING CHUCK

Page: D215-220, D221-228, D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
▲ M2 × 0.4		TQ428136	8	45	13	2.8	2.1	5	3	1.6
▲ M2.2 × 0.45		TQ428156	8	45	13	2.8	2.1	5	3	1.75
▲ M2.3 × 0.4		TQ428196	8	45	13	2.8	2.1	5	3	1.9
▲ M2.5 × 0.45		TQ428176	9	50	15	2.8	2.1	5	3	2.05
▲ M2.6 × 0.45		TQ428496	9	50	15	2.8	2.1	5	3	2.1
▲ M3 × 0.5		TQ428206	11	56	18	3.5	2.7	6	3	2.5
▲ M3.5 × 0.6		TQ428226	12	56	20	4	3	6	3	2.9
▲ M4 × 0.7		TQ428246	13	63	21	4.5	3.4	6	3	3.3
▲ M4.5 × 0.75		TQ428266	14	70	25	6	4.9	8	3	3.7
▲ M5 × 0.8		TQ428286	15	70	25	6	4.9	8	3	4.2
▲ M6 × 1		TQ428316	17	80	30	6	4.9	8	3	5
▲ M7 × 1		TQ428346	17	80	30	7	5.5	8	3	6
▲ M8 × 1.25		TQ428366	20	90	35	8	6.2	9	3	6.8
▲ M9 × 1.25		TQ428396	20	90	35	9	7	10	3	7.8
▲ M10 × 1.5		TQ428426	22	100	39	10	8	11	3	8.5
▲ M11 × 1.5		TQ428466	22	100	40	8	6.2	9	3	9.5
▲ M12 × 1.75		TQ428506	24	110	44	9	7	10	3	10.2
▲ M14 × 2		TB428546	26	110	44	11	9	12	3	12
▲ M16 × 2		TB428606	27	110	44	12	9	12	3	14
▲ M18 × 2.5		TB428656	30	125	50	14	11	14	4	15.5
▲ M20 × 2.5		TB428706	32	140	54	16	12	15	4	17.5
▲ M22 × 2.5		TB428746	32	140	54	18	14.5	17	4	19.5
▲ M24 × 3		TB428786	34	160	60	18	14.5	17	4	21
▲ M27 × 3		TB428866	36	160	60	20	16	19	4	24
▲ M30 × 3.5		TB428946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30) ▲ : Only available till stock runs out  
 ► HSS-PM(M2~M12/TQ428) and HSS-E(M14~M30/TB428)  
 \* Coating(TiN, TiCN or TiAlN) is available on your request. ◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**MF ISO Metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

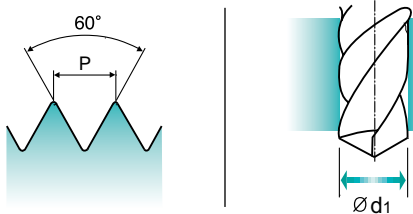
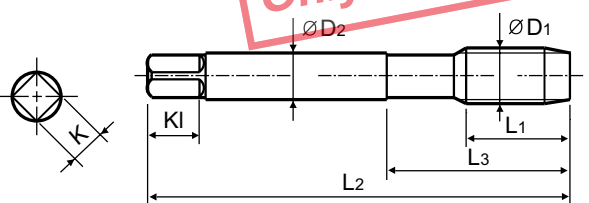
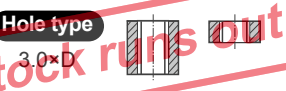
Machine taps  
Maschinengewindebohrer

► For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, DIN 374, 6H, 60°, B, Vap, p.B125

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK, TAPPING CHUCK, ONE STEP TAPPING CHUCK

Page: D215-220, D221-228, D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
▲ M4 × 0.5		TQ438256	10	63	21	2.8	2.1	5	3	3.5
▲ M5 × 0.5		TQ438296	11	70	25	3.5	2.7	6	3	4.5
▲ M6 × 0.75		TQ438326	13	80	30	4.5	3.4	6	3	5.2
▲ M6 × 0.5		TQ438336	13	80	30	4.5	3.4	6	3	5.5
▲ M7 × 0.75		TQ438356	14	80	30	5.5	4.3	7	3	6.2
▲ M8 × 1		TQ438376	17	90	36	6	4.9	8	3	7
▲ M8 × 0.75		TQ438386	14	80	30	6	4.9	8	3	7.2
▲ M10 × 1.25		TQ438436	22	100	40	7	5.5	8	3	8.8
▲ M10 × 1		TQ438446	18	90	36	7	5.5	8	3	9
▲ M10 × 0.75		TQ438456	18	90	36	7	5.5	8	3	9.2
▲ M12 × 1.5		TQ438516	22	100	40	9	7	10	3	10.5
▲ M12 × 1.25		TQ438526	22	100	40	9	7	10	3	10.8
▲ M12 × 1		TQ438536	18	100	40	9	7	10	3	11

\* Coating(TiN, TiCN or TiAlN) is available on your request. ▲ : Only available till stock runs out

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TB438 SERIES

# MF ISO Metric fine threads DIN 13

● Metrisches ISO-Feingewinde DIN 13  
● ISO MÉTRIQUE PAS FINS DIN13  
● ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

**DIN 374**

**Hole type**  
3.0xD

**Only available till stock runs out**

Material groups: **VA** HSS-E **DIN 374** **6H** **60°** **B** **Vap** p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
▲ M14 × 1.5		TB438556	22	100	40	11	9	12	3	12.5
▲ M14 × 1.25		TB438566	22	100	40	11	9	12	3	12.8
▲ M14 × 1.0		TB438576	22	100	40	11	9	12	3	13
▲ M16 × 1.5		TB438616	22	100	40	12	9	12	3	14.5
▲ M16 × 1		TB438626	18	100	40	12	9	12	3	15
▲ M18 × 1.5		TB438676	25	110	44	14	11	14	4	16.5
▲ M18 × 1		TB438686	20	110	44	14	11	14	4	17
▲ M20 × 1.5		TB438726	25	125	50	16	12	15	4	18.5
▲ M20 × 1		TB438736	20	125	50	16	12	15	4	19
▲ M22 × 1.5		TB438766	25	125	50	18	14.5	17	4	20.5
▲ M22 × 1		TB438776	20	125	50	18	14.5	17	4	21
▲ M24 × 2		TB438796	27	140	54	18	14.5	17	4	22
▲ M24 × 1.5		TB438806	27	140	54	18	14.5	17	4	22.5
▲ M26 × 1.5		TB438856	28	140	54	18	14.5	17	4	24.5
▲ M27 × 2		TB438876	28	140	54	20	16	19	4	25
▲ M27 × 1.5		TB438886	28	140	54	20	16	19	4	25.5
▲ M28 × 1.5		TB438916	28	140	54	20	16	19	4	26.5
▲ M30 × 2		TB438966	30	150	57	22	18	21	4	28
▲ M30 × 1.5		TB438976	30	150	57	22	18	21	4	28.5

\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron			Nodular cast iron			Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Vap **TB834** SERIES  
 Bright **TC834** SERIES  
 TiN **TD834** SERIES

# UNC Unified coarse threads

● Unified Grobgewinde  
● UNC  
● Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

**DIN 371**

**Hole type**  
3.0xD

**MU** HSS-E **DIN 371/376** **2B** **60°** **B** **Vap Bright TiN** p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 -40 UNC		TB834162	TC834162	TD834162	11	56	18	3.5	2.7	6	3	2.3
#5 -40 UNC		TB834202	TC834202	TD834202	11	56	18	3.5	2.7	6	3	2.6
#6 -32 UNC		TB834242	TC834242	TD834242	12	56	20	4	3	6	3	2.85
#8 -32 UNC		TB834282	TC834282	TD834282	13	63	21	4.5	3.4	6	3	3.5
#10 -24 UNC		TB834322	TC834322	TD834322	15	70	25	6	4.9	8	3	3.9
#12 -24 UNC		TB834362	TC834362	TD834362	16	80	30	6	4.9	8	3	4.5
1/4 -20 UNC		TB834402	TC834402	TD834402	17	80	30	7	5.5	8	3	5.2
5/16 -18 UNC		TB834442	TC834442	TD834442	20	90	35	8	6.2	9	3	6.6
3/8 -16 UNC		TB834482	TC834482	TD834482	22	100	39	9	7	10	3	8
7/16 -14 UNC		TB834522	TC834522	TD834522	22	100	40	8	6.2	9	3	9.4
1/2 -13 UNC		TB834562	TC834562	TD834562	25	110	44	9	7	10	3	10.75
9/16 -12 UNC		TB834602	TC834602	TD834602	26	110	44	11	9	12	3	12.25
5/8 -11 UNC		TB834642	TC834642	TD834642	27	110	44	12	9	12	3	13.5
3/4 -10 UNC		TB834702	TC834702	TD834702	30	125	50	14	11	14	4	16.5
7/8 -9 UNC		TB834742	TC834742	TD834742	32	140	54	18	14.5	17	4	19.5
1 -8 UNC		TB834782	TC834782	TD834782	36	160	60	20	16	19	4	22.25

►DIN 371(#4~3/8) and DIN 376(7/16~1)

\* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron			Nodular cast iron			Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





Bright TCJ01 SERIES  
TIN TDJ01 SERIES

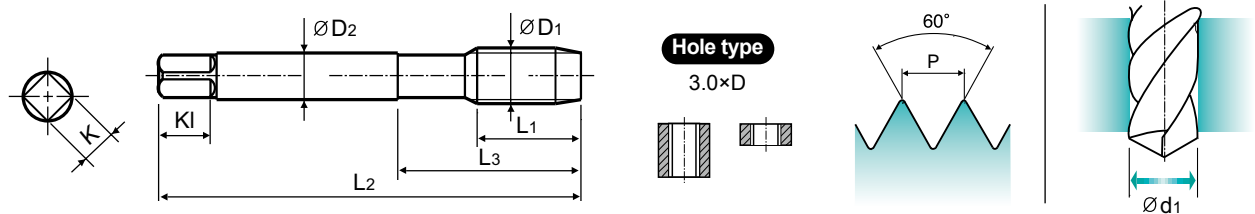
# UNC Unified coarse threads

Unified Grobgewinde  
UNC  
Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 371/376 3B 60° B Bright TiN p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN								
#4	-40 UNC	TCJ01162	TDJ01162	11	56	18	3.5	2.7	6	3	2.3
#5	-40 UNC	TCJ01202	TDJ01202	11	56	18	3.5	2.7	6	3	2.6
#6	-32 UNC	TCJ01242	TDJ01242	12	56	20	4	3	6	3	2.85
#8	-32 UNC	TCJ01282	TDJ01282	13	63	21	4.5	3.4	6	3	3.5
#10	-24 UNC	TCJ01322	TDJ01322	15	70	25	6	4.9	8	3	3.9
#12	-24 UNC	TCJ01362	TDJ01362	16	80	30	6	4.9	8	3	4.5
1/4	-20 UNC	TCJ01402	TDJ01402	17	80	30	7	5.5	8	3	5.2
5/16	-18 UNC	TCJ01442	TDJ01442	20	90	35	8	6.2	9	3	6.6
3/8	-16 UNC	TCJ01482	TDJ01482	22	100	39	9	7	10	3	8
7/16	-14 UNC	TCJ01522	TDJ01522	22	100	40	8	6.2	9	3	9.4
1/2	-13 UNC	TCJ01562	TDJ01562	25	110	44	9	7	10	3	10.75
9/16	-12 UNC	TCJ01602	TDJ01602	26	110	44	11	9	12	3	12.25
5/8	-11 UNC	TCJ01642	TDJ01642	27	110	44	12	9	12	3	13.5
3/4	-10 UNC	TCJ01702	TDJ01702	30	125	50	14	11	14	4	16.5
7/8	-9 UNC	TCJ01742	TDJ01742	32	140	54	18	14.5	17	4	19.5
1	-8 UNC	TCJ01782	TDJ01782	36	160	60	20	16	19	4	22.25

►DIN 371(#4~3/8) and DIN 376(7/16~1)  
\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HRC	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○	○



Vap TB874 SERIES  
Bright TC874 SERIES  
TiN TD874 SERIES

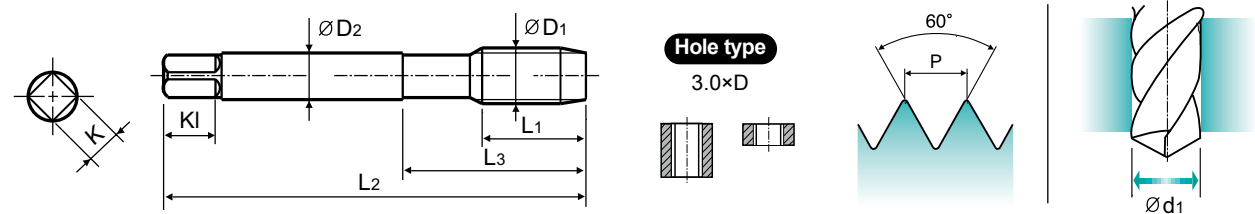
# UNF Unified fine threads

Unified Feingewinde  
UNF  
Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 371/376 2B 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Vap	Bright	TiN								
#4	-48 UNF	TB874182	TC874182	TD874182	11	56	18	3.5	2.7	6	3	2.4
#5	-44 UNF	TB874222	TC874222	TD874222	11	56	18	3.5	2.7	6	3	2.7
#6	-40 UNF	TB874262	TC874262	TD874262	12	56	20	4	3	6	3	3
#8	-36 UNF	TB874302	TC874302	TD874302	13	63	21	4.5	3.4	6	3	3.5
#10	-32 UNF	TB874342	TC874342	TD874342	15	70	25	6	4.9	8	3	4.1
#12	-28 UNF	TB874382	TC874382	TD874382	16	80	30	6	4.9	8	3	4.7
1/4	-28 UNF	TB874422	TC874422	TD874422	17	80	30	7	5.5	8	3	5.5
5/16	-24 UNF	TB874462	TC874462	TD874462	17	90	35	8	6.2	9	3	6.9
3/8	-24 UNF	TB874502	TC874502	TD874502	18	100	39	9	7	10	3	8.5
7/16	-20 UNF	TB874542	TC874542	TD874542	22	100	40	8	6.2	9	3	9.9
1/2	-20 UNF	TB874582	TC874582	TD874582	22	100	40	9	7	10	3	11.5
9/16	-18 UNF	TB874622	TC874622	TD874622	22	100	40	11	9	12	3	12.9
5/8	-18 UNF	TB874662	TC874662	TD874662	22	100	40	12	9	12	3	14.5
3/4	-16 UNF	TB874722	TC874722	TD874722	25	110	44	14	11	14	4	17.5
7/8	-14 UNF	TB874762	TC874762	TD874762	26	125	50	18	14.5	17	4	20.5
1	-12 UNF	TB874802	TC874802	TD874802	28	140	54	20	16	19	4	23.25

►DIN 371(#4~3/8) and DIN 374(7/16~1)  
\* The other coating(TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○	○



Bright TCJ02 SERIES  
TIN TDJ02 SERIES

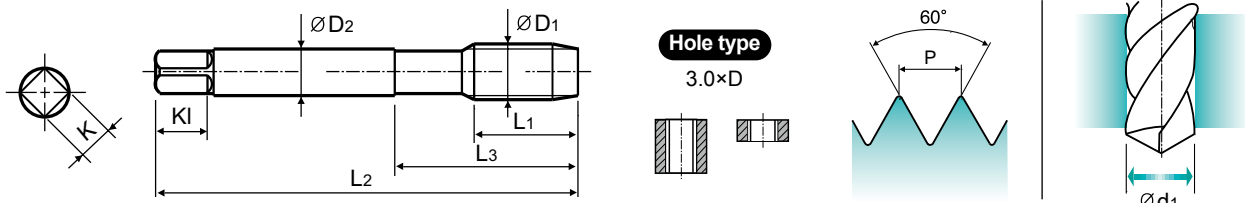
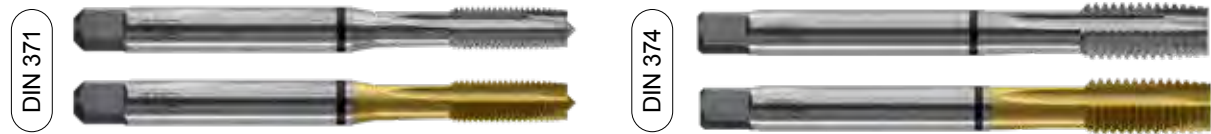
# UNF Unified fine threads

- Unified Grobgewinde
- UNF
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups: **MU** HSS-E DIN 371/376 3B 60° B Bright TiN p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN								
#4	- 48 UNF	TCJ02182	TDJ02182	11	56	18	3.5	2.7	6	3	2.4
#5	- 44 UNF	TCJ02222	TDJ02222	11	56	18	3.5	2.7	6	3	2.7
#6	- 40 UNF	TCJ02262	TDJ02262	12	56	20	4	3	6	3	3
#8	- 36 UNF	TCJ02302	TDJ02302	13	63	21	4.5	3.4	6	3	3.5
#10	- 32 UNF	TCJ02342	TDJ02342	15	70	25	6	4.9	8	3	4.1
#12	- 28 UNF	TCJ02382	TDJ02382	16	80	30	6	4.9	8	3	4.7
1/4	- 28 UNF	TCJ02422	TDJ02422	17	80	30	7	5.5	8	3	5.5
5/16	- 24 UNF	TCJ02462	TDJ02462	17	90	35	8	6.2	9	3	6.9
3/8	- 24 UNF	TCJ02502	TDJ02502	18	100	39	9	7	10	3	8.5
7/16	- 20 UNF	TCJ02542	TDJ02542	22	100	40	8	6.2	9	3	9.9
1/2	- 20 UNF	TCJ02582	TDJ02582	22	100	40	9	7	10	3	11.5
9/16	- 18 UNF	TCJ02622	TDJ02622	22	100	40	11	9	12	3	12.9
5/8	- 18 UNF	TCJ02662	TDJ02662	22	100	40	12	9	12	3	14.5
3/4	- 16 UNF	TCJ02722	TDJ02722	25	110	44	14	11	14	4	17.5
7/8	- 14 UNF	TCJ02762	TDJ02762	26	125	50	18	14.5	17	4	20.5
1	- 12 UNF	TCJ02802	TDJ02802	28	140	54	20	16	19	4	23.25

► DIN 371(#4~3/8) and DIN 374(7/16~1)  
\* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	230	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	15	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



## Combo Spiral Flute Tap Set



Set No.	Series	Surface Treatment	Size	Quantity
TB804SET5	TB804	VAP	M5, M6, M8, M10, M12	5 pcs
TC804SET7	TC804	Bright	M3, M4, M5, M6, M8, M10, M12	7 pcs

## Combo Spiral Flute Tap + Gold-P Drill (HSS-E, DIN 338, Straight Shank, 135° Split Point, Jobber Length) Set



Set No.	Series	Surface Treatment	Size							Quantity
TD804SET7-GLP195	TD804	TiN	M3	M4	M5	M6	M8	M10	M12	14pcs
	DLGP195	TiN	2.5	3.3	4.2	5	6.8	8.5	10.2	



RECOMMENDED CUTTING CONDITIONS  
EMPHOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)								
					TC804 TC844 TC824 TC864	TD804 TD844 TD824 TD864	TB804 TB844 TB824 TB864	TCE05 TCE09 TCE01 TCE02	TDE05 TDE09 TDE01 TDE02	TBE05	TCE06	TDE06	TBE06
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	18-24	12-18
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5
	10		High alloyed steel, and tool steel	200	15	3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	10-15	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	6-8	4-6
K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	35-40	25-35
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	12-17	8-12
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)							
					TCE07	TDE07	TBE07	TCE08	TDE08	TBE08	TC804-IC	TC633
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	12-18
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5
	10		High alloyed steel, and tool steel	200	15	3-5	5-7	3-5	3-5	5-7	3-5	3-5
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	4-6
K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	25-35
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	8-12
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20



RECOMMENDED CUTTING CONDITIONS  
EMPHOHLENE SCHNEIDKONDITIONEN

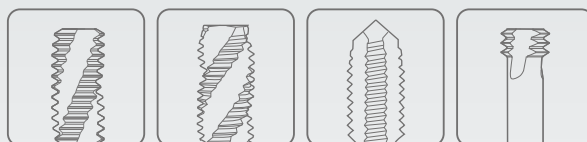
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)									
					TB744 TB754 TQ744 TQ754	TC814 TC854 TC834 TC874	TD814 TD854 TD834 TD874	TB814 TB854 TB834 TB874	TCJ05 TCJ09 TCJ01 TCJ02	TDJ05 TDJ09 TDJ01 TDJ02	TBJ05	TCJ06	TDJ06	TBJ06
P	1	Non-alloy steel	125			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	2		190	13	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	3		250	25		12-18	18-24	12-18	12-18	18-24	12-18	12-18	18-24	12-18
	4		270	28	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	5		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	6	Low alloy steel	180	10	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	7		275	29	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	8		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	9		350	38		3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5
	10		High alloyed steel, and tool steel	200	15		3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7
M	12	Stainless steel	200	15	7-10	7-10	10-15	7-10	7-10	10-15	7-10	7-10	10-15	7-10
	13		240	23	5-8	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	14		180	10	4-6	4-6	6-8	4-6	4-6	6-8	4-6	4-6	6-8	4-6
K	15	Grey cast iron	180	10		10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	16		260	26		5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	17	Nodular cast iron	160	3		10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	18		250	25		5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
N	23	Aluminum-cast, alloyed	75			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110			25-35	35-40	25-35	25-35	35-40	25-35	25-35	35-40	25-35
	27		90			8-12	12-17	8-12	8-12	12-17	8-12	8-12	12-17	8-12
	28		100			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)								
					TCJ07	TDJ07	TBJ07	TCJ08	TDJ08	TBJ08	TC814-IC	TC445	TB428 TB438
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	12-18	
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10	
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10	
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5	
	10		High alloyed steel, and tool steel	200	15	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	7-10	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	4-6	4-6
K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	25-35	
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	8-12	
	28		100										





Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation

HSS & HSS-E

# YG TAP GENERAL

## YG Gewindebohrer Universal

- Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation
- Geeignet für das Gewindeschneiden von Grund- und Durchgangsbohrungen aufgrund der Nutengeometrie und der hervorragenden Spanabfuhr





# HSS & HSS-E YG TAP GENERAL

Suitable for Tapping Blind / Through Holes  
due to Flute Geometry and Excellent Chip Evacuation

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
◎ : Excellent ○ : Good  
Recommended cutting conditions : p.B169

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC				
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	
	5	Low alloy steel	About 0.75% C Quenched & Tempered	300	32	○	○	○	
	6		Annealed	180	10	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	
	8		Quenched & Tempered	300	32	○	○	○	
	9		Quenched & Tempered	350	38				
	10		High alloyed steel, and tool steel	Annealed	200	15			
	11			Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○	
	13		Martensitic Quenched & Tempered	240	23	○	○	○	
	14		Austenitic	180	10				
K	15	Grey cast iron	Pearlitic / ferritic	180	10			○	
	16		Pearlitic (Martensitic)	260	26			○	
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎	
	18		Pearlitic	250	25	◎	◎	◎	
	19		Ferritic	130				○	
20	Malleable cast iron	Pearlitic	230	21			○		
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	
	22	Aluminum-cast, alloyed	Curable Hardened	100					
	23		≤ 12% Si, Not Curable	75		○	○	○	
	24	≤ 12% Si, Curable Hardened	90		○	○	○		
	25	> 12% Si, Not Curable	130		◎	◎	◎		
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○	○	
	27		CuZn, CuSnZn (Brass)	90					
	28		CuSn, lead-free copper and electrolytic copper	100		◎	◎	◎	
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15				
	32		Cured	280	30				
	33		Annealed	250	25				
	34		Ni or Co Based Cured	350	38				
	35		Cast	320	34				
36	Titanium Alloys	Pure Titanium	400 Rm						
37		Alpha + Beta Alloys Hardened	1050 Rm						
H	38	Hardened steel	Hardened	550	55				
	39		Hardened	630	60				
	40		Chilled Cast Iron	Cast	400	42			
	41		Hardened Cast Iron	Hardened	550	55			

HOLE TYPE		Max. 2.5xD Blind Hole			
TOOL MATERIAL		HSS-E			
CHAMFER LEAD ACC. TO DIN2197		C	C	C	
FLUTE TYPE		Spiral Flute	Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE		R40	R40	R20	
SERIES	M	DIN371/376	TC711 (p.B132)	TD711 (p.B133)	TC517 (p.B141) TC612 (p.B142)
		DIN352			
		DIN357/LONG			
	MF	DIN374	TC411 (p.B134)	TD411 (p.B136)	
		DIN2181			
	UNC	DIN371/376	TC144 (p.B138)		
		DIN351			
	UNF	DIN371/374	TC124 (p.B139)		
		DIN2181			
	BSW	DIN2182/2183	TC134 (p.B140)		
		DIN351			
G(BSP)	DIN5156/5157				
EG-M	DIN371/376				
EG-UNC	DIN371/376				
EG-UNF	DIN371/374				
SURFACE TREATMENT		Bright	TIN	Bright	
MODEL					

HOLE TYPE		Max. 3.0xD Through Hole				Max. 2.0xD Blind/Through Hole	
TOOL MATERIAL		HSS-E					
		B	B	B	B	C	C
		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Flute	Straight Flute
		-	-	-	-	L20	-
SERIES	M	TC127 (p.B143) TC122 (p.B145)	TD127 (p.B144)	TC227 (p.B153)	TD227 (p.B154)	TC211 (p.B155)	TC463 (p.B156)
		TC222 (p.B146)	TD222 (p.B148)				TC473 (p.B157)
		TC214 (p.B150)					TC424 (p.B158)
	TC234 (p.B151)						
	TC224 (p.B152)						
SURFACE TREATMENT		Bright	TIN	Bright	TIN	Bright	Bright
MODEL							







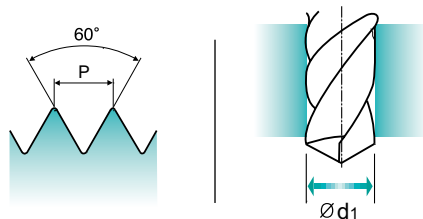
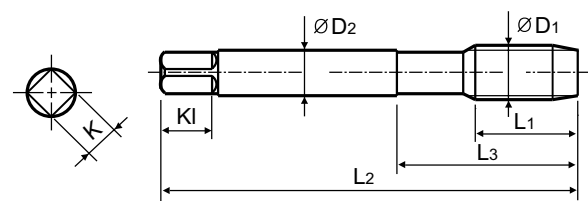
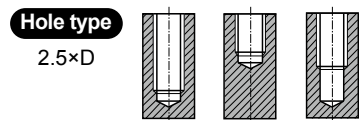
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 371/378 6H 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2 × 0.4		TC711136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC711196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC711496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC711206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC711226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TC711246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC711266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC711286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TC711316	10	80	30	6	4.9	8	3	5
M7 × 1		TC711346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TC711366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC711396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TC711426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TC711466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC711506	18	110	44	9	7	10	3	10.2
M14 × 2		TC711546	20	110	44	11	9	12	3	12
M16 × 2		TC711606	20	110	44	12	9	12	3	14
M18 × 2.5		TC711656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC711706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TC711746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TC711786	30	160	60	18	14.5	17	4	21
M27 × 3		TC711866	30	160	60	20	16	19	4	24
M30 × 3.5		TC711946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎				

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	◎	○	◎														



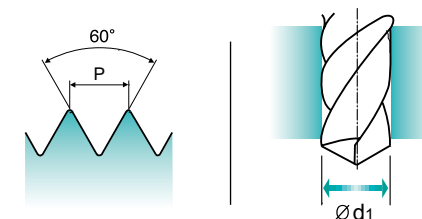
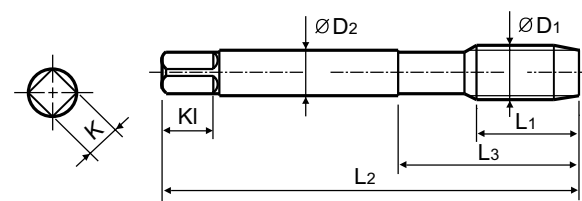
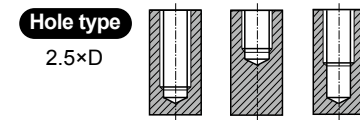
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 371/378 6H 60° C R40 TiN p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2 × 0.4		TD711136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TD711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TD711196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TD711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TD711496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TD711206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TD711226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TD711246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TD711266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TD711286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TD711316	10	80	30	6	4.9	8	3	5
M7 × 1		TD711346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TD711366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TD711396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TD711426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TD711466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TD711506	18	110	44	9	7	10	3	10.2
M14 × 2		TD711546	20	110	44	11	9	12	3	12
M16 × 2		TD711606	20	110	44	12	9	12	3	14
M18 × 2.5		TD711656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TD711706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TD711746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TD711786	30	160	60	18	14.5	17	4	21
M27 × 3		TD711866	30	160	60	20	16	19	4	24
M30 × 3.5		TD711946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎				

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	◎	○	◎														

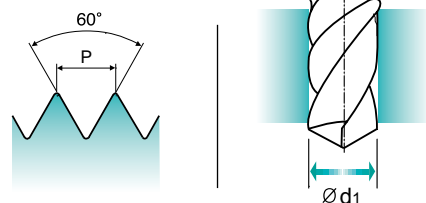
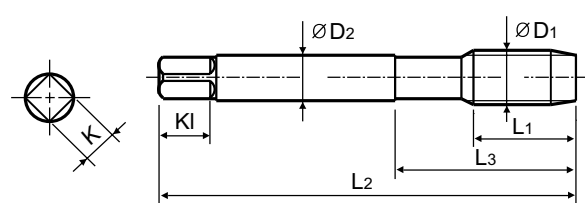
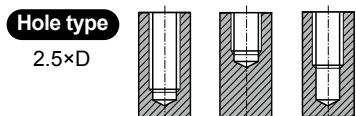
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC411256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC411296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC411326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC411336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC411356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC411376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TC411386	8	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC411936	5	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC411436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TC411446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TC411456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC411516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TC411526	15	100	40	9	7	10	3	10.8
M12	× 1	TC411536	11	100	40	9	7	10	3	11
M14	× 1.5	TC411556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC411566	15	100	40	11	9	12	3	12.8
M14	× 1	TC411576	11	100	40	11	9	12	3	13
M16	× 1.5	TC411616	15	100	40	12	9	12	3	14.5
M16	× 1	TC411626	12	100	40	12	9	12	3	15
M18	× 1.5	TC411676	17	110	44	14	11	14	4	16.5
M18	× 1	TC411686	13	110	44	14	11	14	4	17

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
Recommended	○	○	○	◎	◎	○	◎	◎			○	○	○	○	○	○	○	○	○	○	○



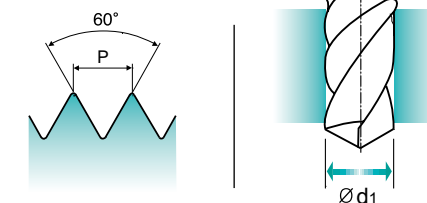
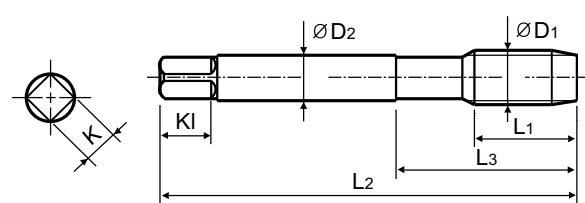
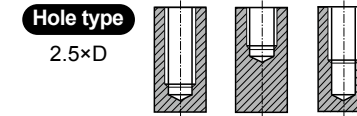
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M20	× 1.5	TC411726	17	125	50	16	12	15	4	18.5
M20	× 1	TC411736	14	125	50	16	12	15	4	19
M22	× 1.5	TC411766	17	125	50	18	14.5	17	4	20.5
M22	× 1	TC411776	14	125	50	18	14.5	17	4	21
M24	× 2	TC411796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TC411806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TC411856	20	140	54	18	14.5	17	4	24.5
M27	× 2	TC411876	20	140	54	20	16	19	4	25
M27	× 1.5	TC411886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TC411916	20	140	54	20	16	19	4	26.5
M30	× 2	TC411966	22	150	57	22	18	21	4	28
M30	× 1.5	TC411976	22	150	57	22	18	21	4	28.5

Unit : mm

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	42	55	55
Recommended	○	○	○	◎	◎	○	◎	◎			○	○	○	○	○	○	○	○	○	○	○



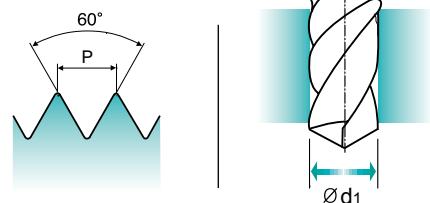
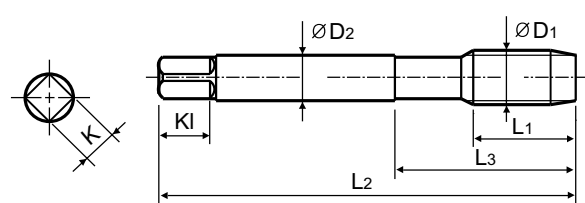
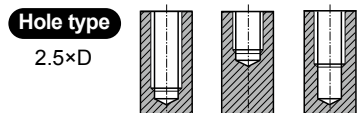
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 TiN p.B169

Plain Shank TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TD411256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD411296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD411326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD411336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD411356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD411376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TD411386	8	80	30	6	4.9	8	3	7.2
M8	× 0.5	TD411936	5	80	30	6	4.9	8	3	7.5
M10	× 1.25	TD411436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TD411446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TD411456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD411516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TD411526	15	100	40	9	7	10	3	10.8
M12	× 1	TD411536	11	100	40	9	7	10	3	11
M14	× 1.5	TD411556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TD411566	15	100	40	11	9	12	3	12.8
M14	× 1	TD411576	11	100	40	11	9	12	3	13
M16	× 1.5	TD411616	15	100	40	12	9	12	3	14.5

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	○			○	○	○	○	○	○	○	○	○	○	○



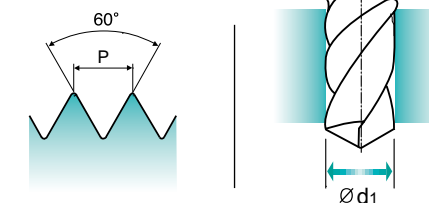
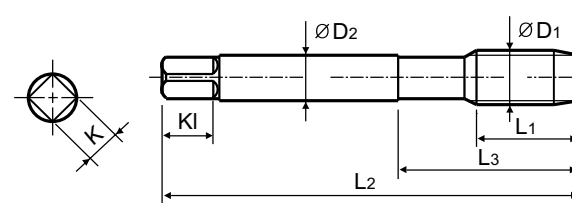
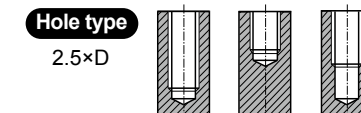
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 TiN p.B169

Plain Shank TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M16	× 1	TD411626	12	100	40	12	9	12	3	15
M18	× 1.5	TD411676	17	110	44	14	11	14	4	16.5
M18	× 1	TD411686	13	110	44	14	11	14	4	17
M20	× 1.5	TD411726	17	125	50	16	12	15	4	18.5
M20	× 1	TD411736	14	125	50	16	12	15	4	19
M22	× 1.5	TD411766	17	125	50	18	14.5	17	4	20.5
M22	× 1	TD411776	14	125	50	18	14.5	17	4	21
M24	× 2	TD411796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TD411806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TD411856	20	140	54	18	14.5	17	4	24.5
M27	× 2	TD411876	20	140	54	20	16	19	4	25
M27	× 1.5	TD411886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TD411916	20	140	54	20	16	19	4	26.5
M30	× 2	TD411966	22	150	57	22	18	21	4	28
M30	× 1.5	TD411976	22	150	57	22	18	21	4	28.5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	○			○	○	○	○	○	○	○	○	○	○	○

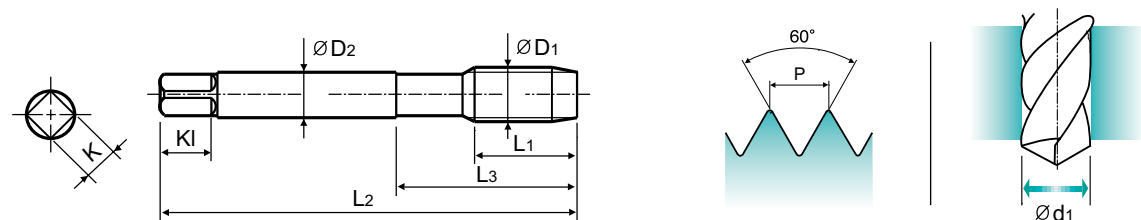
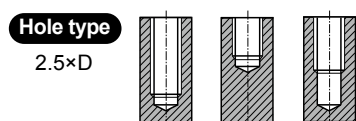
**UNC Unified coarse threads**

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 371/378 2B 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	-40UNC	TC144162	6	56	18	3.5	2.7	6	3	2.3
#5	-40UNC	TC144202	7	56	18	3.5	2.7	6	3	2.6
#6	-32UNC	TC144242	7	56	20	4	3	6	3	2.85
#8	-32UNC	TC144282	8	63	21	4.5	3.4	6	3	3.5
#10	-24UNC	TC144322	10	70	25	6	4.9	8	3	3.9
#12	-24UNC	TC144362	10	80	30	6	4.9	8	3	4.5
1/4	-20UNC	TC144402	13	80	30	7	5.5	8	3	5.2
5/16	-18UNC	TC144442	14	90	35	8	6.2	9	3	6.6
3/8	-16UNC	TC144482	16	100	39	9	7	10	3	8
7/16	-14UNC	TC144522	17	100	40	8	6.2	9	3	9.4
1/2	-13UNC	TC144562	20	110	44	9	7	10	3	10.75
9/16	-12UNC	TC144602	20	110	44	11	9	12	3	12.25
5/8	-11UNC	TC144642	22	110	44	12	9	12	3	13.5
3/4	-10UNC	TC144702	25	125	50	14	11	14	4	16.5
7/8	-9UNC	TC144742	27	140	54	18	14.5	17	4	19.5
1	-8UNC	TC144782	30	160	60	20	16	19	4	22.25
1-1/8	-7UNC	TC144822	35	180	65	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N								S							H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys							Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



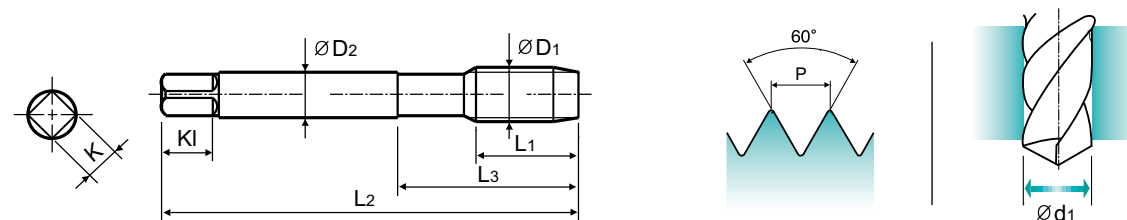
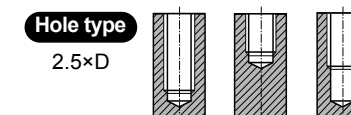
**UNF Unified fine threads**

- Unified Feingewinde
- UNF
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 371/378 2B 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	-48UNF	TC124182	6	56	18	3.5	2.7	6	3	2.4
#5	-44UNF	TC124222	7	56	18	3.5	2.7	6	3	2.7
#6	-40UNF	TC124262	7	56	20	4	3	6	3	3
#8	-36UNF	TC124302	8	63	21	4.5	3.4	6	3	3.5
#10	-32UNF	TC124342	10	70	25	6	4.9	8	3	4.1
#12	-28UNF	TC124382	10	80	30	6	4.9	8	3	4.7
1/4	-28UNF	TC124422	10	80	30	7	5.5	8	3	5.5
5/16	-24UNF	TC124462	10	90	35	8	6.2	9	3	6.9
3/8	-24UNF	TC124502	10	100	39	9	7	10	3	8.5
7/16	-20UNF	TC124542	13	100	40	8	6.2	9	3	9.9
1/2	-20UNF	TC124582	13	100	40	9	7	10	3	11.5
9/16	-18UNF	TC124622	15	100	40	11	9	12	3	12.9
5/8	-18UNF	TC124662	15	100	40	12	9	12	3	14.5
3/4	-16UNF	TC124722	17	110	44	14	11	14	4	17.5
7/8	-14UNF	TC124762	17	125	50	18	14.5	17	4	20.5
1	-12UNF	TC124802	20	140	54	18	14.5	17	4	23.25
1-1/8	-12UNF	TC124842	22	150	60	22	18	21	4	26.5

► DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

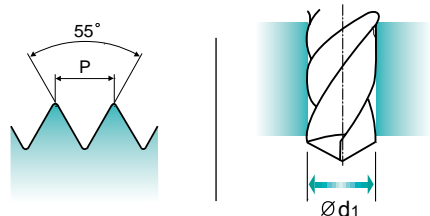
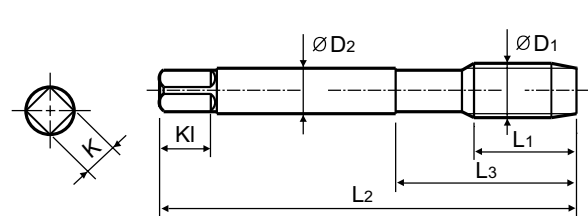
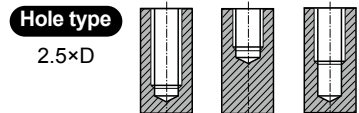
ISO Material Description	N								S							H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys							Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**BSW Whitworth threads**  
 ● Whitworth Gewinde  
 ○ BSW  
 ○ Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 2182/2183 55° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
W1/8	-40	TC134200	7	56	18	3.5	2.7	6	3	2.5
W5/32	-32	TC134280	7	63	21	4.5	3.4	6	3	3.1
W3/16	-24	TC134320	10	70	25	6	4.9	8	3	3.6
W7/32	-24	TC134360	10	80	30	6	4.9	8	3	4.4
W1/4	-20	TC134400	13	80	30	7	5.5	8	3	5.1
W5/16	-18	TC134440	14	90	35	8	6.2	9	3	6.5
W3/8	-16	TC134480	16	100	39	9	7	10	3	7.9
W7/16	-14	TC134520	17	100	40	8	6.2	9	3	9.3
W1/2	-12	TC134560	20	110	44	9	7	10	3	10.5
W9/16	-12	TC134600	20	110	44	11	9	12	3	12
W5/8	-11	TC134640	22	110	40	12	9	12	3	13.5
W3/4	-10	TC134700	25	125	50	14	11	14	4	16.5
W7/8	-9	TC134740	27	140	54	18	14.5	17	4	19.25
W1	-8	TC134780	30	160	60	20	16	19	4	22
W1-1/8	-7	TC134820	35	180	65	22	18	21	4	24.75

►DIN 2182(W1/8~W3/8) and DIN 2183(W7/16~W1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	180	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	◎	◎	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

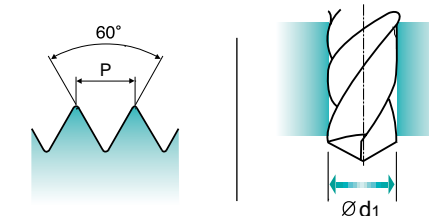
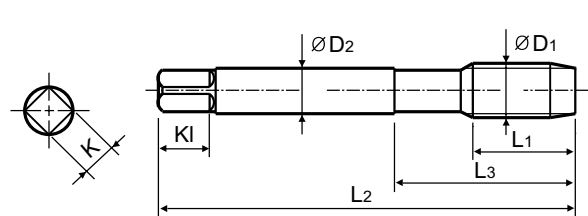
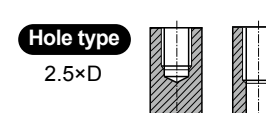


**M ISO metric coarse threads DIN 13**  
 ● Metrisches ISO-Gewinde DIN 13  
 ○ ISO MÉTRIQUE DIN13  
 ○ ISO Metrico passo grosso DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 371/376 6H 60° C R20 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TC517136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC517156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC517196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC517176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC517496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC517206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC517226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC517246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC517266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC517286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC517316	10	80	30	6	4.9	8	3	5
M7	× 1	TC517346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC517366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC517396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC517426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC517466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC517506	18	110	44	9	7	10	3	10.2
M14	× 2	TC517546	20	110	44	11	9	12	3	12
M16	× 2	TC517606	20	110	44	12	9	12	3	14
M18	× 2.5	TC517656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC517706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC517746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC517786	30	160	60	18	14.5	17	4	21
M27	× 3	TC517866	30	160	60	20	16	19	4	24
M30	× 3.5	TC517946	35	180	70	22	18	21	4	26.5

►DIN 371(M2~M10) and DIN 376(M11~M30)

►\* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	180	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	◎	◎	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	○	◎			○	○	○	○	○	○	○	○	○	○	○



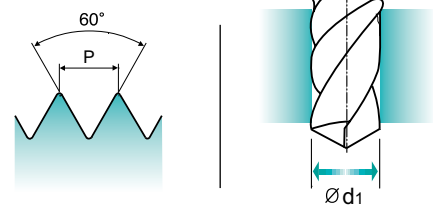
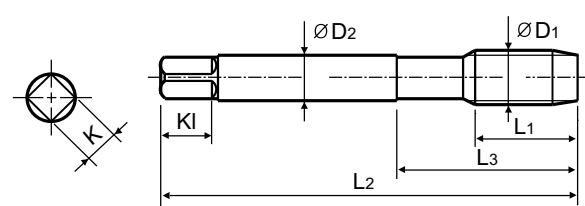
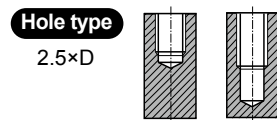
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 352 6H 60° C R20 Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M3	× 0.5	TC612206	11	40	18	3.5	2.7	6	3	2.5
M4	× 0.7	TC612246	13	45	21	4.5	3.4	6	3	3.3
M5	× 0.8	TC612286	16	52	26	6	4.9	8	3	4.2
M6	× 1	TC612316	18	56	27	6	4.9	8	3	5
M8	× 1.25	TC612366	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TC612426	22	70	38	7	5.5	8	3	8.5
M12	× 1.75	TC612506	24	80	45	9	7	10	3	10.2
M14	× 2	TC612546	26	80	45	11	9	12	3	12
M16	× 2	TC612606	27	80	45	12	9	12	3	14
M18	× 2.5	TC612656	30	95	58	14	11	14	4	15.5
M20	× 2.5	TC612706	32	95	58	16	12	15	4	17.5

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



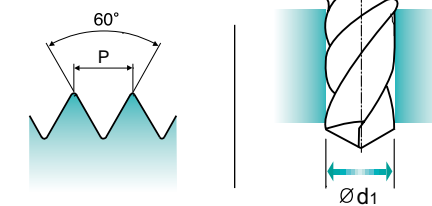
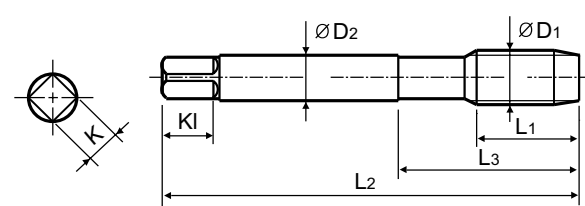
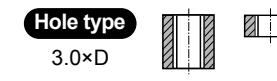
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 371 6H 60° B Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TC127136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC127156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC127196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC127176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC127496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC127206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC127226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC127246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC127266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC127286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC127316	17	80	30	6	4.9	8	3	5
M7	× 1	TC127346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC127366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC127396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC127426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC127466	22	100	39	11	9	12	3	9.5
M12	× 1.75	TC127506	24	110	44	12	9	12	3	10.2

► \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

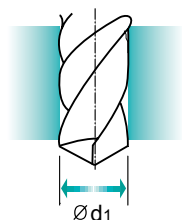
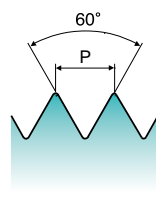
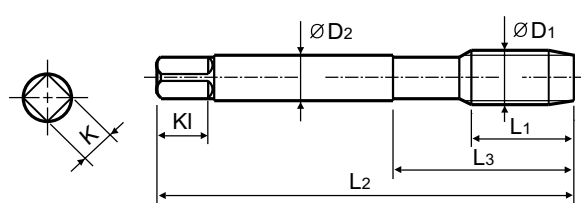
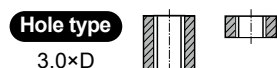
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 371 6H 60° B TiN p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
Recommended ONE STEP TAPPING CHUCK D211-213 ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TD127136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TD127156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TD127196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TD127176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TD127496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TD127206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TD127226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TD127246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TD127266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TD127286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TD127316	17	80	30	6	4.9	8	3	5
M7 × 1		TD127346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TD127366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TD127396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TD127426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TD127466	22	100	39	11	9	12	3	9.5
M12 × 1.75		TD127506	24	110	44	12	9	12	3	10.2

► \*DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	○	○	◎	◎	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○



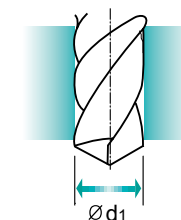
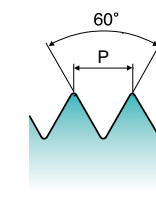
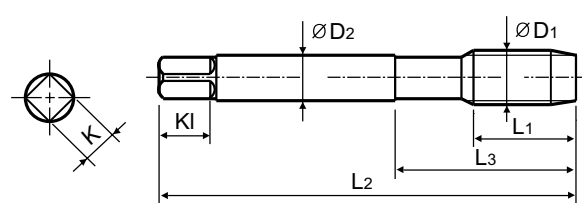
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 352 6H 60° B Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
Recommended ONE STEP TAPPING CHUCK D211-213 ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TC122136	8	36	13	2.8	2.1	5	3	1.6
M2.5 × 0.45		TC122176	9	40	15	2.8	2.1	5	3	2.05
M3 × 0.5		TC122206	11	40	18	3.5	2.7	6	3	2.5
M4 × 0.7		TC122246	13	45	21	4.5	3.4	6	3	3.3
M5 × 0.8		TC122286	16	52	26	6	4.9	8	3	4.2
M6 × 1		TC122316	18	56	27	6	4.9	8	3	5
M8 × 1.25		TC122366	20	63	34	6	4.9	8	3	6.8
M10 × 1.5		TC122426	22	70	38	7	5.5	8	3	8.5
M12 × 1.75		TC122506	24	80	45	9	7	10	3	10.2
M14 × 2		TC122546	26	80	45	11	9	12	3	12
M16 × 2		TC122606	27	80	45	12	9	12	3	14

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	○	○	◎	◎	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

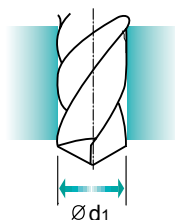
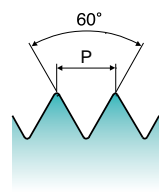
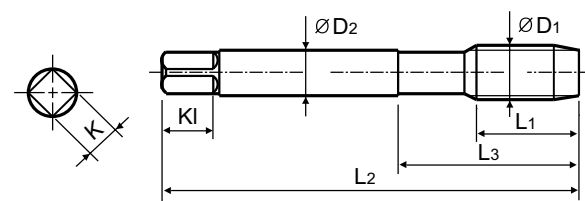
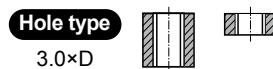
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 374 6H 60° B Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
Recommended ONE STEP TAPPING CHUCK D211-213 ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TC222256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC222296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC222326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC222336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC222356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC222376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC222386	14	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC222936	14	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC222436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC222446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC222456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC222516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC222526	22	100	40	9	7	10	3	10.8
M12	× 1	TC222536	18	100	40	9	7	10	3	11
M14	× 1.5	TC222556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC222566	22	100	40	11	9	12	3	12.8
M14	× 1	TC222576	18	100	40	11	9	12	3	13

► NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	○	◎			○	○	○	○	○	○	○	○	○	○	○



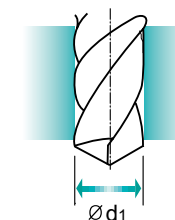
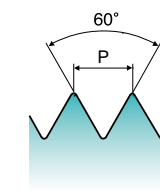
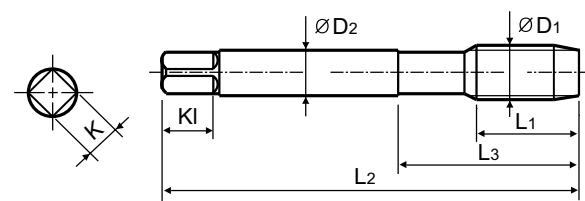
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 374 6H 60° B Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
Recommended ONE STEP TAPPING CHUCK D211-213 ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M16	× 1.5	TC222616	22	100	40	12	9	12	3	14.5
M16	× 1	TC222626	18	100	40	12	9	12	3	15
M18	× 1.5	TC222676	25	110	44	14	11	14	4	16.5
M18	× 1	TC222686	20	110	44	14	11	14	4	17
M20	× 1.5	TC222726	25	125	50	16	12	15	4	18.5
M20	× 1	TC222736	20	125	50	16	12	15	4	19
M22	× 1.5	TC222766	25	125	50	18	14.5	17	4	20.5
M22	× 1	TC222776	20	125	50	18	14.5	17	4	21
M24	× 2	TC222796	27	140	54	18	14.5	17	4	22
M24	× 1.5	TC222806	27	140	54	18	14.5	17	4	22.5
M26	× 1.5	TC222856	28	140	54	18	14.5	17	4	24.5
M27	× 2	TC222876	28	140	54	20	16	19	4	25
M27	× 1.5	TC222886	28	140	54	20	16	19	4	25.5
M28	× 1.5	TC222916	28	140	54	20	16	19	4	26.5
M30	× 2	TC222966	30	150	57	22	18	21	4	28
M30	× 1.5	TC222976	30	150	57	22	18	21	4	28.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

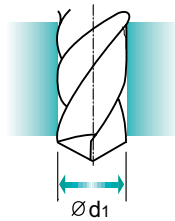
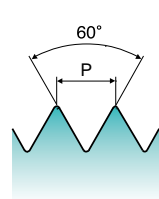
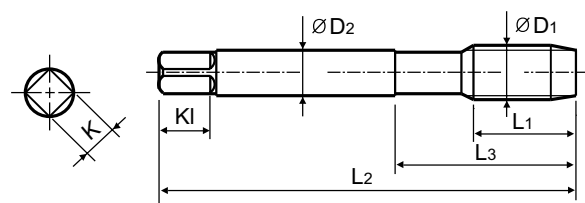


**MF ISO metric fine threads DIN 13**  
 ● Metrisches ISO-Feingewinde DIN 13  
 ● ISO MÉTRIQUE PAS FINS DIN13  
 ● ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 374 6H 60° B TiN p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4 × 0.5		TD222256	10	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TD222296	11	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TD222326	13	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TD222336	13	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TD222356	14	80	30	5.5	4.3	7	3	6.2
M8 × 1		TD222376	17	90	36	6	4.9	8	3	7
M8 × 0.75		TD222386	14	80	30	6	4.9	8	3	7.2
M8 × 0.5		TD222936	14	80	30	6	4.9	8	3	7.5
M10 × 1.25		TD222436	22	100	40	7	5.5	8	3	8.8
M10 × 1		TD222446	18	90	36	7	5.5	8	3	9
M10 × 0.75		TD222456	18	90	36	7	5.5	8	3	9.2
M12 × 1.5		TD222516	22	100	40	9	7	10	3	10.5
M12 × 1.25		TD222526	22	100	40	9	7	10	3	10.8
M12 × 1		TD222536	18	100	40	9	7	10	3	11
M14 × 1.5		TD222556	22	100	40	11	9	12	3	12.5
M14 × 1.25		TD222566	22	100	40	11	9	12	3	12.8
M14 × 1		TD222576	18	100	40	11	9	12	3	13
M16 × 1.5		TD222616	22	100	40	12	9	12	3	14.5

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

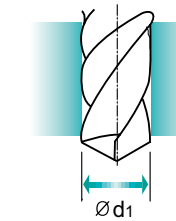
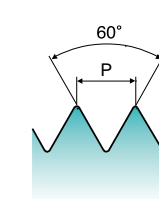
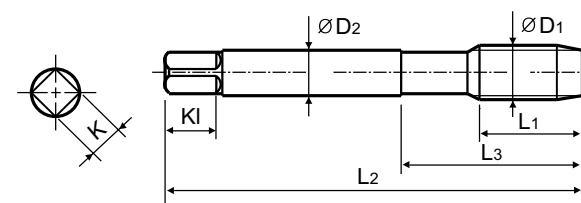


**MF ISO metric fine threads DIN 13**  
 ● Metrisches ISO-Feingewinde DIN 13  
 ● ISO MÉTRIQUE PAS FINS DIN13  
 ● ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 374 6H 60° B TiN p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M16 × 1		TD222626	18	100	40	12	9	12	3	15
M18 × 1.5		TD222676	25	110	44	14	11	14	4	16.5
M18 × 1		TD222686	20	110	44	14	11	14	4	17
M20 × 1.5		TD222726	25	125	50	16	12	15	4	18.5
M20 × 1		TD222736	20	125	50	16	12	15	4	19
M22 × 1.5		TD222766	25	125	50	18	14.5	17	4	20.5
M22 × 1		TD222776	20	125	50	18	14.5	17	4	21
M24 × 2		TD222796	27	140	54	18	14.5	17	4	22
M24 × 1.5		TD222806	27	140	54	18	14.5	17	4	22.5
M26 × 1.5		TD222856	28	140	54	18	14.5	17	4	24.5
M27 × 2		TD222876	28	140	54	20	16	19	4	25
M27 × 1.5		TD222886	28	140	54	20	16	19	4	25.5
M28 × 1.5		TD222916	28	140	54	20	16	19	4	26.5
M30 × 2		TD222966	30	150	57	22	18	21	4	28
M30 × 1.5		TD222976	30	150	57	22	18	21	4	28.5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

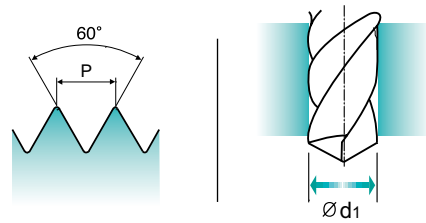
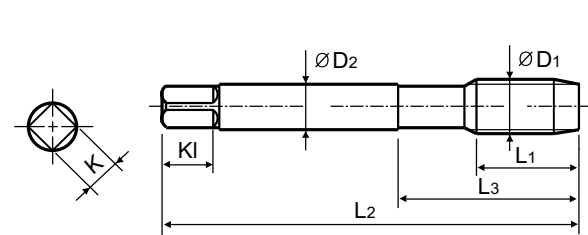
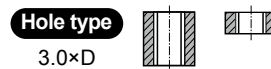
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

**UNC Unified coarse threads**  
 Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 371/378 2B 60° B Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.161 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 40UNC	TC214162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC214202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC214242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TC214282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC214322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC214362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC214402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC214442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC214482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TC214522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC214562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC214602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC214642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC214702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC214742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC214782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC214822	40	180	70	22	18	21	4	25

►DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	◎	◎			○	○	○	○	○	◎	◎	◎	◎	◎	◎

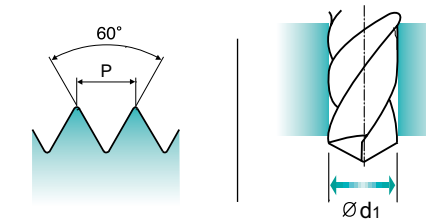
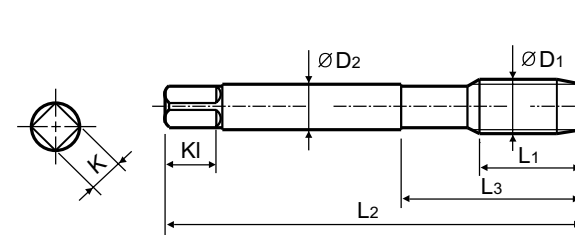
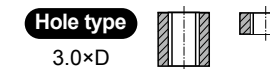


**UNF Unified fine threads**  
 Unified Feingewinde  
 UNF  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 371/378 2B 60° B Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.161 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 48UNF	TC234182	11	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TC234222	11	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TC234262	12	56	20	4	3	6	3	3
#8	- 36UNF	TC234302	13	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TC234342	15	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TC234382	16	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TC234422	17	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TC234462	17	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TC234502	18	100	39	9	7	10	3	8.5
7/16	- 20UNF	TC234542	22	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TC234582	22	100	40	9	7	10	3	11.5
9/16	- 18UNF	TC234622	22	100	40	11	9	12	3	12.9
5/8	- 18UNF	TC234662	22	100	40	12	9	12	3	14.5
3/4	- 16UNF	TC234722	25	110	44	14	11	14	4	17.5
7/8	- 14UNF	TC234762	26	125	50	18	14.5	17	4	20.5
1	- 12UNF	TC234802	28	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TC234842	30	150	60	22	18	21	4	26.5

►DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

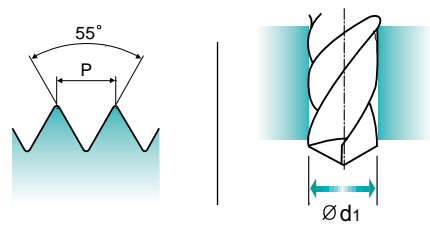
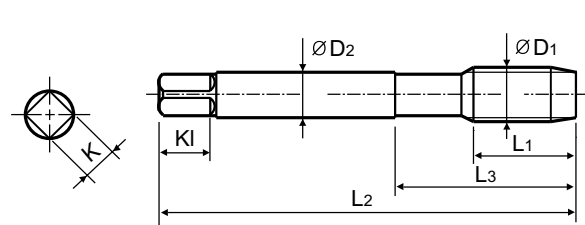
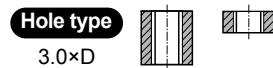
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	◎	◎			○	○	○	○	○	◎	◎	◎	◎	◎	◎

**BSW Whitworth threads**  
 ● Whitworth Gewinde  
 ○ BSW  
 ○ Filettatura Whitworth

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 2182/2183 2B 60° B Bright p.B169

Plain Shank Page D215-220  
 TAPPING ER CHUCK D221-228  
 Recommended TAPPING CHUCK D211-213  
 ToolHolder ONE STEP TAPPING CHUCK

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
W1/8 - 40		TC224200	11	56	18	3.5	2.7	6	3	2.5
W5/32 - 32		TC224280	13	63	21	4.5	3.4	6	3	3.1
W3/16 - 24		TC224320	15	70	25	6	4.9	8	3	3.6
W7/32 - 24		TC224360	16	80	30	6	4.9	8	3	4.4
W1/4 - 20		TC224400	17	80	30	7	5.5	8	3	5.1
W5/16 - 18		TC224440	20	90	35	8	6.2	9	3	6.5
W3/8 - 16		TC224480	22	100	39	9	7	10	3	7.9
W7/16 - 14		TC224520	22	100	40	8	6.2	9	3	9.3
W1/2 - 12		TC224560	25	110	44	9	7	10	3	10.5
W9/16 - 12		TC224600	26	110	44	11	9	12	3	12
W5/8 - 11		TC224640	27	110	44	12	9	12	3	13.5
W3/4 - 10		TC224700	30	125	50	14	11	14	4	16.5
W7/8 - 9		TC224740	32	140	54	18	14.5	17	4	19.25
W1 - 8		TC224780	36	160	60	20	16	19	4	22
W1-1/8 - 7		TC224820	40	180	65	22	18	21	4	24.75

► DIN 2182(W1/8~W3/8) and DIN 2183(W7/16~W1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	○	○	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

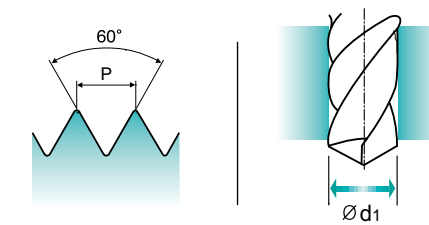
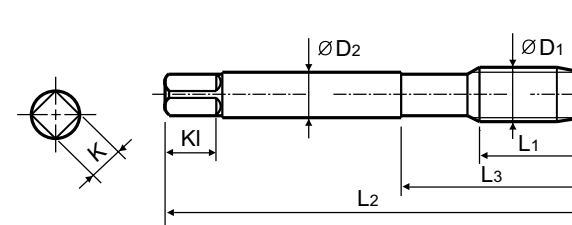


**M ISO metric coarse threads DIN 13**  
 ● Metrisches ISO-Gewinde DIN 13  
 ○ ISO MÉTRIQUE DIN13  
 ○ ISO Metrico passo grosso DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 376 6H 60° B Bright p.B169

Plain Shank Page D215-220  
 TAPPING ER CHUCK D221-228  
 Recommended TAPPING CHUCK D211-213  
 ToolHolder ONE STEP TAPPING CHUCK

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3 × 0.5		TC227206	11	56	18	2.2	1.8	5	3	2.5
M3.5 × 0.6		TC227226	12	56	20	2.5	2.1	5	3	2.9
M4 × 0.7		TC227246	13	63	21	2.8	2.1	5	3	3.3
M4.5 × 0.75		TC227266	14	70	25	3.5	2.7	6	3	3.7
M5 × 0.8		TC227286	15	70	25	3.5	2.7	6	3	4.2
M6 × 1		TC227316	17	80	30	4.5	3.4	6	3	5
M7 × 1		TC227346	17	80	30	5.5	4.3	7	3	6
M8 × 1.25		TC227366	20	90	36	6	4.9	8	3	6.8
M9 × 1.25		TC227396	20	90	36	7	5.5	8	3	7.8
M10 × 1.5		TC227426	22	100	40	7	5.5	8	3	8.5
M11 × 1.5		TC227466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC227506	24	110	44	9	7	10	3	10.2
M14 × 2		TC227546	26	110	44	11	9	12	3	12
M16 × 2		TC227606	27	110	44	12	9	12	3	14
M18 × 2.5		TC227656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC227706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TC227746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TC227786	34	160	60	18	14.5	17	4	21
M27 × 3		TC227866	36	160	60	20	16	19	4	24
M30 × 3.5		TC227946	40	180	70	22	18	21	4	26.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○	○	○	○	○	○	○	○	○	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○



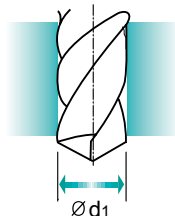
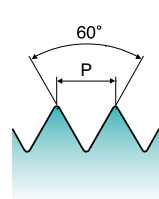
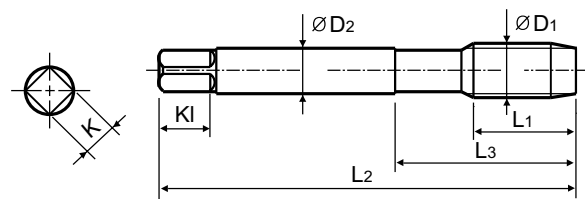
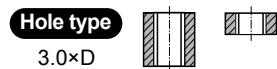
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 376 6H 60° B TiN p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Recommended Cutting Page : P.161

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TD227206	11	56	18	2.2	1.8	5	3	2.5
M3.5	× 0.6	TD227226	12	56	20	2.5	2.1	5	3	2.9
M4	× 0.7	TD227246	13	63	21	2.8	2.1	5	3	3.3
M4.5	× 0.75	TD227266	14	70	25	3.5	2.7	6	3	3.7
M5	× 0.8	TD227286	15	70	25	3.5	2.7	6	3	4.2
M6	× 1	TD227316	17	80	30	4.5	3.4	6	3	5
M7	× 1	TD227346	17	80	30	5.5	4.3	7	3	6
M8	× 1.25	TD227366	20	90	36	6	4.9	8	3	6.8
M9	× 1.25	TD227396	20	90	36	7	5.5	8	3	7.8
M10	× 1.5	TD227426	22	100	40	7	5.5	8	3	8.5
M11	× 1.5	TD227466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD227506	24	110	44	9	7	10	3	10.2
M14	× 2	TD227546	26	110	44	11	9	12	3	12
M16	× 2	TD227606	27	110	44	12	9	12	3	14
M18	× 2.5	TD227656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TD227706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TD227746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TD227786	34	160	60	18	14.5	17	4	21
M27	× 3	TD227866	36	160	60	20	16	19	4	24
M30	× 3.5	TD227946	40	180	70	22	18	21	4	26.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○	◎	◎	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	◎										◎	◎	◎	◎



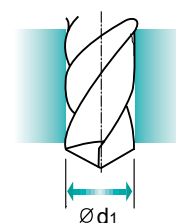
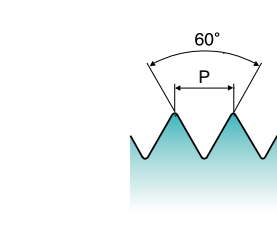
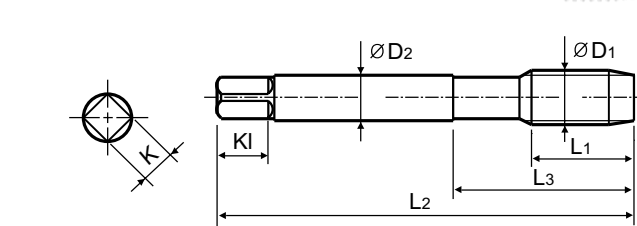
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Left spiral flute and right hand thread tap to push chips ahead in powerful than spiral point taps.

► Rechtsschneidender Gewindebohrer mit Linksdraht um kraftvoller nach vorne zu entspannen als mit Gewindebohrern mit Rechtsdraht.



Material groups: **GS** HSS-E DIN 371/378 6H 60° B Bright L20 p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Recommended Cutting Page : P.161

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC211136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC211156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC211196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC211176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC211496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC211206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC211226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC211246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC211266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC211286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC211316	17	80	30	6	4.9	8	3	5
M7	× 1	TC211346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC211366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC211396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC211426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC211466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC211506	24	110	44	9	7	10	3	10.2
M14	× 2	TC211546	26	110	44	11	9	12	3	12
M16	× 2	TC211606	27	110	44	12	9	12	3	14
M18	× 2.5	TC211656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC211706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC211746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC211786	34	160	60	18	14.5	17	4	21
M27	× 3	TC211866	36	160	60	20	16	19	4	24
M30	× 3.5	TC211946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○	◎	◎	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	○	○	◎	◎										◎	◎	◎	◎

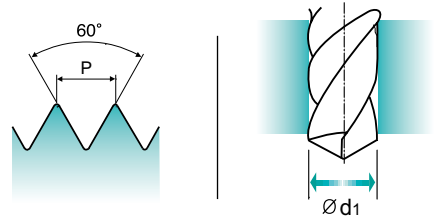
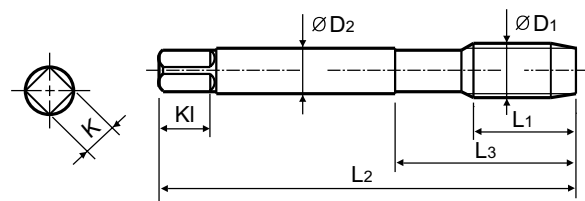
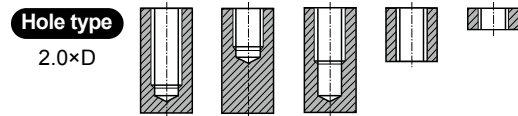
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping shallow holes and the blind holes having enough chip space at the bottom of holes.

► Geeignet zum Schneiden von kurzem Durchgangsgewinde und in Sacklöchern mit ausreichendem Raum für Späne am Bohrungsgrund.



Material groups: **GS** HSS-E DIN 371/376 6H 60° C Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TC463136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC463156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC463196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC463176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC463496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC463206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC463226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC463246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC463266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC463286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC463316	17	80	30	6	4.9	8	3	5
M7	× 1	TC463346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC463366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC463396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC463426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC463466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC463506	24	110	44	9	7	10	3	10.2
M14	× 2	TC463546	26	110	44	11	9	12	3	12
M16	× 2	TC463606	27	110	44	12	9	12	3	14
M18	× 2.5	TC463656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC463706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC463746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC463786	34	160	60	18	14.5	17	4	21
M27	× 3	TC463866	36	160	60	20	16	19	4	24
M30	× 3.5	TC463946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



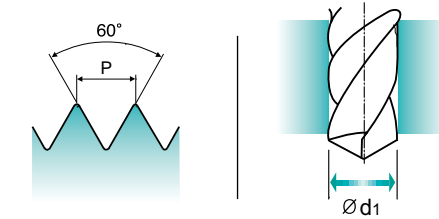
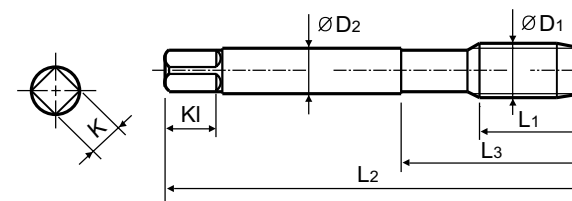
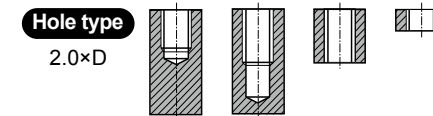
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping shallow holes.

► Geeignet zum Gewindeschneiden flacher Sacklöcher.



Material groups: **GS** HSS-E DIN 374 6H 60° C Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TC473256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC473296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC473326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC473336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC473356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC473376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC473386	14	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC473936	14	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC473436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC473446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC473456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC473516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC473526	22	100	40	9	7	10	3	10.8
M12	× 1	TC473536	18	100	40	9	7	10	3	11
M14	× 1.5	TC473556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC473566	22	100	40	11	9	12	3	12.8
M14	× 1	TC473576	18	100	40	11	9	12	3	13
M16	× 1.5	TC473616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TC473676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TC473726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TC473766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC473806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**UNC Unified coarse threads**

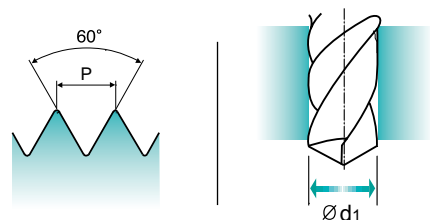
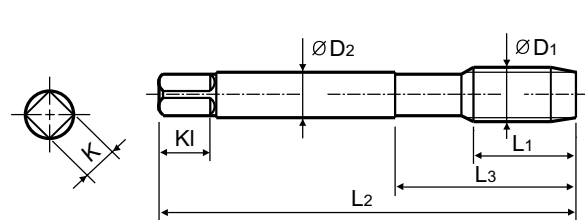
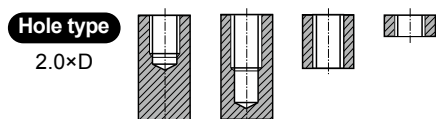
**UNC**

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

Suitable for tapping shallow holes.

Geeignet zum Gewindeschneiden flacher Sacklöcher.



Material groups: **GS** HSS-E DIN 371/376 2B 60° C Bright p.B169

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Recommended Cutting Page : P.161

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 40UNC	TC424162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC424202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC424242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TC424282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC424322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC424362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC424402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC424442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC424482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TC424522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC424562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC424602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC424642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC424702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC424742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC424782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC424822	40	180	70	22	18	21	4	25

DIN 371(#4~3/8) and DIN 376(7/16~1- 1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**M ISO metric coarse threads DIN 13**

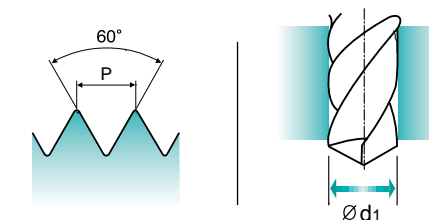
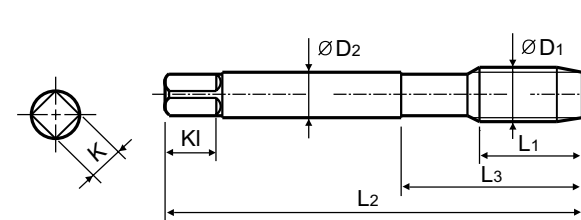
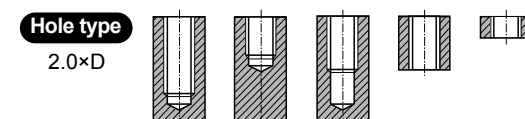
**M**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Sets of taps  
Gewindebohrer -Satz

This tap is a serial hand tap in set, First, Second and Bottoming.  
Bottoming tap of set has final internal thread dimensions only.

Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
Nur der Fertigschneider kann das gewünschte Gewinde schneiden



Material groups: **GS** HSS DIN 352 6H 60° I/II/III Bright p.B169

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	T7109139	8	36	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	T7109159	9	36	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	T7109199	9	36	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	T7109179	9	40	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	T7109499	9	40	15	2.8	2.1	5	3	2.1
M3	× 0.5	T7109209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	T7109229	13	45	21	4	3	6	3	2.9
M4	× 0.7	T7109249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	T7109269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	T7109289	16	52	26	6	4.9	8	3	4.2
M5.5	× 0.9	T7109N69	18	56	27	6	4.9	8	3	4.6
M6	× 1	T7109319	18	56	27	6	4.9	8	3	5
M7	× 1	T7109349	18	56	28.5	6	4.9	8	3	6
M8	× 1.25	T7109369	20	63	34	6	4.9	8	3	6.8
M9	× 1.25	T7109399	20	63	34	7	5.5	8	4	7.8
M10	× 1.5	T7109429	22	70	38	7	5.5	8	4	8.5
M11	× 1.5	T7109469	22	70	38	8	6.2	9	4	9.5
M12	× 1.75	T7109509	24	80	45	9	7	10	4	10.2
M14	× 2	T7109549	26	80	45	11	9	12	4	12
M16	× 2	T7109609	27	80	45	12	9	12	4	14
M18	× 2.5	T7109659	30	95	58	14	11	14	4	15.5
M20	× 2.5	T7109709	32	95	58	16	12	15	4	17.5

\*DIN profile not ISO

NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



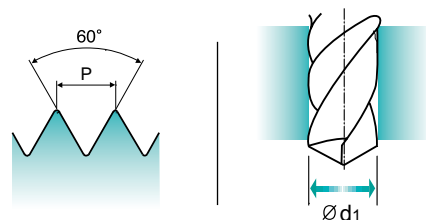
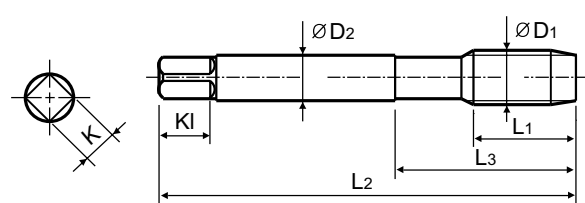
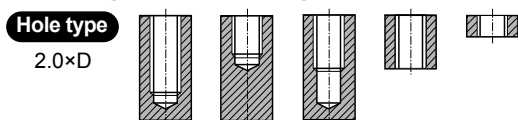
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 352 6H 60° I/II/III Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M22 × 2.5		T7109749	32	100	62	18	14.5	17	4	19.5
M24 × 3		T7109789	34	110	69	18	14.5	17	4	21
M27 × 3		T7109869	36	110	69	20	16	19	4	24
M30 × 3.5		T7109949	40	125	77	22	18	21	4	26.5
M33 × 3.5		T7109A49	40	125	77	25	20	23	4	29.5
M36 × 4		T7109B39	50	150	88	28	22	25	4	32
M39 × 4		T7109C09	50	150	88	32	24	27	4	35
M42 × 4.5		T7109C89	56	150	88	32	24	27	4	37.5
M45 × 4.5		T7109D59	58	160	93	36	29	32	4	40.5
M48 × 5		T7109E29	65	180	102	36	29	32	4	43
M52 × 5		T7109F39	65	180	102	40	32	35	4	47

►\*DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



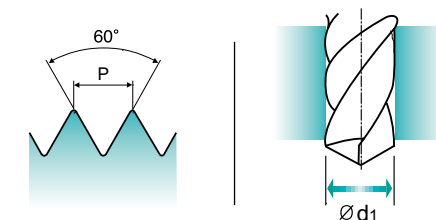
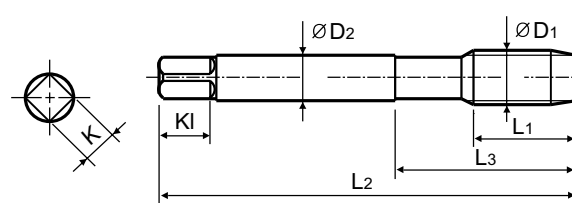
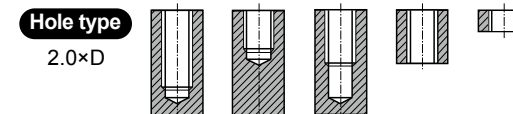
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Handgewindebohrersatz mit Vor- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 2181 6H 60° I/III Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3 × 0.35		T7309219	9	40	18	3.5	2.7	6	3	2.65
M4 × 0.5		T7309259	10	45	18	4.5	3.4	6	3	3.5
M5 × 0.5		T7309299	13	52	22	6	4.9	8	3	4.5
M6 × 0.75		T7309329	14	56	24	6	4.9	8	3	5.2
M6 × 0.5		T7309339	13	56	24	6	4.9	8	3	5.5
M7 × 0.75		T7309359	14	56	27	6	4.9	8	3	6.2
M8 × 1		T7309379	17	63	27	6	4.9	8	3	7
M8 × 0.75		T7309389	14	63	27	6	4.9	8	3	7.2
M8 × 0.5		T7309939	14	63	27	6	4.9	8	3	7.5
M9 × 1		T7309409	17	63	27	7	5.5	8	4	8
M10 × 1.25		T7309439	22	70	32	7	5.5	8	4	8.8
M10 × 1		T7309449	18	63	27	7	5.5	8	4	9
M10 × 0.75		T7309459	18	63	27	7	5.5	8	4	9.2
M11 × 1		T7309479	18	63	27	8	6.2	9	4	10
M12 × 1.5		T7309519	20	70	32	9	7	10	4	10.5
M12 × 1.25		T7309529	20	70	32	9	7	10	4	10.8
M12 × 1		T7309539	18	70	32	9	7	10	4	11
M13 × 1.5		T7309N19	20	70	32	11	9	12	4	11.5
M13 × 1		T7309N29	18	70	32	11	9	12	4	12
M14 × 1.5		T7309559	20	70	32	11	9	12	4	12.5
M14 × 1.25		T7309569	20	70	32	11	9	12	4	12.8
M14 × 1		T7309579	18	70	32	11	9	12	4	13
M15 × 1.5		T7309589	20	70	32	12	9	12	4	13.5
M15 × 1		T7309599	18	70	32	12	9	12	4	14
M16 × 1.5		T7309619	20	70	32	12	9	12	4	14.5

► NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

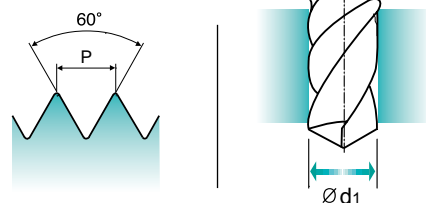
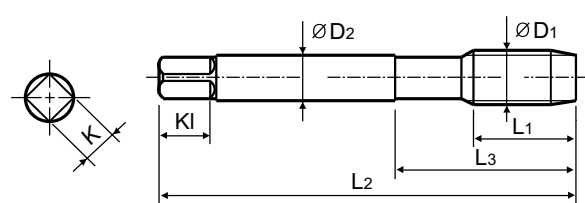
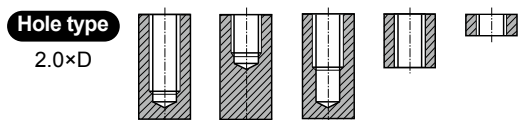
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN 13
- ISO Metrico passo fine DIN 13

Sets of taps  
Gewindebohrer-Satz

This tap is a serial hand tap in set, First and Bottoming.  
Bottoming tap of set has final internal thread dimensions only.

Handgewindebohrersatz mit Vor- und Fertigschneider.  
Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 2181 6H 60° I/III Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M16 × 1		T7309629	18	70	32	12	9	12	4	15
M18 × 2		T7309669	22	80	35	14	11	14	4	16
M18 × 1.5		T7309679	22	80	35	14	11	14	4	16.5
M18 × 1		T7309689	18	80	35	14	11	14	4	17
M20 × 2		T7309719	22	80	35	16	12	15	4	18
M20 × 1.5		T7309729	22	80	35	16	12	15	4	18.5
M20 × 1		T7309739	18	80	35	16	12	15	4	19
M22 × 2		T7309759	22	80	35	18	14.5	17	4	20
M22 × 1.5		T7309769	22	80	35	18	14.5	17	4	20.5
M22 × 1		T7309779	18	80	35	18	14.5	17	4	21
M24 × 2		T7309799	22	90	40	18	14.5	17	4	22
M24 × 1.5		T7309809	22	90	40	18	14.5	17	4	22.5
M24 × 1		T7309819	18	90	40	18	14.5	17	4	23
M25 × 1.5		T7309839	22	90	40	18	14.5	17	4	23.5
M25 × 1		T7309849	18	90	40	18	14.5	17	4	24
M26 × 1.5		T7309859	22	90	40	18	14.5	17	4	24.5
M26 × 1		T7309869	18	90	40	18	14.5	17	4	25
M27 × 2		T7309879	22	90	40	20	16	19	4	25
M27 × 1.5		T7309889	22	90	40	20	16	19	4	25.5
M27 × 1		T7309899	18	90	40	20	16	19	4	26
M28 × 2		T7309909	22	90	40	20	16	19	4	26
M28 × 1.5		T7309919	22	90	40	20	16	19	4	26.5
M30 × 2		T7309969	22	90	40	22	18	21	4	28
M30 × 1.5		T7309979	22	90	40	22	18	21	4	28.5
M30 × 1		T7309989	18	90	40	22	18	21	4	29

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



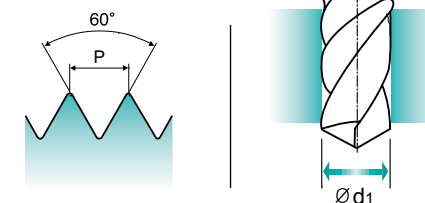
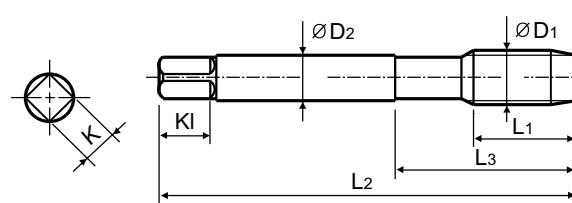
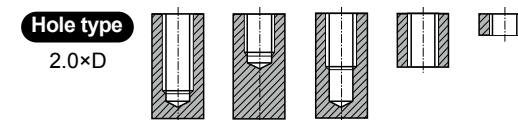
**UNC Unified coarse threads**

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Sets of taps  
Gewindebohrer-Satz

This tap is a serial hand tap in set, First, Second and Bottoming.  
Bottoming tap of set has final internal thread dimensions only.

Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 351 2B 60° I/II/III Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#2 - 56UNC		T7363089	9	36	13	2.8	2.1	5	3	1.8
#3 - 48UNC		T7363129	10	40	15	2.8	2.1	5	3	2.1
#4 - 40UNC		T7363169	10	42	18	3.5	2.7	6	3	2.3
#5 - 40UNC		T7363209	10	42	18	3.5	2.7	6	3	2.6
#6 - 32UNC		T7363249	11	45	18	4	3	6	3	2.85
#8 - 32UNC		T7363289	12	48	23	4.5	3.4	6	3	3.5
#10 - 24UNC		T7363329	14	52	26	6	4.9	6	3	3.9
#12 - 24UNC		T7363369	16	56	27	6	4.9	8	3	4.5
1/4 - 20UNC		T7363409	16	56	27	6	4.9	8	3	5.2
5/16 - 18UNC		T7363449	20	63	34	6	4.9	8	3	6.6
3/8 - 16UNC		T7363489	22	70	38	7	5.5	8	4	8
7/16 - 14UNC		T7363529	22	70	38	8	6.2	9	4	9.4
1/2 - 13UNC		T7363569	25	80	45	9	7	10	4	10.75
9/16 - 12UNC		T7363609	26	80	45	11	9	12	4	12.25
5/8 - 11UNC		T7363649	27	90	55	12	9	12	4	13.5
3/4 - 10UNC		T7363709	32	105	65	14	11	14	4	16.5
7/8 - 9UNC		T7363749	32	110	69	18	14.5	17	4	19.5
1 - 8UNC		T7363789	36	110	69	20	16	19	4	22.25
1-1/8 - 7UNC		T7363829	40	125	77	22	18	21	4	25
1-1/4 - 7UNC		T7363869	40	125	77	25	20	23	4	28.25
1-1/8 - 6UNC		T7363909	50	150	88	28	22	25	4	30.75
1-1/2 - 6UNC		T7363949	50	150	88	32	24	27	4	34
1-3/4 - 5UNC		T7363B89	58	160	93	36	29	32	4	39.5
2 - 4½UNC		T7363D29	65	180	102	40	32	35	4	45.25

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

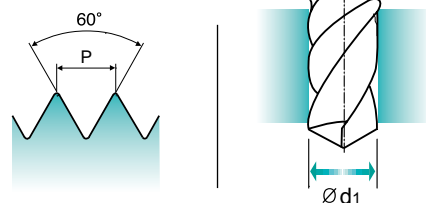
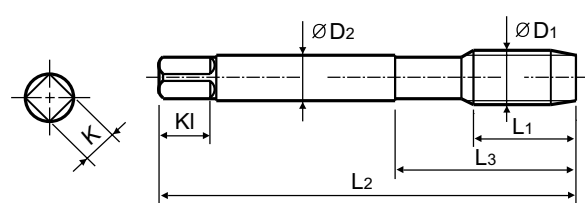
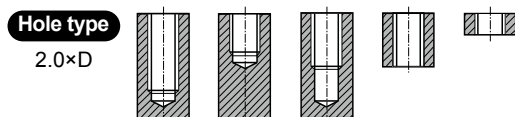
ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**UNF Unified fine threads**  
 Unified Feingewinde  
 UNF  
 Unificato passo fine

Sets of taps  
 Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First and Bottoming.  
 ▶ Bottoming tap of set has final internal thread dimensions only.

▶ Handgewindebohrersatz mit Vor- und Fertigschneider.  
 ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 2181 2B 60° I/III Bright p.B169

Plain Shank Page  
 TAPPING ER CHUCK D215-220  
 TAPPING CHUCK D221-228  
 ONE STEP TAPPING CHUCK D211-213  
 Recommended ToolHolder

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48 UNF		T7509189	10	42	18	3.5	2.7	6	3	2.4
#5 - 44 UNF		T7509229	10	42	18	3.5	2.7	6	3	2.7
#6 - 40 UNF		T7509269	11	45	18	4	3	6	3	3
#8 - 36 UNF		T7509309	12	48	23	4.5	3.4	6	3	3.5
#10 - 32 UNF		T7509349	14	52	22	6	4.9	8	3	4.1
#12 - 28 UNF		T7509389	16	56	24	6	4.9	8	3	4.7
1/4 - 28 UNF		T7509429	16	56	24	6	4.9	8	3	5.5
5/16 - 24 UNF		T7509469	17	63	27	6	4.9	8	3	6.9
3/8 - 24 UNF		T7509509	18	63	27	7	5.5	8	4	8.5
7/16 - 20 UNF		T7509549	20	70	32	8	6.2	9	4	9.9
1/2 - 20 UNF		T7509589	20	70	32	9	7	10	4	11.5
9/16 - 18 UNF		T7509629	20	70	32	11	9	12	4	12.9
5/8 - 18 UNF		T7509669	20	70	32	12	9	12	4	14.5
3/4 - 16 UNF		T7509729	22	80	38	14	11	14	4	17.5
7/8 - 14 UNF		T7509769	22	80	38	18	14.5	17	4	20.5
1 - 12 UNF		T7509809	22	90	40	18	14.5	17	4	23.25
1-1/8 - 12 UNF		T7509849	22	90	40	22	18	21	4	26.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

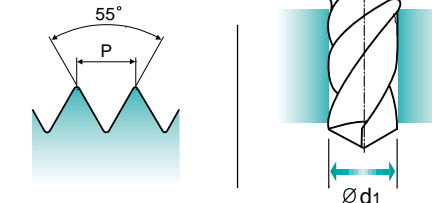
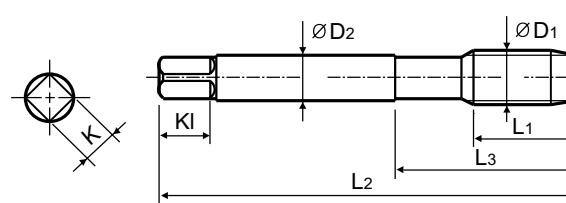
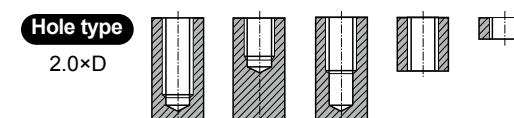


**BSW Whitworth threads**  
 Whitworth Gewinde  
 BSW  
 Filettatura Whitworth

Sets of taps  
 Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.  
 ▶ Bottoming tap of set has final internal thread dimensions only.

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
 ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 351 55° I/II/III Bright p.B169

Plain Shank Page  
 TAPPING ER CHUCK D215-220  
 TAPPING CHUCK D221-228  
 ONE STEP TAPPING CHUCK D211-213  
 Recommended ToolHolder

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
W3/32 - 48		T7609129	10	40	15	2.8	2.1	5	3	1.8
W1/8 - 40		T7609209	10	42	18	3.5	2.7	6	3	2.5
W5/32 - 32		T7609289	12	48	23	4.5	3.4	6	3	3.1
W3/16 - 24		T7609329	14	52	26	6	4.9	8	3	3.6
W7/32 - 24		T7609369	16	56	27	6	4.9	8	3	4.4
W1/4 - 20		T7609409	16	56	27	6	4.9	8	3	5.1
W5/16 - 18		T7609449	20	63	34	6	4.9	8	3	6.5
W3/8 - 16		T7609489	22	70	38	7	5.5	8	4	7.9
W7/16 - 14		T7609529	22	70	38	8	6.2	9	4	9.3
W1/2 - 12		T7609569	25	80	45	9	7	10	4	10.5
W9/16 - 12		T7609609	26	80	45	11	9	12	4	12
W5/8 - 11		T7609649	27	90	55	12	9	12	4	13.5
W3/4 - 10		T7609709	32	105	65	14	11	14	4	16.5
W7/8 - 9		T7609749	32	110	69	18	14.5	17	4	19.25
W1 - 8		T7609789	36	110	69	20	16	19	4	22
W1-1/8 - 7		T7609829	40	125	77	22	18	21	4	24.75
W1-1/4 - 7		T7609869	40	125	77	25	20	23	4	27.75
W1-3/8 - 6		T7609909	50	150	88	28	22	25	4	30.5
W1-1/2 - 6		T7609949	50	150	88	32	24	27	4	33.5
W1-5/8 - 5		T7609989	56	150	88	32	24	27	4	35.5
W1-3/4 - 5		T7609889	58	160	93	36	29	32	4	39
W1-7/8 - 4½		T7609C69	65	180	102	36	29	32	4	41.5
W2 - 4½		T7609D29	65	180	102	40	32	35	4	44.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



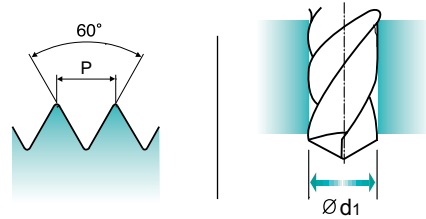
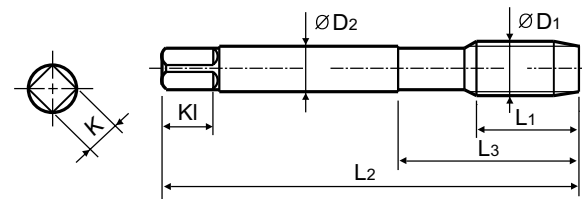
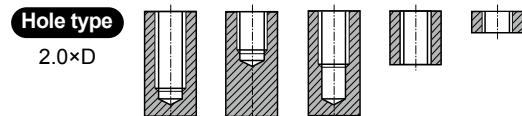
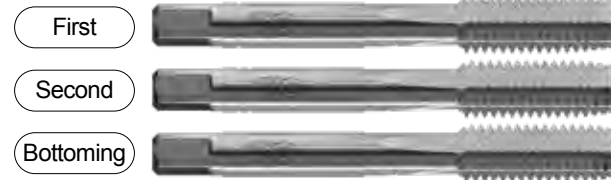
**M-LH ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 352 6H 60° I/II/III Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3	× 0.5	T7343209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	T7343229	13	45	21	4	3	6	3	2.9
M4	× 0.7	T7343249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	T7343269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	T7343289	16	52	26	6	4.9	8	3	4.2
M6	× 1	T7343319	18	56	27	6	4.9	8	3	5
M8	× 1.25	T7343369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	T7343429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	T7343509	24	80	45	9	7	10	4	10.2
M14	× 2	T7343549	26	80	45	11	9	12	4	12
M16	× 2	T7343609	27	80	45	12	9	12	4	14
M18	× 2.5	T7343659	30	95	58	14	11	14	4	15.5
M20	× 2.5	T7343709	32	95	58	16	12	15	4	17.5
M22	× 2.5	T7343749	32	100	62	18	14.5	17	4	19.5
M24	× 3	T7343789	34	110	69	18	14.5	17	4	21
M27	× 3	T7343869	36	110	69	20	16	19	4	24
M30	× 3.5	T7343949	40	125	77	22	18	21	4	26.5

► LH=Left hand thread

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



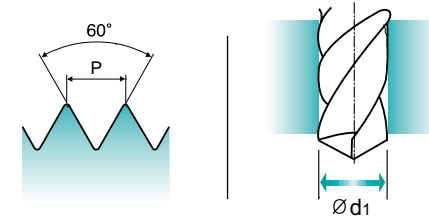
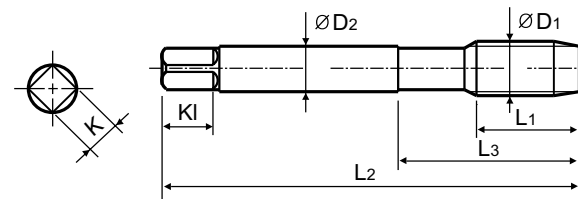
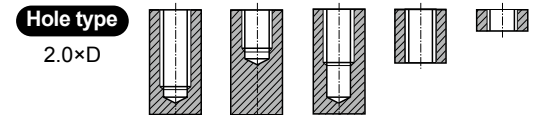
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS-E DIN 352 6HX 60° I/II/III Vap p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3	× 0.5	TB373209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB373229	13	45	21	4	3	6	3	2.9
M4	× 0.7	TB373249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB373269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	TB373289	16	52	26	6	4.9	8	3	4.2
M6	× 1	TB373319	18	56	27	6	4.9	8	3	5
M8	× 1.25	TB373369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TB373429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	TB373509	24	80	45	9	7	10	4	10.2
M14	× 2	TB373549	26	80	45	11	9	12	4	12
M16	× 2	TB373609	27	80	45	12	9	12	4	14
M18	× 2.5	TB373659	30	95	58	14	11	14	4	15.5
M20	× 2.5	TB373709	32	95	58	16	12	15	4	17.5

► First with pilot guide

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

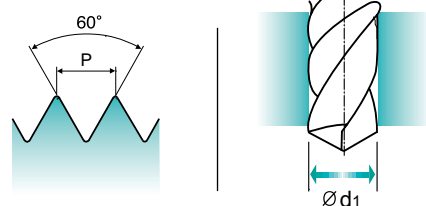
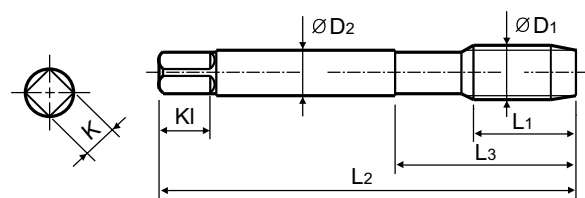
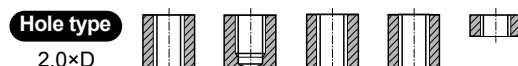
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



**VG** HSS-E DIN 352 6H 60° I/II/III Bright p.B169

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3	× 0.5	TC353209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC353229	13	45	21	4	3	6	3	2.9
M4	× 0.7	TC353249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC353269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	TC353289	16	52	26	6	4.9	8	3	4.2
M6	× 1	TC353319	18	56	27	6	4.9	8	3	5
M8	× 1.25	TC353369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TC353429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	TC353509	24	80	45	9	7	10	4	10.2
M14	× 2	TC353549	26	80	45	11	9	12	4	12
M16	× 2	TC353609	27	80	45	12	9	12	4	14
M18	× 2.5	TC353659	30	95	58	14	11	14	4	15.5
M20	× 2.5	TC353709	32	95	58	16	12	15	4	17.5

► First with pilot guide

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

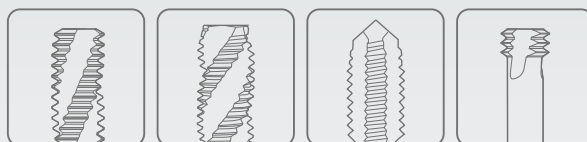
ISO	N								S							H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)											
					TC711 TC411 TC144 TC124 TC134	TD711 TD411	TC517 TC612	TC127 TC122 TC214 TC234 TC224	TD127 TD222	TC227	TD227	TC211	TC463 TC473 TC424			
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20			
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20			
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	18-24	12-18	12-18			
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	5	300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10				
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10			
M	12		Stainless steel	200	15	7-10	10-13	7-10	7-10	10-13	7-10	10-13	7-10	7-10		
13	240	23		5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8				
K	15	Grey cast iron	180	10									10-15			
	16		260	26									5-8			
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8			
N	21	Aluminum-wrought alloy	60		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15				
	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20				
	24		90		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20				
	25		130		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	35-40	25-35	25-35			
	27		90										8-12			
28	100			15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20					



Global Cutting Tool Leader **YG-1**



# THREADING





Leading Through Innovation

HSS-E & HSS-PM

# YG TAP STEEL

## YG Gewindebohrer Stähle

- For Steel Materials but also other Long Chip Forming Materials
- Für Stahlwerkstoffe, aber auch andere langspanende Werkstoffe







TQ823 SERIES

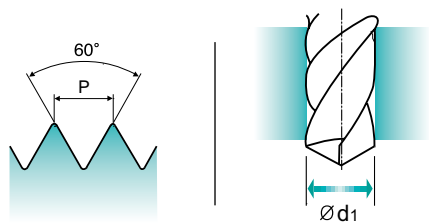
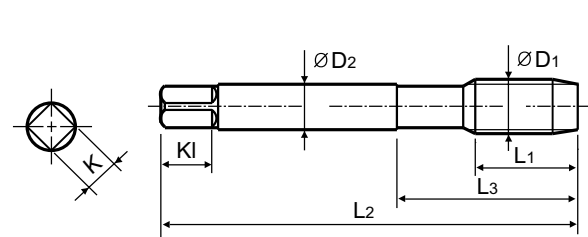
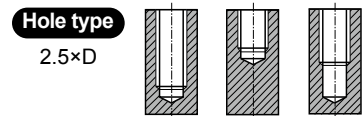
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS PM DIN 371/376 6H 60° C R40 Vap p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 ONE STEP TAPPING CHUCK D221-228 D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TQ823136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ823156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ823176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ823206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ823226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ823246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ823266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ823286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ823316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ823346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ823366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ823426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ823506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TR823 SERIES

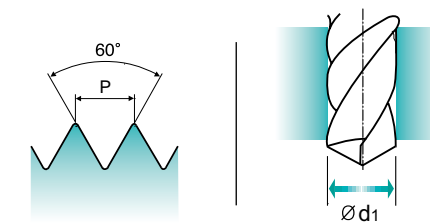
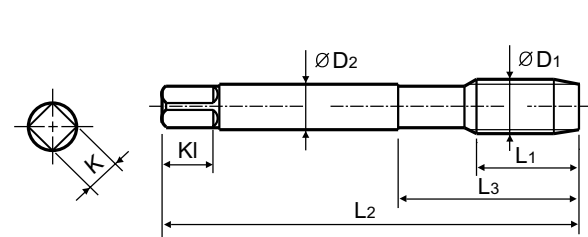
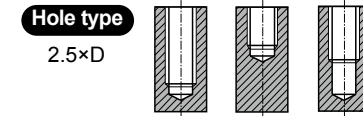
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS PM DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 ONE STEP TAPPING CHUCK D221-228 D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TR823136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR823156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR823176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR823206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR823226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TR823246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR823266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR823286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TR823316	10	80	30	6	4.9	8	3	5
M7	× 1	TR823346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TR823366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR823426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TR823506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





TC312 SERIES

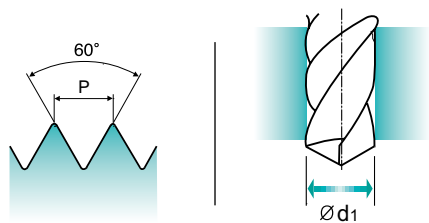
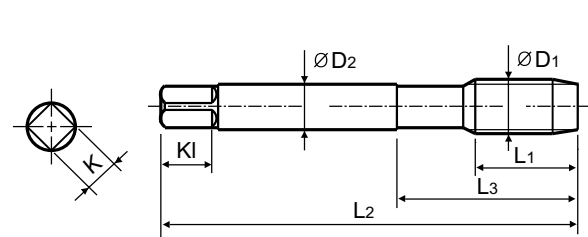
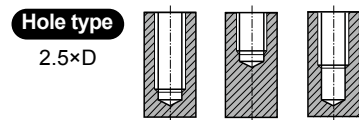
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TC312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC312316	10	80	30	6	4.9	8	3	5
M7	× 1	TC312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC312506	18	110	44	9	7	10	3	10.2
M14	× 2	TC312546	20	110	44	11	9	12	3	12
M16	× 2	TC312606	20	110	44	12	9	12	3	14
M18	× 2.5	TC312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC312786	30	160	60	18	14.5	17	4	21
M27	× 3	TC312866	30	160	60	20	16	19	4	24
M30	× 3.5	TC312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	30	25	38	34	34	55	60	42	55	55	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TD312 SERIES

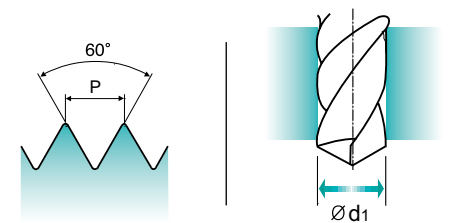
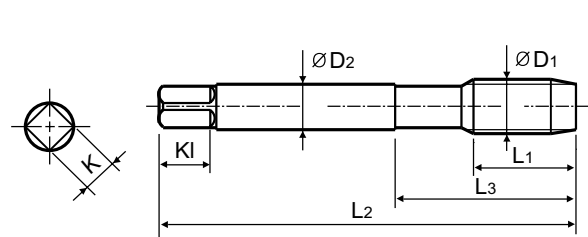
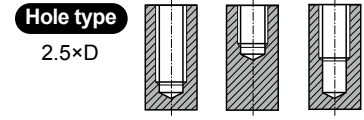
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TD312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TD312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TD312316	10	80	30	6	4.9	8	3	5
M7	× 1	TD312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TD312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TD312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TD312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD312506	18	110	44	9	7	10	3	10.2
M14	× 2	TD312546	20	110	44	11	9	12	3	12
M16	× 2	TD312606	20	110	44	12	9	12	3	14
M18	× 2.5	TD312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TD312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TD312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TD312786	30	160	60	18	14.5	17	4	21
M27	× 3	TD312866	30	160	60	20	16	19	4	24
M30	× 3.5	TD312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	30	25	38	34	34	55	60	42	55	55	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

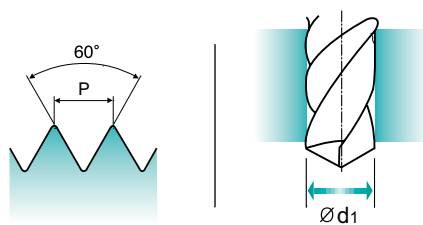
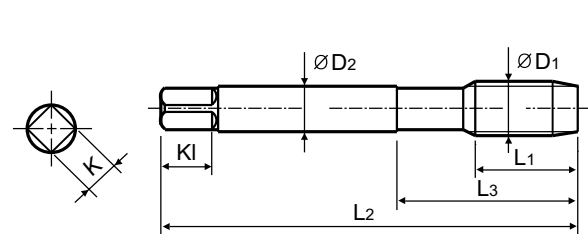
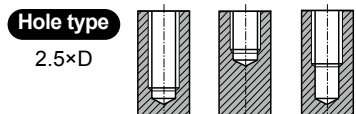
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for threading blind holes due to excellent chip evacuation of tempered steels or similar work materials.

► Geeignet zum Gewinden von Sacklöchern dank ausgezeichneter Spanabfuhr von angelassenen Stählen oder ähnlichen Werkstoffen.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 Vap p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TB312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB312316	10	80	30	6	4.9	8	3	5
M7	× 1	TB312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB312466	17	100	40	8	6.2	12	3	9.5
M12	× 1.75	TB312506	18	110	44	9	7	10	3	10.2
M14	× 2	TB312546	20	110	44	11	9	12	3	12
M16	× 2	TB312606	20	110	44	12	9	12	3	14
M18	× 2.5	TB312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB312786	30	160	60	18	14.5	17	4	21
M27	× 3	TB312866	30	160	60	20	16	19	4	24
M30	× 3.5	TB312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel	Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	30	25	38	34	34	30	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



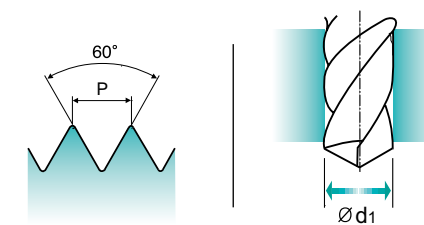
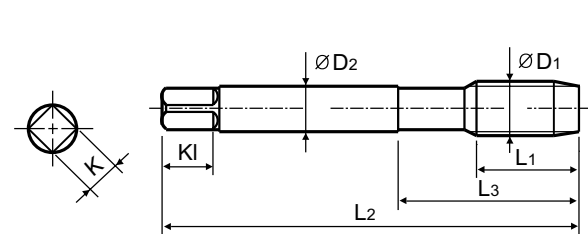
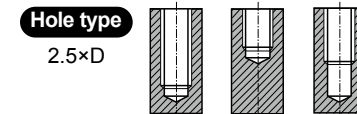
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 TiAlN p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TY312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TY312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TY312316	10	80	30	6	4.9	8	3	5
M7	× 1	TY312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TY312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TY312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TY312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY312506	18	110	44	9	7	10	3	10.2
M14	× 2	TY312546	20	110	44	11	9	12	3	12
M16	× 2	TY312606	20	110	44	12	9	12	3	14
M18	× 2.5	TY312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TY312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TY312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TY312786	30	160	60	18	14.5	17	4	21
M27	× 3	TY312866	30	160	60	20	16	19	4	24
M30	× 3.5	TY312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel	Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○

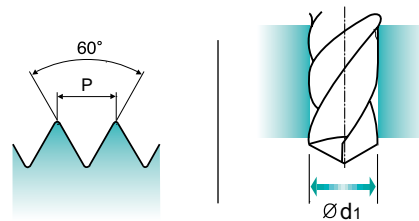
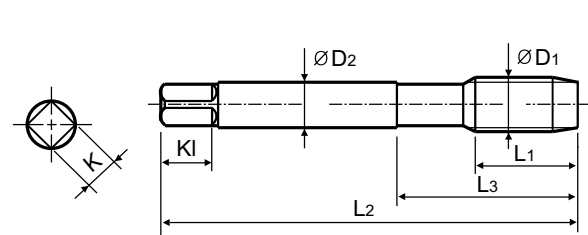
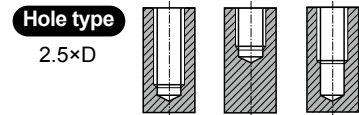
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	30	25	38	34	34	30	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**MF ISO metric fine threads DIN 13**  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 374 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M4	× 0.5	TC413256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC413296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC413326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC413336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC413356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC413376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TC413386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TC413436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TC413446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TC413456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC413516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TC413526	15	100	40	9	7	10	3	10.8
M12	× 1	TC413536	11	100	40	9	7	10	3	11
M14	× 1.5	TC413556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC413566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TC413616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TC413676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TC413726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TC413766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC413806	20	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	29	32	38	35	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

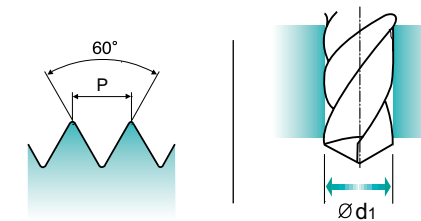
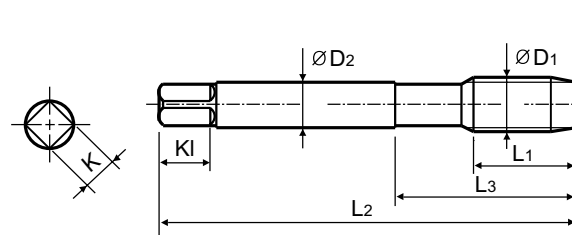
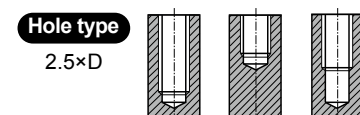


**MF ISO metric fine threads DIN 13**  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 374 6H 60° C R40 TiN p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M4	× 0.5	TD413256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD413296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD413326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD413336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD413356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD413376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TD413386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TD413436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TD413446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TD413456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD413516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TD413526	15	100	40	9	7	10	3	10.8
M12	× 1	TD413536	11	100	40	9	7	10	3	11
M14	× 1.5	TD413556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TD413566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TD413616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TD413676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TD413726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TD413766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TD413806	20	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	29	32	38	35	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

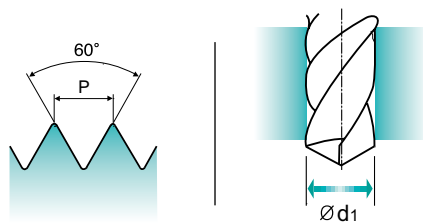
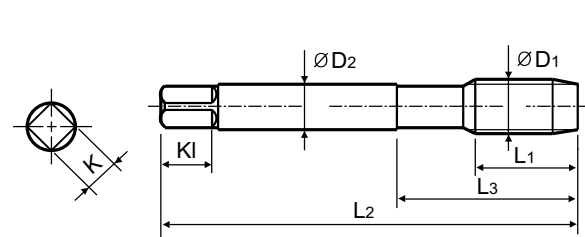
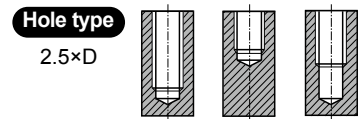


**UNC Unified coarse threads**  
 Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 2B 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 40UNC	TC174162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC174202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC174242	7	56	20	4	3	6	3	2.85
#8	- 32UNC	TC174282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC174322	10	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC174362	10	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC174402	13	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC174442	14	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC174482	16	100	39	9	7	10	3	8
7/16	- 14UNC	TC174522	17	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC174562	20	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC174602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC174642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC174702	25	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC174742	27	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC174782	30	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC174822	35	180	65	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

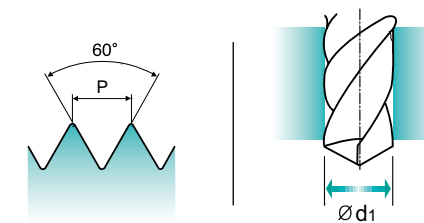
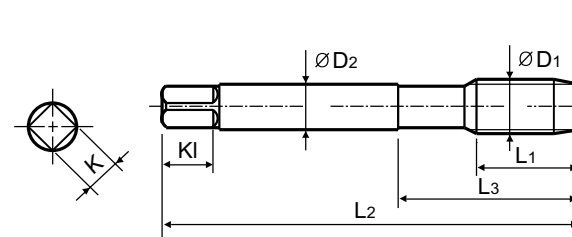
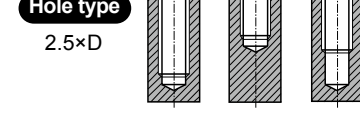


**UNC Unified coarse threads**  
 Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 2B 60° C R40 TiN p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 40UNC	TD174162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TD174202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TD174242	7	56	20	4	3	6	3	2.85
#8	- 32UNC	TD174282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TD174322	10	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TD174362	10	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TD174402	13	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TD174442	14	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TD174482	16	100	39	9	7	10	3	8
7/16	- 14UNC	TD174522	17	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TD174562	20	110	44	9	7	10	3	10.75
9/16	- 12UNC	TD174602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TD174642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TD174702	25	125	50	14	11	14	4	16.5
7/8	- 9UNC	TD174742	27	140	54	18	14.5	17	4	19.5
1	- 8UNC	TD174782	30	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TD174822	35	180	65	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○

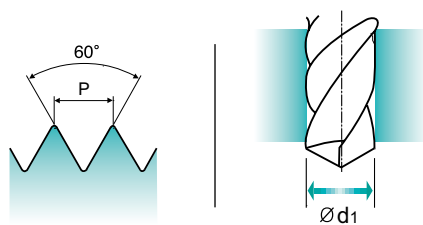
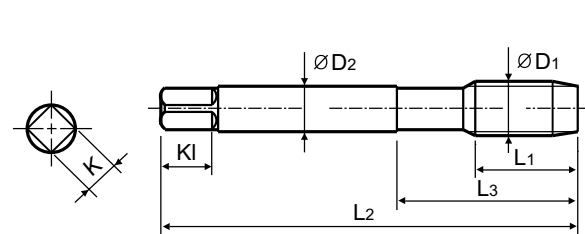
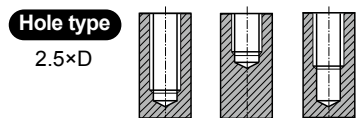
ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

**UNF Unified fine threads**  
 Unified Feingewinde  
 UNF  
 Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 2B 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
#4	- 48UNF	TC184182	6	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TC184222	7	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TC184262	7	56	20	4	3	6	3	3
#8	- 36UNF	TC184302	8	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TC184342	10	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TC184382	10	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TC184422	10	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TC184462	10	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TC184502	10	100	39	9	7	10	3	8.5
7/16	- 20UNF	TC184542	13	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TC184582	13	100	40	9	7	10	3	11.5
9/16	- 18UNF	TC184622	15	100	40	11	9	12	3	12.9
5/8	- 18UNF	TC184662	15	100	40	12	9	12	3	14.5
3/4	- 16UNF	TC184722	17	110	44	14	11	14	4	17.5
7/8	- 14UNF	TC184762	17	125	50	18	14.5	17	4	20.5
1	- 12UNF	TC184802	20	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TC184842	22	150	60	22	18	21	4	26.5

► DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

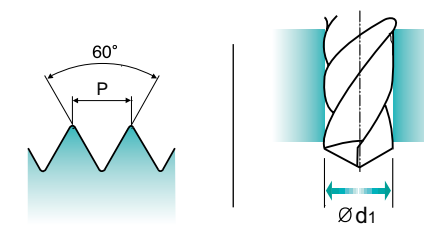
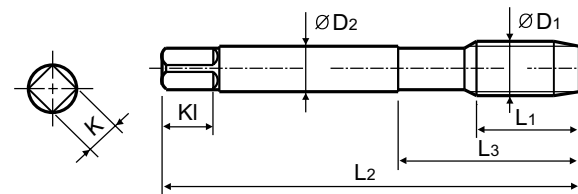
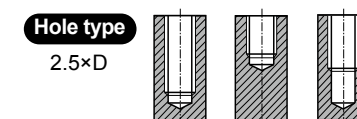


**M ISO metric coarse threads DIN 13**  
 Metrisches ISO-Gewinde DIN 13  
 ISO MÉTRIQUE DIN13  
 ISO Metrico passo grosso DIN 13

Machine taps  
 Maschinengewindebohrer

► With recessed threads for machine tapping of deep blind holes.  
 ► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.  
 ► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 Vap p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TB913136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB913156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB913196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB913176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB913496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB913206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB913226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB913246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB913266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB913286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB913316	10	80	30	6	4.9	8	3	5
M7	× 1	TB913346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB913366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB913396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB913426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB913466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB913506	18	110	44	9	7	10	3	10.2
M14	× 2	TB913546	20	110	44	11	9	12	3	12
M16	× 2	TB913606	20	110	44	12	9	12	3	14
M18	× 2.5	TB913656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB913706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB913746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB913786	30	160	60	18	14.5	17	4	21
M27	× 3	TB913866	30	160	60	20	16	19	4	24
M30	× 3.5	TB913946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TQ863 SERIES

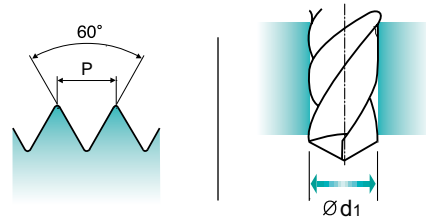
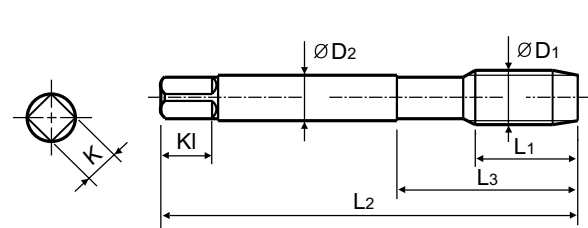
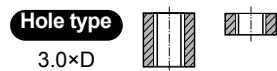
M ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: VG HSS PM DIN 371/376 6H 60° C R40 Vap p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.189

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ863136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ863156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ863176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ863206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ863226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ863246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ863266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ863286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ863316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ863346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ863366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ863426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ863506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TR863 SERIES

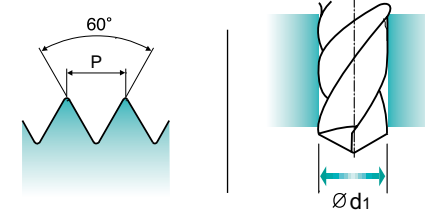
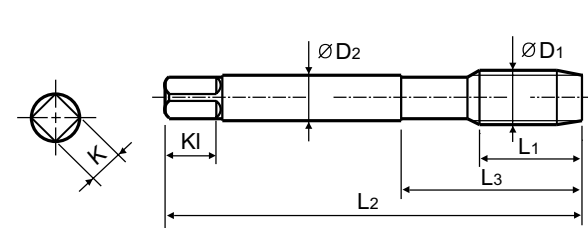
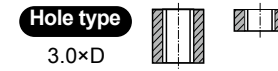
M ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: VG HSS PM DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.189

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TR863136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR863156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR863176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR863206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR863226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR863246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR863266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR863286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR863316	17	80	30	6	4.9	8	3	5
M7	× 1	TR863346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR863366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR863426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR863506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





TC422 SERIES

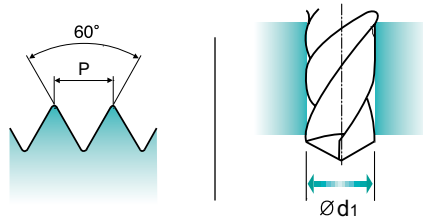
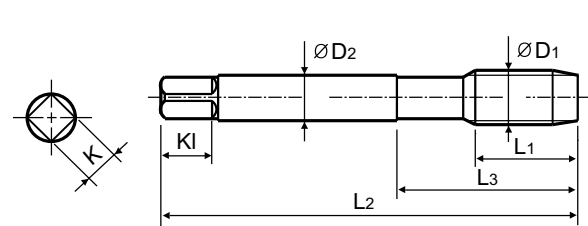
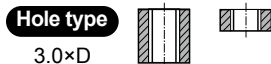
M ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: VG HSS-E DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, ONE STEP TAPPING CHUCK D221-228, D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TC422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC422316	17	80	30	6	4.9	8	3	5
M7	× 1	TC422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC422506	24	110	44	9	7	10	3	10.2
M14	× 2	TC422546	26	110	44	11	9	12	3	12
M16	× 2	TC422606	27	110	44	12	9	12	3	14
M18	× 2.5	TC422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC422786	34	160	60	18	14.5	17	4	21
M27	× 3	TC422866	36	160	60	20	16	19	4	24
M30	× 3.5	TC422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P						M				K									
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron							
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S				H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TD422 SERIES

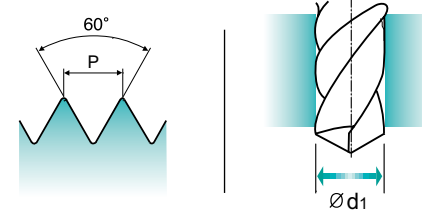
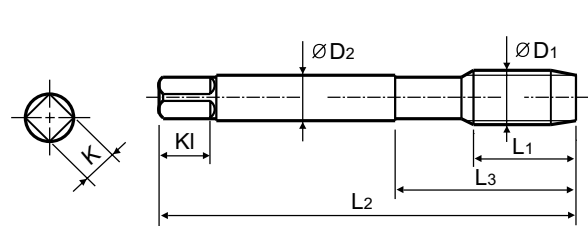
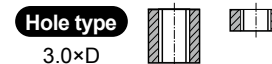
M ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: VG HSS-E DIN 371/376 6H 60° C R40 TiN p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, ONE STEP TAPPING CHUCK D221-228, D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TD422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TD422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TD422316	17	80	30	6	4.9	8	3	5
M7	× 1	TD422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TD422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TD422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TD422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD422506	24	110	44	9	7	10	3	10.2
M14	× 2	TD422546	26	110	44	11	9	12	3	12
M16	× 2	TD422606	27	110	44	12	9	12	3	14
M18	× 2.5	TD422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TD422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TD422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TD422786	34	160	60	18	14.5	17	4	21
M27	× 3	TD422866	36	160	60	20	16	19	4	24
M30	× 3.5	TD422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P						M				K									
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron							
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S				H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TE422 SERIES

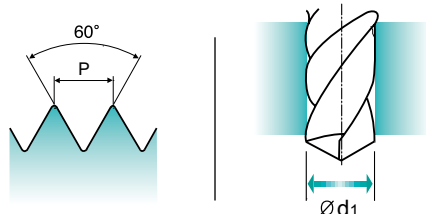
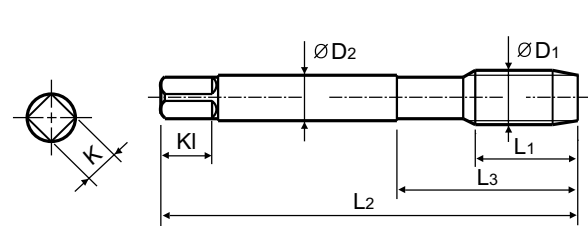
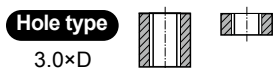
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Recommended for tapping abrasive materials due to nitriding, not suitable for tapping tough or high strength materials.

► Empfohlen für das Gewindeschneiden verschleißfördernder Werkstoffe wegen der Nitrierung; nicht geeignet für das Gewinden zäher oder hochfester Werkstoffe.



Material groups: **VG** HSS-E DIN 371/376 6H 60° B Nitride p.B197

Plain Shank Page  
TAPPING ER CHUCK D215-228  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TE422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TE422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TE422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TE422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TE422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TE422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TE422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TE422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TE422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TE422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TE422316	17	80	30	6	4.9	8	3	5
M7	× 1	TE422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TE422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TE422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TE422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TE422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE422506	24	110	44	9	7	10	3	10.2
M14	× 2	TE422546	26	110	44	11	9	12	3	12
M16	× 2	TE422606	27	110	44	12	9	12	3	14
M18	× 2.5	TE422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TE422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TE422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TE422786	34	160	60	18	14.5	17	4	21
M27	× 3	TE422866	36	160	60	20	16	19	4	24
M30	× 3.5	TE422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TY422 SERIES

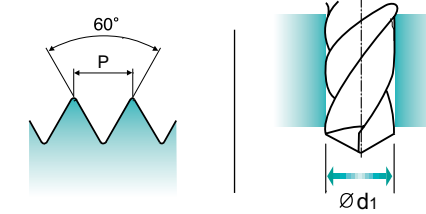
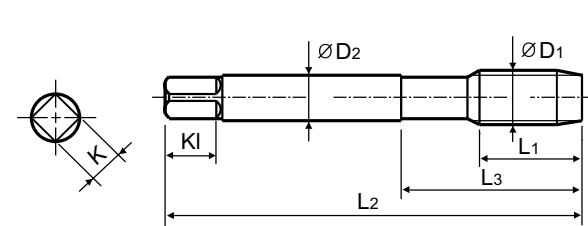
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VG** HSS-E DIN 371/376 6H 60° B TiAIN p.B197

Plain Shank Page  
TAPPING ER CHUCK D215-228  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAIN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TY422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TY422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TY422316	17	80	30	6	4.9	8	3	5
M7	× 1	TY422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TY422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TY422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TY422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY422506	24	110	44	9	7	10	3	10.2
M14	× 2	TY422546	26	110	44	11	9	12	3	12
M16	× 2	TY422606	27	110	44	12	9	12	3	14
M18	× 2.5	TY422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TY422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TY422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TY422786	34	160	60	18	14.5	17	4	21
M27	× 3	TY422866	36	160	60	20	16	19	4	24
M30	× 3.5	TY422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



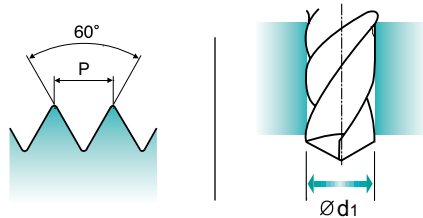
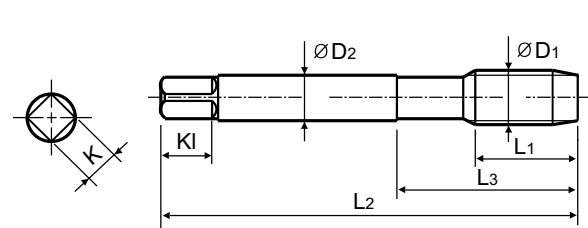
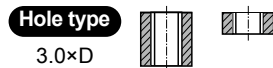
TC263 SERIES

**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo fine DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VG** HSS-E DIN 374 6H 60° B Bright p.B197

Plain Shank Page  
 TAPPING ER CHUCK D215-220  
 TAPPING CHUCK D221-228  
 ONE STEP TAPPING CHUCK D211-213  
 Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M4	× 0.5	TC263256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC263296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC263326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC263336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC263356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC263376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC263386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TC263436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC263446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC263456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC263516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC263526	22	100	40	9	7	10	3	10.8
M12	× 1	TC263536	18	100	40	9	7	10	3	11
M14	× 1.5	TC263556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC263566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TC263616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TC263676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TC263726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TC263766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC263806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



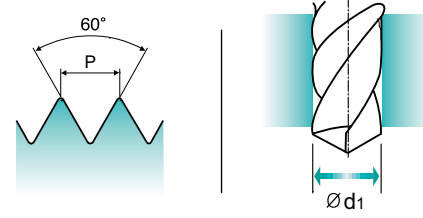
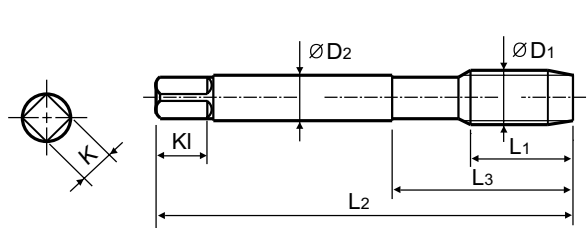
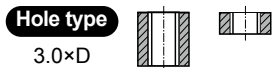
TD263 SERIES

**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo fine DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VG** HSS-E DIN 374 6H 60° B TiN p.B197

Plain Shank Page  
 TAPPING ER CHUCK D215-220  
 TAPPING CHUCK D221-228  
 ONE STEP TAPPING CHUCK D211-213  
 Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M4	× 0.5	TD263256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD263296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD263326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD263336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD263356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD263376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TD263386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TD263436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TD263446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TD263456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD263516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TD263526	22	100	40	9	7	10	3	10.8
M12	× 1	TD263536	18	100	40	9	7	10	3	11
M14	× 1.5	TD263556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TD263566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TD263616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TD263676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TD263726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TD263766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TD263806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





TC244 SERIES

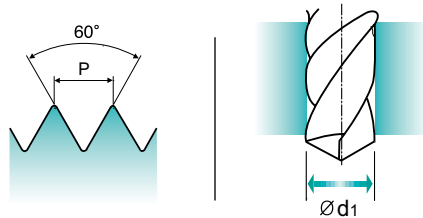
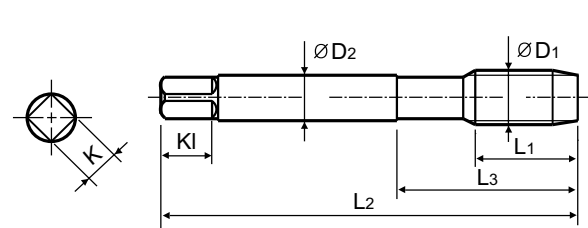
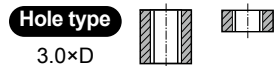
# UNC Unified coarse threads

Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VG** HSS-E DIN 371/376 2B 60° B Bright p.B197

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
Recommended ToolHolder ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
#4	- 40UNC	TC244162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC244202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC244242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TC244282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC244322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC244362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC244402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC244442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC244482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TC244522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC244562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC244602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC244642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC244702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC244742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC244782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC244822	40	180	70	22	18	21	4	25

►DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	



TD244 SERIES

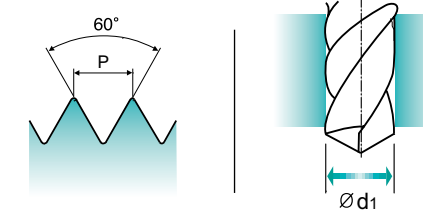
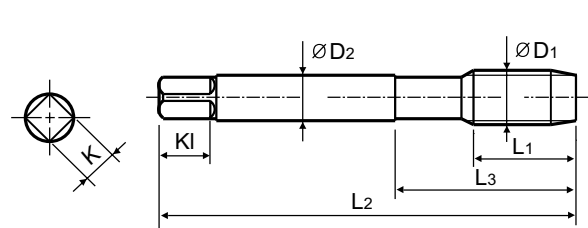
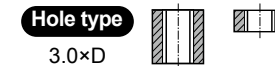
# UNC Unified coarse threads

Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VG** HSS-E DIN 371/376 2B 60° B TiN p.B197

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
Recommended ToolHolder ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
#4	- 40UNC	TD244162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TD244202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TD244242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TD244282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TD244322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TD244362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TD244402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TD244442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TD244482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TD244522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TD244562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TD244602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TD244642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TD244702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TD244742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TD244782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TD244822	40	180	70	22	18	21	4	25

►DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	



TC254 SERIES

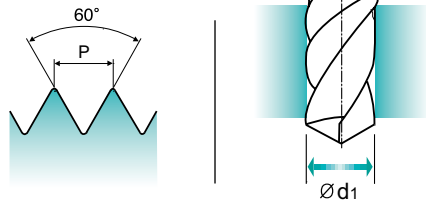
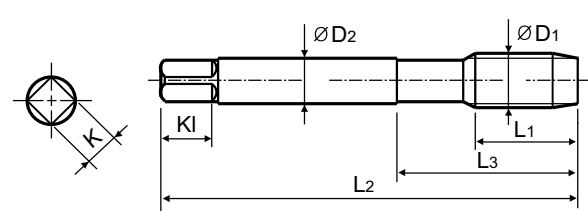
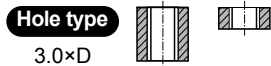
# UNF Unified fine threads

Unified Feingewinde  
 UNF  
 Unificato passo fine

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VG** HSS-E DIN 371/376 2B 60° B Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.189

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
#4 - 48UNF		TC254182	11	56	18	3.5	2.7	6	3	2.4
#5 - 44UNF		TC254222	11	56	18	3.5	2.7	6	3	2.7
#6 - 40UNF		TC254262	12	56	20	4	3	6	3	3
#8 - 36UNF		TC254302	13	63	21	4.5	3.4	6	3	3.5
#10 - 32UNF		TC254342	15	70	25	6	4.9	8	3	4.1
#12 - 28UNF		TC254382	16	80	30	6	4.9	8	3	4.7
1/4 - 28UNF		TC254422	17	80	30	7	5.5	8	3	5.5
5/16 - 24UNF		TC254462	17	90	35	8	6.2	9	3	6.9
3/8 - 24UNF		TC254502	18	100	39	9	7	10	3	8.5
7/16 - 20UNF		TC254542	22	100	40	8	6.2	9	3	9.9
1/2 - 20UNF		TC254582	22	100	40	9	7	10	3	11.5
9/16 - 18UNF		TC254622	22	100	40	11	9	12	3	12.9
5/8 - 18UNF		TC254662	22	100	40	12	9	12	3	14.5
3/4 - 16UNF		TC254722	25	110	44	14	11	14	4	17.5
7/8 - 14UNF		TC254762	26	125	50	18	14.5	17	4	20.5
1 - 12UNF		TC254802	28	140	54	18	14.5	17	4	23.25
1-1/8 - 12UNF		TC254842	30	150	60	22	18	21	4	26.5

► DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

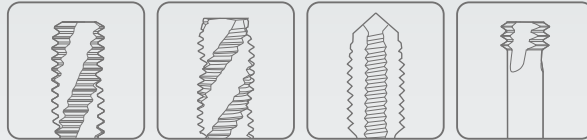


RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)																		
					TQ823	TR823	TC312 TC413 TC174 TC184	TD312 TD413 TD174	TB312	TY312	TB913	TQ863	TR863	TC422 TC263 TC244 TC254	TD422 TD263 TD244	TE422	TY422						
P	1	Non-alloy steel	125																				
	2		190	13	15-20	15-20	15-20	20-25	15-20	20-25	15-20	15-20	15-20	15-20	15-20	20-25	20-25						
	3		250	25	12-18	12-18	12-18	18-24	12-18	18-24	12-18	12-18	12-18	12-18	18-24	18-24							
	4		270	28	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20							
	5	300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	10-14	10-14								
	6	Low alloy steel	180	10	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20							
	7		275	29	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20							
	8		300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	10-14	10-14							
	9		350	38	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	5-7	5-7							
	10	High alloyed steel, and tool steel	200	15	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	5-7	5-7							
M	12	Stainless steel	200	15													7-10	7-10	7-10	7-10	10-15	10-15	
	13		240	23														5-8	5-8	5-8	5-8	8-11	8-11
	14		180	10	4-6	4-6	4-6	6-8	4-6	6-8	4-6	4-6	4-6	4-6	4-6	6-8	6-8						
S	31	Heat Resistant Super Alloys	200	15	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20							
	36	Titanium Alloys	400Rm		10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20							



Global Cutting Tool Leader **YG-1**



# THREADING





Leading Through Innovation

SOLID CARBIDE & HSS-E

YG TAP HARDENED

YG HAHN GEHÄRTET

- For Hardened Steels Applications to Control the Continuous and Red-glowing Chips
- Für gehärtete Stähle zur Kontrolle der kontinuierlichen und rotglühenden Späne



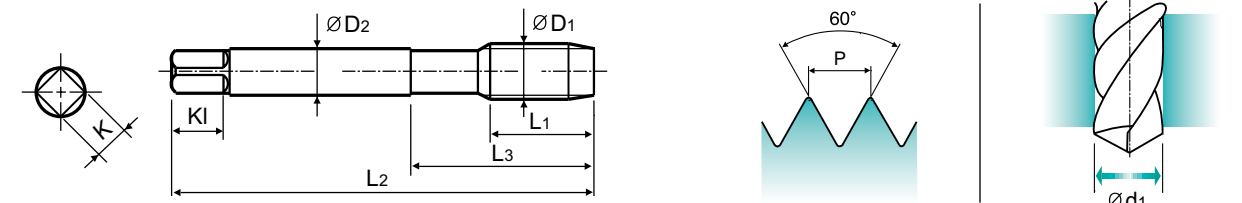


**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

▶ Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for hardened steels (HRc50~60)

▶ VHM-Gewindebohrer ermöglichen aufgrund ihrer höheren Härte bessere Standzeiten als HSS-Gewindebohrer. Geeignet für gehärtete Stähle (HRc50~60)



Material groups: **HR** CARBIDE DIN 371/376 6HX 60° C TICN p.B209

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	T0997206TIC	11	56	18	3.5	2.7	6	4	2.55
M4	× 0.7	T0997246TIC	13	63	21	4.5	3.4	6	4	3.4
M5	× 0.8	T0997286TIC	15	70	25	6	4.9	8	4	4.3
M6	× 1	T0997316TIC	17	80	30	6	4.9	8	5	5.1
M8	× 1.25	T0997366TIC	20	90	35	8	6.2	9	5	6.9
M10	× 1.5	T0997426TIC	22	100	39	10	8	11	5	8.6
M12	× 1.75	T0997506TIC	24	110	-	9	7	12	5	10.4
M14	× 2	T0997546TIC	26	110	-	11	9	12	6	12.2
M16	× 2	T0997606TIC	27	110	-	12	9	12	6	14.2
M18	× 2.5	T0997656TIC	30	125	-	14	11	14	6	15.7
M20	× 2.5	T0997706TIC	32	140	-	16	12	15	6	17.7

▶DIN 371(M3~M10) and DIN 376(M12~M20)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended									○											

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		◎	◎	◎	◎

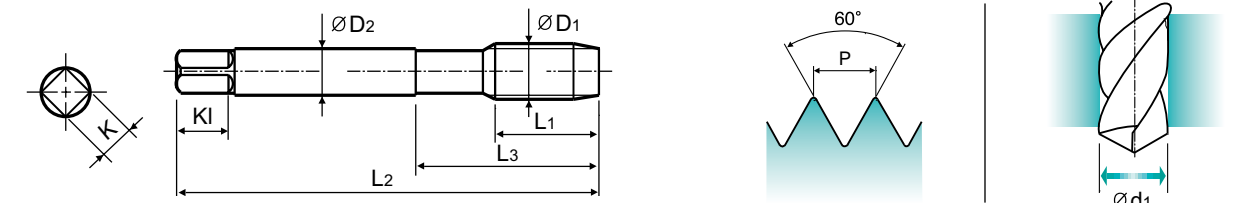


**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

▶ Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for hardened steels (HRc50~60)

▶ VHM-Gewindebohrer ermöglichen aufgrund ihrer höheren Härte bessere Standzeiten als HSS-Gewindebohrer. Geeignet für gehärtete Stähle (HRc50~60)



Material groups: **HR** CARBIDE DIN 371/376 6HX 60° C TICN p.B209

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	T0999206TIC	11	56	18	3.5	2.7	6	4	2.55
M4	× 0.7	T0999246TIC	13	63	21	4.5	3.4	6	4	3.4
M5	× 0.8	T0999286TIC	15	70	25	6	4.9	8	4	4.3
M6	× 1	T0999316TIC	17	80	30	6	4.9	8	5	5.1
M8	× 1.25	T0999366TIC	20	90	35	8	6.2	9	5	6.9
M10	× 1.5	T0999426TIC	22	100	39	10	8	11	5	8.6
M12	× 1.75	T0999506TIC	24	110	-	9	7	12	5	10.4
M14	× 2	T0999546TIC	26	110	-	11	9	12	6	12.2
M16	× 2	T0999606TIC	27	110	-	12	9	12	6	14.2
M18	× 2.5	T0999656TIC	30	125	-	14	11	14	6	15.7
M20	× 2.5	T0999706TIC	32	140	-	16	12	15	6	17.7

▶DIN 371(M3~M10) and DIN 376(M12~M20)

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended									○												

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		◎	◎	◎	◎



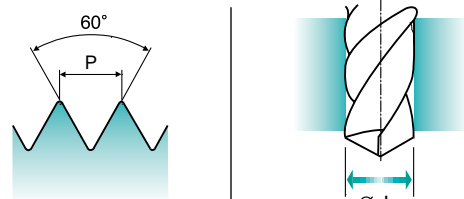
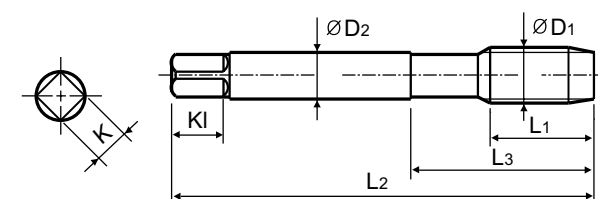
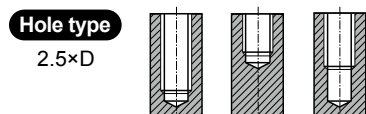
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C Bright p.B209

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TC313136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC313196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC313496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC313206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC313226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC313246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC313266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC313286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC313316	10	80	30	6	4.9	8	3	5
M7	× 1	TC313346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC313366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC313396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC313426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC313466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC313506	18	110	44	9	7	10	3	10.2
M14	× 2	TC313546	20	110	44	11	9	12	3	12
M16	× 2	TC313606	20	110	44	12	9	12	3	14
M18	× 2.5	TC313656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC313706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC313746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC313786	30	160	60	18	14.5	17	4	21
M27	× 3	TC313866	30	160	60	20	16	19	4	24
M30	× 3.5	TC313946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K															
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron							
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	15	30	25	38	34	55	60	42	55	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	180	260	160	250	130	230				
Recommended						○	○		◎					○																

ISO	N										S						H														
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)						Non Metallic Materials														
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400	550						
Recommended						○																									



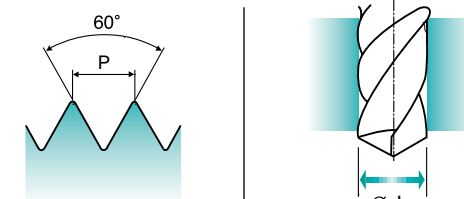
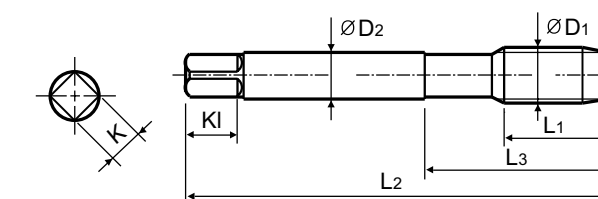
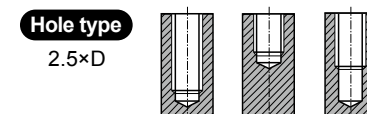
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C Vap p.B209

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TB313136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB313196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB313496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB313206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB313226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB313246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB313266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB313286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB313316	10	80	30	6	4.9	8	3	5
M7	× 1	TB313346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB313366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB313396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB313426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB313466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB313506	18	110	44	9	7	10	3	10.2
M14	× 2	TB313546	20	110	44	11	9	12	3	12
M16	× 2	TB313606	20	110	44	12	9	12	3	14
M18	× 2.5	TB313656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB313706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB313746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB313786	30	160	60	18	14.5	17	4	21
M27	× 3	TB313866	30	160	60	20	16	19	4	24
M30	× 3.5	TB313946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K															
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron							
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	15	30	25	38	34	55	60	42	55	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	180	260	160	250	130	230				
Recommended						○	○		◎					○																

ISO	N										S						H														
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)						Non Metallic Materials														
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	630	400	550						
Recommended						○																									

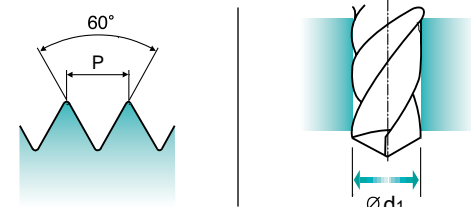
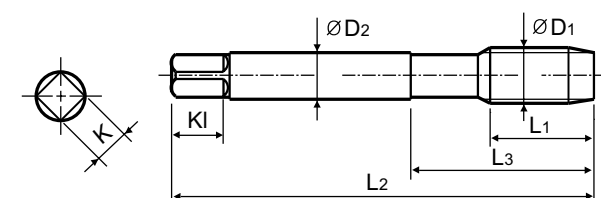
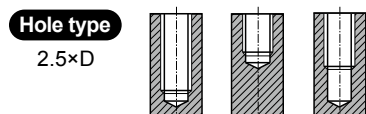
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C TiAlN p.B209

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TY313136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TY313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TY313196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TY313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TY313496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TY313206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TY313226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TY313246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TY313266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TY313286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TY313316	10	80	30	6	4.9	8	3	5
M7 × 1		TY313346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TY313366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TY313396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TY313426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TY313466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TY313506	18	110	44	9	7	10	3	10.2
M14 × 2		TY313546	20	110	44	11	9	12	3	12
M16 × 2		TY313606	20	110	44	12	9	12	3	14
M18 × 2.5		TY313656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TY313706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TY313746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TY313786	30	160	60	18	14.5	17	4	21
M27 × 3		TY313866	30	160	60	20	16	19	4	24
M30 × 3.5		TY313946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○		◎					○						

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															



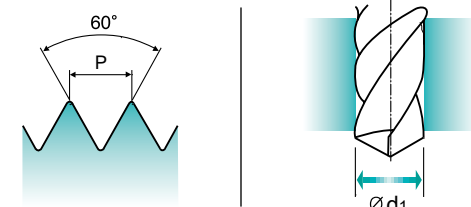
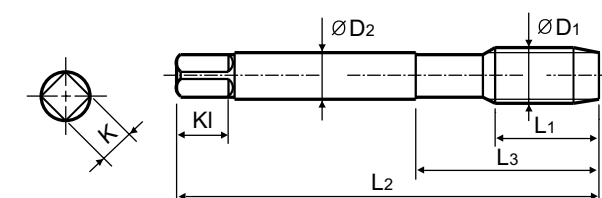
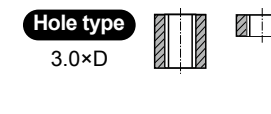
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C Bright p.B209

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TC283136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC283156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC283196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC283176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC283496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC283206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC283226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TC283246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC283266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC283286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TC283316	17	80	30	6	4.9	8	3	5
M7 × 1		TC283346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TC283366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC283396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TC283426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TC283466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC283506	24	110	44	9	7	10	3	10.2
M14 × 2		TC283546	26	110	44	11	9	12	3	12
M16 × 2		TC283606	27	110	44	12	9	12	3	14
M18 × 2.5		TC283656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC283706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TC283746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TC283786	34	160	60	18	14.5	17	4	21
M27 × 3		TC283866	36	160	60	20	16	19	4	24
M30 × 3.5		TC283946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○		◎					○						

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

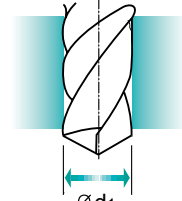
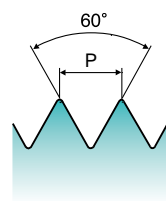
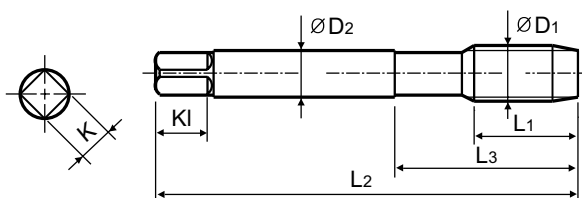
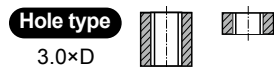
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C TiAlN p.B209

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213  
Recommended ToolHolder

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TY283136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY283156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY283196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY283176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY283496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY283206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY283226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TY283246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY283266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY283286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TY283316	17	80	30	6	4.9	8	3	5
M7	× 1	TY283346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TY283366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY283396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TY283426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TY283466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY283506	24	110	44	9	7	10	3	10.2
M14	× 2	TY283546	26	110	44	11	9	12	3	12
M16	× 2	TY283606	27	110	44	12	9	12	3	14
M18	× 2.5	TY283656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TY283706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TY283746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TY283786	34	160	60	18	14.5	17	4	21
M27	× 3	TY283866	36	160	60	20	16	19	4	24
M30	× 3.5	TY283946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎					○						

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34	55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

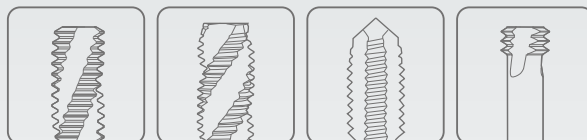


ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)			
					T0997-TIC	T0999-TIC	TC313 TB313 TY313	TC283 TY283
P	7	Non-alloy steel	275	29			10-15	10-15
	8		300	32			6-10	6-10
	9		350	38	5-8	5-8	3-5	3-5
M	14	Stainless steel	180	10			4-6	4-6
N	26	Copper and Copper Alloys (Bronze / Brass)	110				25-35	25-35
H	38	Hardened steel	550	55	3-7	3-7		
	39		630	60	3-7	3-7		
	40	Chilled Cast Iron	400	42	3-7	3-7		
	41	Hardened Cast Iron	550	55	3-7	3-7		





Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation



HSS-E & HSS-PM

# YG TAP INOX

## YG Gewindebohrer INOX

- For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher
- Für nichtrostende Stähle mit lamellarer, unregelmäßiger Spänebildung, bei denen die Schnittkräfte größer sind.







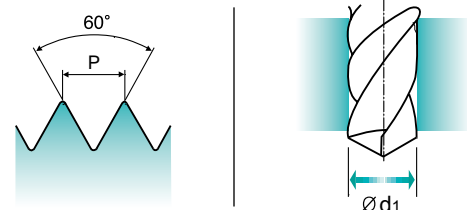
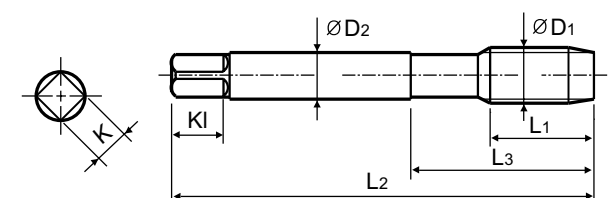
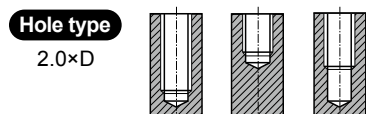
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **NW** HSS-E DIN 371/378 6H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-228 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TB711136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB711196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB711496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB711206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB711226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB711246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB711266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB711286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB711316	10	80	30	6	4.9	8	3	5
M7	× 1	TB711346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB711366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB711396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB711426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB711466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB711506	18	110	44	9	7	10	3	10.2
M14	× 2	TB711546	20	110	44	11	9	12	3	12
M16	× 2	TB711606	20	110	44	12	9	12	3	14
M18	× 2.5	TB711656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB711706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB711746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB711786	30	160	60	18	14.5	17	4	21
M27	× 3	TB711866	30	160	60	20	16	19	4	24
M30	× 3.5	TB711946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	260	300	250	130	230	230
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



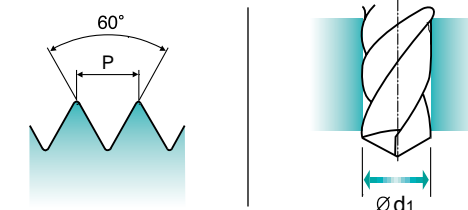
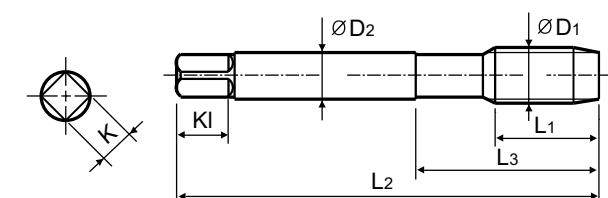
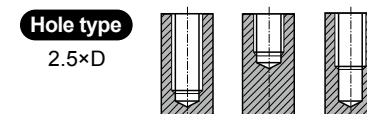
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA** HSS PM DIN 371/378 6H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-228 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ813136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ813156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ813176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ813206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ813226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ813246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ813266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ813286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ813316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ813346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ813366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ813426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ813506	18	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	260	300	250	130	230	230
Recommended	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

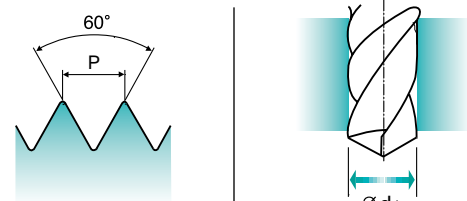
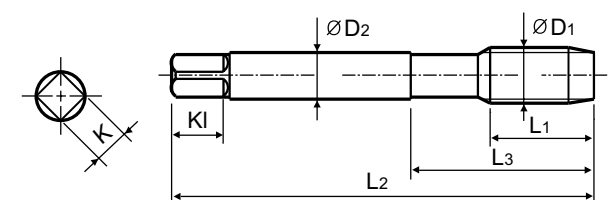
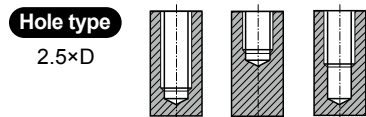
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA** HSS PM DIN 371/378 6H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TR813136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TR813156	8	45	13	2.8	2.1	5	3	1.75
M2.5 × 0.45		TR813176	9	50	15	2.8	2.1	5	3	2.05
M3 × 0.5		TR813206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TR813226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TR813246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TR813266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TR813286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TR813316	10	80	30	6	4.9	8	3	5
M7 × 1		TR813346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TR813366	13	90	35	8	6.2	9	3	6.8
M10 × 1.5		TR813426	15	100	39	10	8	11	3	8.5
M12 × 1.75		TR813506	18	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



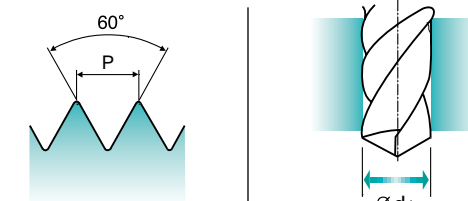
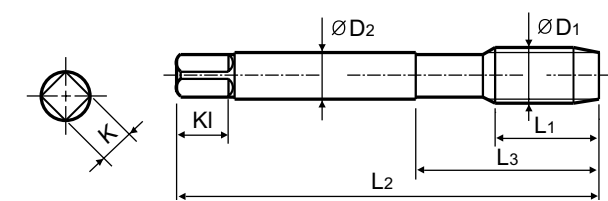
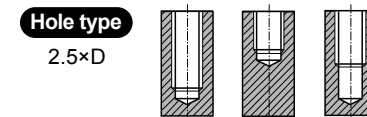
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► With recessed threads for machine tapping of deep blind holes.  
► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.  
► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/378 6H 60° C R40 Vap TICN p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	TICN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TB914136	TI914136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB914156	TI914156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TB914196	TI914196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB914176	TI914176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TB914496	TI914496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB914206	TI914206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB914226	TI914226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TB914246	TI914246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB914266	TI914266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB914286	TI914286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TB914316	TI914316	10	80	30	6	4.9	8	3	5
M7 × 1		TB914346	TI914346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TB914366	TI914366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB914396	TI914396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TB914426	TI914426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TB914466	TI914466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB914506	TI914506	18	110	44	9	7	10	3	10.2
M12 × 1.75		TB914506F4	TI914506F4	18	110	44	9	7	10	4	10.2
M14 × 2		TB914546	TI914546	20	110	44	11	9	12	3	12
M14 × 2		TB914546F4	TI914546F4	20	110	44	11	9	12	4	12
M16 × 2		TB914606	TI914606	20	110	44	12	9	12	3	14
M16 × 2		TB914606F4	TI914606F4	20	110	44	12	9	12	4	14
M18 × 2.5		TB914656	TI914656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TB914706	TI914706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TB914746	TI914746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TB914786	TI914786	30	160	60	18	14.5	17	4	21
M27 × 3		TB914866	TI914866	30	160	60	20	16	19	4	24
M30 × 3.5		TB914946	TI914946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

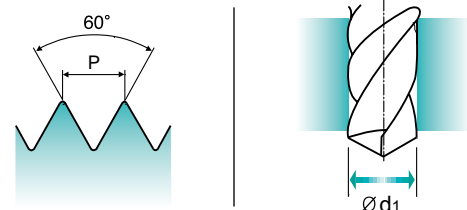
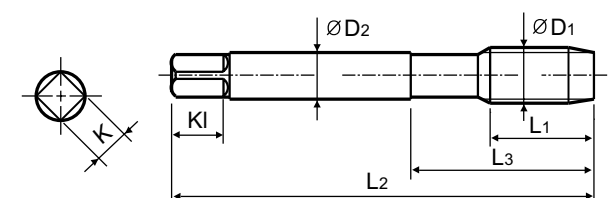
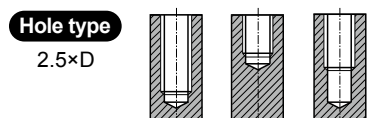
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/378 4H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE15136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE15156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE15196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE15176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE15496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE15206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE15226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE15246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE15266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE15286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE15316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE15346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE15366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE15396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE15426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE15466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE15506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE15546	20	110	44	11	9	12	3	12
M16	× 2	TBE15606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE15656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE15706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE15746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE15786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE15866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE15946	35	180	70	22	18	21	4	26.5

- DIN 371(M2~M10) and DIN 376(M11~M30)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



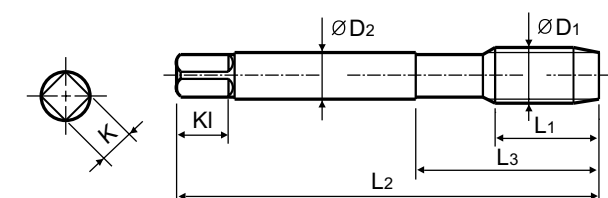
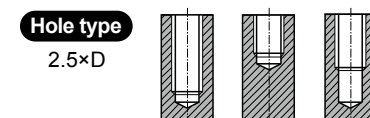
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/378 6H+01 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE16136	8	45	13	2.8	2.1	5	3	1.7
M2.2	× 0.45	TBE16156	8	45	13	2.8	2.1	5	3	1.85
*M2.3	× 0.4	TBE16196	8	45	13	2.8	2.1	5	3	2
M2.5	× 0.45	TBE16176	9	50	15	2.8	2.1	5	3	2.15
*M2.6	× 0.45	TBE16496	9	50	15	2.8	2.1	5	3	2.2
M3	× 0.5	TBE16206	6	56	18	3.5	2.7	6	3	2.6
M3.5	× 0.6	TBE16226	7	56	20	4	3	6	3	3
M4	× 0.7	TBE16246	7	63	21	4.5	3.4	6	3	3.4
M4.5	× 0.75	TBE16266	8	70	25	6	4.9	8	3	3.8
M5	× 0.8	TBE16286	8	70	25	6	4.9	8	3	4.3
M6	× 1	TBE16316	10	80	30	6	4.9	8	3	5.1
M7	× 1	TBE16346	10	80	30	7	5.5	8	3	6.1
M8	× 1.25	TBE16366	13	90	35	8	6.2	9	3	6.9
M9	× 1.25	TBE16396	13	90	35	9	7	10	3	7.9
M10	× 1.5	TBE16426	15	100	39	10	8	11	3	8.6
M11	× 1.5	TBE16466	17	100	40	8	6.2	9	3	9.6
M12	× 1.75	TBE16506	18	110	44	9	7	10	3	10.3
M14	× 2	TBE16546	20	110	44	11	9	12	3	12.1
M16	× 2	TBE16606	20	110	44	12	9	12	3	14.1
M18	× 2.5	TBE16656	25	125	50	14	11	14	4	15.6
M20	× 2.5	TBE16706	25	140	54	16	12	15	4	17.6
M22	× 2.5	TBE16746	25	140	54	18	14.5	17	4	19.6
M24	× 3	TBE16786	30	160	60	18	14.5	17	4	21.1
M27	× 3	TBE16866	30	160	60	20	16	19	4	24.1
M30	× 3.5	TBE16946	35	180	70	22	18	21	4	26.6

- DIN 371(M2~M10) and DIN 376(M11~M30)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





TBE17 SERIES

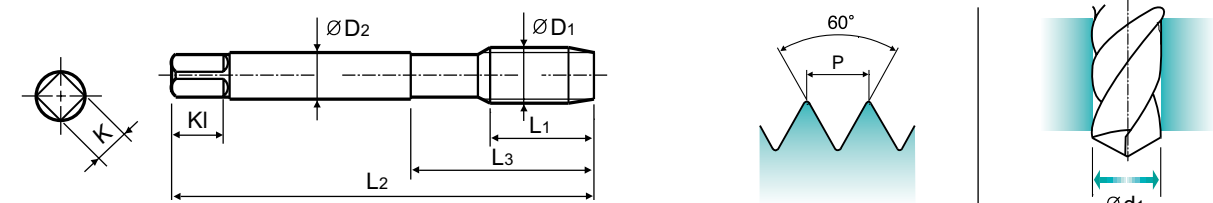
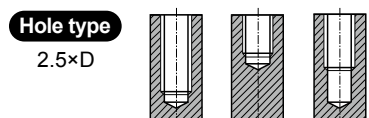
ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: VAW, HSS-E, DIN 371/378, 6G, 60°, C, R40, Vap, p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE17136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE17156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE17196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE17176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE17496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE17206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE17226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE17246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE17266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE17286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE17316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE17346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE17366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE17396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE17426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE17466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE17506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE17546	20	110	44	11	9	12	3	12
M16	× 2	TBE17606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE17656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE17706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE17746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE17786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE17866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE17946	35	180	70	22	18	21	4	26.5

- DIN 371(M2~M10) and DIN 376(M11~M30)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎							

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					



TBE18 SERIES

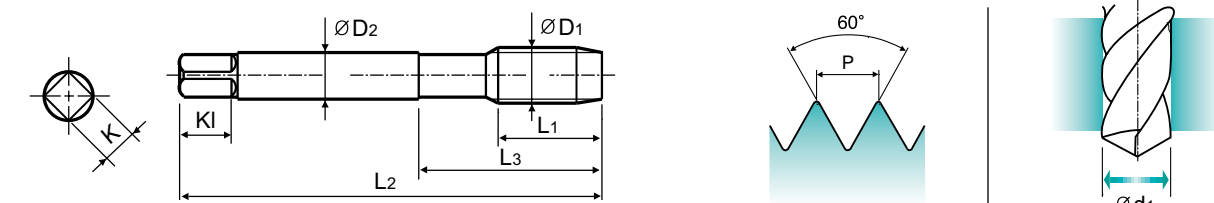
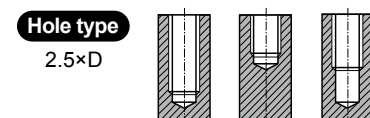
ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: VAW, HSS-E, DIN 371/378, 7G, 60°, C, R40, Vap, p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE18136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE18156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE18196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE18176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE18496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE18206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE18226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE18246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE18266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE18286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE18316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE18346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE18366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE18396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE18426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE18466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE18506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE18546	20	110	44	11	9	12	3	12
M16	× 2	TBE18606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE18656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE18706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE18746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE18786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE18866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE18946	35	180	70	22	18	21	4	26.5

- DIN 371(M2~M10) and DIN 376(M11~M30)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎							

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

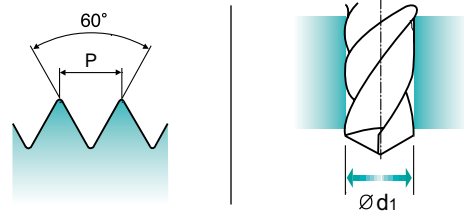
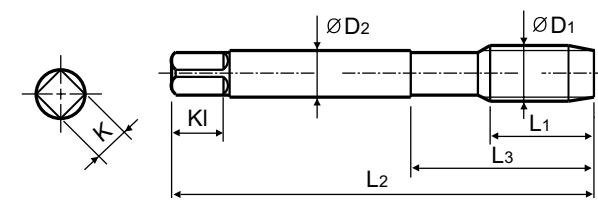
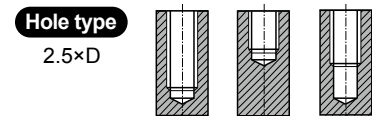
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA** **NW** **HSS-E** **DIN 371/378** **6H** **60°** **C** **R40** **Hardsllick** **p.B233**

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Hardsllick	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TCH14136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TCH14156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TCH14196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TCH14176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TCH14496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TCH14206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TCH14226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TCH14246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TCH14266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TCH14286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TCH14316	10	80	30	6	4.9	8	3	5
M7	× 1	TCH14346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TCH14366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TCH14396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TCH14426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TCH14466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TCH14506	18	110	44	9	7	10	3	10.2
M14	× 2	TCH14546	20	110	44	11	9	12	3	12
M16	× 2	TCH14606	20	110	44	12	9	12	3	14
M18	× 2.5	TCH14656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TCH14706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TCH14746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TCH14786	30	160	60	18	14.5	17	4	21
M27	× 3	TCH14866	30	160	60	20	16	19	4	24
M30	× 3.5	TCH14946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



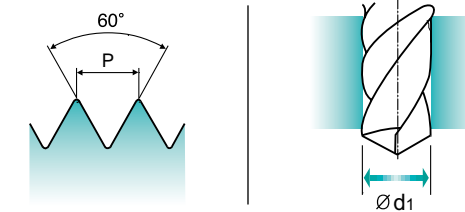
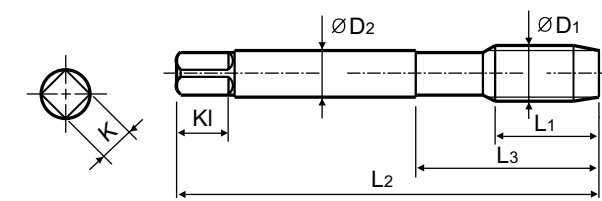
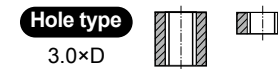
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

- Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: **VA** **HSS PM** **DIN 371/378** **6H** **60°** **C** **R40** **Vap** **p.B233**

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ853136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ853156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ853176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ853206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ853226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ853246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ853266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ853286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ853316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ853346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ853366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ853426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ853506	24	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TR853 SERIES

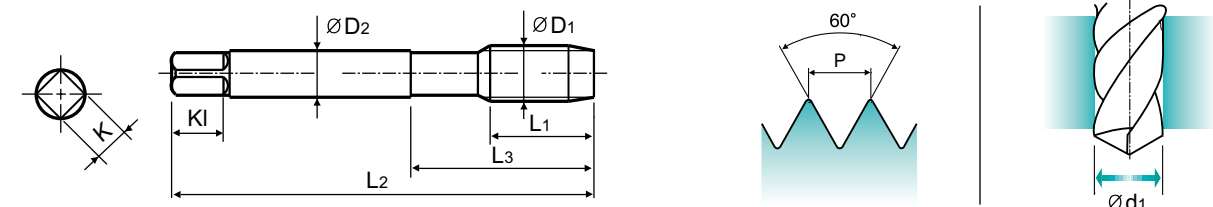
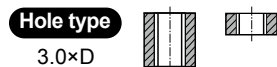
M ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: VA, HSS PM, DIN 371/378, 6H, 60°, C, R40, Bright, p.B233. Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213.

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TR853136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR853156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR853176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR853206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR853226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR853246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR853266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR853286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR853316	17	80	30	6	4.9	8	3	5
M7	× 1	TR853346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR853366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR853426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR853506	24	110	44	9	7	10	3	10.2

DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TB623 SERIES

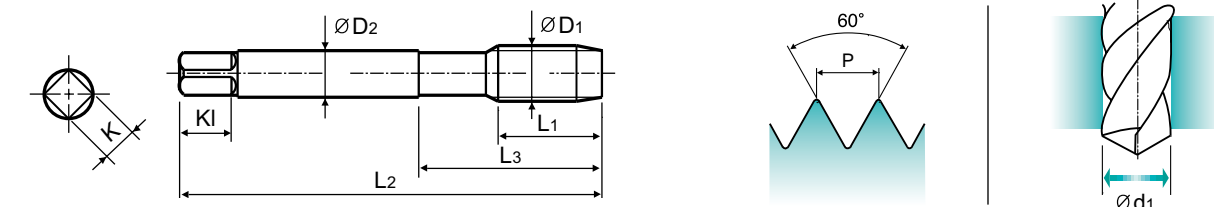
M ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: VAW, HSS-E, DIN 371/378, 6HX, 60°, C, R40, Vap, p.B233. Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213.

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TB623136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB623156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB623196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB623176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB623496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB623206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB623226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TB623246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB623266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB623286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TB623316	17	80	30	6	4.9	8	3	5
M7	× 1	TB623346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TB623366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB623396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TB623426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TB623466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB623506	24	110	44	9	7	10	4	10.2
M14	× 2	TB623546	26	110	44	11	9	12	4	12
M16	× 2	TB623606	27	110	44	12	9	12	4	14
M18	× 2.5	TB623656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TB623706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TB623746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TB623786	34	160	60	18	14.5	17	4	21
M27	× 3	TB623866	36	160	60	20	16	19	4	24
M30	× 3.5	TB623946	40	180	70	22	18	21	4	26.5

DIN 371(M2~M10) and DIN 376(M11~M30)

\* DIN profile not ISO

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



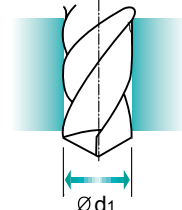
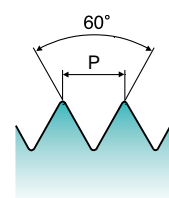
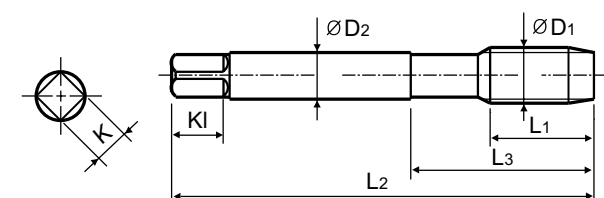
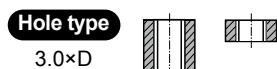
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VA NW** HSS-E DIN 371,376 6HX 60° C R40 Hardslick p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Hardslick	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TCH23136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TCH23156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TCH23196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TCH23176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TCH23496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TCH23206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TCH23226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TCH23246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TCH23266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TCH23286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TCH23316	17	80	30	6	4.9	8	3	5
M7	× 1	TCH23346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TCH23366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TCH23396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TCH23426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TCH23466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TCH23506	24	110	44	9	7	10	4	10.2
M14	× 2	TCH23546	26	110	44	11	9	12	4	12
M16	× 2	TCH23606	27	110	44	12	9	12	4	14
M18	× 2.5	TCH23656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TCH23706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TCH23746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TCH23786	34	160	60	18	14.5	17	4	21
M27	× 3	TCH23866	36	160	60	20	16	19	4	24
M30	× 3.5	TCH23946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



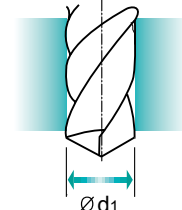
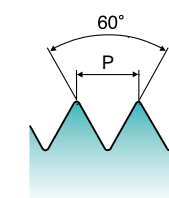
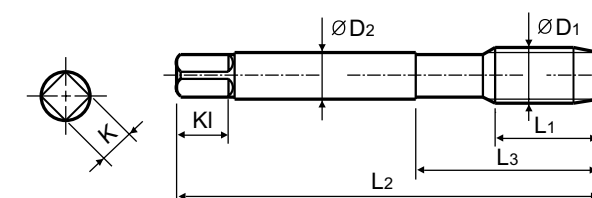
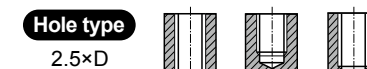
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 374 6H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TB183256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB183296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB183326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB183336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB183356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TB183376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TB183386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB183436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TB183446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TB183456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB183516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TB183526	15	100	40	9	7	10	3	10.8
M12	× 1	TB183536	11	100	40	9	7	10	3	11
M14	× 1.5	TB183556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TB183566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TB183616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TB183676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TB183726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TB183766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TB183806	20	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TB904 SERIES

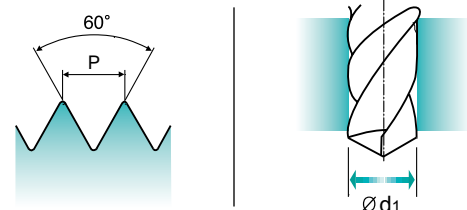
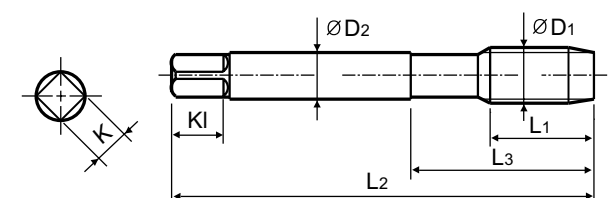
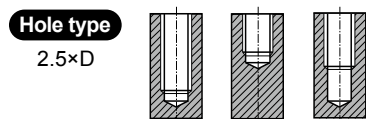
# UNC Unified coarse threads

Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA** **NW** **HSS-E** **DIN 371/378** **2B** **60°** **C** **R40** **Vap** **p.B233**

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 40UNC	TB904162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TB904202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TB904242	7	56	20	4	3	6	3	2.85
#8	- 32UNC	TB904282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TB904322	10	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TB904362	10	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TB904402	13	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TB904442	14	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TB904482	16	100	39	9	7	10	3	8
7/16	- 14UNC	TB904522	17	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TB904562	20	110	44	9	7	10	3	10.75
9/16	- 12UNC	TB904602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TB904642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TB904702	25	125	50	14	11	14	4	16.5
7/8	- 9UNC	TB904742	27	140	54	18	14.5	17	4	19.5
1	- 8UNC	TB904782	30	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TB904822	35	180	65	22	18	21	4	25

►DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎							

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					



TB924 SERIES

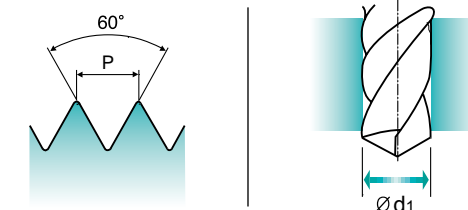
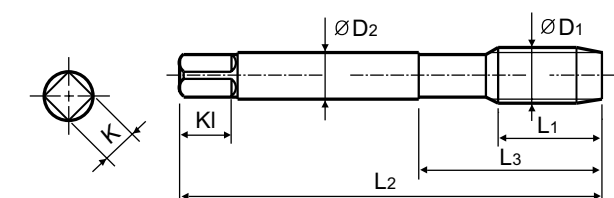
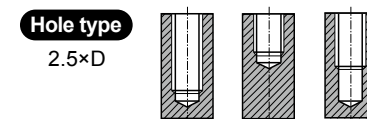
# UNF Unified fine threads

Unified Feingewinde  
 UNF  
 Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA** **NW** **HSS-E** **DIN 371/378** **2B** **60°** **C** **R40** **Vap** **p.B233**

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 48UNF	TB924182	6	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TB924222	7	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TB924262	7	56	20	4	3	6	3	3
#8	- 36UNF	TB924302	8	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TB924342	10	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TB924382	10	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TB924422	10	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TB924462	10	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TB924502	10	100	39	9	7	10	3	8.5
7/16	- 20UNF	TB924542	13	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TB924582	13	100	40	9	7	10	3	11.5
9/16	- 18UNF	TB924622	15	100	40	11	9	12	3	12.9
5/8	- 18UNF	TB924662	15	100	40	12	9	12	3	14.5
3/4	- 16UNF	TB924722	17	110	44	14	11	14	4	17.5
7/8	- 14UNF	TB924762	17	125	50	18	14.5	17	4	20.5
1	- 12UNF	TB924802	20	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TB924842	22	150	60	22	18	21	4	26.5

►DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎							

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					



TB123 SERIES

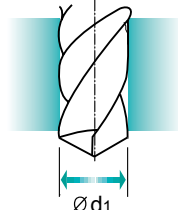
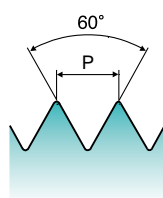
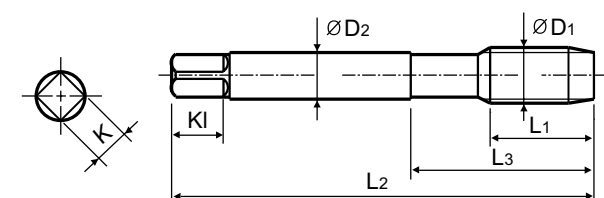
# MF ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VA** **NW** **HSS-E** **DIN 374** **6HX** **60°** **C** **Vap** p.B233

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TB123256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB123296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB123326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB123336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB123356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TB123376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TB123386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB123436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TB123446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TB123456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB123516	22	100	40	9	7	10	4	10.5
M12	× 1.25	TB123526	22	100	40	9	7	10	3	10.8
M12	× 1	TB123536	18	100	40	9	7	10	3	11
M14	× 1.5	TB123556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TB123566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TB123616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TB123676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TB123726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TB123766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TB123806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎							

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○										



TB264 SERIES

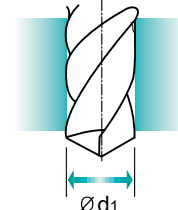
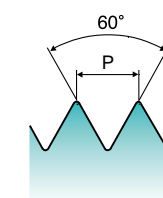
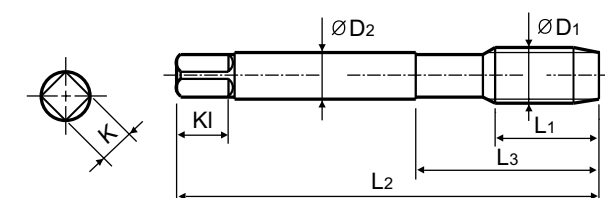
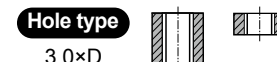
# UNC Unified coarse threads

Unified Grobgewinde  
UNC  
Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VA** **NW** **HSS-E** **DIN 371/378** **2B** **60°** **C** **Vap** p.B233

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 40UNC	TB264162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TB264202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TB264242	12	56	20	4	3	6	3	2.85
#8	- 24UNC	TB264282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TB264322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TB264362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TB264402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TB264442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TB264482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TB264522	22	100	44	8	6.2	9	3	9.4
1/2	- 13UNC	TB264562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TB264602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TB264642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TB264702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TB264742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TB264782	36	160	60	20	16	17	4	22.25
1-1/8	- 7UNC	TB264822	40	180	70	22	18	21	4	25

►DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎							

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○										

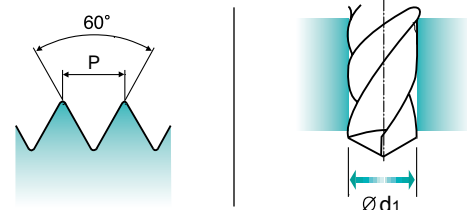
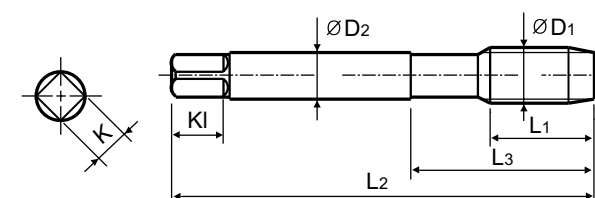


**UNF Unified fine threads**  
 Unified Feingewinde  
 UNF  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VANW** HSS-E DIN 371/378 2B 60° C Vap p.B233

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 48UNF	TB274182	11	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TB274222	11	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TB274262	12	56	20	4	3	6	3	3
#8	- 36UNF	TB274302	13	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TB274342	15	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TB274382	16	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TB274422	17	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TB274462	17	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TB274502	18	100	39	9	7	10	3	8.5
7/16	- 20UNF	TB274542	22	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TB274582	22	100	40	9	7	10	3	11.5
9/16	- 18UNF	TB274622	22	100	40	11	9	12	3	12.9
5/8	- 18UNF	TB274662	22	100	40	12	9	12	3	14.5
3/4	- 16UNF	TB274722	25	110	44	14	11	14	4	17.5
7/8	- 14UNF	TB274762	26	125	50	18	14.5	17	4	20.5
1	- 12UNF	TB274802	28	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TB274842	30	150	60	22	18	21	4	26.5

► DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	25	23	10	10	26	3	25	130	21	
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

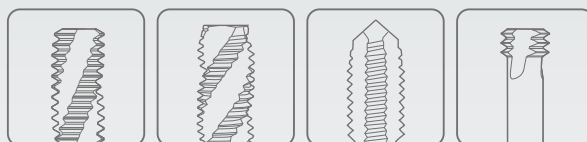
ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)															
					TB711	TQ813	TR813	TB914 TB183 TB904 TB924	TI914	TBE15	TBE16	TBE17	TBE18	TCH14	TQ853	TR853	TB623 TB123 TB264 TB274	TCH23		
P	1	Non-alloy steel	125		15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	20-25		
			190	13	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	20-25		
			250	25		12-18	12-18	12-18	18-24	12-18	12-18	12-18	12-18	18-24	12-18	12-18	12-18	18-24		
			270	28		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20		
M	12	Stainless steel	200	15	7-10	7-10	7-10	7-10	10-13	7-10	7-10	7-10	7-10	10-13	7-10	7-10	7-10	10-13		
			240	23	5-8	5-8	5-8	5-8	8-11	5-8	5-8	5-8	5-8	8-11	5-8	5-8	5-8	8-11		
			180	10	4-6	4-6	4-6	4-6	6-8	4-6	4-6	4-6	4-6	6-8	4-6	4-6	4-6	6-8		
N	21	Aluminum-wrought alloy	60		10-15															
			100		15-20															
S	31	Heat Resistant Super Alloys	200	15		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20		
			400Rm			10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20		



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation



SOLID CARBIDE & HSS-E

# YG TAP CAST IRON

## HSS YG Gewindebohrer Guss

- For Cast Iron or Similar Work Materials
- Für Gusseisen oder ähnliche Werkstoffe







# SOLID CARBIDE & HSS-E YG TAP CAST IRON

For Cast Iron or Similar Work Materials

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B245

HOLE TYPE		Max. 2.0xD Blind / Through Hole					
TOOL MATERIAL		CARBIDE		HSS-E			
CHAMFER LEAD ACC. TO DIN2197		C	C	C	C	C	
FLUTE TYPE		Straight Flute		Straight Flute		Straight Flute	
SPIRAL FLUTE ANGLE		-		-		-	
SERIES	M	DIN371/376	T0993 (p.B237)	TE821 (p.B238)	TD821 (p.B239)	TI821 (p.B240)	TY821 (p.B241)
		DIN352					
		DIN357/LONG					
	MF	DIN374		TE403 (p.B242)			
		DIN2181					
	UNC	DIN371/376		TE434 (p.B243)			
		DIN351					
	UNF	DIN371/374		TE454 (p.B244)			
		DIN2181					
	BSW	DIN2182/2183					
DIN351							
G(BSP)	DIN5156/5157						
EG-M	DIN371/376						
EG-UNC	DIN371/376						
EG-UNF	DIN371/374						
SURFACE TREATMENT		Bright	NI	TIN	TICN	TiAIN	
MODEL							

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	Bright	NI	TIN	TICN	TiAIN
P	1	Non-alloy steel	About 0.15% C	Annealed	125					
	2		About 0.45% C	Annealed	190	13				
	3		About 0.45% C	Quenched & Tempered	250	25				
	4		About 0.75% C	Annealed	270	28				
	5	About 0.75% C	Quenched & Tempered	300	32					
	6	Low alloy steel		Annealed	180	10				
	7		Quenched & Tempered	275	29					
	8		Quenched & Tempered	300	32					
	9		Quenched & Tempered	350	38					
	10		High alloyed steel, and tool steel	Annealed	200	15				
	11	Quenched & Tempered	325	35						
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14	Austenitic		180	10					
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎	◎
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎	◎
	19		Ferritic		130		○	○	○	○
20	Malleable cast iron	Pearlitic		230	21	○	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75	◎				
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130	◎				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90		○	◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper		100					
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30	Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32		Cured	280	30					
	33		Annealed	250	25					
	34	Titanium Alloys	Ni or Co Based	Cured	350	38				
	35		Cast	320	34					
36	Pure Titanium		400 Rm							
37	Alpha + Beta Alloys	Hardened	1050 Rm							
H	38	Hardened steel	Hardened		550	55				
	39		Hardened		630	60				
	40	Chilled Cast Iron	Cast	400	42	◎				
41	Hardened Cast Iron	Hardened	550	55						



## YG TAP CAST IRON

T0993 SERIES

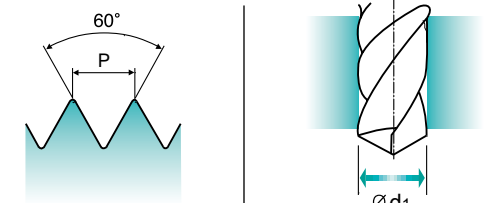
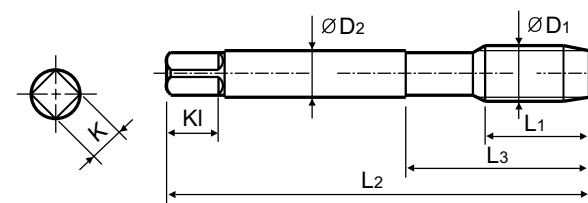
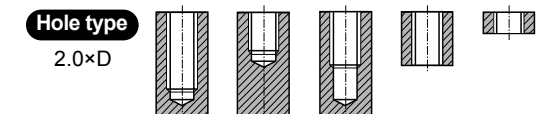
### ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for cast iron and high silicon aluminiums.

Der VHM-Gewindebohrer kann die Lebensdauer gegenüber HSS-Gewindebohrern erhöhen dank der größeren Härte. Geeignet für Guss und Aluminium mit hohem Siliziumanteil



Material groups: **GG** CARBIDE DIN 371/376 6HX 60° C Bright p.B245

Recommended Toolholder: Plain Shank TAPPING CHUCK D215-220 ONE STEP TAPPING CHUCK D211-213 Page D221-228

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3 × 0.5		T0993206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		T0993226	12	56	20	4	3	6	3	2.9
M4 × 0.7		T0993246	13	63	21	4.5	3.4	6	3	3.3
M5 × 0.8		T0993286	15	70	25	6	4.9	8	4	4.2
M6 × 1		T0993316	17	80	30	6	4.9	8	4	5
M8 × 1.25		T0993366	20	90	35	8	6.2	9	4	6.8
M10 × 1.5		T0993426	22	100	39	10	8	11	4	8.5
M12 × 1.75		T0993506	24	110	44	9	7	10	4	10.2
M14 × 2		T0993546	26	110	44	11	9	12	4	12
M16 × 2		T0993606	27	110	44	12	9	12	4	14
M18 × 2.5		T0993656	30	125	50	14	11	14	4	15.5
M20 × 2.5		T0993706	32	140	54	16	12	15	4	17.5

DIN 371(M2~M10) and DIN 376(M11~M20)

◎ : Excellent ○ : Good

ISO	P									M				K						
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	160	250	130	230
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N									S					H						
	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																	◎	◎	◎	◎	

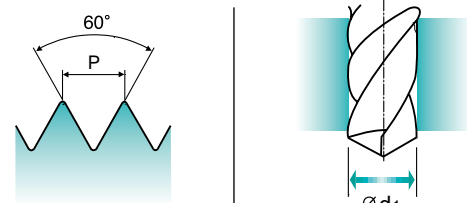
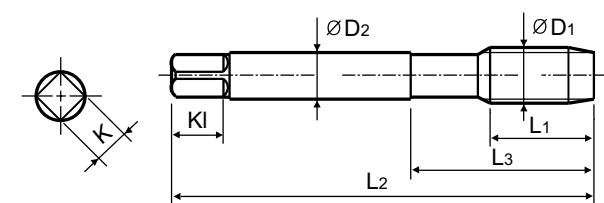
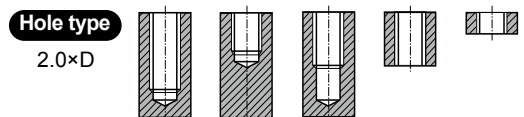
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TE821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TE821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TE821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TE821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TE821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TE821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TE821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TE821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TE821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TE821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TE821316	17	80	30	6	4.9	8	4	5
M7 × 1		TE821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TE821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TE821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TE821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TE821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TE821506	24	110	44	9	7	10	4	10.2
M14 × 2		TE821546	26	110	44	11	9	12	4	12
M16 × 2		TE821606	27	110	44	12	9	12	4	14
M18 × 2.5		TE821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TE821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TE821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TE821786	34	160	60	18	14.5	17	4	21
M27 × 3		TE821866	36	160	60	20	16	19	4	24
M30 × 3.5		TE821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



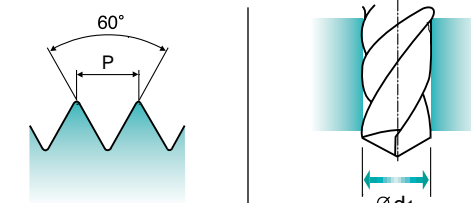
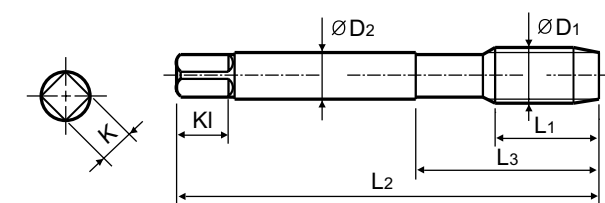
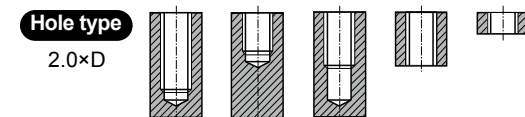
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C TiN p.B245

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TD821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TD821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TD821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TD821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TD821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TD821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TD821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TD821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TD821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TD821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TD821316	17	80	30	6	4.9	8	4	5
M7 × 1		TD821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TD821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TD821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TD821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TD821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TD821506	24	110	44	9	7	10	4	10.2
M14 × 2		TD821546	26	110	44	11	9	12	4	12
M16 × 2		TD821606	27	110	44	12	9	12	4	14
M18 × 2.5		TD821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TD821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TD821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TD821786	34	160	60	18	14.5	17	4	21
M27 × 3		TD821866	36	160	60	20	16	19	4	24
M30 × 3.5		TD821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

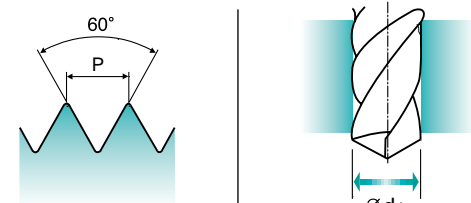
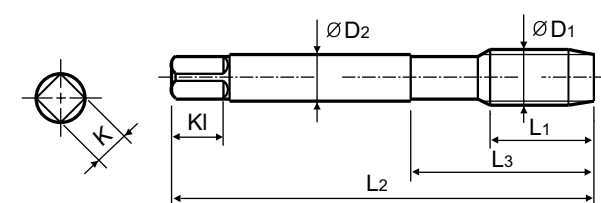
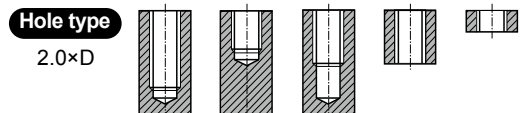
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C TICN p.B245

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-228 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiCN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TI821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TI821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TI821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TI821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TI821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TI821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TI821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TI821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TI821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TI821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TI821316	17	80	30	6	4.9	8	4	5
M7 × 1		TI821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TI821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TI821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TI821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TI821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TI821506	24	110	44	9	7	10	4	10.2
M14 × 2		TI821546	26	110	44	11	9	12	4	12
M16 × 2		TI821606	27	110	44	12	9	12	4	14
M18 × 2.5		TI821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TI821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TI821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TI821786	34	160	60	18	14.5	17	4	21
M27 × 3		TI821866	36	160	60	20	16	19	4	24
M30 × 3.5		TI821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		◎			



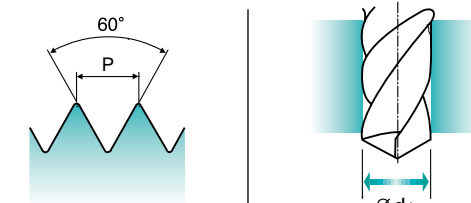
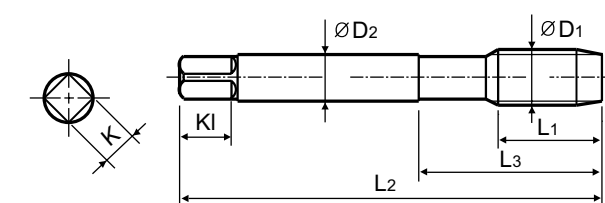
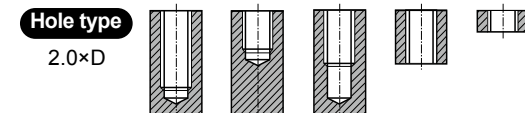
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C TiAlN p.B245

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-228 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TY821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TY821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TY821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TY821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TY821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TY821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TY821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TY821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TY821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TY821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TY821316	17	80	30	6	4.9	8	4	5
M7 × 1		TY821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TY821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TY821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TY821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TY821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TY821506	24	110	44	9	7	10	4	10.2
M14 × 2		TY821546	26	110	44	11	9	12	4	12
M16 × 2		TY821606	27	110	44	12	9	12	4	14
M18 × 2.5		TY821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TY821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TY821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TY821786	34	160	60	18	14.5	17	4	21
M27 × 3		TY821866	36	160	60	20	16	19	4	24
M30 × 3.5		TY821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		◎			



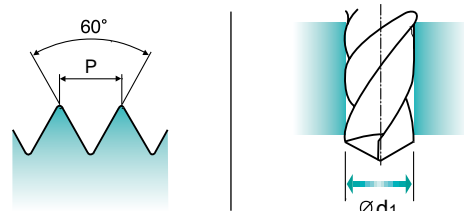
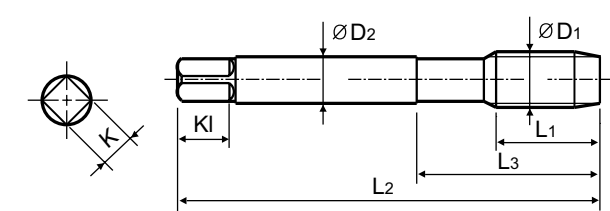
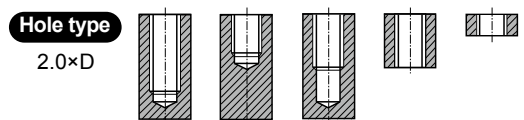
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung



Material groups: **GG** HSS-E DIN 374 6HX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank TAPPING CHUCK ONE STEP TAPPING CHUCK

Page: D215-220 D221-228 D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TE403256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TE403296	11	70	25	3.5	2.7	6	4	4.5
M6	× 0.75	TE403326	13	80	30	4.5	3.4	6	4	5.2
M6	× 0.5	TE403336	13	80	30	4.5	3.4	6	4	5.5
M7	× 0.75	TE403356	14	80	30	5.5	4.3	7	4	6.2
M8	× 1	TE403376	17	90	36	6	4.9	8	4	7
M8	× 0.75	TE403386	14	80	30	6	4.9	8	4	7.2
M10	× 1.25	TE403436	22	100	40	7	5.5	8	4	8.8
M10	× 1	TE403446	18	90	36	7	5.5	8	4	9
M10	× 0.75	TE403456	18	90	36	7	5.5	8	4	9.2
M12	× 1.5	TE403516	22	100	40	9	7	10	4	10.5
M12	× 1.25	TE403526	22	100	40	9	7	10	4	10.8
M12	× 1	TE403536	18	100	40	9	7	10	4	11
M14	× 1.5	TE403556	22	100	40	11	9	12	4	12.5
M14	× 1.25	TE403566	22	100	40	11	9	12	4	12.8
M16	× 1.5	TE403616	22	100	40	12	9	12	4	14.5
M18	× 1.5	TE403676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TE403726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TE403766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TE403806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					○



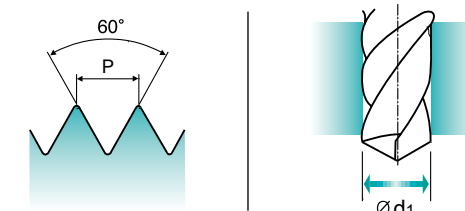
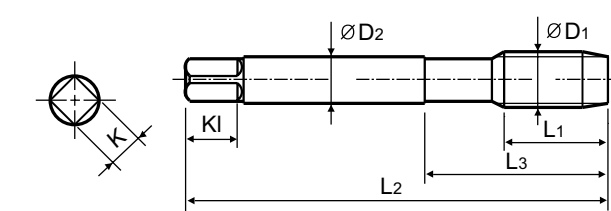
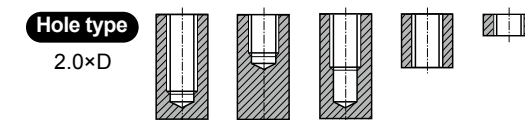
**UNC Unified coarse threads**

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung



Material groups: **GG** HSS-E DIN 371/378 2BX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank TAPPING CHUCK ONE STEP TAPPING CHUCK

Page: D215-220 D221-228 D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Ni	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	- 40UNC	TE434162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TE434202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TE434242	12	56	20	4	3	6	3	2.85
#8	- 24UNC	TE434282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TE434322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TE434362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TE434402	17	80	30	7	5.5	8	4	5.2
5/16	- 18UNC	TE434442	20	90	35	8	6.2	9	4	6.6
3/8	- 16UNC	TE434482	22	100	39	9	7	10	4	8
7/16	- 14UNC	TE434522	22	100	40	8	6.2	9	4	9.4
1/2	- 13UNC	TE434562	25	110	44	9	7	10	4	10.75
9/16	- 12UNC	TE434602	26	110	44	11	9	12	4	12.25
5/8	- 11UNC	TE434642	27	110	44	12	9	12	4	13.5
3/4	- 10UNC	TE434702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TE434742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TE434782	36	160	60	20	16	17	4	22.25
1-1/8	- 7UNC	TE434822	40	180	70	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

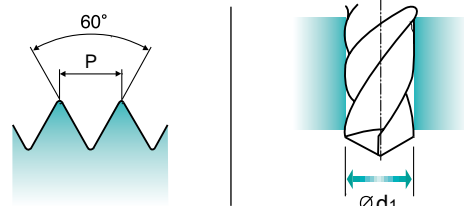
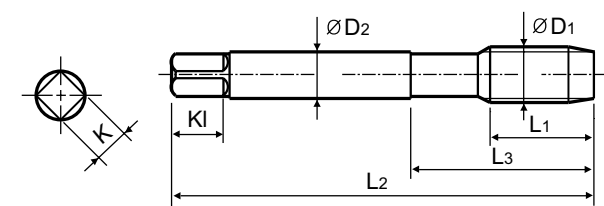
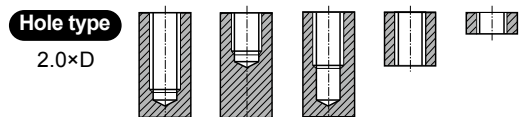
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					○

**UNF Unified fine threads**  
 Unified Feingewinde  
 UNF  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung



Material groups: **GG** HSS-E DIN 371/378 2BX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 48UNF	TE454182	11	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TE454222	11	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TE454262	12	56	20	4	3	6	3	3
#8	- 36UNF	TE454302	13	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TE454342	15	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TE454382	16	80	30	6	4.9	8	4	4.7
1/4	- 28UNF	TE454422	17	80	30	7	5.5	8	4	5.5
5/16	- 24UNF	TE454462	17	90	35	8	6.2	9	4	6.9
3/8	- 24UNF	TE454502	18	100	39	9	7	10	4	8.5
7/16	- 20UNF	TE454542	22	100	40	8	6.2	9	4	9.9
1/2	- 20UNF	TE454582	22	100	40	9	7	10	4	11.5
9/16	- 18UNF	TE454622	22	100	40	11	9	12	4	12.9
5/8	- 18UNF	TE454662	22	100	40	12	9	12	4	14.5
3/4	- 16UNF	TE454722	25	110	44	14	11	14	4	17.5
7/8	- 14UNF	TE454762	26	125	50	18	14.5	17	4	20.5
1	- 12UNF	TE454802	28	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TE454842	30	150	60	22	18	21	4	26.5

► DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					



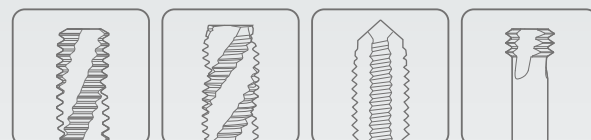
ISO	VDI 3323	Material Description	HB	HRc	T0993	TE821 TE403 TE434 TE454	TD821	TI821	TY821
					Vc (m/min)				
K	15	Grey cast iron	180	10	10-15	10-15	15-20	15-20	15-20
	16		260	26	5-8	5-8	8-11	8-11	8-11
	17	Nodular cast iron	160	3	10-15	10-15	15-20	15-20	15-20
	18		250	25	5-8	5-8	8-11	8-11	8-11
	19		130		10-15	10-15	15-20	15-20	15-20
20	Malleable cast iron	230	21	5-8	5-8	8-11	8-11	8-11	
N	23	Aluminum-cast, alloyed	75		15-20				
	25		130		10-15				
	27	Copper and Copper Alloys (Bronze / Brass)	90			8-12	12-16	12-16	12-16
H	40	Chilled Cast Iron	400	42	3-5				



Leading Through Innovation



Global Cutting Tool Leader YG-1



HSS-E

# THREADING

# YG TAP ALU

## YG TAP Aluminium

- For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations
- Für langspannende Aluminium-Knetlegierungen mit großen Spanabständen zur Vermeidung von Verstopfungen beim Gewindeschneiden.







# HSS-E YG TAP ALU

For long-chipping Aluminum Wrought Alloys  
with Large Chip Gullets to Avoid Clogging  
in the Threading Operations

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
© : Excellent ○ : Good  
Recommended cutting conditions : p.B260

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC		
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	
	2		About 0.45% C Annealed	190	13	○	
	3		About 0.45% C Quenched & Tempered	250	25	○	○
	4	Low alloy steel	About 0.75% C Annealed	270	28		
	5		About 0.75% C Quenched & Tempered	300	32		
	6		Annealed	180	10		
	7		Quenched & Tempered	275	29		
	8	Quenched & Tempered	300	32			
	9	Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel	Annealed	200	15		
	11		Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15		
	13		Martensitic Quenched & Tempered	240	23		
	14		Austenitic	180	10		
K	15	Grey cast iron	Pearlitic / ferritic	180	10		
	16		Pearlitic (Martensitic)	260	26		
	17	Nodular cast iron	Ferritic	160	3		
	18		Pearlitic	250	25		
	19		Ferritic	130			
20	Malleable cast iron	Pearlitic	230	21			
N	21	Aluminum-wrought alloy	Not Curable	60		◎	○
	22		Curable Hardened	100		◎	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	○
	24		≤ 12% Si, Curable Hardened	90		◎	○
	25		> 12% Si, Not Curable	130		◎	◎
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110			◎
	27		CuZn, CuSnZn (Brass)	90		○	
	28		CuSn, lead-free copper and electrolytic copper	100		○	
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			
	30	Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		
	32		Cured	280	30		
	33		Annealed	250	25		
	34		Ni or Co Based Cured	350	38		
	35		Cast	320	34		
36	Titanium Alloys	Pure Titanium	400 Rm				
37		Alpha + Beta Alloys Hardened	1050 Rm				
H	38	Hardened steel	Hardened	550	55		
	39		Hardened	630	60		
	40	Hardened Cast Iron	Cast	400	42		
	41		Hardened	550	55		

HOLE TYPE	Max. 2.5xD Blind Hole		
TOOL MATERIAL	HSS-E		
CHAMFER LEAD ACC. TO DIN2197	C	C	
FLUTE TYPE	Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE	R45	R40	
M	DIN371/376	TC163 (p.B250)	TE953 (p.B251)
	DIN352		
MF	DIN357/LONG		
	DIN374	TC963 (p.B252)	
UNC	DIN2181		
	DIN371/376	TC169 (p.B253)	
UNF	DIN351		
	DIN371/374	TC170 (p.B254)	
BSW	DIN2182/2183		
	DIN351		
G(BSP)	DIN5156/5157		
EG-M	DIN371/376		
EG-UNC	DIN371/376		
EG-UNF	DIN371/374		
SURFACE TREATMENT	Bright	NI	
MODEL			

Max. 3.0xD Through Hole		Max. 2.0xD Blind/Through Hole		
		HSS-E		
B	B	C	C	C
Spiral Point	Spiral Point	Straight Flute	Straight Flute	Straight Flute
-	-	-	-	-
TC622 (p.B255)	TE943 (p.B256)	TC433 (p.B257)	TE443 (p.B258)	TY433 (p.B259)
				M
				MF
				UNC
				UNF
				BSW
				G(BSP)
				EG-M
				EG-UNC
				EG-UNF
SURFACE TREATMENT	Bright	NI	NI	TiAIN
MODEL				
				1
				2
				3
				4
				5
				6 P
				7
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				9
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TC163 SERIES

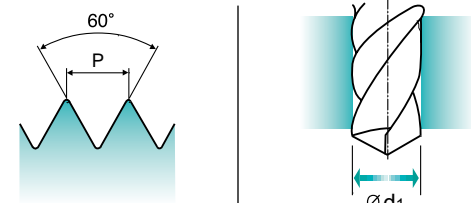
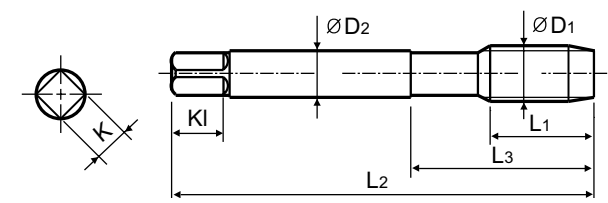
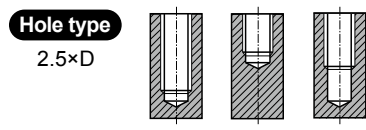
**M** ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: AI, HSS-E, DIN 371/378, 6H, 60°, C, R45, Bright, p.B260, Plain Shank, TAPPING ER CHUCK, D215-228, TAPPING CHUCK, D221-228, ONE STEP TAPPING CHUCK, D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TC163136	8	45	13	2.8	2.1	5	2	1.6
M2.2	× 0.45	TC163156	8	45	13	2.8	2.1	5	2	1.75
*M2.3	× 0.4	TC163196	8	45	13	2.8	2.1	5	2	1.9
M2.5	× 0.45	TC163176	9	50	15	2.8	2.1	5	2	2.05
*M2.6	× 0.45	TC163496	9	50	15	2.8	2.1	5	2	2.1
M3	× 0.5	TC163206	6	56	18	3.5	2.7	6	2	2.5
M3.5	× 0.6	TC163226	7	56	20	4	3	6	2	2.9
M4	× 0.7	TC163246	7	63	21	4.5	3.4	6	2	3.3
M4.5	× 0.75	TC163266	8	70	25	6	4.9	8	2	3.7
M5	× 0.8	TC163286	8	70	25	6	4.9	8	2	4.2
M6	× 1	TC163316	10	80	30	6	4.9	8	2	5
M7	× 1	TC163346	10	80	30	7	5.5	8	2	6
M8	× 1.25	TC163366	13	90	35	8	6.2	9	2	6.8
M9	× 1.25	TC163396	13	90	35	9	7	10	2	7.8
M10	× 1.5	TC163426	15	100	39	10	8	11	2	8.5
M11	× 1.5	TC163466	17	100	40	8	6.2	9	2	9.5
M12	× 1.75	TC163506	18	110	44	9	7	10	2	10.2
M14	× 2	TC163546	20	110	44	11	9	12	3	12
M16	× 2	TC163606	20	110	44	12	9	12	3	14
M18	× 2.5	TC163656	25	125	50	14	11	14	3	15.5
M20	× 2.5	TC163706	25	140	54	16	12	15	3	17.5
M22	× 2.5	TC163746	25	140	54	18	14.5	17	3	19.5
M24	× 3	TC163786	30	160	60	18	14.5	17	3	21
M27	× 3	TC163866	30	160	60	20	16	19	3	24
M30	× 3.5	TC163946	35	180	70	22	18	21	3	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TE953 SERIES

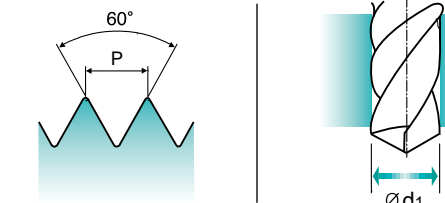
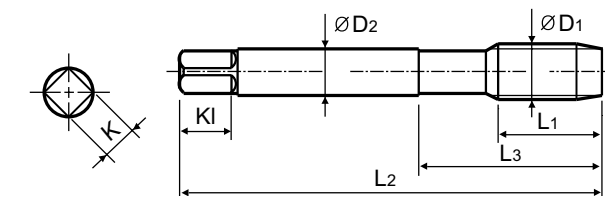
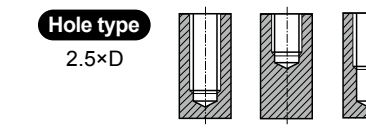
**M** ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: AI, HSS-E, DIN 371/378, 6H, 60°, C, R40, Nitride, p.B260, Plain Shank, TAPPING ER CHUCK, D215-228, TAPPING CHUCK, D221-228, ONE STEP TAPPING CHUCK, D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TE953136	8	45	13	2.8	2.1	5	2	1.6
M2.2	× 0.45	TE953156	8	45	13	2.8	2.1	5	2	1.75
*M2.3	× 0.4	TE953196	8	45	13	2.8	2.1	5	2	1.9
M2.5	× 0.45	TE953176	9	50	15	2.8	2.1	5	2	2.05
*M2.6	× 0.45	TE953496	9	50	15	2.8	2.1	5	2	2.1
M3	× 0.5	TE953206	6	56	18	3.5	2.7	6	2	2.5
M3.5	× 0.6	TE953226	7	56	20	4	3	6	2	2.9
M4	× 0.7	TE953246	7	63	21	4.5	3.4	6	2	3.3
M4.5	× 0.75	TE953266	8	70	25	6	4.9	8	2	3.7
M5	× 0.8	TE953286	8	70	25	6	4.9	8	2	4.2
M6	× 1	TE953316	10	80	30	6	4.9	8	2	5
M7	× 1	TE953346	10	80	30	7	5.5	8	2	6
M8	× 1.25	TE953366	13	90	35	8	6.2	9	2	6.8
M9	× 1.25	TE953396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TE953426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TE953466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE953506	18	110	44	9	7	10	3	10.2
M14	× 2	TE953546	20	110	44	11	9	12	3	12
M16	× 2	TE953606	20	110	44	12	9	12	3	14
M18	× 2.5	TE953656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TE953706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TE953746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TE953786	30	160	60	18	14.5	17	4	21
M27	× 3	TE953866	30	160	60	20	16	19	4	24
M30	× 3.5	TE953946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TC963 SERIES

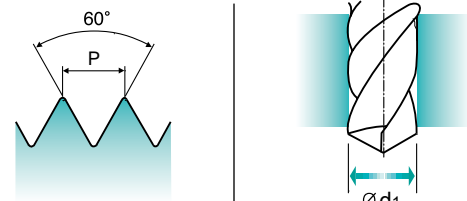
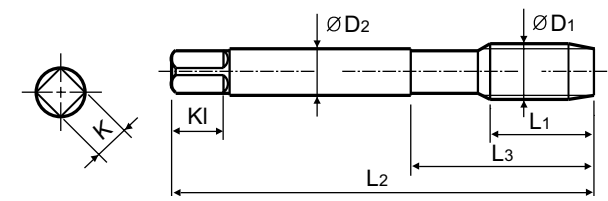
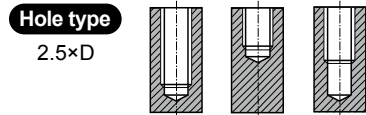
# MF ISO metric fine threads DIN 13

● **Metrisches ISO-Feingewinde DIN 13**  
● **ISO MÉTRIQUE PAS FINS DIN13**  
● **ISO Metrico passo grosso DIN 13**

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **AI** HSS-E DIN 374 6H 60° C R45 Bright p.B260

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC963256	5	63	21	2.8	2.1	5	2	3.5
M5	× 0.5	TC963296	5	70	25	3.5	2.7	6	2	4.5
M6	× 0.75	TC963326	8	80	30	4.5	3.4	6	2	5.2
M6	× 0.5	TC963336	5	80	30	4.5	3.4	6	2	5.5
M7	× 0.75	TC963356	10	80	30	5.5	4.3	7	2	6.2
M8	× 1	TC963376	10	90	36	6	4.9	8	2	7
M8	× 0.75	TC963386	8	80	30	6	4.9	8	2	7.2
M10	× 1.25	TC963436	16	100	40	7	5.5	8	2	8.8
M10	× 1	TC963446	10	90	36	7	5.5	8	2	9
M10	× 0.75	TC963456	10	90	36	7	5.5	8	2	9.2
M12	× 1.5	TC963516	15	100	40	9	7	10	2	10.5
M12	× 1.25	TC963526	15	100	40	9	7	10	2	10.8
M12	× 1	TC963536	11	100	40	9	7	10	2	11
M14	× 1.5	TC963556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC963566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TC963616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TC963676	17	110	44	14	11	14	3	16.5
M20	× 1.5	TC963726	17	125	50	16	12	15	3	18.5
M22	× 1.5	TC963766	17	125	50	18	14.5	17	3	20.5
M24	× 1.5	TC963806	20	140	54	18	14.5	17	3	22.5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TC169 SERIES

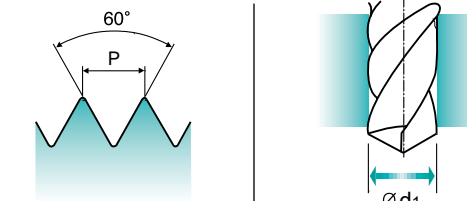
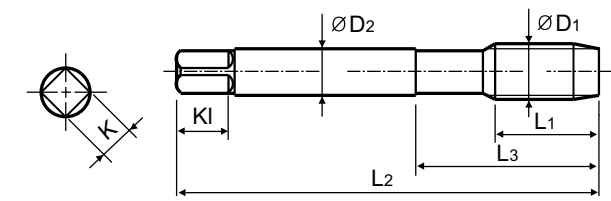
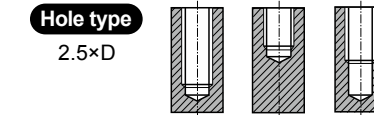
# UNC Unified coarse threads

● **Unified Grobgewinde**  
● **UNC**  
● **Unificato passo grosso**

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **AI** HSS-E DIN 371/378 2B 60° C R45 Bright p.B260

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	- 40UNC	TC169162	6	56	18	3.5	2.7	6	2	2.3
#5	- 40UNC	TC169202	7	56	18	3.5	2.7	6	2	2.6
#6	- 32UNC	TC169242	7	56	20	4	3	6	2	2.85
#8	- 32UNC	TC169282	8	63	21	4.5	3.4	6	2	3.5
#10	- 24UNC	TC169322	10	70	25	6	4.9	8	2	3.9
#12	- 24UNC	TC169362	10	80	30	6	4.9	8	2	4.5
1/4	- 20UNC	TC169402	13	80	30	7	5.5	8	2	5.2
5/16	- 18UNC	TC169442	14	90	35	8	6.2	9	2	6.6
3/8	- 16UNC	TC169482	16	100	39	9	7	10	2	8
7/16	- 14UNC	TC169522	17	100	40	8	6.2	9	2	9.4
1/2	- 13UNC	TC169562	20	110	44	9	7	10	2	10.75
9/16	- 12UNC	TC169602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC169642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC169702	25	125	50	14	11	14	3	16.5
7/8	- 9UNC	TC169742	27	140	54	18	14.5	17	3	19.5
1	- 8UNC	TC169782	30	160	60	20	16	19	3	22.25
1-1/8	- 7UNC	TC169822	35	180	65	22	18	21	3	25

►DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





TC170 SERIES

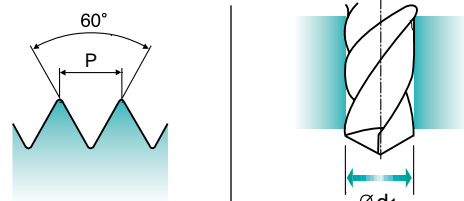
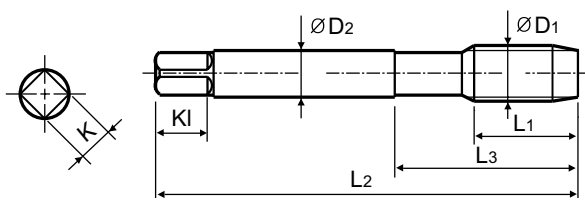
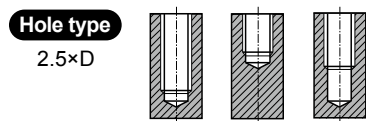
# UNF Unified fine threads

- Unified Feingewinde
- UNF
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: AI, HSS-E, DIN 371/378, 2B, 60°, C, R45, Bright, p.B260

Plain Shank TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48UNF		TC170182	6	56	18	3.5	2.7	6	2	2.4
#5 - 44UNF		TC170222	7	56	18	3.5	2.7	6	2	2.7
#6 - 40UNF		TC170262	7	56	20	4	3	6	2	3
#8 - 36UNF		TC170302	8	63	21	4.5	3.4	6	2	3.5
#10 - 32UNF		TC170342	10	70	25	6	4.9	8	2	4.1
#12 - 28UNF		TC170382	10	80	30	6	4.9	8	2	4.7
1/4 - 28UNF		TC170422	10	80	30	7	5.5	8	2	5.5
5/16 - 24UNF		TC170462	10	90	35	8	6.2	9	2	6.9
3/8 - 24UNF		TC170502	10	100	39	9	7	10	2	8.5
7/16 - 20UNF		TC170542	13	100	40	8	6.2	9	2	9.9
1/2 - 20UNF		TC170582	13	100	40	9	7	10	2	11.5
9/16 - 18UNF		TC170622	15	100	40	11	9	12	3	12.9
5/8 - 18UNF		TC170662	15	100	40	12	9	12	3	14.5
3/4 - 16UNF		TC170722	17	110	44	14	11	14	3	17.5
7/8 - 14UNF		TC170762	17	125	50	18	14.5	17	3	20.5
1 - 12UNF		TC170802	20	140	54	18	14.5	17	3	23.25
1-1/8 - 12UNF		TC170842	22	150	60	22	18	21	3	26.5

► DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	



TC622 SERIES

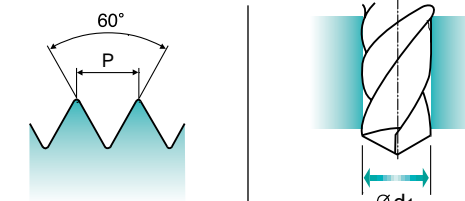
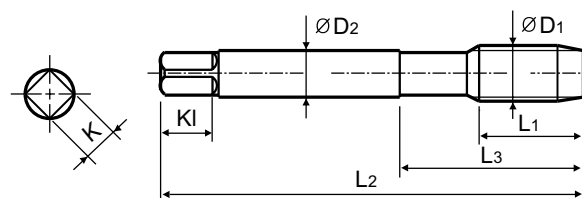
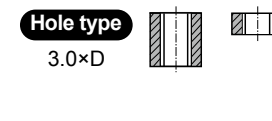
# M-Az ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

► Gewindebohrer mit ausgesetzten Zähnen um die Kontaktzone mit dem Werkstück und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.



Material groups: AI, HSS-E, DIN 371/378, 6H, 60°, B, Bright, p.B260

Plain Shank TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TC622136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC622156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC622196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC622176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC622496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC622206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC622226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TC622246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC622266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC622286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TC622316	17	80	30	6	4.9	8	3	5
M7 × 1		TC622346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TC622366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC622396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TC622426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TC622466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC622506	24	110	44	9	7	10	3	10.2
M14 × 2		TC622546	26	110	44	11	9	12	3	12
M16 × 2		TC622606	27	110	44	12	9	12	3	14
M18 × 2.5		TC622656	30	125	50	14	11	14	3	15.5
M20 × 2.5		TC622706	32	140	54	16	12	15	3	17.5
M22 × 2.5		TC622746	32	140	54	18	14.5	17	3	19.5
M24 × 3		TC622786	34	160	60	18	14.5	17	3	21
M27 × 3		TC622866	36	160	60	20	16	19	3	24
M30 × 3.5		TC622946	40	180	70	22	18	21	3	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

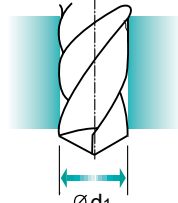
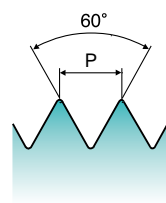
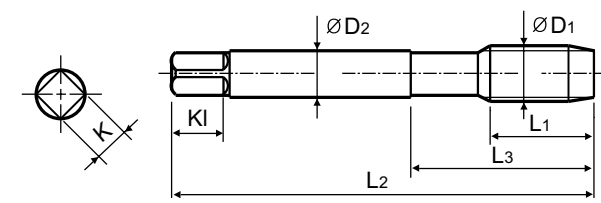
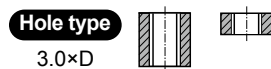
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **AI** HSS-E DIN 371/378 6H 60° B Nitride p.B260

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TE943136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TE943156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TE943196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TE943176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TE943496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TE943206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TE943226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TE943246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TE943266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TE943286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TE943316	17	80	30	6	4.9	8	3	5
M7	× 1	TE943346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TE943366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TE943396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TE943426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TE943466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE943506	24	110	44	9	7	10	3	10.2
M14	× 2	TE943546	26	110	44	11	9	12	3	12
M16	× 2	TE943606	27	110	44	12	9	12	3	14
M18	× 2.5	TE943656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TE943706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TE943746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TE943786	34	160	60	18	14.5	17	4	21
M27	× 3	TE943866	36	160	60	20	16	19	4	24
M30	× 3.5	TE943946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○					◎														

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	◎																



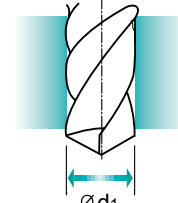
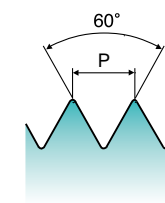
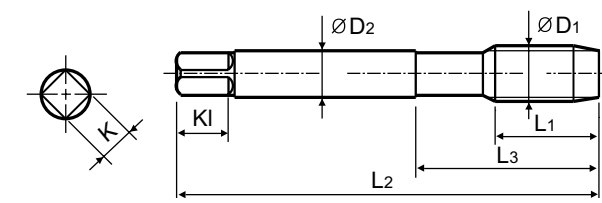
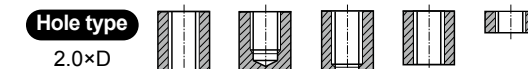
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen



Material groups: **Ms** HSS-E DIN 371/378 6H 60° C Bright p.B260

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TC433136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC433156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC433196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC433176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC433496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC433206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC433226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC433246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC433266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC433286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC433316	17	80	30	6	4.9	8	3	5
M7	× 1	TC433346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC433366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC433396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC433426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC433466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC433506	24	110	44	9	7	10	3	10.2
M14	× 2	TC433546	26	110	44	11	9	12	3	12
M16	× 2	TC433606	27	110	44	12	9	12	3	14
M18	× 2.5	TC433656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC433706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC433746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC433786	34	160	60	18	14.5	17	4	21
M27	× 3	TC433866	36	160	60	20	16	19	4	24
M30	× 3.5	TC433946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○					◎														

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	◎																



TE443 SERIES

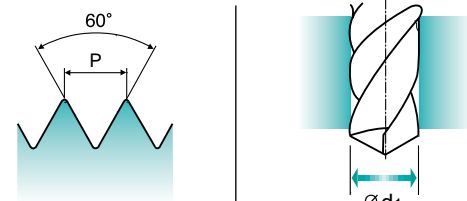
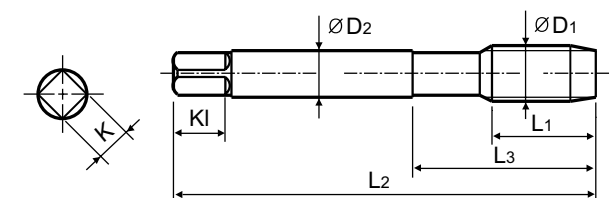
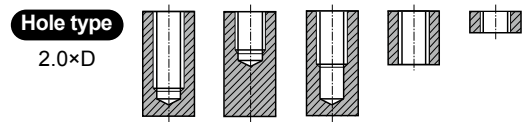
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen



Material groups: Ms, HSS-E, DIN 371/378, 6HX, 60°, C, Nitride, p.B260

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TE443136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TE443156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TE443196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TE443176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TE443496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TE443206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TE443226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TE443246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TE443266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TE443286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TE443316	17	80	30	6	4.9	8	3	5
M7 × 1		TE443346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TE443366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TE443396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TE443426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TE443466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TE443506	24	110	44	9	7	10	3	10.2
M14 × 2		TE443546	26	110	44	11	9	12	3	12
M16 × 2		TE443606	27	110	44	12	9	12	3	14
M18 × 2.5		TE443656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TE443706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TE443746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TE443786	34	160	60	18	14.5	17	4	21
M27 × 3		TE443866	36	160	60	20	16	19	4	24
M30 × 3.5		TE443946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	33	34	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						◎	○														



TY433 SERIES

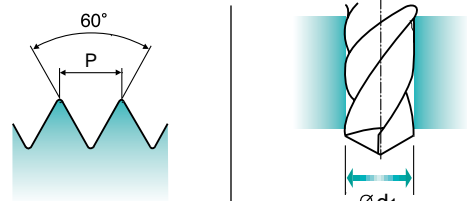
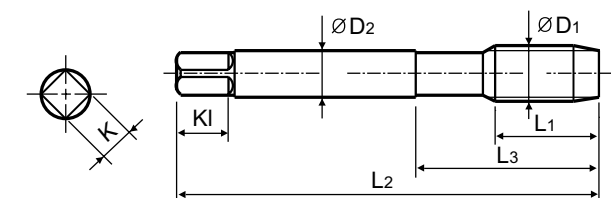
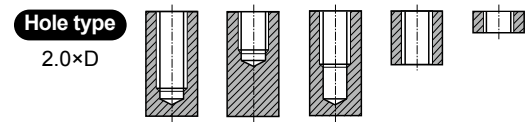
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen



Material groups: Ms, HSS-E, DIN 371/378, 6H, 60°, C, TiAIN, p.B260

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAIN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TY433136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TY433156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TY433196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TY433176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TY433496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TY433206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TY433226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TY433246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TY433266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TY433286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TY433316	17	80	30	6	4.9	8	3	5
M7 × 1		TY433346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TY433366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TY433396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TY433426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TY433466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TY433506	24	110	44	9	7	10	3	10.2
M14 × 2		TY433546	26	110	44	11	9	12	3	12
M16 × 2		TY433606	27	110	44	12	9	12	3	14
M18 × 2.5		TY433656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TY433706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TY433746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TY433786	34	160	60	18	14.5	17	4	21
M27 × 3		TY433866	36	160	60	20	16	19	4	24
M30 × 3.5		TY433946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	33	34	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						◎	○														





					TC163 TC963 TC169 TC170	TE953	TC622	TE943	TC433	TE443	TY433
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)						
COMBO TAPS	1	Non-alloy steel	125		15-20		15-20				
	2		190	13	15-20		15-20				
	3		250	25	12-18	12-18	12-18	12-18			
YG TAP GENERAL	21	Aluminum- wrought alloy	60		10-15	10-15	10-15	10-15			
			100		10-15	10-15	10-15	10-15			
YG TAP STEEL	23	Aluminum- cast, alloyed	75		15-20	15-20	15-20	15-20			
			90		15-20	15-20	15-20	15-20			
YG TAP HARDENED	24										
YG TAP INOX	25		130			10-15		10-15			
YG TAP CAST IRON	26	Copper and Copper Alloys (Bronze / Brass)	110						25-35	25-35	35-40
			90		8-12		8-12		8-12	8-12	12-16
YG TAP ALU	27		100						15-20		20-25
28											



Leading Through Innovation



HSS-PM



# YG TAP Ti Ni

## YG Gewindebohrer Titan / Superlegierungen

- For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief
- Für hitzebeständige Superlegierungen und Titanlegierungen, mit Schneidkanten-Spanwinkeln und Gewindehinterschliff





# HSS-PM YG TAP Ti Ni

For Heat Resistant Super Alloys and Titanium Alloys  
Applied with Cutting Edge Rake Angles and Thread Relief

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
◎ : Excellent ○ : Good  
Recommended cutting conditions : p.B276

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	HOLE TYPE			
						Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	HSS-PM	
P	1	Non-alloy steel	About 0.15% C Annealed	125					
	2		About 0.45% C Annealed	190					
	3		About 0.45% C Quenched & Tempered	250					
	4		About 0.75% C Annealed	270					
	5		About 0.75% C Quenched & Tempered	300					
	6	Low alloy steel	Annealed	180					
	7		Quenched & Tempered	275	○	○	○	○	
	8		Quenched & Tempered	300	○	○	○	○	
	9		Quenched & Tempered	350	○	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200				
	11	Quenched & Tempered		325					
M	12	Stainless steel	Ferritic / Martensitic Annealed	200					
	13		Martensitic Quenched & Tempered	240					
	14		Austenitic	180					
K	15	Grey cast iron	Pearlitic / ferritic	180					
	16		Pearlitic (Martensitic)	260					
	17	Nodular cast iron	Ferritic	160					
	18		Pearlitic	250					
	19		Ferritic	130					
20	Malleable cast iron	Pearlitic	230						
N	21	Aluminum-wrought alloy	Not Curable	60					
	22		Curable Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75					
	24		≤ 12% Si, Curable Hardened	90					
	25		> 12% Si, Not Curable	130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110					
	27		CuZn, CuSnZn (Brass)	90					
	28		CuSn, lead-free copper and electrolytic copper	100					
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.					
	30								
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200					
	32		Fe Based Cured	280					
	33		Fe Based Annealed	250					
	34		Ni or Co Based Cured	350					
	35		Ni or Co Based Cast	320					
36	Titanium Alloys	Pure Titanium	400 Rm	○	○	○	○		
37		Alpha + Beta Alloys Hardened	1050 Rm	◎	◎	◎	◎		
H	38	Hardened steel	Hardened	550					
	39		Hardened	630					
	40	Hardened Cast Iron	Cast	400					
	41		Hardened	550					

SERIES	HOLE TYPE	HSS-PM			
		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	HSS-PM	
M	DIN371/376	TM903 (p.B264)	TZ903 (p.B265)	TM293 (p.B266)	TZ293 (p.B267)
	DIN352				
	DIN357/LONG				
	DIN374				
	DIN2181				
	DIN371/376				
	DIN351				
	DIN371/374				
	DIN2181				
	DIN2182/2183				
	DIN351				
G(BSP)	DIN5156/5157				
EG-M	DIN371/376				
EG-UNC	DIN371/376				
EG-UNF	DIN371/374				
SURFACE TREATMENT		Bright	TiAlN	Bright	TiAlN
MODEL					

SERIES	HOLE TYPE	HSS-PM							
		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
M	DIN371/376	TM933 (p.B268)	TZ933 (p.B269)	TM923 (p.B270)	TZ923 (p.B271)	TQ833 (p.B272)	TR833 (p.B273)	TQ873 (p.B274)	TR873 (p.B275)
	DIN352								
	DIN357/LONG								
	DIN374								
	DIN2181								
	DIN371/376								
	DIN351								
	DIN371/374								
	DIN2181								
	DIN2182/2183								
	DIN351								
G(BSP)	DIN5156/5157								
EG-M	DIN371/376								
EG-UNC	DIN371/376								
EG-UNF	DIN371/374								
SURFACE TREATMENT		Bright	TiAlN	Bright	TiAlN	VAP	Bright	VAP	Bright
MODEL									





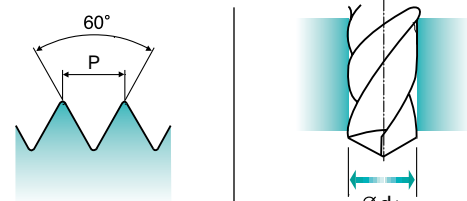
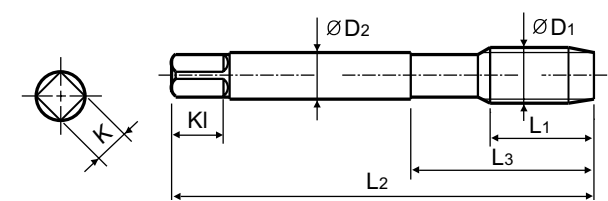
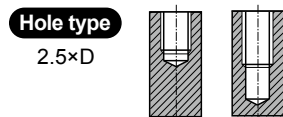
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **Ti**, HSS PM, DIN 371/378, 6H, 60°, C, R25, Bright, p.B276. Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213.

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TM903136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TM903156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TM903196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TM903176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TM903496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TM903206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TM903226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TM903246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TM903266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TM903286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TM903316	10	80	30	6	4.9	8	3	5
M7	× 1	TM903346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TM903366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TM903396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TM903426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TM903466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TM903506	18	110	44	9	7	10	3	10.2
M14	× 2	TM903546	20	110	44	11	9	12	3	12
M16	× 2	TM903606	20	110	44	12	9	12	3	14
M18	× 2.5	TM903656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TM903706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TM903746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TM903786	30	160	60	18	14.5	17	4	21
M27	× 3	TM903866	30	160	60	20	16	19	4	24
M30	× 3.5	TM903946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○	○												

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○						◎				



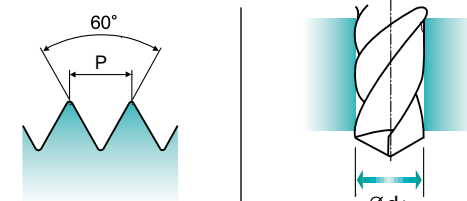
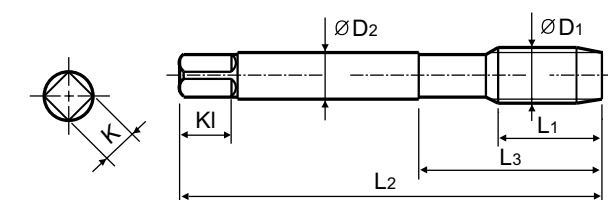
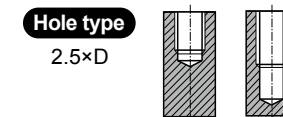
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **Ti**, HSS PM, DIN 371/378, 6H, 60°, C, R25, TiAlN, p.B276. Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213.

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TZ903136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TZ903156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TZ903196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TZ903176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TZ903496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TZ903206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TZ903226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TZ903246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TZ903266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TZ903286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TZ903316	10	80	30	6	4.9	8	3	5
M7	× 1	TZ903346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TZ903366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TZ903396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TZ903426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TZ903466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TZ903506	18	110	44	9	7	10	3	10.2
M14	× 2	TZ903546	20	110	44	11	9	12	3	12
M16	× 2	TZ903606	20	110	44	12	9	12	3	14
M18	× 2.5	TZ903656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TZ903706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TZ903746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TZ903786	30	160	60	18	14.5	17	4	21
M27	× 3	TZ903866	30	160	60	20	16	19	4	24
M30	× 3.5	TZ903946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○	○												

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○						◎				



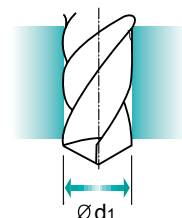
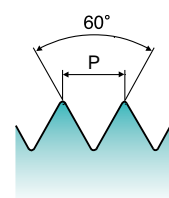
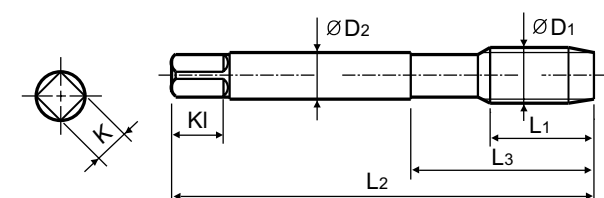
TM293 SERIES

M-Az ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

▶ Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

▶ Gewindebohrer mit ausgesetzten Zähnen um die Kontaktzone mit dem Werkstück und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.



Material groups: **Ti**, HSS PM, DIN 371/376, 6H, 60°, B, Bright, p.B276

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK D211-213  
ONE STEP TAPPING CHUCK

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TM293136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TM293156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TM293196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TM293176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TM293496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TM293206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TM293226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TM293246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TM293266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TM293286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TM293316	17	80	30	6	4.9	8	3	5
M7 × 1		TM293346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TM293366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TM293396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TM293426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TM293466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TM293506	24	110	44	9	7	10	3	10.2
M14 × 2		TM293546	26	110	44	11	9	12	3	12
M16 × 2		TM293606	27	110	44	12	9	12	3	14
M18 × 2.5		TM293656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TM293706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TM293746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TM293786	34	160	60	18	14.5	17	4	21
M27 × 3		TM293866	36	160	60	20	16	19	4	24
M30 × 3.5		TM293946	40	180	70	22	18	21	4	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○	○												

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	21
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○	○	○	○	○	○	◎				○



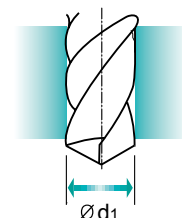
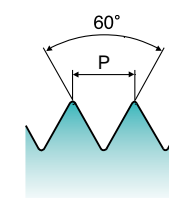
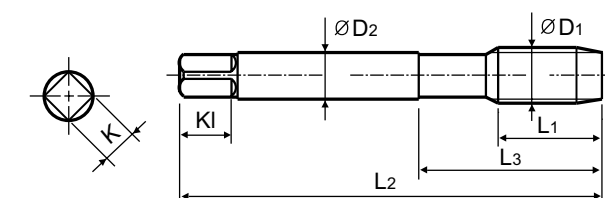
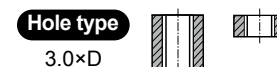
TZ293 SERIES

M-Az ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

▶ Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

▶ Gewindebohrer mit ausgesetzten Zähnen um die Kontaktzone mit dem Werkstück und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.



Material groups: **Ti**, HSS PM, DIN 371/376, 6H, 60°, B, TiAIN, p.B276

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK D211-213  
ONE STEP TAPPING CHUCK

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAIN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TZ293136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TZ293156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TZ293196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TZ293176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TZ293496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TZ293206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TZ293226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TZ293246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TZ293266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TZ293286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TZ293316	17	80	30	6	4.9	8	3	5
M7 × 1		TZ293346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TZ293366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TZ293396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TZ293426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TZ293466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TZ293506	24	110	44	9	7	10	3	10.2
M14 × 2		TZ293546	26	110	44	11	9	12	3	12
M16 × 2		TZ293606	27	110	44	12	9	12	3	14
M18 × 2.5		TZ293656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TZ293706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TZ293746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TZ293786	34	160	60	18	14.5	17	4	21
M27 × 3		TZ293866	36	160	60	20	16	19	4	24
M30 × 3.5		TZ293946	40	180	70	22	18	21	4	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○	○												

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	21
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○	○	○	○	○	○	◎				○

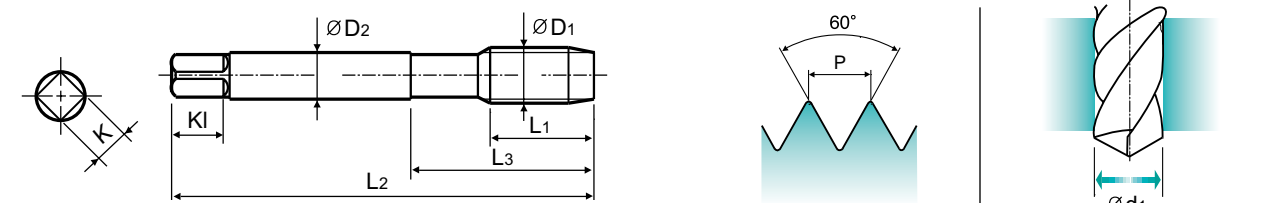
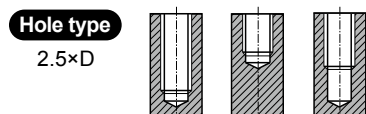
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/378, 6H, 60°, C, R40, Bright, p.B276

Plain Shank Page: TAPPING ER CHUCK D215-228, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.268 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TM933136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TM933156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TM933196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TM933176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TM933496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TM933206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TM933226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TM933246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TM933266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TM933286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TM933316	10	80	30	6	4.9	8	3	5
M7 × 1		TM933346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TM933366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TM933396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TM933426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TM933466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TM933506	18	110	44	9	7	10	3	10.2
M14 × 2		TM933546	20	110	44	11	9	12	3	12
M16 × 2		TM933606	20	110	44	12	9	12	3	14
M18 × 2.5		TM933656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TM933706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TM933746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TM933786	30	160	60	18	14.5	17	4	21
M27 × 3		TM933866	30	160	60	20	16	19	4	24
M30 × 3.5		TM933946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎						



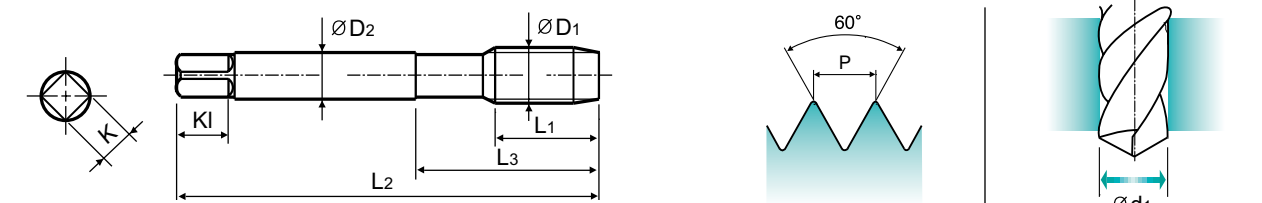
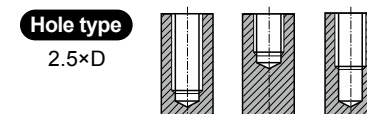
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/378, 6H, 60°, C, R40, TiAlN, p.B276

Plain Shank Page: TAPPING ER CHUCK D215-228, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.268 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TZ933136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TZ933156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TZ933196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TZ933176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TZ933496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TZ933206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TZ933226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TZ933246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TZ933266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TZ933286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TZ933316	10	80	30	6	4.9	8	3	5
M7 × 1		TZ933346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TZ933366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TZ933396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TZ933426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TZ933466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TZ933506	18	110	44	9	7	10	3	10.2
M14 × 2		TZ933546	20	110	44	11	9	12	3	12
M16 × 2		TZ933606	20	110	44	12	9	12	3	14
M18 × 2.5		TZ933656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TZ933706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TZ933746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TZ933786	30	160	60	18	14.5	17	4	21
M27 × 3		TZ933866	30	160	60	20	16	19	4	24
M30 × 3.5		TZ933946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎						





TM923 SERIES

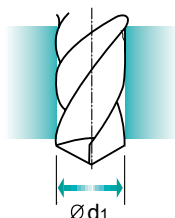
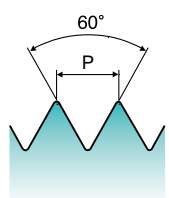
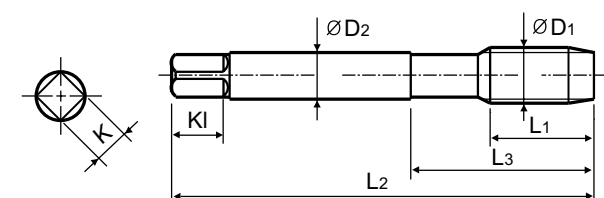
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/376, 6H, 60°, B, Bright, p.B276

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TM923136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TM923156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TM923196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TM923176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TM923496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TM923206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TM923226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TM923246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TM923266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TM923286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TM923316	17	80	30	6	4.9	8	3	5
M7	× 1	TM923346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TM923366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TM923396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TM923426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TM923466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TM923506	24	110	44	9	7	10	3	10.2
M14	× 2	TM923546	26	110	44	11	9	12	3	12
M16	× 2	TM923606	27	110	44	12	9	12	3	14
M18	× 2.5	TM923656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TM923706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TM923746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TM923786	34	160	60	18	14.5	17	4	21
M27	× 3	TM923866	36	160	60	20	16	19	4	24
M30	× 3.5	TM923946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																																					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron																																	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50				
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	15	30	25	38	34	200	280	250	350	320	400Rm	1050Rm	550	630	400	550	55	60	42	55	55	60	42	55	55	60	42	55						
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	260	160	250	130	230	180	260	160	250	130	230	200	280	250	350	320	400Rm	1050Rm	550	630	400	550	55	60	42	55	55	60	42	55	55	60	42	55						
Recommended						◎	◎	◎	◎																	◎	◎	◎	◎	◎	○						○						○						○					



TZ923 SERIES

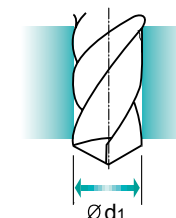
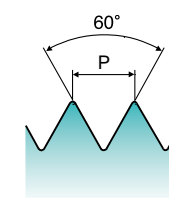
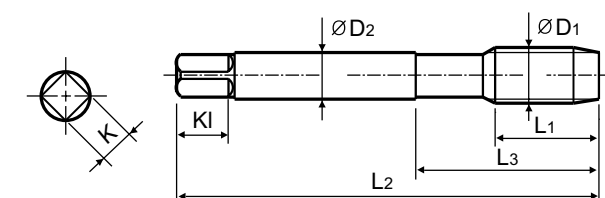
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/376, 6H, 60°, B, TiAIN, p.B276

Plain Shank Page  
TAPPING ER CHUCK D215-220  
TAPPING CHUCK D221-228  
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAIN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TZ923136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TZ923156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TZ923196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TZ923176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TZ923496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TZ923206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TZ923226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TZ923246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TZ923266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TZ923286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TZ923316	17	80	30	6	4.9	8	3	5
M7	× 1	TZ923346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TZ923366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TZ923396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TZ923426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TZ923466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TZ923506	24	110	44	9	7	10	3	10.2
M14	× 2	TZ923546	26	110	44	11	9	12	3	12
M16	× 2	TZ923606	27	110	44	12	9	12	3	14
M18	× 2.5	TZ923656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TZ923706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TZ923746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TZ923786	34	160	60	18	14.5	17	4	21
M27	× 3	TZ923866	36	160	60	20	16	19	4	24
M30	× 3.5	TZ923946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																																	
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron																													
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21	15	30	25	38	34	200	280	250	350	320	400Rm	1050Rm	550	630	400	550	55	60	42	55	55	60	42	55	55	60	42	55		
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	260	160	250	130	230	180	260	160	250	130	230	200	280	250	350	320	400Rm	1050Rm	550	630	400	550	55	60	42	55	55	60	42	55	55	60	42	55		
Recommended						◎	◎	◎	◎																	◎	◎	◎	◎	◎	○						○						○							



TQ833 SERIES

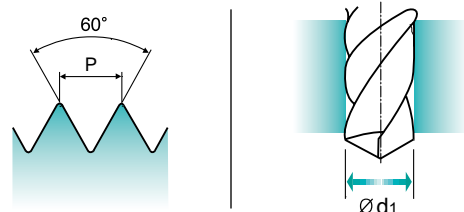
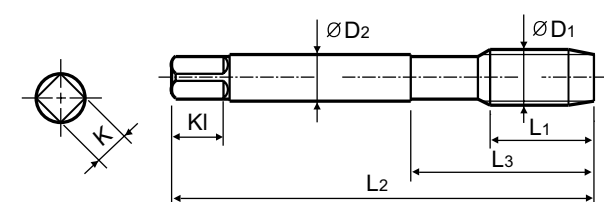
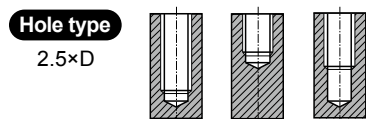
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, C, R40, Vap, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ833136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ833156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ833176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ833206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ833226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ833246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ833266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ833286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ833316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ833346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ833426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ833506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TR833 SERIES

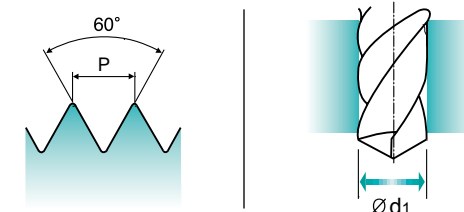
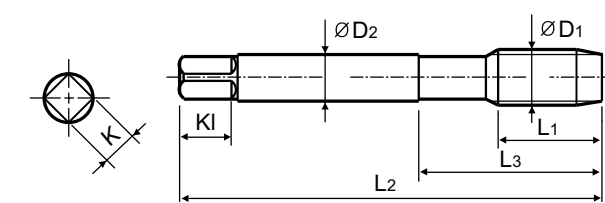
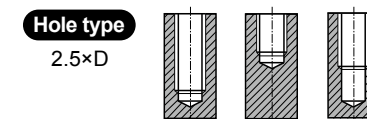
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, C, R40, Bright, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TR833136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR833156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR833176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR833206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR833226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TR833246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR833266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR833286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TR833316	10	80	30	6	4.9	8	3	5
M7	× 1	TR833346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TR833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR833426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TR833506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TQ873 SERIES

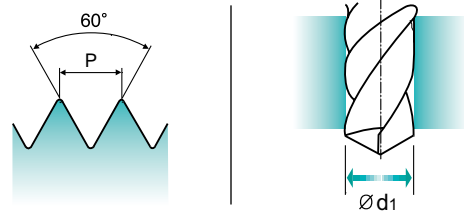
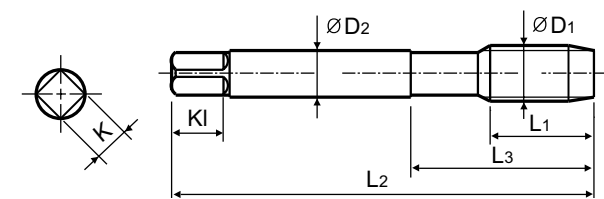
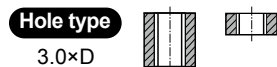
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, B, Vap, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TQ873136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ873156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ873176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ873206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ873226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ873246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ873266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ873286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ873316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ873346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ873366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ873426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ873506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TR873 SERIES

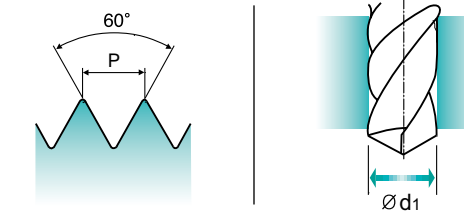
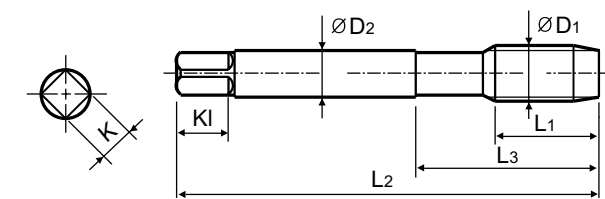
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
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Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

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Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, B, Bright, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
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M2	× 0.4	TR873136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR873156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR873176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR873206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR873226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR873246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR873266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR873286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR873316	17	80	30	6	4.9	8	3	5
M7	× 1	TR873346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR873366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR873426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR873506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





THREAD MILLS

SYNCHRO TAPS

COMBO TAPS

YG TAP GENERAL

YG TAP STEEL

YG TAP HARDENED

YG TAP INOX

YG TAP CAST IRON

YG TAP ALU

YG TAP Ti Ni

YG TAP FORMING

NUT TAPS

STI TAPS

PIPE TAPS

TECHNICAL DATA

					TM903	TZ903	TM293	TZ293	TM933	TZ933	TM923	TZ923	TQ833	TR833	TQ873	TR873
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)											
P	6	Low alloy steel	180	10					10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	7		275	29	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	8		300	32	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10
	9		350	38	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5
S	31	Heat Resistant Super Alloys	200	15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	32		280	30			10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	33		250	25			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	34		350	38			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	35		320	34			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	36	Titanium Alloys	400Rm		10-15	10-15	10-15	10-15						10-15	10-15	10-15
	37		1050Rm		4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6
H	38	Hardened steel	550	55									3-5			
	40	Chilled Cast Iron	400	42			3-5	3-5			3-5	3-5			3-5	3-5





Leading Through Innovation

HSS-E & HSS-PM

# YG TAP FORMING

## YG INNENGEWINDEFORMER

- Tapping by Forming Soft Materials
- Gewindeherstellung durch Formen von weichen Materialien







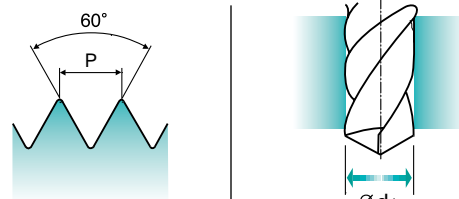
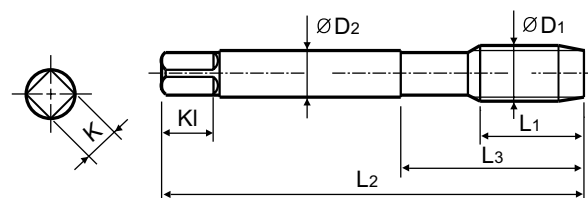
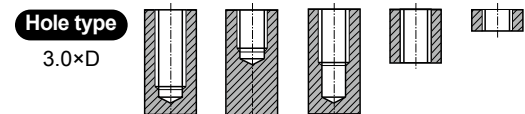
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6HX 60° C TiN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TD703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD703226	12	56	20	4	3	6	3.25
M4	× 0.7	TD703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD703286	15	70	25	6	4.9	8	4.65
M6	× 1	TD703316	17	80	30	6	4.9	8	5.55
M7	× 1	TD703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD703396	20	90	35	9	7	10	8.4
M10	× 1.5	TD703426	22	100	39	10	8	11	9.3
M11	× 1.5	TD703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD703506	24	110	44	9	7	10	11.2
M14	× 2	TD703546	26	110	44	11	9	12	13
M16	× 2	TD703606	27	110	44	12	9	12	15
M18	× 2.5	TD703656	30	125	50	14	11	14	16.8
M20	× 2.5	TD703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



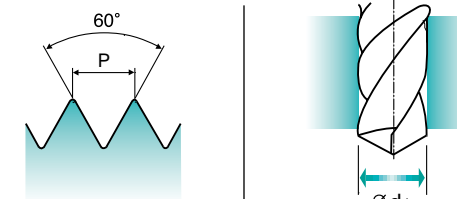
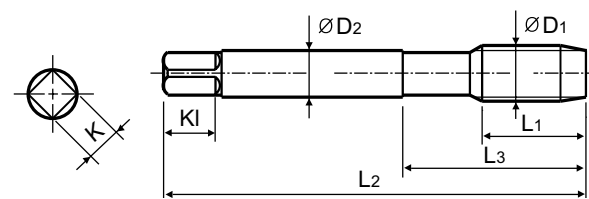
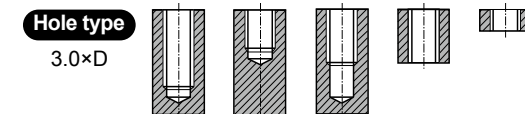
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6HX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TE703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE703226	12	56	20	4	3	6	3.25
M4	× 0.7	TE703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE703286	15	70	25	6	4.9	8	4.65
M6	× 1	TE703316	17	80	30	6	4.9	8	5.55
M7	× 1	TE703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE703396	20	90	35	9	7	10	8.4
M10	× 1.5	TE703426	22	100	39	10	8	11	9.3
M11	× 1.5	TE703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE703506	24	110	44	9	7	10	11.2
M14	× 2	TE703546	26	110	44	11	9	12	13
M16	× 2	TE703606	27	110	44	12	9	12	15
M18	× 2.5	TE703656	30	125	50	14	11	14	16.8
M20	× 2.5	TE703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

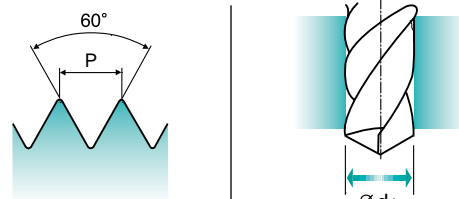
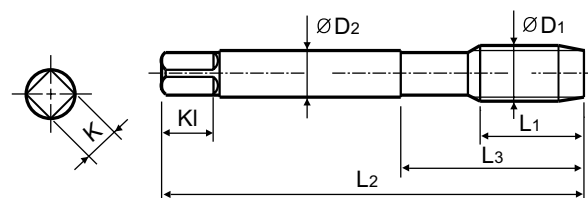
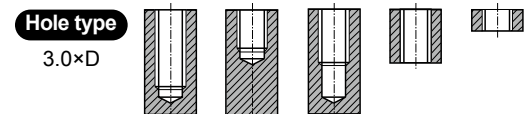
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/378 6HX 60° C TiAlN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TY703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TY703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TY703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TY703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TY703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TY703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TY703226	12	56	20	4	3	6	3.25
M4	× 0.7	TY703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TY703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TY703286	15	70	25	6	4.9	8	4.65
M6	× 1	TY703316	17	80	30	6	4.9	8	5.55
M7	× 1	TY703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TY703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TY703396	20	90	35	9	7	10	8.4
M10	× 1.5	TY703426	22	100	39	10	8	11	9.3
M11	× 1.5	TY703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TY703506	24	110	44	9	7	10	11.2
M14	× 2	TY703546	26	110	44	11	9	12	13
M16	× 2	TY703606	27	110	44	12	9	12	15
M18	× 2.5	TY703656	30	125	50	14	11	14	16.8
M20	× 2.5	TY703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



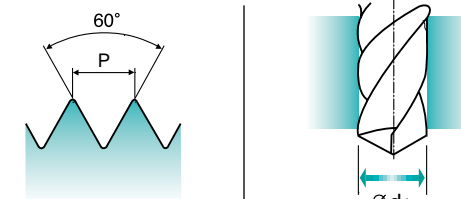
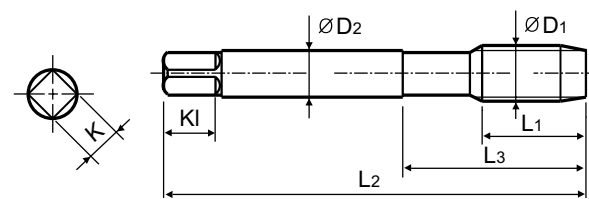
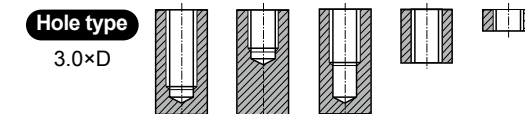
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
- The pre-drilling holes are bigger than normal sized holes.

- Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS PM DIN 371/378 6HX 60° C Vap p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TQ703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TQ703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TQ703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TQ703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TQ703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TQ703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TQ703226	12	56	20	4	3	6	3.25
M4	× 0.7	TQ703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TQ703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TQ703286	15	70	25	6	4.9	8	4.65
M6	× 1	TQ703316	17	80	30	6	4.9	8	5.55
M7	× 1	TQ703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TQ703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TQ703396	20	90	35	9	7	10	8.4
M10	× 1.5	TQ703426	22	100	39	10	8	11	9.3
M11	× 1.5	TQ703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TQ703506	24	110	44	9	7	10	11.2
M14	× 2	TQ703546	26	110	44	11	9	12	13
M16	× 2	TQ703606	27	110	44	12	9	12	15
M18	× 2.5	TQ703656	30	125	50	14	11	14	16.8
M20	× 2.5	TQ703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

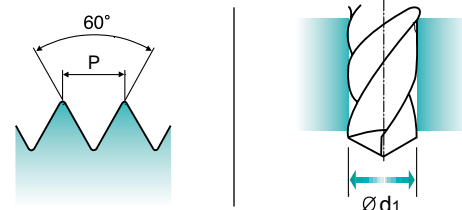
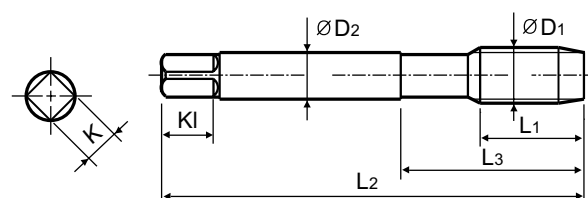
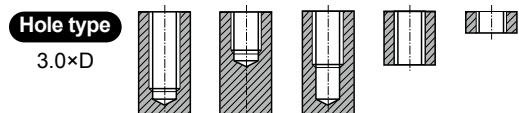
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6GX 60° C TiN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TD713136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD713156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD713196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD713176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD713496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD713206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD713226	12	56	20	4	3	6	3.25
M4	× 0.7	TD713246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD713266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD713286	15	70	25	6	4.9	8	4.65
M6	× 1	TD713316	17	80	30	6	4.9	8	5.55
M7	× 1	TD713346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD713366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD713396	20	90	35	9	7	10	8.4
M10	× 1.5	TD713426	22	100	39	10	8	11	9.3
M11	× 1.5	TD713466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD713506	24	110	44	9	7	10	11.2
M14	× 2	TD713546	26	110	44	11	9	12	13
M16	× 2	TD713606	27	110	44	12	9	12	15
M18	× 2.5	TD713656	30	125	50	14	11	14	16.8
M20	× 2.5	TD713706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	
Recommended	◎	◎	○	○	○	○	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



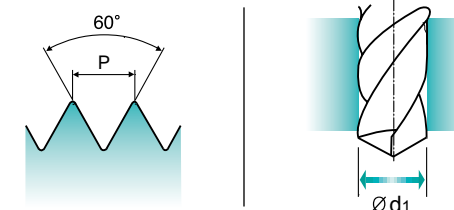
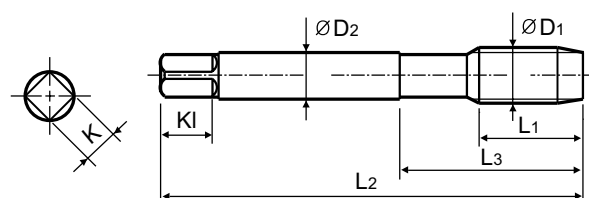
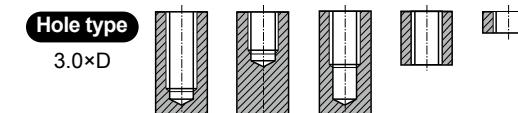
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6GX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TE713136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE713156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE713196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE713176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE713496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE713206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE713226	12	56	20	4	3	6	3.25
M4	× 0.7	TE713246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE713266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE713286	15	70	25	6	4.9	8	4.65
M6	× 1	TE713316	17	80	30	6	4.9	8	5.55
M7	× 1	TE713346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE713366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE713396	20	90	35	9	7	10	8.4
M10	× 1.5	TE713426	22	100	39	10	8	11	9.3
M11	× 1.5	TE713466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE713506	24	110	44	9	7	10	11.2
M14	× 2	TE713546	26	110	44	11	9	12	13
M16	× 2	TE713606	27	110	44	12	9	12	15
M18	× 2.5	TE713656	30	125	50	14	11	14	16.8
M20	× 2.5	TE713706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	240	180	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	
Recommended	◎	◎	○	○	○	○	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



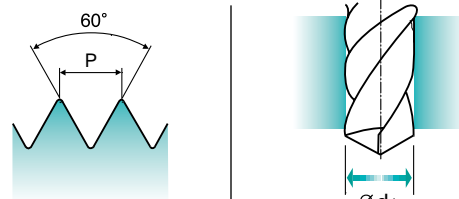
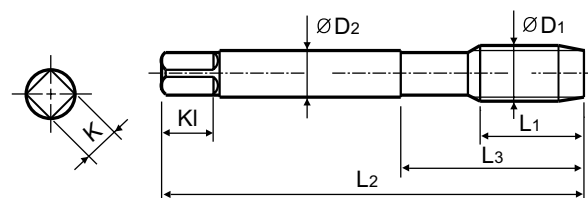
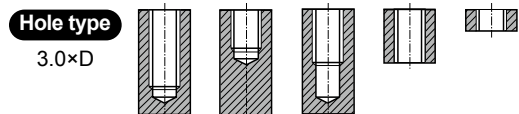
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
- The pre-drilling holes are bigger than normal sized holes.

- Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C Vap p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TQ723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TQ723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TQ723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TQ723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TQ723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TQ723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TQ723226	12	56	20	4	3	6	3.25
M4	× 0.7	TQ723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TQ723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TQ723286	15	70	25	6	4.9	8	4.65
M6	× 1	TQ723316	17	80	30	6	4.9	8	5.55
M7	× 1	TQ723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TQ723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TQ723396	20	90	35	9	7	10	8.4
M10	× 1.5	TQ723426	22	100	39	10	8	11	9.3
M11	× 1.5	TQ723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TQ723506	24	110	44	9	7	10	11.2
M14	× 2	TQ723546	26	110	44	11	9	12	13
M16	× 2	TQ723606	27	110	44	12	9	12	15
M18	× 2.5	TQ723656	30	125	50	14	11	14	16.8
M20	× 2.5	TQ723706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○



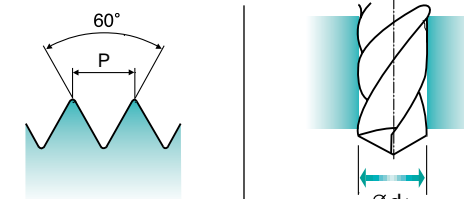
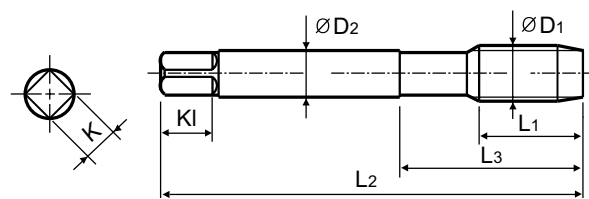
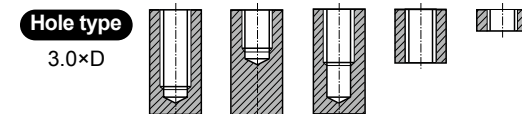
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TE723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE723226	12	56	20	4	3	6	3.25
M4	× 0.7	TE723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE723286	15	70	25	6	4.9	8	4.65
M6	× 1	TE723316	17	80	30	6	4.9	8	5.55
M7	× 1	TE723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE723396	20	90	35	9	7	10	8.4
M10	× 1.5	TE723426	22	100	39	10	8	11	9.3
M11	× 1.5	TE723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE723506	24	110	44	9	7	10	11.2
M14	× 2	TE723546	26	110	44	11	9	12	13
M16	× 2	TE723606	27	110	44	12	9	12	15
M18	× 2.5	TE723656	30	125	50	14	11	14	16.8
M20	× 2.5	TE723706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○

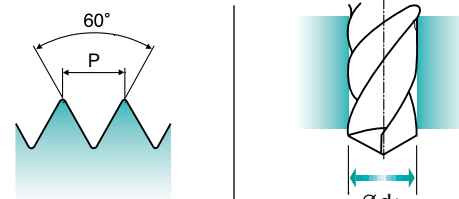
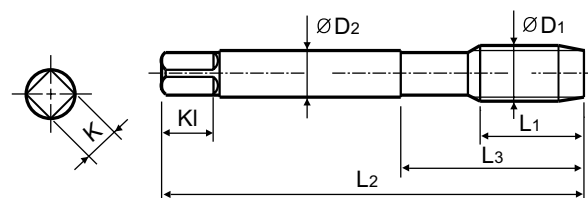
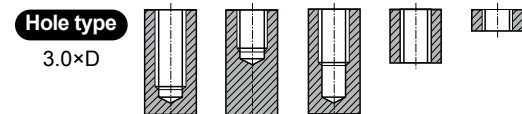
**M ISO metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6HX 60° C TiN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.285 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TD723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD723226	12	56	20	4	3	6	3.25
M4	× 0.7	TD723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD723286	15	70	25	6	4.9	8	4.65
M6	× 1	TD723316	17	80	30	6	4.9	8	5.55
M7	× 1	TD723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD723396	20	90	35	9	7	10	8.4
M10	× 1.5	TD723426	22	100	39	10	8	11	9.3
M11	× 1.5	TD723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD723506	24	110	44	9	7	10	11.2
M14	× 2	TD723546	26	110	44	11	9	12	13
M16	× 2	TD723606	27	110	44	12	9	12	15
M18	× 2.5	TD723656	30	125	50	14	11	14	16.8
M20	× 2.5	TD723706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



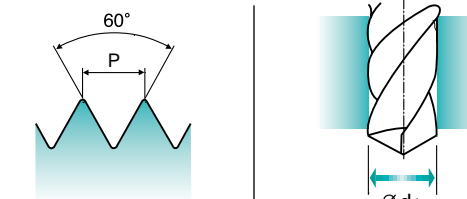
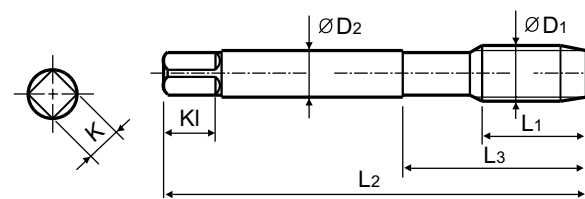
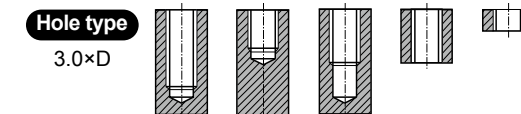
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 374 6HX 60° C TiN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.285 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Ød1
M4	× 0.5	TD733256	10	63	21	2.8	2.1	5	3.75
M5	× 0.5	TD733296	11	70	25	3.5	2.7	6	4.75
M6	× 0.75	TD733326	13	80	30	4.5	3.4	6	5.65
M6	× 0.5	TD733336	13	80	30	4.5	3.4	6	5.75
M7	× 0.75	TD733356	14	80	30	5.5	4.3	7	6.65
M8	× 1	TD733376	17	90	36	6	4.9	8	7.5
M8	× 0.75	TD733386	14	80	30	6	4.9	8	7.65
M10	× 1.25	TD733436	22	100	40	7	5.5	8	9.4
M10	× 1	TD733446	18	90	36	7	5.5	8	9.5
M10	× 0.75	TD733456	18	90	36	7	5.5	8	9.65
M12	× 1.5	TD733516	22	100	40	9	7	10	11.25
M12	× 1.25	TD733526	22	100	40	9	7	10	11.4
M12	× 1	TD733536	18	100	40	9	7	10	11.5
M14	× 1.5	TD733556	22	100	40	11	9	12	13.25
M14	× 1.25	TD733566	22	100	40	11	9	12	13.4
M16	× 1.5	TD733616	22	100	40	12	9	12	15.25
M18	× 1.5	TD733676	25	110	44	14	11	14	17.25
M20	× 1.5	TD733726	25	125	50	16	12	15	19.25

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

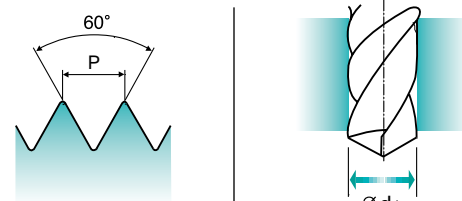
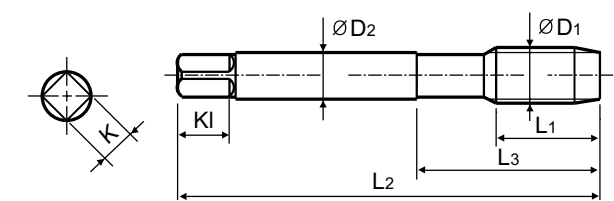
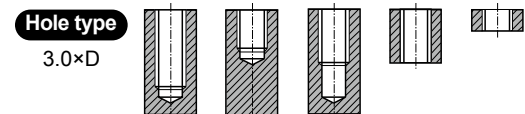
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 374 6HX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.285 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Ød1
M4	× 0.5	TE733256	10	63	21	2.8	2.1	5	3.75
M5	× 0.5	TE733296	11	70	25	3.5	2.7	6	4.75
M6	× 0.75	TE733326	13	80	30	4.5	3.4	6	5.65
M6	× 0.5	TE733336	13	80	30	4.5	3.4	6	5.75
M7	× 0.75	TE733356	14	80	30	5.5	4.3	7	6.65
M8	× 1	TE733376	17	90	36	6	4.9	8	7.5
M8	× 0.75	TE733386	14	80	30	6	4.9	8	7.65
M10	× 1.25	TE733436	22	100	40	7	5.5	8	9.4
M10	× 1	TE733446	18	90	36	7	5.5	8	9.5
M10	× 0.75	TE733456	18	90	36	7	5.5	8	9.65
M12	× 1.5	TE733516	22	100	40	9	7	10	11.25
M12	× 1.25	TE733526	22	100	40	9	7	10	11.4
M12	× 1	TE733536	18	100	40	9	7	10	11.5
M14	× 1.5	TE733556	22	100	40	11	9	12	13.25
M14	× 1.25	TE733566	22	100	40	11	9	12	13.4
M16	× 1.5	TE733616	22	100	40	12	9	12	15.25
M18	× 1.5	TE733676	25	110	44	14	11	14	17.25
M20	× 1.5	TE733726	25	125	50	16	12	15	19.25

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



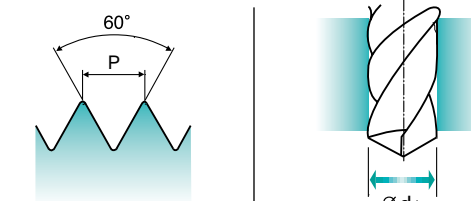
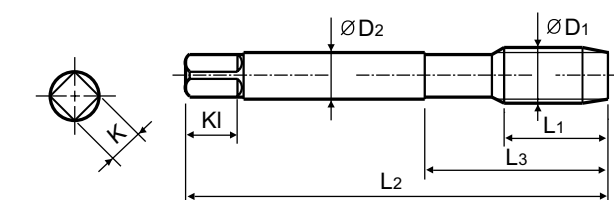
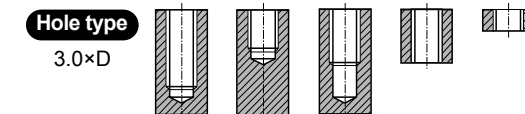
**UNC Unified coarse threads**

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/378 2BX 60° C TiN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.285 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1		TiN	L1	L2	L3	ØD2	K	KI	Ød1
#5	- 40 UNC	TD704202	11	56	18	3.5	2.7	6	2.87
#6	- 32 UNC	TD704242	12	56	20	4	3	6	3.1
#8	- 32 UNC	TD704282	13	63	21	4.5	3.4	6	3.8
#10	- 24 UNC	TD704322	15	70	25	6	4.9	8	4.3
#12	- 24 UNC	TD704362	16	80	30	6	4.9	8	4.95
1/4	- 20 UNC	TD704402	17	80	30	7	5.5	8	5.75
5/16	- 18 UNC	TD704442	20	90	35	8	6.2	9	7.25
3/8	- 16 UNC	TD704482	22	100	39	9	7	10	8.75
7/16	- 14 UNC	TD704522	22	100	40	8	6.2	9	10.2
1/2	- 13 UNC	TD704562	25	110	44	9	7	10	11.7
9/16	- 12 UNC	TD704602	26	110	40	11	9	12	13.2
5/8	- 11 UNC	TD704642	27	110	44	12	9	12	14.7
3/4	- 10 UNC	TD704702	30	125	50	14	11	14	17.8

►DIN 371(#4~3/8) and DIN 376(7/16~3/4)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



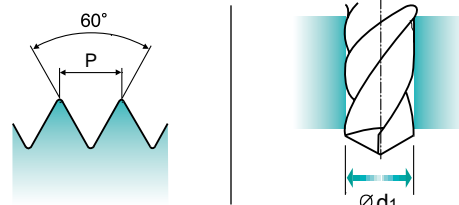
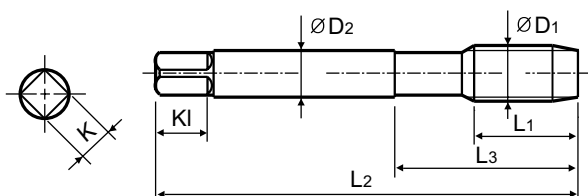
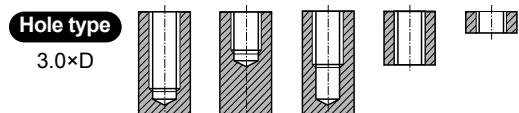
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Gewindeformer mit Schmiernuten

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- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
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Material groups: **GV** HSS-E DIN 371/376 2BX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONE STEP TAPPING CHUCK D211-213

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1		Ni	L1	L2	L3	ØD2	K	Kl	Ød1
#5	- 40 UNC	TE704202	11	56	18	3.5	2.7	6	2.87
#6	- 32 UNC	TE704242	12	56	20	4	3	6	3.1
#8	- 32 UNC	TE704282	13	63	21	4.5	3.4	6	3.8
#10	- 24 UNC	TE704322	15	70	25	6	4.9	8	4.3
#12	- 24 UNC	TE704362	16	80	30	6	4.9	8	4.95
1/4	- 20 UNC	TE704402	17	80	30	7	5.5	8	5.75
5/16	- 18 UNC	TE704442	20	90	35	8	6.2	9	7.25
3/8	- 16 UNC	TE704482	22	100	39	9	7	10	8.75
7/16	- 14 UNC	TE704522	22	100	40	8	6.2	9	10.2
1/2	- 13 UNC	TE704562	25	110	44	9	7	10	11.7
9/16	- 12 UNC	TE704602	26	110	40	11	9	12	13.2
5/8	- 11 UNC	TE704642	27	110	44	12	9	12	14.7
3/4	- 10 UNC	TE704702	30	125	50	14	11	14	17.8

►DIN 371(#4~3/8) and DIN 376(7/16~3/4)

© : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

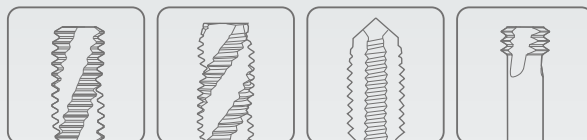
ISO	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55			
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)								
					TD703 TD733 TD704	TE703 TE733 TE704	TY703	TQ703	TD713	TE713	TQ723	TE723	TD723
P	1	Non-alloy steel	125		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	2		190	13	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	3	250	25	12-18	12-18	12-18	12-18	12-18	12-18	12-18	12-18	12-18	12-18
6		Low alloy steel	180	10	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
M	12	Stainless steel	200	15	10-13	7-10	10-13	7-10	10-13	7-10	7-10	7-10	10-13
	13		240	23	8-11	5-8	8-11	5-8	8-11	5-8	5-8	5-8	8-11
	14	180	10	6-8	4-6	6-8	4-6	6-8	4-6	4-6	4-6	6-8	
N	21	Aluminum-wrought alloy	60		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	22		100		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	23	Aluminum-cast, alloyed	75		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	24		90		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	25-35	25-35	25-35	25-35	25-35	25-35	25-35	25-35
	28		100		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation

HSS-E

# NUT TAPS

## MUTTERGEWINDEBOHRER

- Nut Tapping Machines
- Zum Gewindeschneiden von Muttern





SELECTION GUIDE



**HSS-E  
NUT  
TAPS**  
Nut Tapping Machines

HOLE TYPE	Max. 2.0xD Through Hole		
TOOL MATERIAL	HSS-E		
CHAMFER LEAD ACC. TO DIN2197	Long		
FLUTE TYPE	Straight Flute		
SPIRAL FLUTE ANGLE	-		
SERIES	M	DIN371/376	TC803 (p.B297)
		DIN352	
		DIN357/LONG	
	MF	DIN374	
		DIN2181	
	UNC	DIN371/376	
		DIN351	
	UNF	DIN371/374	
		DIN2181	
	BSW	DIN2182/2183	
		DIN351	
	G(BSP)	DIN5156/5157	
EG-M	DIN371/376		
EG-UNC	DIN371/376		
EG-UNF	DIN371/374		
SURFACE TREATMENT	Bright		
MODEL			

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B296

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc		Vc (m/min)	
P	1	Non-alloy steel	About 0.15% C Annealed	125	13	○	15-20	
	2		About 0.45% C Annealed	190	13	○	15-20	
	3		About 0.45% C Quenched & Tempered	250	25	○	12-18	
	4		About 0.75% C Annealed	270	28	○	10-15	
	5		About 0.75% C Quenched & Tempered	300	32	○	10-15	
	6	Low alloy steel	Annealed	180	10	○	10-15	
	7		Quenched & Tempered	275	29	○	10-15	
	8		Quenched & Tempered	300	32			
	9		Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel	Annealed	200	15			
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15			
	13		Martensitic Quenched & Tempered	240	23			
	14		Austenitic	180	10			
K	15	Grey cast iron	Pearlitic / ferritic	180	10			
	16		Pearlitic (Martensitic)	260	26			
	17	Nodular cast iron	Ferritic	160	3	○	10-15	
	18		Pearlitic	250	25	○	5-8	
	19		Ferritic	130				
	20		Pearlitic	230	21			
N	21	Aluminum-wrought alloy	Not Curable	60				
	22		Curable Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130		○	10-15	
	26		Copper and Cutting Alloys, PB>1%	110		○	25-35	
	27		Copper Alloys (Bronze / Brass)	90		○	8-12	
	28		CuSn, lead-free copper and electrolytic copper	100				
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				
	30			Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Cured	350	38			
	35	Ni or Co Based Cast	320	34				
	36	Titanium Alloys	Pure Titanium	400 Rm				
37	Alpha + Beta Alloys Hardened		1050 Rm					
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40	Hardened Cast Iron	Cast	400	42			
	41		Hardened	550	55			



**YG NUT TAPS**

TC803 SERIES

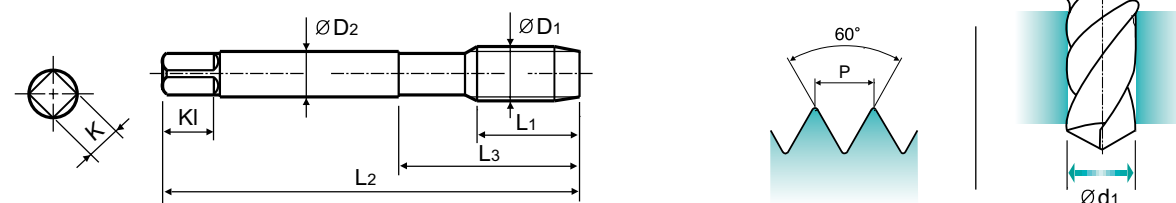
ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Nut taps  
Muttergewindebohrer

- For making nuts on machines.
- The work pieces can be taken out from shank side only.

- Zur Herstellung von Muttern auf Sondermaschinen.
- Die fertigen Muttern können nur über das Schaftende entnommen werden.



Material groups: **GS** HSS-E DIN 357 6H 60° LONG Bright p.B296

Recommended Toolholder: Plain Shank TAPPING CHUCK D215-220 ONE STEP TAPPING CHUCK D211-213 Page D221-228 D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.7	TC803246	25	90	45	2.8	2.1	5	3	3.3
M5	× 0.8	TC803286	28	100	50	3.5	2.7	6	3	4.2
M6	× 1	TC803316	32	110	55	4.5	3.4	6	3	5
M7	× 1	TC803346	36	110	55	5.5	4.3	7	3	6
M8	× 1.25	TC803366	40	125	62	6	4.9	8	3	6.8
M10	× 1.5	TC803426	45	140	70	7	5.5	8	3	8.5
M12	× 1.75	TC803506	50	180	90	9	7	10	3	10.2
M14	× 2	TC803546	56	200	100	11	9	12	4	12
M16	× 2	TC803606	63	200	100	12	9	12	4	14
M18	× 2.5	TC803656	63	220	110	14	11	14	4	15.5
M20	× 2.5	TC803706	70	250	125	16	12	15	4	17.5

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended						○	○	○														

HSS

THREAD MILLS

SYNCHRO TAPS

PRIME TAPS

COMBO TAPS

YG TAP GENERAL

YG TAP STEEL

YG TAP HARDENED

YG TAP INOX

YG TAP CAST IRON

YG TAP ALU

YG TAP Ti Ni

YG TAP FORMING

NUT TAPS

STI TAPS

PIPE TAPS

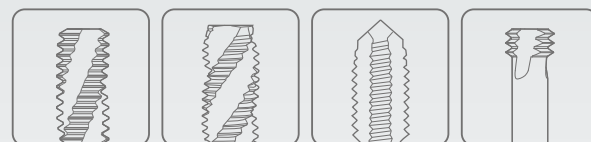
TECHNICAL DATA



Leading Through Innovation



Global Cutting Tool Leader YG-1



# THREADING



HSS-E

# SCREW THREAD INSERT TAPS

SCHRAUBENGWINDE INSERT TAPS

- Tapping STI Threads of Soft Materials
- Gewindeschneiden von STI-Gewinden in weichen Materialien



SELECTION GUIDE



# HSS-E SCREW THREAD INSERT TAPS

Tapping STI Threads of Soft Materials

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B306

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	TC909 (p.B301)	TC973 (p.B302)
P	1	Non-alloy steel	About 0.15% C Annealed	125			
	2		About 0.45% C Annealed	190	13		
	3		About 0.45% C Quenched & Tempered	250	25		
	4		About 0.75% C Annealed	270	28		
	5	About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10		
	7		Quenched & Tempered	275	29		
	8		Quenched & Tempered	300	32		
	9	High alloyed steel, and tool steel	Quenched & Tempered	350	38		
	10		Annealed	200	15		
	11		Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15		
	13		Martensitic Quenched & Tempered	240	23		
	14	Austenitic	180	10			
K	15	Grey cast iron	Pearlitic / ferritic	180	10		
	16		Pearlitic (Martensitic)	260	26		
	17	Nodular cast iron	Ferritic	160	3		
	18		Pearlitic	250	25		
	19		Ferritic	130			
	20	Malleable cast iron	Pearlitic	230	21		
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎
	22		Curable Hardened	100		◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	◎
	24		≤ 12% Si, Curable Hardened	90		◎	◎
	25		> 12% Si, Not Curable	130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110			
	27		CuZn, CuSnZn (Brass)	90		◎	◎
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100			
	29		Duroplastic, Fiber Reinforced Plastic				
	30		Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		
	32		Cured	280	30		
	33		Annealed	250	25		
	34	Titanium Alloys	Ni or Co Based Cured	350	38		
	35		Cast	320	34		
36	Pure Titanium	400 Rm					
37	Alpha + Beta Alloys	1050 Rm					
H	38	Hardened steel	Hardened	550	55		
	39		Hardened	630	60		
	40	Hardened Cast Iron	Cast	400	42		
	41		Hardened	550	55		

HOLE TYPE	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole		
TOOL MATERIAL	HSS-E			
CHAMFER LEAD ACC. TO DIN2197	C	B		
FLUTE TYPE	Spiral Flute	Spiral Point		
SPIRAL FLUTE ANGLE	R40	-		
SERIES	M	DIN371/376		
		DIN352		
		DIN357/LONG		
	MF	DIN374		
		DIN2181		
	UNC	DIN371/376		
		DIN351		
	UNF	DIN371/374		
		DIN2181		
	BSW	DIN2182/2183		
DIN351				
G(BSP)	DIN5156/5157			
EG-M	DIN371/376	TC909 (p.B301)	TC973 (p.B302)	
EG-UNC	DIN371/376	TC944 (p.B303)	TC934 (p.B304)	
EG-UNF	DIN371/374		TC954 (p.B305)	
SURFACE TREATMENT	Bright	Bright		
MODEL				

## YG SCREW THREAD INSERT TAPS

TC909 SERIES

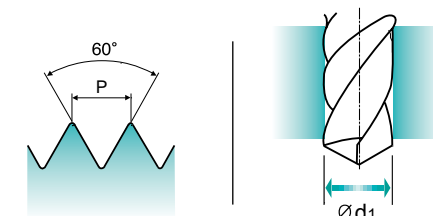
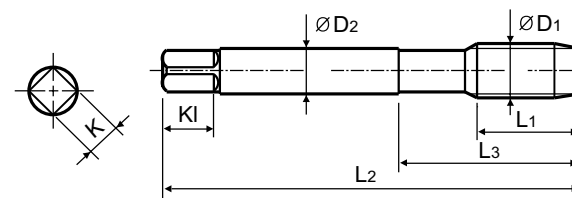
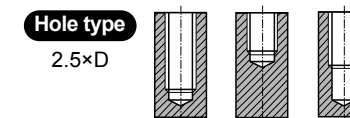
### EG-M ISO metric coarse threads for Screw Thread insert

Metrisches ISO Regelgew.f.Gew. Drahteins  
 ISO MÉTRIQUE DIN13 POUR FILETS RAPPORTÉS  
 ISO Metrico passo grosso per Helicoil

Machine taps  
 Maschinengewindebohrer

Wire insert threads are used for increasing fastening strength in soft materials.

Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups: AI, HSS-E, DIN 371/376, 6H Mod., 60°, C, R40, Bright, p.B306

Recommended Toolholder: Plain Shank TAPPING CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.298

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2.5 × 0.45		TC909176	6	56	18	3.5	2.7	6	3	2.65
M3 × 0.5		TC909206	5	63	21	4.5	3.4	6	3	3.15
M3.5 × 0.6		TC909226	8	70	25	6	4.9	8	3	3.7
M4 × 0.7		TC909246	8	70	25	6	4.9	8	3	4.2
M5 × 0.8		TC909286	8	80	30	6	4.9	8	3	5.25
M6 × 1		TC909316	10	90	35	8	6.2	9	3	6.3
M8 × 1.25		TC909366	16	100	39	10	8	11	3	8.4
M10 × 1.5		TC909426	15	110	44	9	7	10	3	10.4
M12 × 1.75		TC909506	20	110	44	11	9	12	3	12.5
M14 × 2		TC909546	22	110	44	12	9	12	3	14.5
M16 × 2		TC909606	25	125	50	14	11	14	4	16.5
M18 × 2.5		TC909656	27	140	54	18	14.5	17	4	18.75
M20 × 2.5		TC909706	30	160	60	18	14.5	17	4	20.75

►DIN 371(M2.5~M8) and DIN 376(M10~M20)

◎ : Excellent ○ : Good

ISO	P									M				K						
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
HB	125	190	250	270	300	180	290	320	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N									S						H					
	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎				◎													





# YIG SCREW THREAD INSERT TAPS

TC973 SERIES

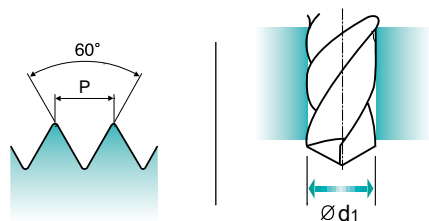
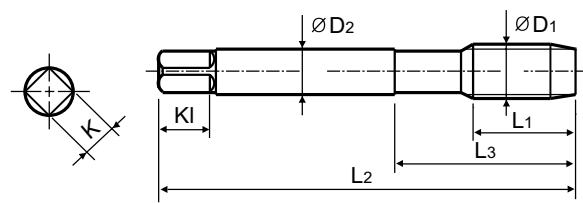
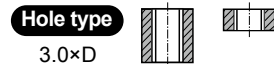
## EG-M ISO metric coarse threads for Screw Thread insert

Metrisches ISO Regelgew.f.Gew. Drahteins  
ISO MÉTRIQUE DIN13 POUR FILETS RAPPORTÉS  
ISO Metrico passo grosso per Helicoil

Machine taps  
Maschinengewindebohrer

► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups: **AI** HSS-E DIN 371/378 6H Mod. 60° B Bright p.B306

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.298 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2.5 × 0.45		TC973176	11	56	18	3.5	2.7	6	3	2.65
M3 × 0.5		TC973206	10	63	21	4.5	3.4	6	3	3.15
M3.5 × 0.6		TC973226	14	70	25	6	4.9	8	3	3.7
M4 × 0.7		TC973246	13	70	25	6	4.9	8	3	4.2
M5 × 0.8		TC973286	13	80	30	6	4.9	8	3	5.25
M6 × 1		TC973316	17	90	35	8	6.2	9	3	6.3
M8 × 1.25		TC973366	18	100	39	10	8	11	3	8.4
M10 × 1.5		TC973426	22	110	44	9	7	10	3	10.4
M12 × 1.75		TC973506	26	110	44	11	9	12	3	12.5
M14 × 2		TC973546	27	110	44	12	9	12	3	14.5
M16 × 2		TC973606	30	125	50	14	11	14	4	16.5
M18 × 2.5		TC973656	32	140	54	18	14.5	17	4	18.75
M20 × 2.5		TC973706	34	160	60	18	14.5	17	4	20.75

►DIN 371(M2.5~M8) and DIN 376(M10~M20)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N					S										H															
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550										
Recommended	◎	◎	◎	◎																											



# YIG SCREW THREAD INSERT TAPS

TC944 SERIES

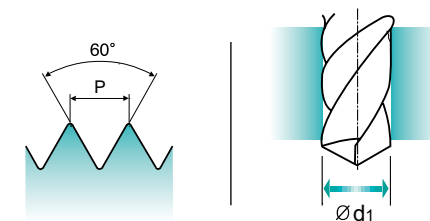
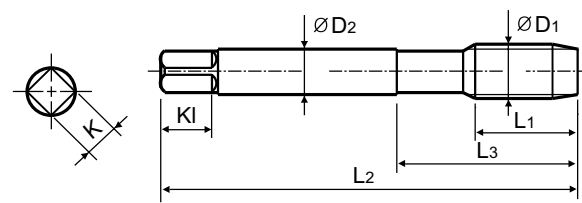
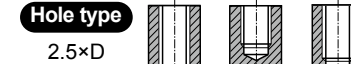
## EG-UNC Unified coarse threads for Screw Thread insert

Unified Regelgew.f.Gew.Drahteins  
UNC POUR FILETS RAPPORTÉS  
ISO Metrico passo grosso per Helicoil

Machine taps  
Maschinengewindebohrer

► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups: **AI** HSS-E DIN 371/378 2B 60° C R40 Bright p.B306

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.298 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC		TC944162	7	63	21	4.5	3.4	6	3	3.1
#5 - 40 UNC		TC944202	7	63	21	4.5	3.4	6	3	3.4
#6 - 32 UNC		TC944242	8	70	25	6	4.9	8	3	3.8
#8 - 32 UNC		TC944282	8	80	25	6	4.9	8	3	4.4
#10 - 24 UNC		TC944322	10	80	30	7	5.5	8	3	5.2
#12 - 24 UNC		TC944362	10	80	30	7	5.5	8	3	5.8
1/4 - 20 UNC		TC944402	14	90	35	8	6.2	9	3	6.7
5/16 - 18 UNC		TC944442	16	100	39	10	8	11	3	8.4
3/8 - 16 UNC		TC944482	16	110	39	12	9	12	3	10
7/16 - 14 UNC		TC944522	20	110	44	11	9	12	3	11.6
1/2 - 13 UNC		TC944562	22	110	44	12	9	12	3	13.3
9/16 - 12 UNC		TC944602	22	125	50	14	11	14	3	15
5/8 - 11 UNC		TC944642	25	125	50	14	11	14	4	16.5
3/4 - 10 UNC		TC944702	27	140	56	18	14.5	17	4	19.75

►DIN 371(#4~3/8) and DIN 376(7/16~3/4)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N					S										H															
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550										
Recommended	◎	◎	◎	◎																											

# YG SCREW THREAD INSERT TAPS

TC934 SERIES

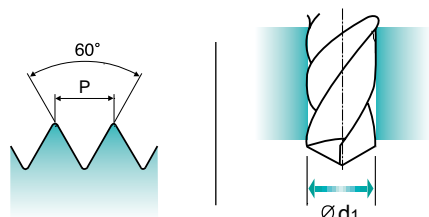
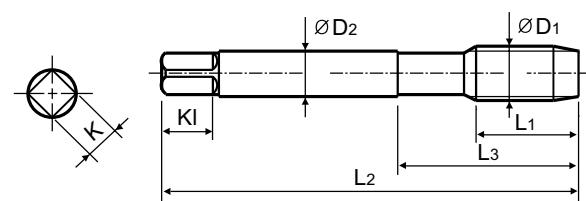
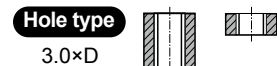
## EG-UNC

Unified coarse threads for Screw Thread insert

- Unified Regelgew.f.Gew.Drahteins
  - UNC POUR FILETS RAPPORTÉS
  - ISO Metrico passo grosso per Helicoil
- Machine taps Maschinengewindebohrer

Wire insert threads are used for increasing fastening strength in soft materials.

Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups: AI, HSS-E, DIN 371/376, 2B, 60°, B, Bright, p.B306

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK, ONE STEP TAPPING CHUCK

Page: D215-220, D221-228, D211-213

Recommended Cutting Page : P.298 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC		TC934162	13	63	21	4.5	3.4	6	3	3.1
#5 - 40 UNC		TC934202	13	63	21	4.5	3.4	6	3	3.4
#6 - 32 UNC		TC934242	14	70	25	6	4.9	8	3	3.8
#8 - 32 UNC		TC934282	13	80	25	6	4.9	8	3	4.4
#10 - 24 UNC		TC934322	17	80	30	7	5.5	8	3	5.2
#12 - 24 UNC		TC934362	17	80	30	7	5.5	8	3	5.8
1/4 - 20 UNC		TC934402	20	90	35	8	6.2	9	3	6.7
5/16 - 18 UNC		TC934442	22	100	39	10	8	11	3	8.4
3/8 - 16 UNC		TC934482	21	110	39	12	9	12	3	10
7/16 - 14 UNC		TC934522	26	110	44	11	9	12	3	11.6
1/2 - 13 UNC		TC934562	27	110	44	12	9	12	3	13.3
9/16 - 12 UNC		TC934602	30	125	50	14	11	14	3	15
5/8 - 11 UNC		TC934642	30	125	50	14	11	14	4	16.5
3/4 - 10 UNC		TC934702	32	140	54	18	14.5	17	4	19.75

►DIN 371(#4~3/8) and DIN 376(7/16~3/4)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	



# YG SCREW THREAD INSERT TAPS

TC954 SERIES

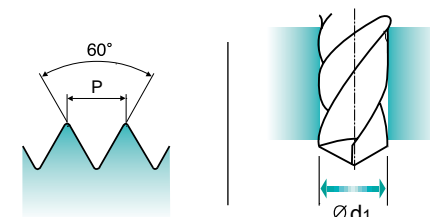
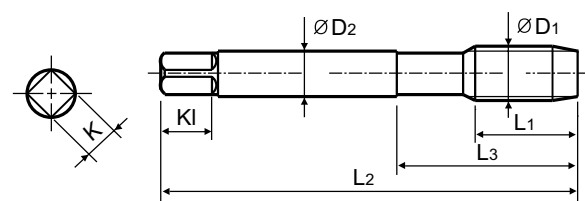
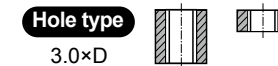
## EG-UNF

Unified fine threads for Screw Thread insert

- Unified Feingew.f.Gew.Drahteins
  - UNC POUR FILETS RAPPORTÉS
  - ISO Metrico passo grosso per Helicoil
- Machine taps Maschinengewindebohrer

Wire insert threads are used for increasing fastening strength in soft materials.

Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups: AI, HSS-E, DIN 371/376, 2B, 60°, B, Bright, p.B306

Recommended ToolHolder: Plain Shank, TAPPING ER CHUCK, ONE STEP TAPPING CHUCK

Page: D215-220, D221-228, D211-213

Recommended Cutting Page : P.298 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48 UNF		TC954182	12	56	20	4	3	6	3	3.1
#6 - 40 UNF		TC954262	14	70	25	6	4.9	8	3	3.7
#8 - 36 UNF		TC954302	13	70	25	6	4.9	8	3	4.4
#10 - 32 UNF		TC954342	13	80	25	6	4.9	8	3	5.1
1/4 - 28 UNF		TC954422	17	90	35	8	6.2	9	3	6.6
5/16 - 24 UNF		TC954462	18	100	39	10	8	11	3	8.25
3/8 - 24 UNF		TC954502	18	110	39	12	9	12	3	9.8
7/16 - 20 UNF		TC954542	22	100	40	9	7	10	3	11.5
1/2 - 20 UNF		TC954582	22	100	40	11	9	12	3	13.1
9/16 - 18 UNF		TC954622	22	100	40	12	9	12	3	14.75
5/8 - 18 UNF		TC954662	25	110	44	14	11	14	4	16.25
3/4 - 16 UNF		TC954722	25	125	50	16	12	15	4	19.5

►DIN 371(#4~3/8) and DIN 374(7/16~3/4)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)	
					TC909 TC944	TC973 TC934 TC954
<b>P</b>	1	Non-alloy steel	125		15-20	15-20
	2		190	13	15-20	15-20
	3		250	25	12-18	12-18
<b>N</b>	21	Aluminum- wrought alloy	60		10-15	10-15
	22		100		10-15	10-15
	23	Aluminum- cast, alloyed	75		15-20	15-20
	24		90		15-20	15-20
	27	Copper and Copper Alloys (Bronze / Brass)	90		8-12	8-12



HSS &amp; HSS-E

# PIPE TAPS

## GASGEWINDEBOHRER

- Tapping Whitworth Pipe threads
- Zum Gewindeschneiden von Whitworth-Rohrgewinden





# HSS & HSS-E PIPE TAPS

Tapping Whitworth Pipe threads

HOLE TYPE		Max. 2.0xD Blind Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole		
TOOL MATERIAL		HSS-E				
CHAMFER LEAD ACC. TO DIN2197		I/III	C B			
FLUTE TYPE		Straight Flute	Spiral Flute Spiral Point			
SPIRAL FLUTE ANGLE		-	R40 R40 R40	-		
SERIES	M	DIN371/376				
		DIN352				
MF	DIN357/LONG					
	DIN374					
UNC	DIN2181					
	DIN371/376					
UNF	DIN351					
	DIN371/374					
BSW	DIN2182/2183					
	DIN351					
G(BSP)	DIN5156/5157	T7709 (p.B309)	TC728 (p.B310)	TC729 (p.B311)	TB514 (p.B312)	TC727 (p.B313)
EG-M	DIN371/376					
EG-UNC	DIN371/376					
EG-UNF	DIN371/374					
SURFACE TREATMENT		Bright	Bright	Bright	VAP	Bright
MODEL						

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B314

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc				
P	1	Non-alloy steel	About 0.15% C Annealed	125		○			
	2		About 0.45% C Annealed	190	13	○	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	◎		◎
	4		About 0.75% C Annealed	270	28		◎		◎
	5	About 0.75% C Quenched & Tempered	300	32					
	6	Low alloy steel	Annealed	180	10	○	◎	○	◎
	7		Quenched & Tempered	275	29		◎	○	◎
	8		Quenched & Tempered	300	32			◎	
	9		Quenched & Tempered	350	38			◎	
	10	High alloyed steel, and tool steel	Annealed	200	15				
	11		Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				◎
	13		Martensitic Quenched & Tempered	240	23				◎
	14		Austenitic	180	10			○	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○			
	16		Pearlitic (Martensitic)	260	26	○			
	17	Nodular cast iron	Ferritic	160	3			◎	◎
	18		Pearlitic	250	25			◎	◎
	19		Ferritic	130					◎
20	Malleable cast iron	Pearlitic	230	21					
N	21	Aluminum-wrought alloy	Not Curable	60		○	○		○
	22		Curable Hardened	100		○	○		○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○		○
	24		≤ 12% Si, Curable Hardened	90			○		○
	25		> 12% Si, Not Curable	130			◎		◎
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110			◎		◎
	27		CuZn, CuSnZn (Brass)	90			○		○
	28		CuSn, lead-free copper and electrolytic copper	100					
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.					
	S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
32		Cured		280	30				
33		Annealed		250	25				
34		Ni or Co Based Cured		350	38				
35		Cast	320	34					
36	Titanium Alloys	Pure Titanium	400 Rm						
37		Alpha + Beta Alloys Hardened	1050 Rm						
H	38	Hardened steel	Hardened	550	55				
	39		Hardened	630	60				
	40	Chilled Cast Iron	Cast	400	42				
41	Hardened Cast Iron	Hardened	550	55					



## YG PIPE TAPS

T7709 SERIES

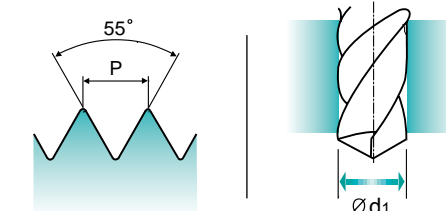
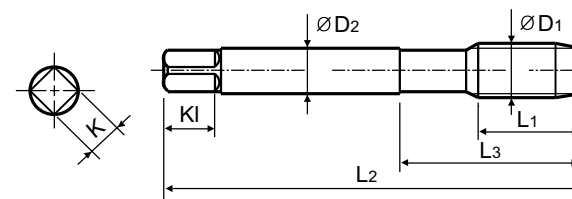
### G(BSP) Whitworth Pipe threads DIN ISO 228/1

- Whitworth Rohrgewinde DIN ISO 228/1
- G(BSP) PROFIL 55° DIN ISO 228/1
- Filettatura Whitworth per tubi DIN ISO 228/1

Sets of taps Gewindebohrer-Satz

- Serial hand tap set in First and Bottoming.
- Bottoming tap of set has final internal thread dimensions only.

- Handgewindebohrersatz mit Vor- und Fertigschneider.
- Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 6167 55° I/III Bright p.B314

Recommended Toolholder: Plain Shank TAPPING CHUCK D215-220 ONE STEP TAPPING CHUCK D211-213 Page D221-228 D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
G1/16 - 28		T7709029	22	56	26	6	4.9	8	3	6.8
G1/8 - 28		T7709209	20	63	27	7	5.5	8	4	8.8
G1/4 - 19		T7709409	22	70	32	11	9	12	4	11.8
G3/8 - 19		T7709489	22	70	32	12	9	12	4	15.25
G1/2 - 14		T7709569	22	80	35	16	12	15	4	19
G3/4 - 14		T7709709	22	90	40	20	16	19	4	24.5
G1 - 11		T7709789	25	100	45	25	20	23	6	30.75
G1-1/4 - 11		T7709869	40	125	77	32	24	27	6	39.5
G1-1/2 - 11		T7709949	40	140	85	36	29	32	6	45.2

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○			○									○	○				

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○																		

# YG PIPE TAPS

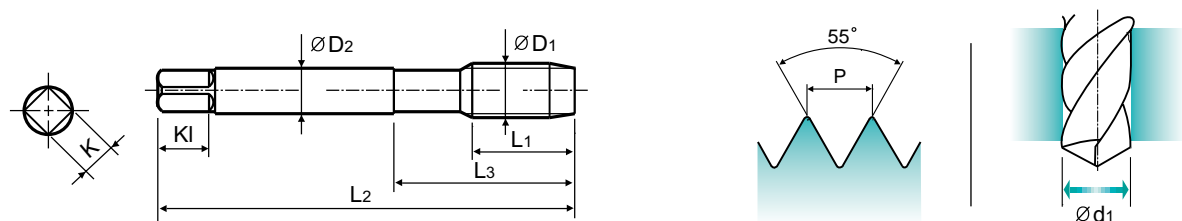
TC728 SERIES

## G(BSP) Whitworth pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1  
G(BSP) PROFIL 55° DIN ISO 228/1  
Filettatura Whitworth per tubi DIN ISO 228/1

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.   
► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **GS** HSS-E DIN 5156 55° C R40 Bright p.B314

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 D211-213

Recommended Cutting Page : P.306 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8 -	28	TC728200	20	90	36	7	5.5	8	3	8.8
G1/4 -	19	TC728400	22	100	40	11	9	12	3	11.8
G3/8 -	19	TC728480	22	100	40	12	9	12	3	15.25
G1/2 -	14	TC728560	25	125	50	16	12	15	4	19
G3/4 -	14	TC728700	28	140	54	20	16	19	4	24.5
G1 -	11	TC728780	30	160	60	25	20	23	4	30.75

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG PIPE TAPS

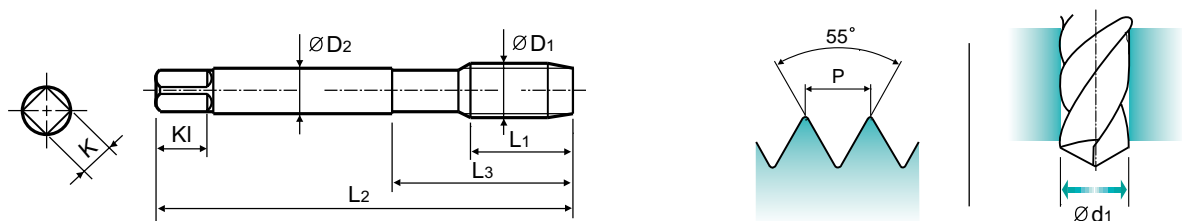
TC729 SERIES

## G(BSP) Whitworth pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1  
G(BSP) PROFIL 55° DIN ISO 228/1  
Filettatura Whitworth per tubi DIN ISO 228/1

Machine taps  
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.   
► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 5156 55° C R40 Bright p.B314

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 D211-213

Recommended Cutting Page : P.306 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8 -	28	TC729200	20	90	36	7	5.5	8	3	8.8
G1/4 -	19	TC729400	22	100	40	11	9	12	3	11.8
G3/8 -	19	TC729480	22	100	40	12	9	12	3	15.25
G1/2 -	14	TC729560	25	125	50	16	12	15	4	19
G3/4 -	14	TC729700	28	140	54	20	16	19	4	24.5
G1 -	11	TC729780	30	160	60	25	20	23	4	30.75

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

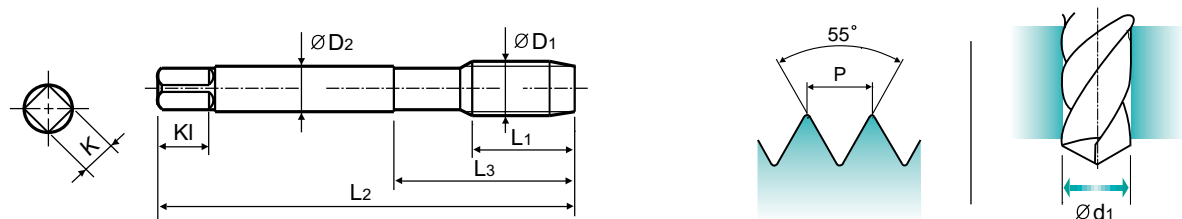
# YG PIPE TAPS

## TB514 SERIES

**G(BSP) Whitworth pipe threads DIN ISO 228/1**  
 ● Whitworth Rohrgewinde DIN ISO 228/1  
 ○ G(BSP) PROFIL 55° DIN ISO 228/1  
 ○ Filettatura Whitworth per tubi DIN ISO 228/1

Machine taps  
 Maschinengewindebohrer

- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VANW** HSS-E DIN 5156 55° C R40 Vap p.B314

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.306 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8	- 28	TB514200	20	90	36	7	5.5	8	3	8.8
G1/4	- 19	TB514400	22	100	40	11	9	12	3	11.8
G3/8	- 19	TB514480	22	100	40	12	9	12	3	15.25
G1/2	- 14	TB514560	25	125	50	16	12	15	4	19
G3/4	- 14	TB514700	28	140	54	20	16	19	4	24.5
G1	- 11	TB514780	30	160	60	25	20	23	4	30.75

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎								◎	◎	◎						◎	◎	

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



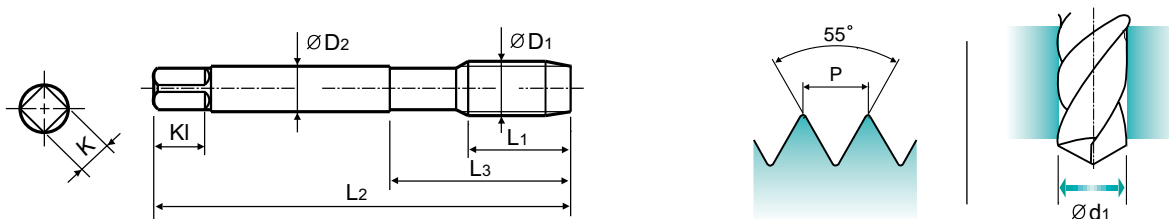
# YG PIPE TAPS

## TC727 SERIES

**G(BSP) Whitworth Pipe threads DIN ISO 228/1**  
 ● Whitworth Rohrgewinde DIN ISO 228/1  
 ○ G(BSP) PROFIL 55° DIN ISO 228/1  
 ○ Filettatura Whitworth per tubi DIN ISO 228/1

Machine taps  
 Maschinengewindebohrer

- Suitable for through hole in more cutting speed than other taps due to strong geometry.
- Geeignet für Sacklöcher in höherer Schnittgeschwindigkeit als andere Gewindebohrer dank einer stabilen Bohrergeometrie.



Material groups: **VG** HSS-E DIN 5156 55° B Bright p.B314

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.306 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8	- 28	TC727200	20	90	36	7	5.5	8	3	8.8
G1/4	- 19	TC727400	22	100	40	11	9	12	3	11.8
G3/8	- 19	TC727480	22	100	40	12	9	12	3	15.25
G1/2	- 14	TC727560	25	125	50	16	12	15	4	19
G3/4	- 14	TC727700	28	140	54	20	16	19	4	24.5
G1	- 11	TC727780	30	160	60	25	20	23	4	30.75

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎					◎	◎	◎						◎	◎	

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



					TC728	TC729	TB514	TC727
ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)			
P	1	Non-alloy steel	125				15-20	
	2		190	13	15-20		15-20	15-20
	3		250	25	12-18			12-18
	4		270	28	10-15			10-15
	5		300	32				
	6	Low alloy steel	180	10	10-15	10-15		10-15
	7		275	29	10-15	10-15		10-15
	8		300	32		6-10		
	9		350	38		3-5		
M	12	Stainless steel	200	15			7-10	
	13		240	23			5-8	
	14		180	10		4-6	4-6	
K	17	Nodular cast iron	160	3	10-15			10-15
	18		250	25	5-8			5-8
N	21	Aluminum-wrought alloy	60		10-15			10-15
	22		100		10-15			10-15
N	23	Aluminum-cast, alloyed	75		15-20			15-20
	24		90		15-20			15-20
N	25		130		10-15			10-15
	26		Copper and Copper Alloys	110		25-35		
N	27	Copper and Copper Alloys (Bronze / Brass)	90		8-12			8-12

PIPE TAPS

TECHNICAL DATA



Leading Through Innovation



TAPS



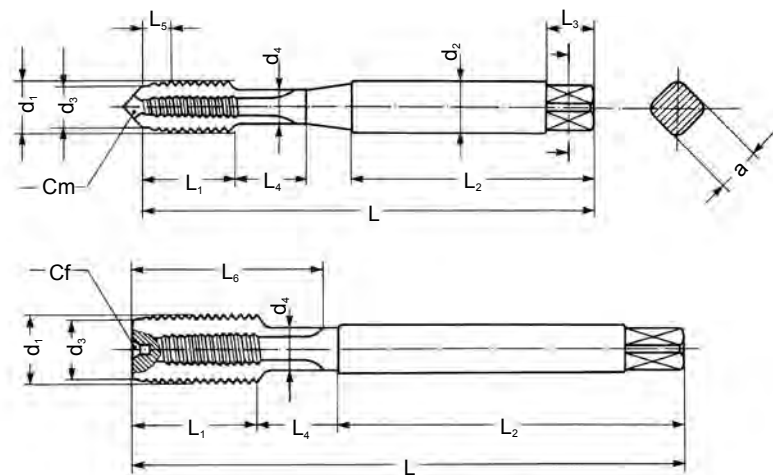
# TECHNICAL DATA

## TECHNISCHE DATEN

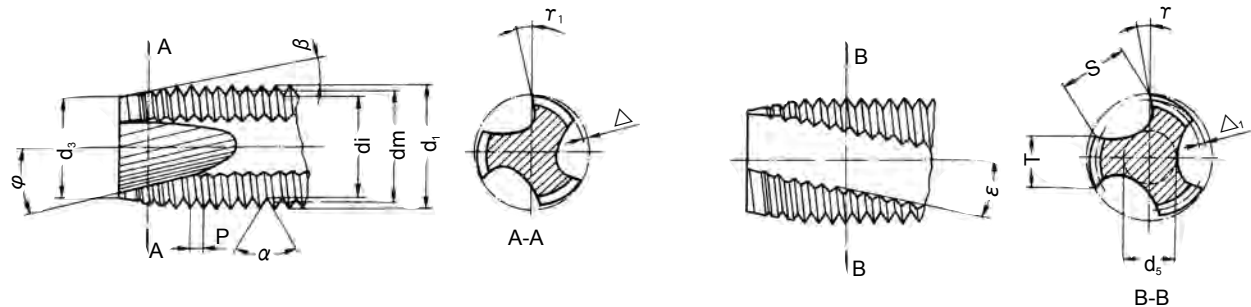




**TAPS TERMINOLOGY**  
**FACHAUSDRÜCKE BEI GEWINDEBOHRERN (Terminologie)**



- |                                 |                                       |  |
|---------------------------------|---------------------------------------|--|
| d <sub>1</sub> Major diameter   | d <sub>1</sub> Nenn Aussendurchmesser | d <sub>1</sub> Diamètre externe nominal                |
| d <sub>2</sub> Shank diameter   | d <sub>2</sub> Schaftdurchmesser      | d <sub>2</sub> Diamètre de la queue                    |
| d <sub>3</sub> Chamfer diameter | d <sub>3</sub> Anschnittdurchmesser   | d <sub>3</sub> Diamètre de l'entrée                    |
| d <sub>4</sub> Neck diameter    | d <sub>4</sub> Bunddurchmesser        | d <sub>4</sub> Diamètre de la collerette de dégagement |
| L Total length                  | L Gesamtlänge                         | L Longueur totale                                      |
| L <sub>1</sub> Thread length    | L <sub>1</sub> Gewindelänge           | L <sub>1</sub> Longueur de la partie filetée           |
| L <sub>2</sub> Shank length     | L <sub>2</sub> Schaftlänge            | L <sub>2</sub> Longueur de la queue                    |
| L <sub>3</sub> Square length    | L <sub>3</sub> Vierkantlänge          | L <sub>3</sub> Longueur du carré                       |
| L <sub>4</sub> Neck length      | L <sub>4</sub> Bundlänge              | L <sub>4</sub> Longueur de la collerette de dégagement |
| L <sub>5</sub> Chamfer length   | L <sub>5</sub> Anschnittlänge         | L <sub>5</sub> Longueur de l'entrée                    |
| L <sub>6</sub> Flutes length    | L <sub>6</sub> Nutenlänge             | L <sub>6</sub> Longueur des goujures                   |
| a Square                        | a Vierkantmaß                         | a Carré  |
| Cm Center male                  | Cm Mittelpunkt des Aussengewindes     | Cm Centre mâle   |
| Cf Center female                | Cf Mittelpunkt des Innengewindes      | Cf Centre femelle                                      |



- |  |  |  |
|--|--|--|
| d <sub>1</sub> Major diameter                        | d <sub>1</sub> Nenn Aussendurchmesser                  | d <sub>1</sub> Diamètre externe nominal              |
| dm Flank diameter                                    | dm Flankendurchmesser                                  | dm Diamètre moyen                                    |
| di Minor diameter                                    | di Kerndurchmesser                                     | di Diamètre interne                                  |
| d <sub>3</sub> Chamfer diameter                      | d <sub>3</sub> Anschnittdurchmesser                    | d <sub>3</sub> Diamètre de l'entrée                  |
| P Pitch  | P Steigung   | P Pas  |
| a Flank angle  | a Flankenwinkel  | alpha Angle du filet                                 |
| beta Chamfer angle                                   | beta Anschnittwinkel                                   | beta Demi-angle du cône d'entrée                     |
| phi Gun nose angle                                   | phi Schälswinkel                                       | phi Angle de l'entrée GUN                            |
| tau Gun nose rake angle in front                     | tau Schälswinkel-Spanwinkel                            | tau Angle de coupe sur l'entrée GUN                  |
| delta Chamfer relief                                 | delta Hinterschliff am Anschnitt                       | delta Détalonnage sur l'entrée                       |
| delta <sub>1</sub> Pitch diameter relief on the land | delta <sub>1</sub> Flankenhinterschliff auf Zahnbreite | delta <sub>1</sub> Flankenhinterschliff sur le filet |
| tau Rake angle                                       | tau Spanwinkel   | tau Angle de coupe frontale                          |
| T Width of land                                      | T Zahnstollenbreite                                    | T Largeur des dents                                  |
| S Flute width  | S Nutenbreite  | S Largeur des goujures                               |
| d <sub>5</sub> Web thickness                         | d <sub>5</sub> Seelendicke                             | d <sub>5</sub> Diamètre de l'âme                     |
| epsilon Angle of spiral flute                        | epsilon Spiralwinkel                                   | epsilon Angle d'hélice des goujures                  |

**RECOMMENDED TAP DRILL SIZE**  
**EMPFOHLENE KERNLOCHMASSE**

Unit : mm

Metric-ISO threads coarse pitch				Metric-ISO threads fine pitch				Metric-ISO threads fine pitch			
M	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size
1	0.25	0.785	0.75	2.5	0.35	2.221	2.15	25	2.00	23.210	23.00
1.1	0.25	0.885	0.85	3	0.35	2.271	2.65	26	1.50	24.676	24.50
1.2	0.25	0.985	0.95	3.5	0.35	3.221	3.15	27	1.00	26.153	26.00
1.4	0.30	1.160	1.10	4	0.50	3.599	3.50	27	1.50	25.676	25.50
1.6	0.35	1.321	1.25	4.5	0.50	4.099	4.00	27	2.00	25.210	25.00
1.7	0.35	1.346	1.30	5	0.50	4.599	4.50	28	1.00	27.153	27.00
1.8	0.35	1.521	1.45	5.5	0.50	5.099	5.00	28	1.50	26.676	26.50
2	0.40	1.679	1.60	6	0.75	5.378	5.20	28	2.00	26.210	26.00
2.2	0.45	1.838	1.75	7	0.75	6.378	6.20	30	1.00	29.153	29.00
2.3	0.40	1.920	1.90	8	0.75	7.378	7.20	30	1.50	28.676	28.50
2.5	0.45	2.138	2.05	8	1.00	7.153	7.00	30	2.00	28.210	28.00
2.6	0.45	2.176	2.10	9	0.75	8.378	8.20	30	3.00	27.252	27.00
3	0.50	2.599	2.50	9	1.00	8.153	8.00	32	1.50	30.675	30.50
3.5	0.60	3.010	2.90	10	0.75	9.378	9.20	32	2.00	30.210	30.00
4	0.70	3.422	3.30	10	1.00	9.153	9.00	33	1.50	31.676	31.50
4.5	0.75	3.878	3.70	10	1.25	8.912	8.80	33	2.00	31.210	31.00
5	0.80	4.334	4.20	11	0.75	10.378	10.20	33	3.00	30.252	30.00
6	1.00	5.153	5.00	11	1.00	10.153	10.00	35	1.50	33.676	33.50
7	1.00	6.153	6.00	12	1.00	11.153	11.00	36	1.50	34.676	34.50
8	1.25	6.912	6.80	12	1.25	10.912	10.80	36	2.00	34.210	34.00
9	1.25	7.912	7.80	12	1.50	10.676	10.50	36	3.00	33.252	33.00
10	1.50	8.676	8.50	14	1.00	13.153	13.00	38	1.50	36.676	36.50
11	1.50	9.676	9.50	14	1.25	12.912	12.80	39	1.50	37.676	37.50
12	1.75	10.441	10.20	14	1.50	12.676	12.50	39	2.00	37.210	37.00
14	2.00	12.210	12.00	15	1.00	14.153	14.00	39	3.00	36.252	36.00
16	2.00	14.210	14.00	15	1.50	13.676	13.50	40	1.50	38.676	38.50
18	2.50	15.744	15.50	16	1.00	15.153	15.00	40	2.00	38.210	38.00
20	2.50	17.744	17.50	16	1.50	14.676	14.50	40	3.00	37.252	37.00
22	2.50	19.744	19.50	17	1.00	16.153	16.00	42	1.50	40.676	40.50
24	3.00	21.252	21.00	17	1.50	15.676	15.50	42	2.00	40.210	40.00
27	3.00	24.252	24.00	18	1.00	17.153	17.00	42	3.00	39.252	39.00
30	3.50	26.771	26.50	18	1.50	16.676	16.50	45	1.50	43.676	43.50
33	3.50	29.771	29.50	18	2.00	16.210	16.00	45	2.00	43.210	43.00
36	4.00	32.270	32.00	20	1.00	19.153	19.00	45	3.00	42.252	42.00
39	4.00	35.270	35.00	20	1.50	18.676	18.50	48	1.50	46.676	46.50
42	4.50	37.799	37.50	20	2.00	18.210	18.00	48	2.00	46.210	46.00
45	4.50	40.799	40.50	22	1.00	21.153	21.00	48	3.00	45.252	45.00
48	5.00	43.297	43.00	22	1.50	20.676	20.50	50	1.50	48.676	48.50
52	5.00	47.297	47.00	22	2.00	20.210	20.00	50	2.00	48.210	48.00
56	5.50	50.796	50.50	24	1.00	23.153	23.00	50	3.00	47.252	47.00
60	5.50	54.796	54.50	24	1.50	22.676	22.50	52	1.50	50.676	50.50
64	6.00	58.305	58.00	24	2.00	22.210	22.00	52	2.00	50.210	50.00
68	6.00	62.305	62.00	25	1.00	24.153	24.00	52	3.00	49.252	49.00
				25	1.50	23.676	23.50				







Unit : mm

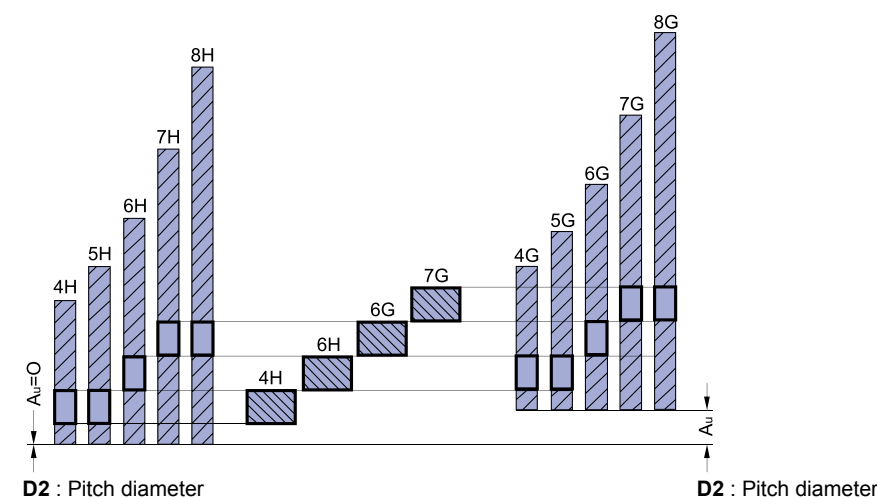
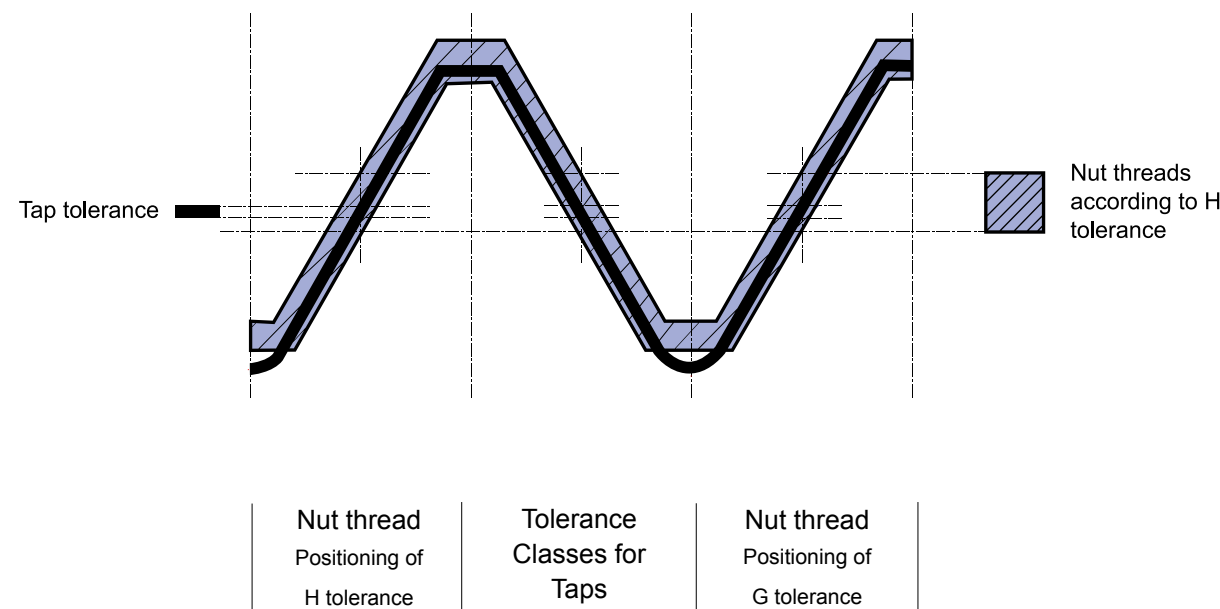
American Unified coarse threads				American Unified fine threads			
UNC	T.P.I	Maximum core dia.	Drill size	UNF	T.P.I	Maximum core dia.	Drill size
#1	64	1.585	1.50	#0	80	1.306	1.30
#2	56	1.872	1.80	#1	72	1.613	1.60
#3	48	2.146	2.10	#2	64	1.913	1.90
#4	40	2.385	2.30	#3	56	2.197	2.10
#5	40	2.697	2.60	#4	48	2.459	2.40
#6	32	2.896	2.85	#5	44	2.741	2.70
#8	32	3.528	3.50	#6	40	3.012	3.00
#10	24	3.950	3.90	#8	36	3.597	3.50
#12	24	4.590	4.50	#10	32	4.168	4.10
1/4"	20	5.250	5.20	#12	28	4.717	4.70
5/16"	18	6.680	6.60	1/4"	28	5.563	5.50
3/8"	16	8.082	8.00	5/16"	24	6.995	6.90
7/16"	14	9.441	9.40	3/8"	24	8.565	8.50
1/2"	13	10.881	10.75	7/16"	20	9.947	9.90
9/16"	12	12.301	12.25	1/2"	20	11.524	11.50
5/8"	11	13.693	13.50	9/16"	18	12.969	12.90
3/4"	10	16.624	16.50	5/8"	18	14.554	14.50
7/8"	9	19.520	19.50	3/4"	16	17.546	17.50
1"	8	22.344	22.25	7/8"	14	20.493	20.50
1*1/8"	7	25.082	25.00	1"	12	23.363	23.25
1*1/4"	7	28.258	28.25	1*1/8"	12	26.538	26.50
1*3/8"	6	30.851	30.75	1*1/4"	12	29.713	29.50
1*1/2"	6	34.026	34.00	1*3/8"	12	32.888	32.70
1*3/4"	5	39.560	39.50	1*1/2"	12	36.063	36.00
2"	4.5	45.367	45.25				

Whitworth threads B.S.W.				Whitworth pipe thread BSP.PI			
BSW	T.P.I	Maximum core dia.	Drill size	G(BSP)	T.P.I	Maximum core dia.	Drill size
3/32"	48	1.910	1.80	1/8"	28	8.848	8.80
1/8"	40	2.590	2.50	1/4"	19	11.890	11.80
5/32"	32	3.211	3.10	3/8"	19	15.395	15.25
3/16"	24	3.743	3.60	1/2"	14	19.172	19.00
7/32"	24	4.538	4.40	5/8"	14	21.128	21.00
1/4"	20	5.224	5.10	3/4"	14	24.658	24.50
5/16"	18	6.661	6.50	7/8"	14	28.418	28.25
3/8"	16	8.052	7.90	1"	11	30.931	30.75
7/16"	14	9.379	9.30	1*1/8"	11	35.579	35.50
1/2"	12	10.610	10.50	1*1/4"	11	39.592	39.50
9/16"	12	12.176	12.00	1*3/8"	11	42.005	42.00
5/8"	11	13.598	13.50	1*1/2"	11	45.485	45.20
3/4"	10	16.538	16.50	1*5/8"	11	49.670	49.60
7/8"	9	19.411	19.25	1*3/4"	11	51.428	51.40
1"	8	22.185	22.00	2"	11	57.296	57.20
1*1/8"	7	24.879	24.75	2*1/4"	11	63.392	63.30
1*1/4"	7	28.054	27.75	2*3/8"	11	67.080	67.00
1*3/8"	6	30.555	30.50	2*1/2"	11	72.866	72.80
1*1/2"	6	33.730	33.50	2*3/4"	11	79.216	79.10
1*5/8"	5	35.921	35.50	3"	11	85.566	85.50
1*3/4"	5	39.096	39.00	3*1/4"	11	91.662	91.50
1*7/8"	4.5	41.648	41.50	3*1/2"	11	98.012	98.00
2"	4.5	44.823	44.50	3*3/4"	11	104.362	104.00
2*1/4"	4	50.420	50.00	4"	11	110.712	110.50
2*1/2"	4	56.770	56.50				
2*3/4"	3.5	62.108	62.00				
3"	3.5	68.459	68.50				



TAP TOLERANCES  
GEWINDEBOHRER TOLERANZEN

Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO Standard.  
Toleranzklassen und Toleranzfelder für Schraubengewinde entsprechen dem metrischen ISO-Standard



Taps tolerances and recommended classes

Tap tolerance ISO	Tap tolerance DIN	Correct class to obtain Nut thread with tolerance				
ISO 1	4H	4H	5H			
ISO 2	6H	4G	5G	6H		
ISO 3	6G			6G	7H	
	7G				7G	8H
						8G



**METRIC ISO COARSE THREADS**  
**METRISCHES ISO-GEWINDE**

Nominal dimensions UNI 4535-64  
Production tolerances on tap pitch diameter for ISO 6H Nut threads  
Limit dimensions-Nut threads ISO 6H

Dimensions in mm  
 $H = 0.86603P$   
 $H_1 = \frac{5}{8} H = 0.54127P$   
 $h_3 = \frac{17}{24} H = 0.61343P$   
 $d_2 = D_2 = d - H = \frac{3}{4} d - 0.64952P$   
 $d_3 = d - 2h_3 = d - 1.22687P$   
 $r = \frac{H}{6} = 0.14434P$

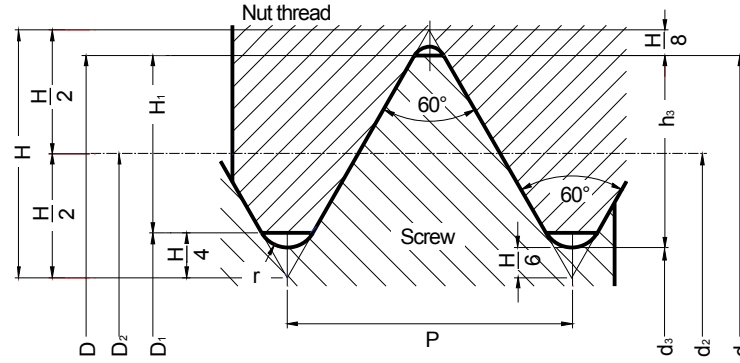


Table with 12 columns: Nominal diameter, Pitch, Pitch diameter, Minor diameter (Screw, Nut), Thread depth (Screw, Nut), Radius, Pitch diameter Tap tolerance 6H (min, max), Pitch diameter Nut tolerance 6H (min, max). Rows include M 1.6 to M 68.

Table for Metric thread MA (old UNI 159 Profile) and Nut tolerance SH8. Columns: Nominal diameter, Pitch, Pitch diameter, Minor diameter (Screw, Nut), Thread depth (Screw, Nut), Radius, Pitch diameter Tap tolerance 6H (min, max), Pitch diameter Nut tolerance 6H (min, max). Rows include M 1.7 to M 2.6.

**METRIC ISO FINE THREADS**  
**METRISCHES ISO-FEINGEWINDE**

Nominal dimensions UNI 4535-64  
Production tolerances on tap flank diameter for ISO 6H Nut threads  
Limit dimensions-Nut threads ISO 6H

Dimensions in mm  
 $H = 0.86603P$   
 $H_1 = \frac{5}{8} H = 0.54127P$   
 $h_3 = \frac{17}{24} H = 0.61343P$   
 $d_2 = D_2 = d - \frac{3}{4} H = d - 0.64952P$   
 $d_3 = d - 2h_3 = d - 1.22687P$   
 $r = \frac{H}{6} = 0.14434P$

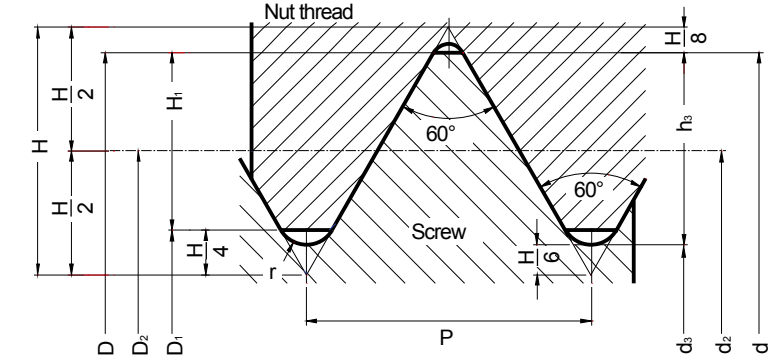


Table with 12 columns: Nominal diameter, Pitch, Pitch diameter, Minor diameter (Screw, Nut), Thread depth (Screw, Nut), Radius, Pitch diameter Tap tolerance 6H (min, max), Pitch diameter Nut tolerance 6H (min, max). Rows include M 2 to M 22.







Nominal diameter	Pitch	Pitch diameter d2 = D2	Minor diameter		Thread depth		Radius r	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw d3	Nut D1	Screw h3	Nut H1		min.	max.	min.	max.
M 22	2	20.701	19.546	19.835	1.227	1.083	0.289	20.752	20.786	20.701	20.913
M 24	1	23.350	22.773	22.917	0.613	0.541	0.144	23.390	23.416	23.350	23.520
M 24	1.5	23.026	22.160	22.376	0.920	0.812	0.217	23.074	23.106	23.026	23.226
M 24	2	22.701	21.546	21.835	1.227	1.083	0.289	22.754	22.791	22.701	22.925
M 25	1	24.350	23.773	23.917	0.613	0.541	0.144	24.390	24.416	24.350	24.520
M 25	1.5	24.026	23.160	23.376	0.920	0.812	0.217	24.074	24.106	24.026	24.226
M 25	2	23.701	22.546	22.835	1.227	1.083	0.289	23.754	23.791	23.701	23.925
M 26	1	25.350	24.773	24.917	0.613	0.541	0.144	25.390	25.416	25.350	25.520
M 26	1.5	25.026	24.160	24.376	0.920	0.812	0.217	25.074	25.106	25.026	25.226
M 26	2	24.701	23.546	23.835	1.227	1.083	0.289	24.754	24.791	24.701	24.925
M 27	1	26.350	25.773	25.917	0.613	0.541	0.144	26.390	26.416	26.350	26.520
M 27	1.5	26.026	25.160	25.376	0.920	0.812	0.217	26.074	26.106	26.026	26.226
M 27	2	25.701	24.546	24.835	1.227	1.083	0.289	25.754	25.791	25.701	25.925
M 28	1	27.350	26.773	26.917	0.613	0.541	0.144	27.390	27.416	27.350	27.520
M 28	1.5	27.026	26.160	26.376	0.920	0.812	0.217	27.074	27.106	27.026	27.226
M 28	2	26.701	25.546	25.835	1.227	1.083	0.289	26.754	26.791	26.701	26.925
M 30	1	29.350	28.773	28.917	0.613	0.541	0.144	29.390	29.416	29.350	29.520
M 30	1.5	29.026	28.160	28.376	0.920	0.812	0.217	29.074	29.106	29.026	29.226
M 30	2	28.701	27.546	27.835	1.227	1.083	0.289	28.754	28.791	28.701	28.925
M 30	3	28.051	26.319	26.752	1.840	1.624	0.433	28.115	28.157	28.051	28.316
M 32	1.5	31.026	30.160	30.376	0.920	0.812	0.217	31.074	31.106	31.026	31.226
M 32	2	30.701	29.546	29.835	1.227	1.083	0.289	30.754	30.791	30.701	30.925
M 33	1.5	32.026	31.160	31.376	0.920	0.812	0.217	32.074	32.106	32.026	32.226
M 33	2	31.701	30.546	30.835	1.227	1.083	0.289	31.754	31.791	31.701	31.925
M 33	3	31.051	29.319	29.752	1.840	1.624	0.433	31.115	31.157	31.051	31.316
M 35	1.5	34.026	33.160	33.376	0.920	0.812	0.217	34.074	34.106	34.026	34.226
M 35	2	33.701	32.546	32.835	1.227	1.083	0.289	33.754	33.791	33.701	33.925
M 36	1.5	35.026	34.160	34.376	0.920	0.812	0.217	35.074	35.106	35.026	35.226
M 36	2	34.701	33.546	33.835	1.227	1.083	0.289	34.754	34.791	34.701	34.925
M 36	3	34.051	32.319	32.752	1.840	1.624	0.433	34.115	34.157	34.051	34.316
M 38	1.5	37.026	36.160	36.376	0.920	0.812	0.217	37.074	37.106	37.026	37.226
M 39	1.5	38.026	37.160	37.376	0.920	0.812	0.217	38.074	38.106	38.026	38.226
M 39	2	37.701	36.546	36.835	1.227	1.083	0.289	37.754	37.791	37.701	37.925
M 39	3	37.051	35.319	35.752	1.840	1.624	0.433	37.115	37.157	37.051	37.316
M 40	1.5	39.026	38.160	38.376	0.920	0.812	0.217	39.074	39.106	39.026	39.226
M 40	2	38.701	37.546	37.835	1.227	1.083	0.289	38.754	38.791	38.701	38.925
M 40	3	38.051	36.319	36.752	1.840	1.624	0.433	38.115	38.157	38.051	38.316
M 42	1.5	41.026	40.160	40.376	0.920	0.812	0.217	41.074	41.106	41.026	41.226
M 42	2	40.701	39.546	39.835	1.227	1.083	0.289	40.754	40.791	40.701	40.925
M 42	3	40.051	38.319	38.752	1.840	1.624	0.433	40.115	40.157	40.051	40.316
M 45	1.5	44.026	43.160	43.376	0.920	0.812	0.217	44.074	44.106	44.026	44.226
M 45	2	43.701	42.546	42.835	1.227	1.083	0.289	43.754	43.791	43.701	43.925
M 45	3	43.051	41.319	41.752	1.840	1.624	0.433	43.115	43.157	43.051	43.316
M 48	1.5	47.026	46.160	46.376	0.920	0.812	0.217	47.074	47.106	47.026	47.226
M 48	2	46.701	45.546	45.835	1.227	1.083	0.289	46.754	46.796	46.701	46.937
M 48	3	46.051	44.319	44.752	1.840	1.624	0.433	46.115	46.157	46.051	46.316
M 50	1.5	49.026	48.160	48.376	0.920	0.812	0.217	49.074	49.106	49.026	49.226
M 50	2	48.701	47.546	47.835	1.227	1.083	0.289	48.754	48.796	48.701	48.937
M 50	3	48.051	46.319	46.752	1.840	1.624	0.433	48.115	48.157	48.051	48.316
M 52	1.5	51.026	50.160	50.376	0.920	0.812	0.217	51.074	51.106	51.026	51.226
M 52	2	50.701	49.546	49.835	1.227	1.083	0.289	50.754	50.796	50.701	50.937
M 52	3	50.051	48.319	48.752	1.840	1.624	0.433	50.115	50.157	50.051	50.316
M 55	1.5	54.026	53.160	53.376	0.920	0.812	0.217	54.074	54.106	54.026	54.226
M 55	2	53.701	52.546	52.835	1.227	1.083	0.289	53.754	53.796	53.701	53.937
M 55	3	53.051	51.319	51.752	1.840	1.624	0.433	53.115	53.157	53.051	53.316
M 56	1.5	55.026	54.160	54.376	0.920	0.812	0.217	55.074	55.106	55.026	55.226
M 56	2	54.701	53.546	53.835	1.227	1.083	0.289	54.754	54.796	54.701	54.937
M 56	3	54.051	52.319	52.752	1.840	1.624	0.433	54.115	54.157	54.051	54.316
M 58	1.5	57.026	56.160	56.376	0.920	0.812	0.217	57.074	57.106	57.026	57.226
M 58	2	56.701	55.546	55.835	1.227	1.083	0.289	56.754	56.796	56.701	56.937
M 58	3	56.051	54.319	54.752	1.840	1.624	0.433	56.115	56.157	56.051	56.316
M 60	1.5	59.026	58.160	58.376	0.920	0.812	0.217	59.074	59.106	59.026	59.226
M 60	2	58.701	57.546	57.835	1.227	1.083	0.289	58.754	58.796	58.701	58.937
M 60	3	58.051	56.319	56.752	1.840	1.624	0.433	58.115	58.157	58.051	58.316



**UNIFIED COARSE THREADS  
UNIFIED GROBGEWINDE**

Nominal dimensions as per ANSI B1.1  
Production tolerances on tap flank diameter for 2B class nut threads  
Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$H = 0.86603P$

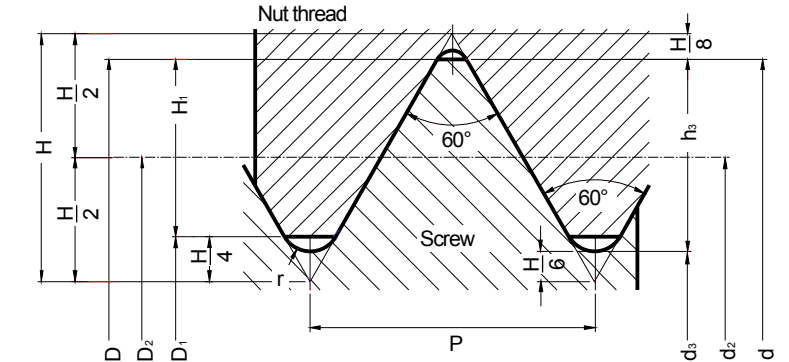
$H_1 = \frac{5}{8}H = 0.54127P$

$h_3 = \frac{17}{24}H = 0.61343P$

$d_2 = D_2 = d - \frac{3}{4}H = d - 0.64952P$

$d_3 = d - 2h_3 = d - 1.22687P$

$r = \frac{H}{6} = 0.14434P$



Nominal diameter	T.P.I	Pitch P	External diameter d = D	Flank diameter d2 = D2	Thread depth		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut D1	Screw d3	min.	max.	min. 2B/3B	max. 2B	max. 3B
#1	- 64 UNC	0.397	1.854	1.598	1.425	1.367	1.610	1.623	1.598	1.664	1.646
#2	- 64 UNC	0.454	2.184	1.890	1.694	1.628	1.902	1.915	1.890	1.961	1.943
#3	- 48 UNC	0.529	2.515	2.172	1.941	1.864	2.184	2.197	2.172	2.248	2.228
#4	- 40 UNC	0.635	2.845	2.433	2.156	2.065	2.446	2.459	2.433	2.517	2.494
#5	- 40 UNC	0.635	3.175	2.764	2.487	2.395	2.776	2.789	2.764	2.847	2.827
#6	- 32 UNC	0.794	3.505	2.990	2.647	2.532	3.105	3.028	2.990	3.084	3.058
#8	- 32 UNC	0.794	4.166	3.650	3.307	3.193	3.675	3.688	3.650	3.746	3.721
#10	- 24 UNC	1.058	4.826	4.138	3.680	3.528	4.163	4.176	4.138	4.247	4.219
#12	- 24 UNC	1.058	5.486	4.798	4.341	4.188	4.823	4.836	4.798	4.910	4.882
1/4"	- 20 UNC	1.270	6.350	5.524	4.976	4.793	5.575	5.588	5.524	5.646	5.616
5/16"	- 18 UNC	1.411	7.938	7.021	6.411	6.205	7.071	7.084	7.021	7.155	7.120
3/8"	- 16 UNC	1.588	9.525	8.494	7.805	7.577	8.545	8.557	8.494	8.639	8.603
7/16"	- 14 UNC	1.814	11.112	9.934	9.149	8.887	9.985	9.997	9.934	10.089	10.051
1/2"	- 13 UNC	1.954	12.700	11.430	10.584	10.302	11.481	11.494	11.430	11.595	11.552
9/16"	- 12 UNC	2.117	14.288	12.913	11.996	11.692	12.964	12.977	12.913	13.086	13.043
5/8"	- 11 UNC	2.309	15.875	14.376	13.376	13.043	14.427	14.440	14.376	14.559	14.514
3/4"	- 10 UNC	2.540	1								





**UNIFIED FINE THREADS**  
**UNIFIED FEINGEWINDE**

Nominal dimensions as per ANSI B1.1  
Production tolerances on tap flank diameter for 2B class nut threads  
Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$H = 0.86603P$

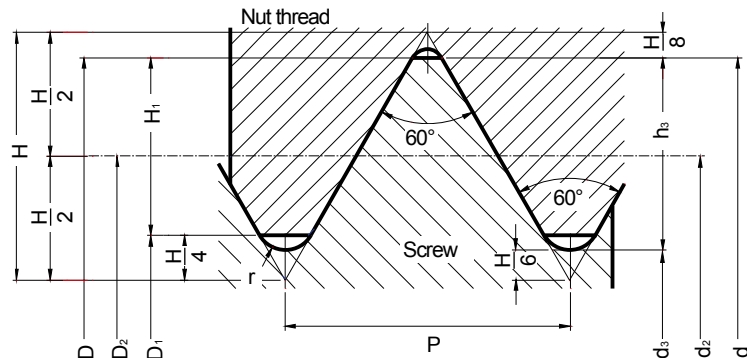
$H_1 = \frac{5}{8} H = 0.54127P$

$h_3 = \frac{17}{24} H = 0.61343P$

$d_2 = D_2 = d - \frac{3}{4} H = d - 0.64952P$

$d_3 = d - 2h_3 = d - 1.22687P$

$r = \frac{H}{6} = 0.14434P$



Nominal diameter	T.P.I	Pitch	External diameter d = D	Flank diameter d2 = D2	Thread depth		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut D1	Screw d3	min.	max.	min. 2B/3B	max. 2B	max. 3B
#0	-80 UNF	0.318	1.524	1.318	1.181	1.135	1.331	1.344	1.318	1.377	1.361
#1	-72 UNF	0.353	1.854	1.626	1.473	1.422	1.638	1.651	1.626	1.689	1.674
#2	-64 UNF	0.397	2.184	1.928	1.755	1.697	1.941	1.953	1.928	1.996	1.979
#3	-56 UNF	0.454	2.515	2.220	2.024	1.958	2.233	2.245	2.220	2.291	2.273
#4	-48 UNF	0.529	2.845	2.502	2.271	2.195	2.515	2.527	2.502	2.581	2.560
#5	-44 UNF	0.577	3.175	2.799	2.550	2.466	2.812	2.824	2.799	2.880	2.860
#6	-40 UNF	0.635	3.505	3.094	2.817	2.725	3.108	3.119	3.094	3.180	3.157
#8	-36 UNF	0.706	4.166	3.708	3.401	3.299	3.721	3.734	3.708	3.800	3.777
#10	-32 UNF	0.794	4.826	4.310	3.967	3.853	4.336	4.348	4.310	4.409	4.384
#12	-28 UNF	0.907	5.486	4.897	4.503	4.374	4.923	4.935	4.897	5.004	4.976
1/4"	-28 UNF	0.907	6.350	5.761	5.367	5.237	5.799	5.812	5.761	5.870	5.842
5/16"	-24 UNF	1.058	7.938	7.249	6.792	6.640	7.287	7.300	7.249	7.371	7.341
3/8"	-24 UNF	1.058	9.525	8.837	8.379	8.227	8.875	8.887	8.837	8.961	8.931
7/16"	-20 UNF	1.270	11.112	10.287	9.738	9.555	10.338	10.351	10.287	10.424	10.391
1/2"	-20 UNF	1.270	12.700	11.874	11.326	11.143	11.925	11.938	11.874	12.017	11.981
9/16"	-18 UNF	1.411	14.288	13.371	12.761	12.555	13.421	13.434	13.371	13.520	13.482
5/8"	-18 UNF	1.411	15.875	14.958	14.348	14.143	15.009	15.022	14.958	15.110	15.072
3/4"	-16 UNF	1.588	19.050	18.019	17.330	17.102	18.070	18.082	18.019	18.184	18.143
7/8"	-14 UNF	1.814	22.225	21.046	20.262	20.000	21.110	21.123	21.046	21.224	21.181
1"	-12 UNF	2.117	25.400	24.026	23.109	22.804	24.089	24.102	24.026	24.219	24.171
1*1/8"	-12 UNF	2.117	28.575	27.201	26.284	25.979	27.252	27.277	27.201	27.339	27.351
1*1/4"	-12 UNF	2.117	31.750	30.376	29.459	29.154	30.427	30.452	30.376	30.579	30.528
1*3/8"	-12 UNF	2.117	34.925	33.551	32.634	32.329	33.602	33.627	33.551	33.759	33.706
1*1/2"	-12 UNF	2.117	38.100	36.726	35.809	35.504	36.777	36.802	36.726	36.937	36.886

**WHITWORTH PIPE THREADS**  
**WHITWORTH ROHRGEWINDE**

Nominal dimensions ISO 228/1-UNI 338-66  
Production tolerances on tap flank diameter  
Limit dimensions for internal threads

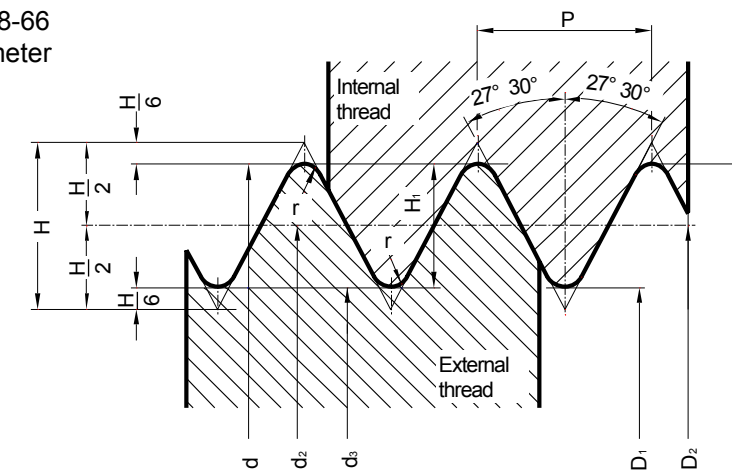
Dimensions in mm

$P = \frac{25.4}{Z}$

$H = 0.960491 P$

$H_1 = 0.640327 P$

$r = 0.137329 P$



Type	Thread diameter	Pitch	T.P.I	Flank diameter	Minor diameter	H1	r	Tap Flank diameter		Internal Thread Flank diameter	
								min.	max.	min.	max.
(1)	d = D	P	z	d2 = D2	d3 = d1			d2			
G 1/8"	9.728	0.907	28	9.147	8.566	0.581	0.125	9.177	9.194	9.147	9.254
G 1/4"	13.157	1.157	19	12.301	11.445	0.856	0.184	12.336	12.356	12.301	12.426
G 3/8"	16.662	1.337	19	15.806	14.950	0.856	0.184	15.841	15.861	15.806	15.933
G 1/2"	20.955	1.814	14	19.793	18.631	1.162	0.249	19.828	19.848	19.793	19.935
G 5/8"	22.911	1.814	14	21.749	20.587	1.162	0.249	21.784	21.804	21.749	21.891
G 3/4"	26.441	1.814	14	25.279	24.117	1.162	0.249	25.314	25.334	25.279	25.421
G 7/8"	32.201	1.814	14	29.039	27.877	1.162	0.249	29.074	29.094	29.039	29.181
G 1"	33.249	2.309	11	31.770	30.291	1.479	0.317	31.815	31.839	31.770	31.950
G 1*1/8"	37.897	2.309	11	36.418	34.939	1.479	0.317	36.463	36.487	36.418	36.598
G 1*1/4"	41.910	2.309	11	40.431	38.952	1.479	0.317	40.476	40.500	40.431	40.611
G 1*3/8"	44.323	2.309	11	42.844	41.365	1.479	0.317	42.889	42.913	42.844	43.024
G 1*1/2"	47.803	2.309	11	46.324	44.845	1.479	0.317	46.374	46.398	46.324	46.504
G 1*3/4"	53.746	2.309	11	52.267	50.788	1.479	0.317	52.327	52.354	52.267	52.447
G 2"	59.614	2.309	11	58.135	56.656	1.479	0.317	58.195	58.222	58.135	58.315
G 2*1/4"	65.710	2.309	11	64.231	62.752	1.479	0.317	64.291	64.318	64.231	64.448
G 2*3/8"	69.398	2.309	11	67.919	66.440	1.479	0.317	67.979	68.006	67.919	68.136
G 2*1/2"	75.184	2.309	11	73.705	72.226	1.479	0.317	73.765	73.792	73.705	73.922
G 2*3/4"	81.534	2.309	11	80.055	78.576	1.479	0.317	80.127	80.157	80.055	80.272
G 3"	87.884	2.309	11	86.405	84.926	1.479	0.317	86.477	86.507	86.405	86.622
G 3*1/4"	93.980	2.309	11	92.501	91.022	1.479	0.317	92.573	92.603	92.501	92.718
G 3*1/2"	100.330	2.309	11	98.851	97.372	1.479	0.317	98.923	98.953	98.851	99.068
G 3*3/4"	106.680	2.309	11	105.201	103.722	1.479	0.317	105.273	105.303	105.201	105.418
G 4"	113.030	2.309	11	111.551	110.072	1.479	0.317	111.623	111.653	111.551	111.768
G 4*1/2"	125.730	2.309	11	124.251	122.772	1.479	0.317				
G 5"	138.430	2.309	11	136.951	135.472	1.479	0.317				
G 5*1/2"	151.130	2.309	11	149.651	148.172	1.479	0.317				
G 6"	163.830	2.309	11	162.351	160.872	1.479	0.317				

(1) - This type is conventional:originally the value in inches was the internal pipe diameter.



**INTERESTING HINTS FOR TAPPING**  
**HINWEISE ZUM GEWINDESCHNEIDEN****Selection of the most suitable tap**  
**Auswahl des geeigneten Gewindebohrers**

Which types of tap or whether or not a thread former can be used, depends on the type of material to be machined. As a general guide, materials with an extension of at least 10% can be cold-formed.

To determine the most suitable tap, refer to the tap recommendation table on pages 356 to 363.

Welcher Typ Gewindebohrer oder ob ein Gewindeformer eingesetzt werden kann, hängt von dem zu bearbeitenden Werkstoff ab.

Als allgemeiner Leitwert gilt, daß Werkstoffe mit mindestens 10% Dehnung kaltgeformt werden können.

Zur Bestimmung des optimalen Gewindebohrers nutzen Sie die Empfehlungstabelle auf den Seiten 356 bis 363.

**Core holes**  
**Kernlöcher**

- Core holes should be clean and swarf-free.
- Core holes should be of the prescribed size, see chart extract on page 583-584 of this catalogue, and dependent on the actual application, selected towards the upper diameter limit.
- Kernlöcher sollten sauber und spanfrei sein.
- Kernlöcher sollten die angegebenen Durchmesser haben, siehe Seiten 583 und 584, und abhängig vom aktuellen Einsatzfall, zur größtmöglichen Durchmesserangabe tendieren.

**Lubricant in relation to machining centers**  
**Schmiermitteleinsatz auf Bearbeitungszentren**

Frequently the coolants used on machining centers are unsatisfactory for tapping because their percentage lubricant content is too low. If it is not possible to increase the percentage of lubricant in the emulsion, the lubrication problem can be solved in other ways, i.e.:

Meistens sind die gebräuchlichen Kühlmittel in Bearbeitungszentren zum Gewindeschneiden nicht geeignet, weil ihr Anteil an Schmierstoffen zu gering ist. Wenn es nicht möglich ist, den Anteil an Schmierstoffen in der Emulsion zu erhöhen, kann das Schmierproblem in anderer Weise gelöst werden, z. B.:

**Lubricating with concentrated emulsion** **Schmierung mit konzentrierter Emulsion**

A. A lubricating unit, connected to the machine control, delivers at the required instant a specific quantity of concentrated emulsion into the core hole or onto the tap.

B. A pump in a separate tank, controlled by the machine, delivers a specific amount of concentrate into the core hole.

A. Eine Schmiervorrichtung, die mit der Maschinensteuerung verbunden ist, gibt zum gewünschten Zeitpunkt eine bestimmte Menge konzentrierter Emulsion in das Kernloch oder auf den Gewindebohrer ab.

B. Eine Pumpe mit separatem Tank, mit der Maschinensteuerung verbunden, gibt eine bestimmte Menge des Konzentrats in das Kernloch.

**Tapping in separate operations** **Gewindeschneiden als separater Bearbeitungsgang**

This procedure allows the use of the ideal tapping lubricant.

Dies erlaubt den Einsatz des idealen Gewindeschneid Schmiermittels.

**Cutting speeds for taps**  
**Schnittgeschwindigkeiten für Gewindebohrer**

The cutting speed has a great influence on chip flow and the life of the tap.

It is worthwhile to establish the ideal cutting speed by tapping trials.

Guide values see on the recommendation table page 364. The cutting speed should be in relation to the characteristics of the material, the machine and its equipment.

Die Schnittgeschwindigkeit hat großen Einfluss auf den Spanabgang und die Lebensdauer des Gewindebohrers.

Bei Großserien ist es lohnend, die ideale Schnittgeschwindigkeit durch Versuche zu ermitteln.

Leitwerte finden Sie in der Empfehlungstabelle Seite 364. Die Schnittgeschwindigkeit sollte auf den Werkstoff, die Maschine und das Umfeld abgestimmt sein.

**Effects of unsuitable cutting speed** **Die Folgen falscher Schnittgeschwindigkeiten**

- forced tapping **Zu hoher Kraftaufwand**
- tap lead chipping caused by overloaded cutting tooth **Beschädigte Steigung durch überlastete Schneide**
- torn threads **Verschnittenes Gewinde**
- unsatisfactory tap-life **Ungenügende Standzeit**
- rejected threads **Ausschuss**

**Cold welding**  
**Kaltaufschweißung**

What are the causes of cold welding? **Was sind die Gründe für eine Kaltaufschweißung?**

- unsuitable tap selection **Ungeeignete Gewindebohrer Auswahl**
- tap with incorrect cutting geometry **Gewindebohrer mit falscher Schneidengeometrie**
- coolant unsuitable for material **Kühlmittel ungeeignet für den Werkstoff**
- insufficient coolant **Unzureichende Kühlung**
- axial pressure (pull or push) on the tap **Axialer Druck (Zug oder Druck) auf den Gewindebohrer**
- core hole too small **Kernloch zu klein**
- breaks in walls of core hole **Risse in der Wand des Kernlochs**
- speed too high or too low **Schnittgeschwindigkeit zu hoch oder zu klein**
- swarf trapped in the hole **Verklemmter Span im Kernloch**
- incorrect alignment of tap and core hole **Achsversatz zwischen Gewindebohrer und Kernloch**
- tap eccentricity **Gewindebohrer läuft unrun**

Effects of cold welding: **Die Folgen von Kaltaufschweißungen**

- torn threads **verschnittene Gewinde**
- short tap life **kurze Standzeit**
- rejected threads **Ausschuss**
- tap breakage **Werkzeugbruch**
- scrap workpieces **schrottreife Werkstücke**

**Tap mounting**  
**Gewindebohrer einspannen**

- The tap must be mounted on the axis of the core hole.
- On non-synchronized machines (feed / speed) we recommend the use of a tapping spindle.
- Die Achsen von Gewindebohrer und Kernloch müssen genau fluchten.
- Auf nicht synchronisierten Maschinen (Vorschub / Schnittgeschwindigkeit) empfehlen wir den Einsatz einer Gewindeschneidspindel.

**Tapping heads**  
**Gewindeschneidköpfe**

With non-synchronized machine spindles (feed / speed) the feed rate should as a rule be programmed approx. 5-10% lower than the thread pitch. In these cases a tapping chuck must be used which will compensate the difference between the feed rate and the thread pitch.

It is important that the tension spring in the axial compensation is set to a light rate to avoid axially loading the tap. The compression spring should be tensioned so that the tap starts to cut by compressing the spring at the most up to one half pitch.

Bei nicht synchronisierten Maschinenspindeln (Vorschub / Schnittgeschwindigkeit) sollte der Vorschub in der Regel 5 – 10% kleiner sein als die Gewindesteigung. In diesen Fällen muss ein Gewindeschneidfutter verwendet werden, das die Differenz zwischen dem Vorschub und der Gewindesteigung ausgleicht.

Es ist wichtig, daß die Spannfeder im axialen Ausgleich locker eingestellt wird, um eine zu große axiale Belastung des Gewindebohrers zu vermeiden.

Die Druckfeder sollte so gespannt sein, daß der Gewindebohrer zu schneiden beginnt, wenn die Feder bei höchstens einer halben Steigung gespannt ist.

**Important hints:** **Wichtige Hinweise :**

Ensure that the correct speed is selected.

Ensure that ample lubricating coolant is used when tapping.

Good machine and equipment stability is essential for optimum quality and performance.

Sorgen Sie für die richtige Schnittgeschwindigkeit.

Sorgen Sie dafür, daß reichlich Kühlschmiermittel beim Gewindeschneiden verwendet wird.

Gute Stabilität von Maschine und Vorrichtungen ist die Grundlage für optimale Qualität und Leistung.

APPLICATION AND USE OF THREADING TAPS  
FEHLER UND ABHILFEN BEIM GEWINDESCHNEIDEN

Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
<b>Tapped hole oversize Gewinde zu groß</b>	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap selected from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Faulty alignment Fehlerhafte Fluchtung	Ensure that the tap is correctly aligned with the core hole axis Dafür sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Cold welding Kaltaufschweißung	Improve lubrication and direction of coolant Adjust cutting speed Schmierung und Ausrichtung des Kühlstrahls verbessern Schnittgeschwindigkeit korrigieren
	Re-ground tap (lead-in is not concentric) Nachgescharfter Gewindebohrer (Anschnitt nicht konzentrisch)	Regrind tap lead correctly on a suitable tap grinding machine Anschnitt fehlerfrei auf geeigneter Schleifmaschine nachschleifen
<b>Stripped threads Gewinde verschnitten</b>	Incorrect tap in use (cutting geometry incorrect for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use a tap from the relevant material group. Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Spindle speed and feed rate not synchronized Spindelgeschwindigkeit und Vorschub sind nicht aufeinander abgestimmt	Check feed rate programming and / or pitch of leading spindle Use a tapping spindle with axial float Vorschub und / oder Steigung der Spindel überprüfen Gewindeschneidspindel mit axialem Ausgleich verwenden
	Insufficient start pressure exerted on tap with peel-cut Unzureichender Startdruck auf einen Gewindebohrer mit Schalanschnitt	Increase start pressure Startdruck erhöhen
<b>Bell mouthed tapped hole Gewinde trichterförmig</b>	Incorrect start pressure applied to tap Falscher Gewindebohrer im Einsatz	Use a tapping spindle with axial float Gewindeschneidspindel mit axialem Ausgleich verwenden
<b>Unsatisfactory thread surface finish Gewinde zu rau</b>	Incorrect tap in use (Cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Select tap from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	The tap is blunt Die Schneiden sind stumpf	Replace or re-grind tap Neuen oder nachgescharften Gewindebohrer einsetzen
	Tap badly re-ground Der Gewindebohrer ist schlecht nachgescharft	Re-grind tap again. Check that cutting geometry is suitable for material Gewindebohrer korrekt nachschleifen Prüfen, ob die Schneidengeometrie für den Werkstoff geeignet ist
	Coolant lacking in lubricating qualities and / or quantity Kühlmittel mit unzureichendem Schmiermittelanteil	Ensure the use of a suitable coolant and an ample supply Für qualitative und quantitative gute Kühlung und Schmierung sorgen



Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
<b>Partial chipping of tap Gewinde ist unfertig</b>	Swarf jamming Spanestau	Check cutting speed Use alternative tap type Schnittgeschwindigkeit prüfen Andere Gewindebohrertypen wählen
	Tap has jammed against bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Check hole and thread depths Drill core hole deeper Kernlochtiefe und Gewindelänge prüfen Kernloch tiefer bohren
	Tap incorrectly re-ground (lead-in diameter too small therefore too few cutting teeth) Gewindebohrer ist schlecht nachgescharft (Anschnittdurchmesser zu klein, deshalb zu wenige schneidende Zähne)	Ensure that original values are maintained when regrinding Beim Nachschärfen auf originale Geometrie achten
	Irregular workpiece material structure Materialfehler im Werkstück	Adjust cutting speed Improve lubricating quality of coolant Schnittgeschwindigkeit anpassen Die Schmierfähigkeit des Kühlmittels verbessern
<b>Excessive tap wear Übermäßiger Verschleiß des Gewindebohrers</b>	Incorrect cutting speed Falsche Schnittgeschwindigkeit	Adjust cutting speed to suit workpiece material Schnittgeschwindigkeit dem Werkstoff anpassen
	Coolant lacking in lubricating qualities and / or quantity Kühlmittel mit unzureichender Schmierqualität oder ?menge	Ensure the use of a suitable coolant and an ample supply Für qualitative und quantitative gute Kühlung und Schmierung sorgen Check that coolant is reaching the cutting zone Prüfen, ob das Kühlmittel den Schnittbereich erreicht
	Surface of the core hole is compacted Verfestigte Bohrungswand des Kernlochs	Check core hole drilling conditions (drill carefully to reduce risk of surface compacting) Einsatzwerte beim Kernlochbohren prüfen (vorsichtig bohren um eine Aufhärtung der Bohrungswand zu vermeiden) Check drill cutting edges Bohrerschneiden überprüfen
<b>Tap breakage Bruch des Gewindebohrers</b>	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Centering error Fehlerhafte Fluchtung	Ensure that axes of tap and core hole are aligned Dafür sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Blunt tap Schneiden sind stumpf	Re-grind tap Neuen oder nachgescharften Gewindebohrer einsetzen Ensure that taps are stored carefully Auf sorgfältige Lagerung der Gewindebohrer achten
	Tap has reached bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Use tapping spindle with axial float and slipping clutch Gewindeschneidspindel mit axialem Ausgleich und Rutschkupplung verwenden
	Core hole too small Kernloch ist zu klein	Select core hole as per chart, pages 583~584 of this catalogue Kernloch Durchmesser auf der Tabelle Seite 583 u. 584 auswählen




**RESHARPENING**  
**NACHSCHARFEN**

The resharpening on taps is done for regenerating the active hedges worn by the destructive action of cutting and of friction, it has high importance for an economical exploitation of the tool and so far has to be made rationally, keeping away from wrong operations which can heavily compromise the accuracy and the life.

In order to execute the tap resharpening quickly and accurately we recommend the use of proper resharpening machines having all necessary equipments for this operation.

The tap resharpening take place in two steps:

- resharpening of (relieved) chamfer;
- resharpening of flutes. (See picture 1)

Das Nachscharfen der Gewindebohrer dient der Erneuerung der verschlissenen Schneidkanten.

Es ist wichtig, um das Leistungsvermögen des Werkzeugs voll auszuschöpfen und muss daher präzise durchgeführt werden, um Fehler zu vermeiden, die die Präzision des Gewindes und die Standzeit beeinträchtigen.

Um das Nachscharfen schnell und präzise durchzuführen, empfehlen wir den Einsatz von geeigneten Schleifmaschinen mit dem notwendigen Zubehör.

Das Nachscharfen der Gewindebohrer erfolgt in zwei Stufen :

- scharfen der Freiflächen im Anschnitt;
- scharfen der Nuten (Spanfläche) (siehe Abb. 1)

**RESHARPENING OF (RELIEVED) CHAMFER**  
**RESHARPENING OF (RELIEVED) CHAMFER**

The chamfer resharpening must be executed both on specific for taps machines or on conventional resharpening machines equipped with an auxiliary system proper to generate the circular relief on back.

The picture 2 shows the resharpening made with the cylindrical surface of a grinding wheel.

Before resharpening, verify that the tap, fixed between points or on pincer, runs concentric; verify also the angle  $\beta$  which has to be correct in order to keep the same number of threads on chamfer.

Das Scharfen des Anschnitts muss entweder auf besonderen Gewindeschleifmaschinen erfolgen, oder auf konventionellen Schleifmaschinen mit entsprechenden Vorrichtungen für einen genauen Hinterschliff.

Abb. 2 zeigt das Nachscharfen mit einer zylindrischen Schleifscheibe.

Vor dem Schleifen überprüfen, ob der Gewindebohrer, zwischen Spitzen oder in einer Spannzange gehalten, rund läuft; prüfen Sie auch den Winkel  $\beta$ , der korrekt sein muss, um die gleiche Anzahl Gänge im Anschnitt zu haben

**RESHARPENING OF FLUTES**  
**NACHSCHARFEN DER NUTEN**

This operation must be done on a specific resharpening machine for taps, equipped with: deviding head, lead screw of "barrasinus" for executing the helix and cooling equipment.

The rake angle  $\tau$  is obtained moving the tap axis,

in relation to the resharpening surface, of an amount X to be calculated with the formula:  $X = \frac{1}{2} d_1 \sin \tau$  (see picture 3).

( $d_1$  = tap major diameter)

Dieser Arbeitsgang muss auf einer speziellen Gewindebohrer ? Schleifmaschine erfolgen, die ausgerüstet ist mit :

Teilkopf, Leitspindel zum Schleifen entlang gedrahter Nuten und Kühlmittelversorgung. Den Spanwinkel  $g$  bei Gewindebohrern mit geraden Nuten erhält man durch Verstellen der Bohrerachse im Verhältnis zu der zu schleifenden Oberfläche um den Einstellwert X, der nach folgender Formel errechnet wird :

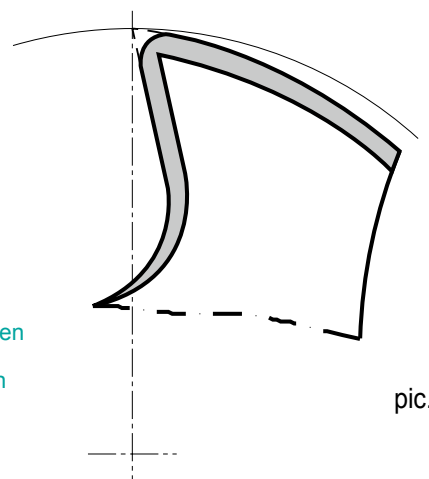
$X = ? d_1 \sin g$  (siehe Abb. 3).

( $d_1$  = Gewindebohrerdurchmesser)

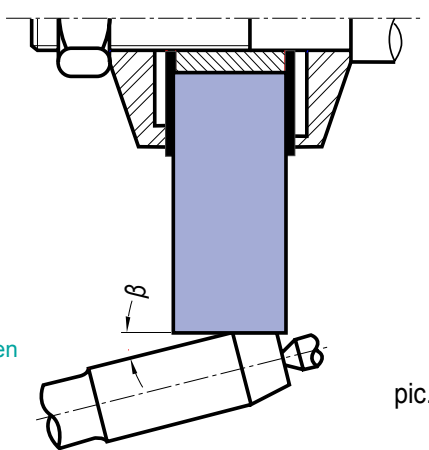
Example:

Tap 10 x 1,5 to cut on steel strength = 600 N/mm<sup>2</sup>  
 $d_1 = 10\text{mm}$  ;  $\tau = 15^\circ$  ;  $\sin \tau = 0,25882$ ;

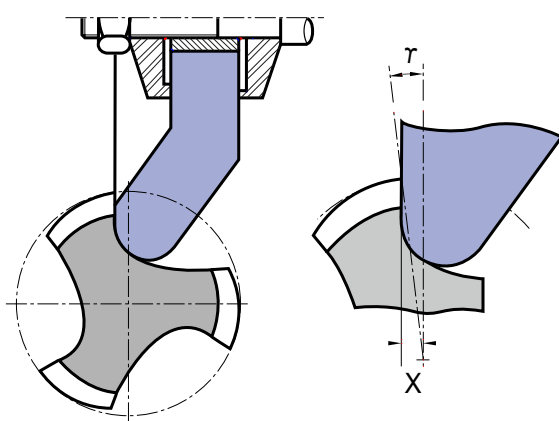
$$X = \frac{0,25882 \times 10}{2} ; X = 1,29\text{mm}$$



pic. 1



pic. 2



pic. 3

On all taps having spiral-flutes, in addition to the trade mark and identification of the dimension and type, it is possible to find also the pitch of the spiral referred to the lead screw necessary for the resharpening.

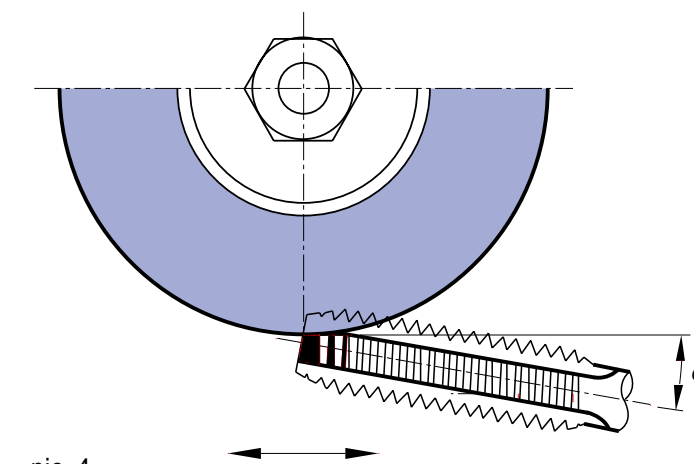
In case of employment of taps equipped with deburring tool Burr-Bit it is necessary to extend the flutes following what suggested by the supplier.

Because the wear on a tap is mainly on the chamfer area, on taps having "gun nose" the resharpening of the flutes can be made on the front area only (see picture 4).

Bei allen Gewindebohrern mit gedrahten Nuten werden allgemein spezielle Schleifmaschinen eingesetzt, die die Drallsteigung messen und selbständig einstellen können.

Beim Einsatz von Gewindebohrern mit dem Entgratwerkzeug Burr-Bit ist es notwendig, die Nuten entsprechend den Vorgaben des Herstellers zu verlängern.

Da der Verschleiß eines Gewindebohrers hauptsächlich im Anschnitt und dem erstenvollen Gewindezahn liegt, können Gewindebohrer mit Schalanschnitt und gerader Nute auch nur im vorderen Gewindeteil nachgeschliffen werden (siehe Abb. 4).



pic. 4

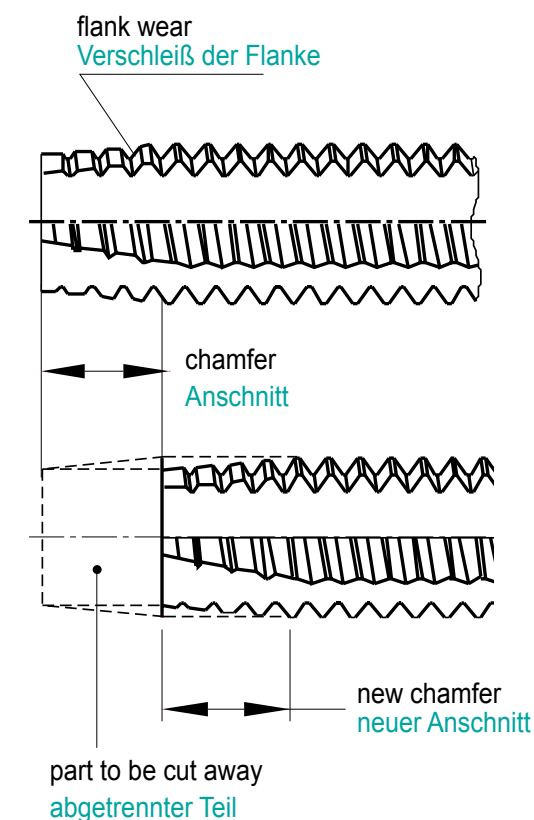
It is very important to pay attention that, when also the thread flanks are worn (in addition to the active hedges) the resharpening as above described is practically useless.

In this case the "regeneration" is made, by means of cutting completely the chamfer away (this means a shorter tap) and reproducing then the chamfer with same angle and relief. (see picture 5)

The regeneration is also advisable on taps with spiral flutes, because that way the flutes grinding is not necessary, in absence of special resharpening machines with lead screw with proper angle.

Es ist wichtig zu wissen, daß beim Verschleiß der Gewindezahnflanken (zusätzlich zur Hauptschneidkante) das oben beschriebene Nachschleifen praktisch nutzlos ist !

In diesem Fall wird die ?Erneuerung" dadurch erreicht, daß der Anschnitt komplett abgetrennt wird ( das bedeutet eine Kürzung des Gewindebohrers und Verlust der entrierung ) und neu angeschliffen wird, mit gleichen Winkeln und Hinterschliff (siehe Abb. 5). Diese ?Erneuerung" ist auch für drallgenutete Gewindebohrer zu empfehlen, weil dann das Nutenschleifen entfällt, wenn keine geeignete Schleifmaschine mit Leitspindel vorhanden ist



pic. 5

**IMPORTANT RECOMMENDATIONS**  
**WICHTIGE EMPFEHLUNGEN****RESHARPEN TIMELY****RECHTZEITIGES NACHSCHARFEN**

It is important to resharpen timely the worn tap. In these conditions in fact defective threads can be produced, risking to brake the tool; in addition the wear is increasing quickly, damaging a wide area of the cutter and rapidly.

Es ist wichtig, den Gewindebohrer rechtzeitig nachzuschleifen.

Stumpfe Gewindebohrer können defekte Gewinde schneiden, die Bruchgefahr ist erhöht; zudem nimmt der Verschleiß schnell zu und zerstört weite Bereiche der Schneiden

**PROPER GRINDING WHEELS****RICHTIGE SCHLEIFSCHEIBEN**

The structure and grain of grinding wheels must be the right one for the tap to be resharpened. Our technicians are at complete disposal to give the proper recommendations.

Bindung und Korn der Schleifscheiben müssen auf die Gewindebohrer abgestimmt sein.

Unsere Techniker sind bereit, Ihnen die geeignete Empfehlung zu geben

**TAPS FOR CAST IRONS****GEWINDEBOHRER FÜR GUSS**

On these taps the resharpening is rarely possible because, due to cast iron is abrasive, the tap is wearing on flank of the thread and so far out of tolerance.

Bei diesen Gewindebohrern ist Nachschleifen kaum möglich. Der verschleißfordernde

Guß greift die Schneidenflanken an, wodurch die Toleranz verloren geht.

**TAPS FOR ALUMINIUM****GEWINDEBOHRER FÜR ALUMINIUM**

It is advisable, after resharpening as above described, to remove steel burrs from the grinding wheel action.

This operation, easy with iron brushes, avoid the danger of boring or over tolerance tapping instead of accurate tapping.

Es ist empfehlenswert nach dem oben beschriebenen Nachschleifen Schleifgrate vom Gewindebohrer mit Stahlbursten zu entfernen.

Dadurch wird die Gefahr vermieden, Gewinde zu groß zu schneiden.

**CONTROLS (TESTS)****KONTROLLEN (TESTS)**

Once resharpened the tap, it is always better to make some tests to obtain correct threads same as when the tap was new.

- The chamfer must be perfectly on axis to avoid the effects of picture 6.

- The cutters must have correct divisions. The results of a resharpening with a wrong division is shown on picture 7.

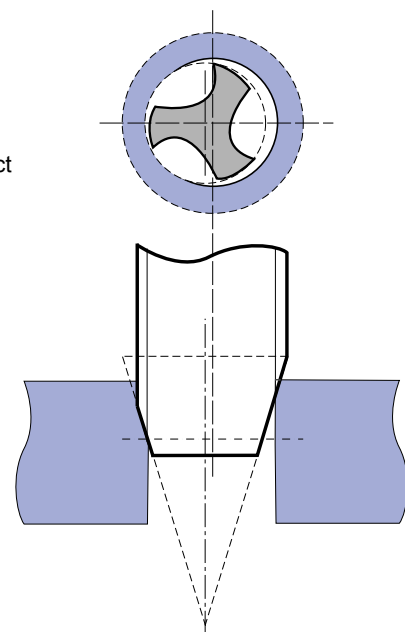
- The length and number of threads on chamfer must be rigorously identical to those of the new tap.

Nach dem Nachschleifen sollte der Gewindebohrer genau kontrolliert werden um sicher zu stellen, daß er genauso gut schneidet, wie ein neuer Bohrer.

- Der Anschnitt muss genau axial sein, um den Effekt wie in Abb. 7 zu vermeiden.

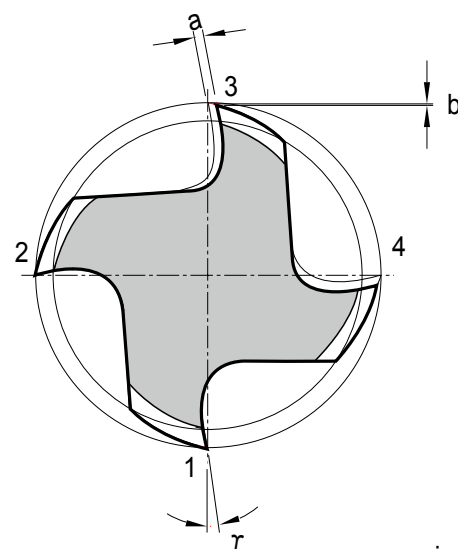
- Die Schneiden müssen eine genaue Teilung haben. Das Ergebnis des Nachschleifens mit falscher Teilung ist in Abb. 7 zu sehen.

- Die Länge und Anzahl der Gewindegänge im Anschnitt muss absolut genau so sein, wie bei einem neuen Gewindebohrer.



pic. 6

chamfer out of center  
unrund geschliffener Anschnitt



pic. 7

incorrect division  
Teilungsfehler  
cutters not concentric  
Schneiden nicht konzentrisch

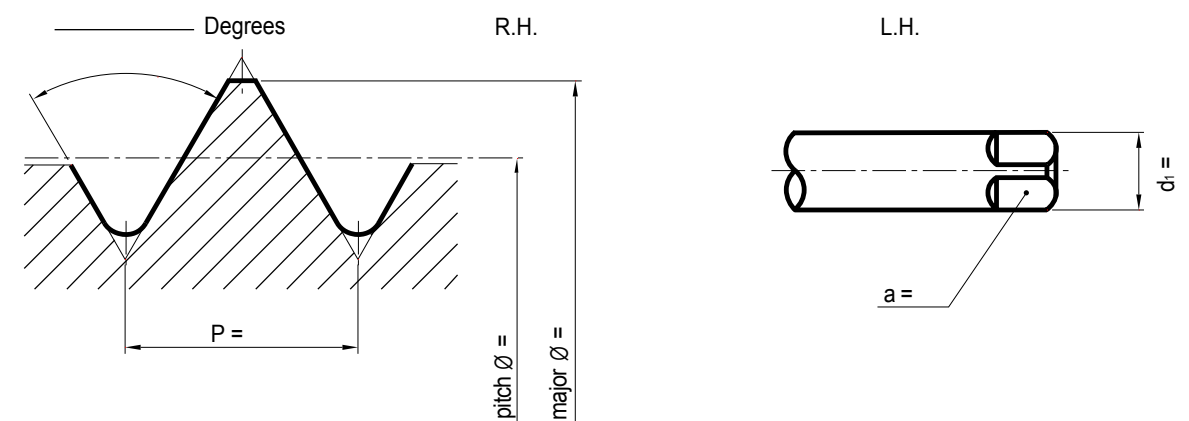
**ORDERS / INQUIRIES SPECIAL TAPS**  
**Bestellungen / Anfragen ; SONDERGEWINDEBOHRER**

For photocopying

**Orders / Inquiries**

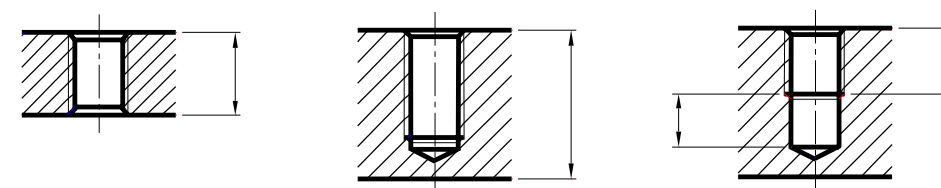
This form may be returned to your local YG-1 distributor or to YG-1.

Company \_\_\_\_\_  
Address \_\_\_\_\_  
Department \_\_\_\_\_  
Phone \_\_\_\_\_

**Tool**Thread  $\varnothing$  and pitch \_\_\_\_\_

Tolerance class \_\_\_\_\_

Overall length \_\_\_\_\_ mm

**Hole**

Unusual characteristics of the threaded product or of the tapping method, e.g. counterbore, tapping on an angle, etc. \_\_\_\_\_

**Material to be tapped**

Material No. or designation \_\_\_\_\_  
Tensile strength \_\_\_\_\_ N/mm<sup>2</sup> \_\_\_\_\_ HB \_\_\_\_\_ HRC  
Chip form \_\_\_\_\_ short \_\_\_\_\_ long  
Annealed steel \_\_\_\_\_ Hardened steel \_\_\_\_\_ Heat treated steel

Special requirements : \_\_\_\_\_

Person to be contacted within the company \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_

**SEND US YOUR TAPPING PROBLEMS**  
**SENDEN SIE UNS IHR GEWINDESCHNEIDPROBLEM**

For photocopying

This form may be returned to your local YG-1 distributor or to YG-1.		Company _____
		Address _____
		Department _____
		Phone _____
<b>Tool</b>	Description of the tap being used at present Thread Ø and pitch _____ <input type="radio"/> right-hand cutting <input type="radio"/> fluteless <input type="radio"/> straight flutes <input type="radio"/> spiral point Additional information for special pitches or thread forms pitch Ø _____ major Ø _____ minor Ø _____	Make _____ Type _____ Class of tolerance _____ <input type="radio"/> left-hand cutting <input type="radio"/> right hand spiral flutes _____ degrees <input type="radio"/> left hand spiral flutes _____ degrees <input type="radio"/> length of chamfer _____ thread chamfer flank angle _____ degrees
<b>Hole</b>	Tap drill Ø _____ <input type="radio"/> through hole Special requirements or unusual characteristics of the threaded product _____	length of hole _____ depth of full thread _____ <input type="radio"/> bottoming hole
<b>Tapping speed</b>	_____ meters per minute _____ revolutions per minute	
<b>Lubricant</b>	<input type="radio"/> without <input type="radio"/> emulsion _____% <input type="radio"/> cutting oil <input type="radio"/> other _____ Application <input type="radio"/> under pressure <input type="radio"/> vaporization <input type="radio"/> other _____	
<b>Machine</b>	Type _____ <input type="radio"/> horizontal tapping <input type="radio"/> vertical tapping	
<b>Driving</b>	<input type="radio"/> tap revolves <input type="radio"/> work revolves Number of spindles _____	
<b>Feed</b>	<input type="radio"/> without <input type="radio"/> power <input type="radio"/> CNC _____%	
<b>Tool holder</b>	<input type="radio"/> rigid <input type="radio"/> floating <input type="radio"/> with safety clutch Make _____ Type _____	
<b>Material to be tapped</b>	Material No. or designation _____ Composition, if possible _____ Tensile strength or hardness _____ N/mm <sup>2</sup> HB _____ HRc Chip form <input type="radio"/> short <input type="radio"/> long	
Short description of problem : _____ _____ _____ _____		
Person to be contacted within the company _____ Date _____ Signature _____		

**MAIN THREAD SYMBOLS**  
**HAUFIGE GEWINDEARTE**

## AMERICAN STANDARD

**Cylindrical threads**

UNC	Unified Coarse-Thread Series
UNF	Unified Fine-Thread Series
UNEF	Unified Extra-Fine-Thread Series
UN	Constant Pitch Series-Threads with constant pitch of T.P.I. 4,6,8,12,16, 20,28,32
UNS	Selected combinations-Threads with special dia-pitch combinations
UNJ	Unified threads with constant pitch with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJC	Unified coarse thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJEF	Unified extra fine thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJF	Unified fine threads with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch

**Pipe cylindrical threads**

NPS	Cylindrical threads for pipe
NPSC	American Standard for pipe coupling
NPSF	American Standard for internal thread on pipe, dryseal
NPSH	American Standard for cylindrical threads for pipe, joints and nipples
NPSI	American Standard for internal cylindrical threads on pipe(dryseal)
NPSL	American Standard for cylindrical threads on pipe for nuts
NPSM	American Standard for cylindrical threads on pipe for mechanical joints
NGO	American National pipe threads for gas exhaust
NGS	American National pipe threads for gas

**Taper pipe threads**

ANPT	Taper pipe threads for Army, Navy and Airforce
------	--

F-PTE	Taper pipe fine threads(dryseal)
NPT	Taper pipe thread
NPTF	Taper pipe thread (dryseal)
NPTR	Taper pipe thread for railways equipments
PTF-SAE SHORT	Taper pipe short thread(dryseal)-SAE
PTF-SPL SHORT	Taper pipe special thread(dryseal)-SAE
PTF-SPL EXTRA SHORT	Extra short special thread(dryseal)-SAE
SPL-PTF	Special taper pipe dryseal thread
NGT	National American taper pipe thread
SGT	Special taper pipe thread
API	American petroleum Institute taper pipe thread

**Trapezoidal and saw tooth threads**

ACME-C	ACME selfcentering thread
ACME-G	ACME general application
STUB-ACME	ACME flat thread with reduced thread depth
60° STUB-ACME	ACME flat thread with 60° flank angle
N BUTT	American National Saw tooth thread

**BRITISH STANDARD**

BSW	Whitworth British Standard coarse pitch
BSF	Whitworth British Standard fine pitch
WHIT	Whitworth Standard special pitch
R	British Standard external threading for taper pipe(dryseal)(already BSP-Tr)
Rc	British Standard internal threading taper thread for pipe(BSP-Tr)
Rp	British Standard cylindrical thread for pipe(already BSP.PI)
BA	British Standard Association thread
BSC	British Standard thread for bicycle
CEI	British Standard for bicycle



 **COMPARISON CHART SCALE FOR HARDNESS**  
**VERGLEICHSTABELLE FÜR HÄRTESKALEN**

Rockwell Hardness C Scale 150kg Brale (HRC)	Diamond Pyramid Hardness Number, Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm <sup>2</sup>
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520

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L1214	B37	TBJ05	B105	TC954	B305
L12D1	B46	TBJ06	B106	TC963	B252
L12D3	B47	TBJ07	B107	TC973	B302
L19E1	B48	TBJ08	B108	TCE01	B100
L19E3	B49	TC122	B145	TCE02	B102
L41A1 / L42A1	B50	TC124	B139	TCE05	B84
L4211	B38	TC127	B143	TCE06	B85
L4212	B39	TC134	B140	TCE07	B86
L4271	B41	TC144	B138	TCE08	B87
L4272	B42	TC163	B250	TCE09	B91
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T7343	B166	TC234	B151	TD127	B144
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TB274	B232	TC411	B134	TD413	B181
TB312	B178	TC413	B180	TD422	B189
TB313	B205	TC422	B188	TD703	B280
TB373	B167	TC424	B158	TD704	B291
TB428	B116	TC433	B257	TD711	B133
TB438	B118	TC445	B115	TD713	B284
TB514	B312	TC463	B156	TD723	B288
TB623	B225	TC473	B157	TD733	B289
TB711	B214	TC517	B141	TD804	B82
TB744	B96	TC612	B142	TD814	B104
TB754	B98	TC622	B255	TD821	B239
TB804	B82	TC633	B95	TD824	B99
TB814	B104	TC711	B132	TD834	B119
TB824	B99	TC727	B313	TD844	B89
TB834	B119	TC728	B310	TD854	B109
TB844	B89	TC729	B311	TD864	B101
TB854	B109	TC803	B297	TD874	B121
TB864	B101	TC804	B82	TDE01	B100
TB874	B121	TC804-IC	B93	TDE02	B102
TB904	B228	TC807	B94	TDE05	B84
TB913	B185	TC814	B104	TDE06	B85
TB914	B217	TC814-IC	B114	TDE07	B86
TB924	B229	TC824	B99	TDE08	B87
TBE05	B84	TC834	B119	TDE09	B91
TBE06	B85	TC844	B89	TDJ01	B120
TBE07	B86	TC854	B109	TDJ02	B122
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# MILLING TOOLS

CBN END MILLS

i-Xmill END MILLS

i-SMART END MILLS

X5070 NANO SOLID CARBIDE END MILLS

4G Mill SOLID CARBIDE END MILLS

X-POWER PRO SOLID CARBIDE END MILLS

TitaNox-POWER SOLID CARBIDE END MILLS

JET-POWER SOLID CARBIDE & HSS-PM END MILLS

V7 PLUS SOLID CARBIDE END MILLS

ALU-POWER HPC SOLID CARBIDE END MILLS

ALU-POWER SOLID CARBIDE & HSS-PM END MILLS

D-POWER GRAPHITE SOLID CARBIDE END MILLS (DIAMOND COATED)

CRX S SOLID CARBIDE END MILLS

K-2 SOLID CARBIDE END MILLS

ONLY ONE COATED PM60 END MILLS

TANK-POWER HSS-PM END MILLS

GENERAL HSS (8% Cobalt) END MILLS

HSS-E MILLING CUTTERS

TECHNICAL DATA

 YG-1 CO., LTD.





<b>CBN END MILLS</b>	<b>CBN END MILLS</b> CBN(Cubic Boron Nitride) Machining High Hardened Steels up to HRC70 / Mirror Finish	CBN END MILLS
<b>CARBIDE EXCHANGEABLE END MILLS</b>	<b>i-Xmills, CARBIDE INSERT END MILLS</b> Various Applications Type of Inserts Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steels and Graphite	i-Xmill END MILLS
<b>SOLID CARBIDE END MILLS</b>	<b>i-Smart MODULAR TYPE END MILLS</b> For General Steels, Hardened Steels and Cast Iron	i-SMART MODULAR END MILLS
	<b>X5070 NANO SOLID CARBIDE END MILLS</b> For High Hardened Steels (HRC45 to HRC70) / High Speed Machining and Dry Cutting	X5070 END MILLS
	<b>4G Mill SOLID CARBIDE END MILLS</b> High Speed Cutting for Pre-Hardened Steels up to HRC55	4G MILL END MILLS
	<b>X-POWER PRO SOLID CARBIDE END MILLS</b> For Pre-Hardened Steels up to HRC55	X-POWER PRO END MILLS
	<b>TitaNox-POWER SOLID CARBIDE END MILLS</b> High Speed Machining for Exotic Materials: Titanium and Stainless Steels	TitaNox-POWER END MILLS
	<b>JET-POWER SOLID CARBIDE &amp; HSS-PM END MILLS</b> For Exotic materials like Stainless Steels, Nickel Alloys and Titanium	JET-POWER END MILLS
	<b>V7 PLUS SOLID CARBIDE END MILLS</b> High Performance Carbide End Mills for Steels, Cast Iron and Stainless Steels	V7 PLUS END MILLS
	<b>ALU-POWER HPC SOLID CARBIDE END MILLS</b> For Aluminium, Aluminum Die Cast, Non-ferrous Alloys and Plastics	ALU-POWER HPC END MILLS
	<b>ALU-POWER SOLID CARBIDE END MILLS</b> For Aluminium Alloys and Silent Cutting	ALU-POWER END MILLS
	<b>D-POWER GRAPHITE SOLID CARBIDE END MILLS (DIAMOND COATED)</b> For Graphites	D-POWER GRAPHITE END MILLS
	<b>CRX S SOLID CARBIDE END MILLS</b> DLC Coated End Mills for Copper	CRX S END MILLS
	<b>K-2 SOLID CARBIDE END MILLS</b> General Purpose / Conventional or High Speed Milling / Wet & Dry Cutting	K-2 END MILLS
	<b>ONLY ONE COATED PM60 END MILLS</b> Perfect Solution of Carbide Chipping under Vibrations	ONLY ONE COATED PM60 END MILLS
<b>HSS END MILLS</b>	<b>TANK-POWER HSS-PM END MILLS</b> High Toughness for Stainless Steels, Carbon steels and Alloy Steels / for General Application, Roughing & Finishing	TANK-POWER END MILLS
<b>TECHNICAL DATA</b>	<b>GENERAL HSS END MILLS</b> General Purpose / Coating Available	GENERAL HSS END MILLS
	<b>HSS MILLING CUTTERS</b> General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% Cobalt) Corner Rounding, Shell End Mills	MILLING CUTTERS
	<b>TECHNICAL DATA</b>	TECHNICAL DATA

SELECTION GUIDE



MILLING TOOLS

SERIES	CBN		i-Xmill Insert			
	ESB94	ESD02	XMB110A	XMB120C	XMB260T	XMB130A
FLUTE	2	2	2	2	2	2
HELIX ANGLE	30°	0°	-	-	-	-
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R0.2	D0.5	R4.0	R4.0	R4.0	R4.0
SIZE MAX	R1.5	D2.0	R16.5	R16.5	R16.5	R16.5
PAGE	C35	C36	C42	C42	C42	C43
LENGTH	-	-	-	-	-	-
SURFACE TREATMENT	Uncoated	Uncoated	AlTiN	X-Coating	Z-Coating	AlTiN



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent  
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	ESB94	ESD02	XMB110A	XMB120C	XMB260T	XMB130A
P	1	Non-alloy steel	125	13			◎			
	2		190	13			◎			
	3		250	25			◎			
	4		270	28			◎			
	5		300	32			◎			
	6	180	Low alloy steel	10				◎		
	7	275		29			◎			
	8	300		32			◎			
	9	350		38				◎		
	10	200		High alloyed steel, and tool steel	15				○	
	11	325	35					◎		
M	12	Stainless steel	200	15						◎
	13		240	23						◎
	14		180	10						◎
K	15	Grey cast iron	180	10				◎		
	16		260	26				◎		
	17	Nodular cast iron	160	3				◎		
	18		250	25				◎		
	19	Malleable cast iron	130					◎		
20	230		21				◎			
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25		130							
	26	Copper and Copper Alloys (Bronze / Brass)	110							
	27		90							
	28		100							
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35	320	34							
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55	◎	◎		○	◎	
	39		630	60	◎	◎			◎	
	40	Chilled Cast Iron	400	42					○	
	41	Hardened Cast Iron	550	55	◎	◎			◎	



i-Xmill Insert							i-Xmill Holder					
XMM110V	XMB110D	XMR110A	XMR120C	XMR260T	XMF110V	XMR110D	ZBC	ZBS	ZBT	ZRC	ZRS	ZRT
2	2	2	2	2	2	2	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
R4.0	R4.0	D8.0	D8.0	D8.0	D8.0	D8.0	-	-	-	-	-	-
R16.5	R16.5	D33.0	D33.0	D33.0	D33.0	D33.0	-	-	-	-	-	-
C43	C43	C44	C44	C44	C49	C49	C54	C55	C56	C57	C58	C58
FULL RADIUS	-	-	-	-	HIGH FEED	-	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK
Y-Coating	Diamond	AlTiN	X-Coating	Z-Coating	Y-Coating	Diamond	Carbide	Steel	Steel	Carbide	Steel	Steel
GENERAL PURPOSE	GRAPHITE	GENERAL PURPOSE STAINLESS STEELS	PRE-HARDENED STEELS	HIGH HARDENED STEELS	GENERAL PURPOSE	GRAPHITE						

◎		◎			◎								1
◎		◎			◎								2
◎		◎			◎								3
◎		◎			◎								4
		◎			◎								5
◎		◎			◎								6
◎		◎			◎								7
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			◎										9
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			◎										11
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SELECTION GUIDE



MILLING TOOLS

SERIES	i-Smart Modular Head					
	XSEMD98	XSEME59	XSEME60	XSEME01	XSEME68	XSEME36
FLUTE	2	3	4	4	6	4
HELIX ANGLE	30°	30°	30°	27°/30° (MULTIPLE HELIX)	45°	27°/30° (MULTIPLE HELIX)
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	SQUARE
SIZE MIN	R5.0	R5.0	R5.0	D10.0	D10.0	D10.0
SIZE MAX	R16.0	R16.0	R16.0	D32.0	D32.0	D32.0
PAGE	C68	C69	C70	C71	C72	C74
LENGTH	CENTER MATCH	CENTER MATCH	CENTER MATCH	-	-	-
SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent  
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	XSEMD98	XSEME59	XSEME60	XSEME01	XSEME68	XSEME36
P	1	Non-alloy steel	125	13	○	○	○	○	○	○
	2		190	13	○	○	○	○	○	○
	3		250	25	○	○	○	◎	○	◎
	4		270	28	◎	◎	◎	◎	◎	◎
	5	300	32	◎	◎	◎	◎	◎	◎	
	6	180	Low alloy steel	10	10	○	○	○	○	○
	7	275		29	◎	◎	◎	◎	◎	◎
	8	300		32	◎	◎	◎	◎	◎	◎
	9	350		38	◎	◎	◎	◎	◎	◎
	10	200		High alloyed steel, and tool steel	15	15	○	○	○	○
	11	325	35		◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15						
	13		240	23						
K	14		180	10						○
	15	Grey cast iron	180	10	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○
19	Malleable cast iron	130		○	○	○	○	○	○	
20		230	21	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25		130							
	26		110							
	27	Copper and Copper Alloys (Bronze / Brass)	90							
	28		100							
	29		Non Metallic Materials (Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.)							
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35	320	34							
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55	○	○	○	○	○	○
	39		630	60	○	○	○	○	○	○
	40	Chilled Cast Iron	400	42	◎	◎	◎	◎	◎	◎
	41	Hardened Cast Iron	550	55	○	○	○	○	○	○

	i-Smart Modular Holder			X5070									
	XSEME75	ZMC	ZMS	ZMT	G8B59	G8B54	G8A46	G8A54	G8A28	G8A38	G8A53	G8A59	G8D62
6	-	-	-	-	4	4	2	2	2	2	2	3	4
45°	-	-	-	-	0°	0°	30°	30°	30°	30°	30°	30°	30°
SQUARE	-	-	-	-	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
D10.0	-	-	-	-	D2.0	D2.0	R0.05	R0.25	R0.05	R0.5	R0.2	R1.5	R1.5
D32.0	-	-	-	-	D12.0	D16.0	R2.0	R1.0	R6.0	R12.5	R1.0	R10.0	R10.0
C75	C76	C77	C78	C78	C89	C90	C91	C95	C96	C98	C99	C100	C101
-	STRAIGHT NECK TYPE	STRAIGHT NECK TYPE	TAPER NECK TYPE	-	HIGH FEED	HIGH FEED LONG SHANK	RIB PROCESSING	RIB PROCESSING	-	EXTENDED NECK	MINIATURE	Center Match	Center Match
Y-Coating	Carbide	Steel	Steel	-	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating



○														1
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◎														3
◎														4
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○														6
◎														7
◎				○	○	○	○	○	○	○	○	○	○	8
◎				○	○	○	○	○	○	○	○	○	○	9
◎				○	○	○	○	○	○	○	○	○	○	10
◎				○	○	○	○	○	○	○	○	○	○	11
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◎														40
○														41







# SELECTION GUIDE



## MILLING TOOLS

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

⊙ : Excellent  
○ : Good

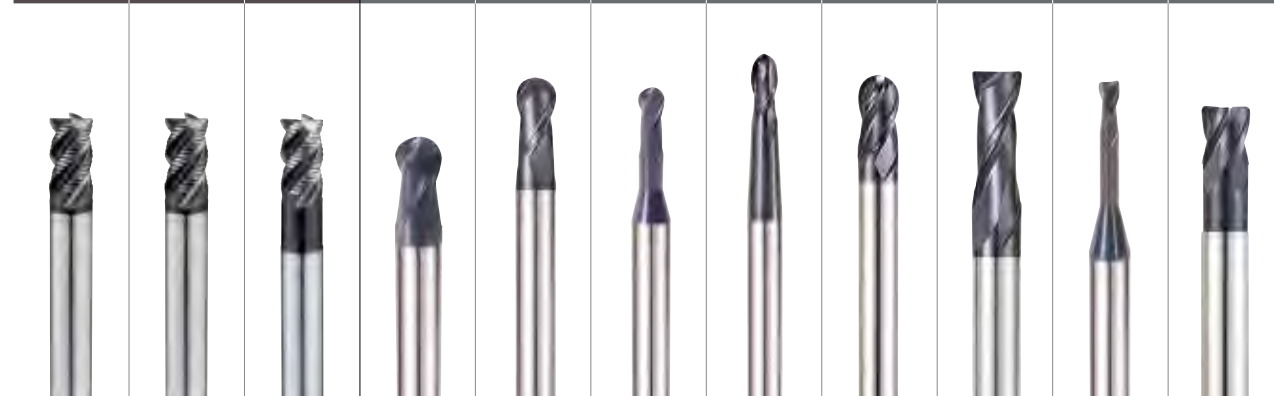
SERIES	4G Mills									
	SEME35	SEME35	SEME35	SEME70	SEM845	SEME36	SEME71	SEME72	SEME73	SEME75
FLUTE	2	2	2	2	2	4	4	4	4	6
HELIX ANGLE	30°	30°	30°	30°	30°	27°/30° (MULTIPLE HELIX)	35°/38° (MULTIPLE HELIX)	30°	30°	45°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D0.1	D0.1	D0.1	D1.0	D0.1	D0.8	D1.0	D1.0	D1.0	D6.0
SIZE MAX	D25.0	D4.0	D3.0	D25.0	D12.0	D25.0	D20.0	D25.0	D12.0	D20.0
PAGE	C218	C221	C222	C223	C229	C238	C240	C244	C250	C255
LENGTH	-	4mm Shank	3mm Shank	LONG LENGTH	EXTENDED NECK	-	Sharp Corner Removal	LONG LENGTH	EXTENDED NECK	-
SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



ISO	VDI 3323	Material Description	HB	HRc	SEME35	SEME35	SEME35	SEME70	SEM845	SEME36	SEME71	SEME72	SEME73	SEME75	
P	1	Non-alloy steel	125	13	○	○	○	○	○	○	○	○	○	○	
	2		190	13	○	○	○	○	○	○	○	○	○	○	
	3		250	25	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	4		270	28	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	5	300	32	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	6	180	Low alloy steel	10	○	○	○	○	○	○	○	○	○	○	
	7	275		29	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	8	300		32	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	9	350		38	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	10	200		High alloyed steel, and tool steel	15	○	○	○	○	○	○	○	○	○	○
	11	325	35		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
M	12	Stainless steel	200	15											
	13		240	23											
K	14		180	10	○	○	○	○	○	○	○	○	○	○	
	15	Grey cast iron	180	10	○	○	○	○	○	○	○	○	○	○	
	16		260	26	○	○	○	○	○	○	○	○	○	○	
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○	○	○	○	
18	250		25	○	○	○	○	○	○	○	○	○	○		
K	19	Malleable cast iron	130		○	○	○	○	○	○	○	○	○	○	
	20		230	21	○	○	○	○	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60												
	22		100												
	23	Aluminum-cast, alloyed	75												
	24		90												
	25		130												
	26		110												
	27	Copper and Copper Alloys (Bronze / Brass)	90												
	28		100												
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, FRP, etc.													
	30														
S	31	Heat Resistant Super Alloys	200	15											
	32		280	30											
	33		250	25											
	34		350	38											
	35	320	34												
	36	Titanium Alloys	400 Rm												
37	1050 Rm														
H	38	Hardened steel	550	55	○	○	○	○	○	○	○	○	○	○	
	39		630	60											
	40	Chilled Cast Iron	400	42	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	41	Hardened Cast Iron	550	55	○	○	○	○	○	○	○	○	○	○	



4G Mills X-Speed Rougher			X-Power Pro							
G9D75 G9D67	G9D76 G9D68	G9D77 G9D69	GM876	GM813	GM886	GM902	GM815	GM818	GM8A1	GM839
4&5	4&5	4&5	2	2	2	2	4	2	2	4
44°~45° (MULTIPLE HELIX) CORNER RADIUS ROUGHING	44°~45° (MULTIPLE HELIX) CORNER RADIUS ROUGHING	44°~45° (MULTIPLE HELIX) CORNER RADIUS ROUGHING	30°	30°	30°	30°	30°	30°	30°	30°
D6.0	D6.0	D6.0	R0.5	R0.5	R0.25	R0.5	R1.0	D4.0	D1.0	D2.0
D20.0	D20.0	D20.0	R8.0	R10.0	R3.0	R4.0	R8.0	D12.0	D6.0	D12.0
C257	C258	C259	C332	C333	C334	C336	C337	C338	C339	C341
SHORT LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	RIB PROCESSING	TAPER NECK	LONG LENGTH	LONG LENGTH	RIB PROCESSING	STUB LENGTH
X-Coating	X-Coating	X-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



○	○	○	○	○	○	○	○	○	○	○	1
○	○	○	○	○	○	○	○	○	○	○	2
⊙	⊙	⊙	○	○	○	○	○	○	○	○	3
⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	4
⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	5
○	○	○	○	○	○	○	○	○	○	○	6
⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	7
⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	8
⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	9
○	○	○	○	○	○	○	○	○	○	○	10
⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	11
○	○	○									12
○	○	○									13
○	○	○									14
⊙	⊙	⊙	○	○	○		○	○	○	○	15
⊙	⊙	⊙	○	○	○		○	○	○	○	16
⊙	⊙	⊙	○	○	○		○	○	○	○	17
⊙	⊙	⊙	○	○	○		○	○	○	○	18
⊙	⊙	⊙	○	○	○		○	○	○	○	19
⊙	⊙	⊙	○	○	○		○	○	○	○	20
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⊙	⊙	⊙	○	○	○		○	○	○	○	40
											41

**SELECTION GUIDE**



**MILLING TOOLS**

SERIES

FLUTE

HELIX ANGLE

CUTTING EDGE SHAPE

SIZE MIN

SIZE MAX

PAGE

LENGTH

SURFACE TREATMENT

**X-Power Pro**

	GM819	GM810	GM883	GM895	GM811	GM817
FLUTE	4	2	2	3	4	4
HELIX ANGLE	30°	30°	30°	38°	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D3.0	D0.4	D0.4	D1.0	D2.0	D2.0
SIZE MAX	D20.0	D20.0	D6.0	D16.0	D25.0	D20.0
PAGE	C342	C343	C345	C348	C349	C350
LENGTH	LONG LENGTH	SHORT LENGTH	RIB PROCESSING	SHORT LENGTH	SHORT LENGTH	LONG LENGTH
SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



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◎ : Excellent  
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	GM819	GM810	GM883	GM895	GM811	GM817
P	1	Non-alloy steel	125		○	○	○	○	○	○
	2		190	13	○	○	○	○	○	○
	3		250	25	○	○	○	○	○	○
	4		270	28	◎	◎	◎	◎	◎	◎
	5	300	32	◎	◎	◎	◎	◎	◎	
	6	180	Low alloy steel	10	○	○	○	○	○	○
	7	275		29	◎	◎	◎	◎	◎	◎
	8	300		32	◎	◎	◎	◎	◎	◎
	9	350		38	◎	◎	◎	◎	◎	◎
	10	200		High alloyed steel, and tool steel	15	○	○	○	○	○
	11	325	35		◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○
	19		130		○	○	○	○	○	○
20	Malleable cast iron	230	21	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25		130							
	26		110							
	27	Copper and Copper Alloys (Bronze / Brass)	90							
	28		100							
	29		Non Metallic Materials							
	30	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35	320	34							
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55	○	○	○	○	○	○
	39		630	60						
	40	Chilled Cast Iron	400	42	◎	◎	◎	◎	◎	◎
	41	Hardened Cast Iron	550	55	○	○	○	○	○	○



**X-Power Pro**

X-Power Pro			TitaNox-Power					
GM812	GM834	GM814	GMG40 GMG41	GMG28 GMG29	GMG30 GMG31	GMG24 GMG25	GMG26 GMG27	EHE54 EHE55
6&8	6	3&4	4	5	5	5	5	5
45°	45°	20°	43°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	40°
SQUARE	SQUARE	ROUGHING	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	ROUGHING CORNER RADIUS
D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0
D20.0	D25.0	D20.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
C351	C352	C353	C380	C382	C383	C385	C386	C387
LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	LONG LENGTH DOUBLE CORE	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	-
Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	TiAIN



ISO	VDI 3323	Material Description	HB	HRc	GM812	GM834	GM814	GMG40 GMG41	GMG28 GMG29	GMG30 GMG31	GMG24 GMG25	GMG26 GMG27	EHE54 EHE55
P	1	Non-alloy steel	125		○	○	○	○	○	○	○	○	○
	2		190	13	○	○	○	○	○	○	○	○	○
	3		250	25	○	○	○	○	○	○	○	○	○
	4		270	28	◎	◎	◎	◎	◎	◎	◎	◎	◎
	5	300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	6	180	Low alloy steel	10	○	○	○	○	○	○	○	○	○
	7	275		29	◎	◎	◎	◎	◎	◎	◎	◎	◎
	8	300		32	◎	◎	◎	◎	◎	◎	◎	◎	◎
	9	350		38	◎	◎	◎	◎	◎	◎	◎	◎	◎
	10	200		High alloyed steel, and tool steel	15	○	○	○	○	○	○	○	○
	11	325	35		◎	◎	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○	○	○	○
	19		130		○	○	○	○	○	○	○	○	○
20	Malleable cast iron	230	21	○	○	○	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60										
	22		100										
	23	Aluminum-cast, alloyed	75										
	24		90										
	25		130										
	26		110										
	27	Copper and Copper Alloys (Bronze / Brass)	90										
	28		100										
	29		Non Metallic Materials										
	30	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.											
S	31	Heat Resistant Super Alloys	200	15									
	32		280	30									
	33		250	25									
	34		350	38									
	35	320	34										
	36	Titanium Alloys	400 Rm										
	37		1050 Rm										
H	38	Hardened steel	550	55	○	○	○	○	○	○	○	○	○
	39		630	60									
	40	Chilled Cast Iron	400	42	◎	◎	◎	◎	◎	◎	◎	◎	◎
	41	Hardened Cast Iron	550	55	○	○	○	○	○	○	○	○	○



**SELECTION GUIDE**



**MILLING TOOLS**

SERIES	Jet-Power						
	EH911 EH912	EH913 EH914	EH915 EH916	EH831 EH841	EH917 EH918	EH919 EH920	EH921 EH942
FLUTE	2	4	6&8	Multi Flute	Multi Flute	Multi Flute	Multi Flute
HELIX ANGLE	35°	35°	45°	30°	45°	45°	45°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING	ROUGHING	ROUGHING
SIZE MIN	D1.0	D2.0	D6.0	D6.0	D6.0	D4.0	D6.0
SIZE MAX	D25.0	D25.0	D25.0	D25.0	D20.0	D25.0	D20.0
PAGE	C396	C398	C400	C401	C402	C403	C404
LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH
SURFACE TREATMENT	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN

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⊙ : Excellent  
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	EH911 EH912	EH913 EH914	EH915 EH916	EH831 EH841	EH917 EH918	EH919 EH920	EH921 EH942		
P	1	Non-alloy steel	125	13	○	○	○	○	○	○	○		
	2		190	13	○	○	○	○	○	○	○		
	3		250	25	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	4		270	28	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	5	300	32	⊙	⊙	⊙	⊙	⊙	⊙	⊙			
	6	180	Low alloy steel	10	○	○	○	○	○	○	○		
	7	275		29	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	8	300		32	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	9	350		38	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	10	200		High alloyed steel, and tool steel	15	○	○	○	○	○	○	○	
	11	325	35		⊙	⊙	⊙	⊙	⊙	⊙	⊙		
M	12	Stainless steel	200	15	○	○	○	○	○	○	○		
	13		240	23	○	○	○	○	○	○	○		
K	14	Grey cast iron	180	10	○	○	○	○	○	○	○		
	15		260	26									
	16		Nodular cast iron	160	3								
	17			250	25								
	18		Malleable cast iron	130									
	19			230	21								
	N		20	Aluminum-wrought alloy	60								
			21		100								
22		Aluminum-cast, alloyed	75										
23			90										
24			130										
25		Copper and Copper Alloys (Bronze / Brass)	110										
26			90										
27			100										
28													
29		Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.											
30													
S	31	Heat Resistant Super Alloys	200	15			○	○	○	○	○		
	32		280	30			○	○	○	○	○		
	33		250	25			○	○	○	○	○		
	34		350	38			○	○	○	○	○		
	35		320	34			○	○	○	○	○		
	36	Titanium Alloys	400 Rm		⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	37		1050 Rm		⊙	⊙	⊙	⊙	⊙	⊙	⊙		
H	38	Hardened steel	550	55									
	39		630	60									
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	○		
	41	Hardened Cast Iron	550	55									



SERIES	V7 Plus										
	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59	GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMH58 GMH59	GMG12 GMG13
FLUTE	4	4	4	4	4	4	4	6	6	6	6
HELIX ANGLE	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	45°	45°	45°	45°
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE
SIZE MIN	R1.5	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	R12.5	D20.0	D25.0	D20.0	D20.0	D25.0	D20.0	D25.0	D25.0	D25.0	D25.0
PAGE	C418	C419	C420	C421	C424	C425	C426	C428	C429	C431	C432
LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	LONG LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH
SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



ISO	VDI 3323	Material Description	HB	HRc	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59	GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMH58 GMH59	GMG12 GMG13		
P	1	Non-alloy steel	125	13	○	○	○	○	○	○	○	○	○	○	○		
	2		190	13	○	○	○	○	○	○	○	○	○	○	○		
	3		250	25	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	4		270	28	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	5	300	32	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			
	6	180	Low alloy steel	10	○	○	○	○	○	○	○	○	○	○	○		
	7	275		29	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	8	300		32	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	9	350		38	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
	10	200		High alloyed steel, and tool steel	15	○	○	○	○	○	○	○	○	○	○	○	
	11	325	35		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		
M	12	Stainless steel	200	15	○	○	○	○	○	○	○	○	○	○	○		
	13		240	23	○	○	○	○	○	○	○	○	○	○	○		
K	14	Grey cast iron	180	10	○	○	○	○	○	○	○	○	○	○	○		
	15		260	26													
	16		Nodular cast iron	160	3												
	17			250	25												
	18		Malleable cast iron	130													
	19			230	21												
	N		20	Aluminum-wrought alloy	60												
			21		100												
22		Aluminum-cast, alloyed	75														
23			90														
24			130														
25		Copper and Copper Alloys (Bronze / Brass)	110														
26			90														
27			100														
28																	
29		Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.															
30																	
S	31	Heat Resistant Super Alloys	200	15			○	○	○	○	○	○	○	○	○		
	32		280	30			○	○	○	○	○	○	○	○	○		
	33		250	25			○	○	○	○	○	○	○	○	○	○	
	34		350	38			○	○	○	○	○	○	○	○	○	○	
	35		320	34			○	○	○	○	○	○	○	○	○	○	
	36	Titanium Alloys	400 Rm		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	37		1050 Rm		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
H	38	Hardened steel	550	55													
	39		630	60													
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	○	○	○	○	○	○	
	41	Hardened Cast Iron	550	55													

### SELECTION GUIDE



### MILLING TOOLS

SERIES	V7 Plus			Alu-Power HPC			
	GMG14 GMG15	GMH56 GMH57	EMB72 EMB73	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
FLUTE	6	6	5	3	3	3	3
HELIX ANGLE	45°	45°	41°~45°	37°	37°	37°	37°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	D6.0	D6.0	D6.0	D6.0	D6.0	D3.0	D6.0
SIZE MAX	D25.0	D25.0	D25.0	D20.0	D20.0	D25.0	D20.0
PAGE	C433	C434	C435	C444	C447	C450	C451
LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	-	EXTENDED NECK	-	EXTENDED NECK
SURFACE TREATMENT	Y-Coating	Y-Coating	AlTiN	Uncoated	Uncoated	Uncoated	Uncoated
		CHIP SPLITTER	V7 INOX	DLC	DLC	DLC	DLC

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 ◎ : Excellent  
 ○ : Good

ISO	VDI 3323	Material Description	HB	HRc						
P	1	Non-alloy steel	125		◎	◎	◎			
	2		190	13	◎	◎	◎			
	3		250	25	◎	◎	◎			
	4		270	28	◎	◎	◎			
	5	300	32	◎	◎	◎				
	6	180	10	◎	◎	◎				
	7	275	29	◎	◎	◎				
	8	300	32	◎	◎	◎				
	9	350	38	◎	◎	◎				
	10	200	15	◎	◎	◎				
	11	325	35	◎	◎	◎				
M	12	Stainless steel	200	15	◎	◎	◎			
	13		240	23	◎	◎	◎			
	14		180	10	◎	◎	◎			
K	15	Grey cast iron	180	10	◎	◎	◎			
	16	Nodular cast iron	260	26	◎	◎	◎			
	17		160	3	◎	◎	◎			
	18		250	25	◎	◎	◎			
	19		130		◎	◎	◎			
20	Malleable cast iron	230	21	◎	◎	◎				
N	21	Aluminum-wrought alloy	60				◎	◎	◎	◎
	22		100				◎	◎	◎	◎
	23	Aluminum-cast, alloyed	75		◎	◎	◎	◎	◎	◎
	24		90			◎	◎	◎	◎	◎
	25		130			◎	◎	◎	◎	◎
	26		110			◎	◎	◎	◎	◎
	27	Copper and Copper Alloys (Bronze / Brass)	90		◎	◎	◎	◎	◎	◎
	28		100			◎	◎	◎	◎	◎
	29		Non Metallic Materials (Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.)			◎	◎	◎	◎	◎
	30									
S	31	Heat Resistant Super Alloys	200	15	◎	◎	◎			
	32		280	30	◎	◎	◎			
	33		250	25	◎	◎	◎			
	34		350	38	◎	◎	◎			
	35	320	34	◎	◎	◎				
	36	Titanium Alloys	400 Rm		◎	◎	◎			
	37		1050 Rm		◎	◎	◎			
H	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42						
41	Hardened Cast Iron	550	55							

Alu-Power											
E5910	E5908	E5909	E5930	E5E51	E5E47	E5E48	E5522 E5521	E5E49	E5E50	E5742 E5711	E5E39 E5E40
2	3	2	2	3	1	2	2	3	3	3	3
50°	40°	30°	25°	45°	30°	45°	45°	45°	45°	30°	30°
BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING
R3.0	R1.0	D4.0	D2.0	D3.0	D2.0	D3.0	D3.0	D3.0	D3.0	D6.0	D6.0
R10.0	R8.0	D20.0	D20.0	D20.0	D12.0	D20.0	D20.0	D20.0	D20.0	D25.0	D20.0
C458	C459	C460	C461	C462	C463	C464	C465	C466	C467	C468	C469
NECK	NECK	NECK	NECK	LONG LENGTH	-	SHORT LENGTH	LONG LENGTH	LONG LENGTH	NECK	LONG LENGTH	NECK
Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated



												◎	◎	1
												◎	◎	2
												◎	◎	3
												◎	◎	4
														5
														6
												◎	◎	7
												◎	◎	8
														9
												◎	◎	10
														11
														12
														13
														14
												◎	◎	15
												◎	◎	16
												◎	◎	17
												◎	◎	18
												◎	◎	19
												◎	◎	20
												◎	◎	21
												◎	◎	22
												◎	◎	23
												◎	◎	24
												◎	◎	25
												◎	◎	26
												◎	◎	27
												◎	◎	28
												◎	◎	29
												◎	◎	30
														31
														32
														33
														34
														35
														36
														37
														38
														39
														40
														41







SELECTION GUIDE



MILLING TOOLS

SERIES

FLUTE

HELIX ANGLE

CUTTING EDGE SHAPE

SIZE MIN

SIZE MAX

PAGE

LENGTH

SURFACE TREATMENT

K-2						
G9624	G9A70	G9437	G9438	G9454	G9455	G9B81
2	2	2	2	2	2	2
30°	30°	≈ 30°	≈ 30°	30°	30°	30°
BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
R1.0	R0.5	R1.0	R1.0	R1.5	R1.5	R0.2
R10.0	R10.0	R10.0	R10.0	R10.0	R10.0	R2.0
C514	C515	C516	C517	C518	C519	C520
SHORT LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG REACH	EXTRA LONG LENGTH	RIB PROCESSING
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN


 Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent  
 ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	G9624	G9A70	G9437	G9438	G9454	G9455	G9B81
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎
	5	300	32	◎	◎	◎	◎	◎	◎	◎	
	6	180	Low alloy steel	10	◎	◎	◎	◎	◎	◎	◎
	7	275		29	◎	◎	◎	◎	◎	◎	◎
	8	300		32	◎	◎	◎	◎	◎	◎	◎
	9	350		38	◎	◎	◎	◎	◎	◎	◎
	10	200		High alloyed steel, and tool steel	15	◎	◎	◎	◎	◎	◎
	11	325	35		◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○	○
	19		130		○	○	○	○	○	○	○
20	Malleable cast iron	230	21	○	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○
	24		90		○	○	○	○	○	○	○
	25		130		○	○	○	○	○	○	○
	26		110		○	○	○	○	○	○	○
	27	Copper and Copper Alloys (Bronze / Brass)	90		○	○	○	○	○	○	○
	28		100		○	○	○	○	○	○	○
	29		Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
	30										
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○	○
	32		280	30	○	○	○	○	○	○	○
	33		250	25	○	○	○	○	○	○	○
	34		350	38	○	○	○	○	○	○	○
	35	320	34	○	○	○	○	○	○	○	
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○	○
	37		1050 Rm		○	○	○	○	○	○	○
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	○
	41	Hardened Cast Iron	550	55							



K-2								
G9634	G9B82	G9B83	G9B84	G9B85	G9424	G9G44	G9A68	G9444
4	2	2	4	4	2	2	2	2
30°	30°	30°	30°	30°	30°	30°	30°	≈ 30°
BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE
R1.0	D2.0	D3.0	D2.0	D3.0	D1.0	D3.0	D1.0	D2.0
R10.0	D12.0	D12.0	D12.0	D12.0	D20.0	D20.0	D20.0	D20.0
C522	C523	C525	C526	C528	C529	C530	C531	C532
SHORT LENGTH	SHORT LENGTH	LONG REACH	SHORT LENGTH	LONG REACH	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN

◎	◎	◎	◎	◎	◎	◎	◎	◎	1
◎	◎	◎	◎	◎	◎	◎	◎	◎	2
◎	◎	◎	◎	◎	◎	◎	◎	◎	3
◎	◎	◎	◎	◎	◎	◎	◎	◎	4
◎	◎	◎	◎	◎	◎	◎	◎	◎	5
◎	◎	◎	◎	◎	◎	◎	◎	◎	6
◎	◎	◎	◎	◎	◎	◎	◎	◎	7
◎	◎	◎	◎	◎	◎	◎	◎	◎	8
◎	◎	◎	◎	◎	◎	◎	◎	◎	9
◎	◎	◎	◎	◎	◎	◎	◎	◎	10
◎	◎	◎	◎	◎	◎	◎	◎	◎	11
○	○	○	○	○	○	○	○	○	12
○	○	○	○	○	○	○	○	○	13
○	○	○	○	○	○	○	○	○	14
○	○	○	○	○	○	○	○	○	15
○	○	○	○	○	○	○	○	○	16
○	○	○	○	○	○	○	○	○	17
○	○	○	○	○	○	○	○	○	18
○	○	○	○	○	○	○	○	○	19
○	○	○	○	○	○	○	○	○	20
○	○	○	○	○	○	○	○	○	21
○	○	○	○	○	○	○	○	○	22
○	○	○	○	○	○	○	○	○	23
○	○	○	○	○	○	○	○	○	24
○	○	○	○	○	○	○	○	○	25
○	○	○	○	○	○	○	○	○	26
○	○	○	○	○	○	○	○	○	27
○	○	○	○	○	○	○	○	○	28
○	○	○	○	○	○	○	○	○	29
○	○	○	○	○	○	○	○	○	30
○	○	○	○	○	○	○	○	○	31
○	○	○	○	○	○	○	○	○	32
○	○	○	○	○	○	○	○	○	33
○	○	○	○	○	○	○	○	○	34
○	○	○	○	○	○	○	○	○	35
○	○	○	○	○	○	○	○	○	36
○	○	○	○	○	○	○	○	○	37
									38
									39
○	○	○	○	○	○	○	○	○	40
									41

SELECTION GUIDE



MILLING TOOLS

SERIES	K-2						
	G9527	G9445	G9G45	G9452	G9B80	G9410 G9553	G9G46
FLUTE	2	2	2	2	2	3	3
HELIX ANGLE	≈ 30°	≈ 30°	≈ 30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D3.5	D2.0	D3.0	D3.0	D0.4	D0.5	D3.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0	D4.0	D20.0	D20.0
PAGE	C533	C534	C535	C537	C538	C541	C543
LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	EXTRA LONG LENGTH	RIB PROCESSING	THROW AWAY	THROW AWAY
SURFACE TREATMENT	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN

 Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent  
 ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	G9527	G9445	G9G45	G9452	G9B80	G9410 G9553	G9G46
P	1	Non-alloy steel	125	13	◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎
	5	300	32	◎	◎	◎	◎	◎	◎	◎	
	6	180	Low alloy steel	10	◎	◎	◎	◎	◎	◎	◎
	7	275		29	◎	◎	◎	◎	◎	◎	◎
	8	300		32	◎	◎	◎	◎	◎	◎	◎
	9	350		38	◎	◎	◎	◎	◎	◎	◎
	10	200		High alloyed steel, and tool steel	15	◎	◎	◎	◎	◎	◎
	11	325	35		◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○	○
	19		130	21	○	○	○	○	○	○	○
20	Malleable cast iron	230	21	○	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○
	24		90		○	○	○	○	○	○	○
	25		130		○	○	○	○	○	○	○
	26		110		○	○	○	○	○	○	○
	27	Copper and Copper Alloys (Bronze / Brass)	90		○	○	○	○	○	○	○
	28		100		○	○	○	○	○	○	○
	29		Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.			○	○	○	○	○	○
	30										
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○	○
	32		280	30	○	○	○	○	○	○	○
	33		250	25	○	○	○	○	○	○	○
	34		350	38	○	○	○	○	○	○	○
	35		320	34	○	○	○	○	○	○	○
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○	○
	37		1050 Rm		○	○	○	○	○	○	○
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	○
	41	Hardened Cast Iron	550	55							

K-2								
G9425	G9G47	G9439	G9528	G9433	G9G48	G9447	G9G49	G9432
3	3	3	3	3	3	3	3	4
30°	30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	45°	45°	30°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
D1.0	D3.0	D2.0	D3.5	D3.0	D3.0	D3.0	D3.0	D1.0
D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0
C544	C545	C546	C547	C548	C549	C550	C551	C552
SHORT LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN



ISO	VDI 3323	Material Description	HB	HRc	G9425	G9G47	G9439	G9528	G9433	G9G48	G9447	G9G49	G9432
P	1	Non-alloy steel	125	13	◎	◎	◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎	◎	◎
	5	300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	6	180	Low alloy steel	10	◎	◎	◎	◎	◎	◎	◎	◎	◎
	7	275		29	◎	◎	◎	◎	◎	◎	◎	◎	◎
	8	300		32	◎	◎	◎	◎	◎	◎	◎	◎	◎
	9	350		38	◎	◎	◎	◎	◎	◎	◎	◎	◎
	10	200		High alloyed steel, and tool steel	15	◎	◎	◎	◎	◎	◎	◎	◎
	11	325	35		◎	◎	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○	○	○	○
	19		130	21	○	○	○	○	○	○	○	○	○
20	Malleable cast iron	230	21	○	○	○	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○	○	○
	24		90		○	○	○	○	○	○	○	○	○
	25		130		○	○	○	○	○	○	○	○	○
	26		110		○	○	○	○	○	○	○	○	○
	27	Copper and Copper Alloys (Bronze / Brass)	90		○	○	○	○	○	○	○	○	○
	28		100		○	○	○	○	○	○	○	○	○
	29		Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.			○	○	○	○	○	○	○	○
	30												
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○	○	○	○
	32		280	30	○	○	○	○	○	○	○	○	○
	33		250	25	○	○	○	○	○	○	○	○	○
	34		350	38	○	○	○	○	○	○	○	○	○
	35		320	34	○	○	○	○	○	○	○	○	○
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○	○	○	○
	37		1050 Rm		○	○	○	○	○	○	○	○	○
H	38	Hardened steel	550	55									
	39		630	60									
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	○	○	○
	41	Hardened Cast Iron	550	55									



# SELECTION GUIDE



## MILLING TOOLS

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

⊙ : Excellent  
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	K-2					
					G9G50	G9A69	G9448	G9540	G9449	G9G51
P	1	Non-alloy steel	125	13	⊙	⊙	⊙	⊙	⊙	⊙
	2		190	13	⊙	⊙	⊙	⊙	⊙	⊙
	3		250	25	⊙	⊙	⊙	⊙	⊙	⊙
	4		270	28	⊙	⊙	⊙	⊙	⊙	⊙
	5	300	32	⊙	⊙	⊙	⊙	⊙	⊙	
	6	180	10	⊙	⊙	⊙	⊙	⊙	⊙	
	7	275	29	⊙	⊙	⊙	⊙	⊙	⊙	
	8	300	32	⊙	⊙	⊙	⊙	⊙	⊙	
	9	350	38	⊙	⊙	⊙	⊙	⊙	⊙	
	10	High alloyed steel, and tool steel	200	15	⊙	⊙	⊙	⊙	⊙	⊙
	11	325	35	⊙	⊙	⊙	⊙	⊙	⊙	
M	12	Stainless steel	200	15	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	
	14		180	10	○	○	○	○	○	
K	15	Grey cast iron	180	10	○	○	○	○	○	○
	16	260	26	○	○	○	○	○	○	
	17	Nodular cast iron	160	3	○	○	○	○	○	○
	18	250	25	○	○	○	○	○	○	
	19	Malleable cast iron	130		○	○	○	○	○	○
20	230	21	○	○	○	○	○	○		
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○
	22	100		○	○	○	○	○	○	
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	
	24	90		○	○	○	○	○	○	
	25	130		○	○	○	○	○	○	
	26	Copper and Copper Alloys (Bronze / Brass)	110		○	○	○	○	○	
	27	90		○	○	○	○	○	○	
	28	100		○	○	○	○	○	○	
	29	Non Metallic Materials (Duropastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.)			○	○	○	○	○	
	30									
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○
	32		280	30	○	○	○	○	○	
	33		250	25	○	○	○	○	○	
	34		350	38	○	○	○	○	○	
	35	320	34	○	○	○	○	○		
	36	Titanium Alloys	400 Rm		○	○	○	○	○	
	37	1050 Rm		○	○	○	○	○		
H	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42	○	○	○	○	○	
	41	Hardened Cast Iron	550	55						

K-2						Only One			
G9H73 G9H74	G9H75 G9H76	G9453	G9F45 G9F46	G9A42	G9400	GYG77 GYF97	GYG72 GYF99	GYG01	GYG74 GYF96
4	4	4	4&6	Multi Flute	2	2	2	3	4
Multiple Helix	Multiple Helix	30°	30°	45°	30°	30°	30°	30°	30°
SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	DRILL MILL	BALL NOSE	SQUARE	SQUARE	SQUARE
D3.0	D3.0	D3.0	D3.0	D6.0	D3.0	R0.5	D1.0	D1.0	D1.0
D20.0	D20.0	D20.0	D20.0	D25.0	D20.0	R12.5	D25.0	D25.0	D25.0
C559	C560	C561	C562	C563	C564	C586	C587	C588	C589
SHORT LENGTH	LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH LONG LENGTH	LONG LENGTH	-	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH (Center Cut)	SHORT LENGTH (Center Cut)
X-Coating	X-Coating	TiAlN	TiAlN	X-Coating	TiAlN	Y-Coating	Y-Coating	Y-Coating	Y-Coating
						PM60	PM60	PM60	PM60







SELECTION GUIDE



MILLING TOOLS

SERIES	HSS End mills							
	E2535	E2492	EL612	E2570	E2571	E2510	E2464	E2509
FLUTE	2	2	1	2	2	2	2	2
HELIX ANGLE	≈ 30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	30°	42°	42°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	R1.0	R1.0	D3.0	D1.0	D1.5	D2.5	D1.0	D2.0
SIZE MAX	R16.0	R15.0	D10.0	D40.0	D40.0	D40.0	D32.0	D20.0
PAGE	C643	C644	C645	C646	C649	C651	C653	C654
LENGTH	SHORT LENGTH	LONG LENGTH		SHORT LENGTH	LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH	LONG LENGTH
SURFACE TREATMENT	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated	Uncoated
Tool Material	HSS Co8	HSS Co8	HSS-E	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8



◎ : Excellent  
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	E2535	E2492	EL612	E2570	E2571	E2510	E2464	E2509	
P	1	Non-alloy steel	125	13	◎	◎	○	◎	◎	◎	○	○	
	2		190	13	◎	◎	○	◎	◎	◎	○	○	
	3		250	25	◎	◎		◎	◎	◎			
	4		270	28	◎	◎		◎	◎	◎			
	5		300	32	○	○		○	○	○			
	6	180	Low alloy steel	10	10	◎	◎	○	◎	◎	○	○	
	7	275		29	◎	◎		◎	◎	◎			
	8	300		32	○	○		○	○	○			
	9	350		38	○	○		○	○	○			
	10	200		High alloyed steel, and tool steel	15	15	◎	◎	○	◎	◎	○	○
	11	325	35		○	○		○	○	○			
M	12	Stainless steel	200	15									
	13		240	23									
K	14		180	10									
	15	Grey cast iron	180	10									
	16		260	26									
	17	Nodular cast iron	160	3									
18	250		25										
19	130												
N	20	Malleable cast iron	230	21									
	21	Aluminum-wrought alloy	60		○	○	◎	○	○	○	◎	◎	
	22		100		○	○	◎	○	○	○	◎	◎	
	23	Aluminum-cast, alloyed	75		○	○	◎	○	○	○	◎	◎	
	24		90		○	○	◎	○	○	○	◎	◎	
	25		130		○	○	○	○	○	○	○	○	
	26		110										
	27	Copper and Copper Alloys (Bronze / Brass)	90										
	28		100										
	29												
30	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.												
S	31	Heat Resistant Super Alloys	200	15									
	32		280	30									
	33		250	25									
	34		350	38									
	35	320	34										
	36	Titanium Alloys	400 Rm										
	37		1050 Rm										
H	38	Hardened steel	550	55									
	39		630	60									
	40	Chilled Cast Iron	400	42									
41	Hardened Cast Iron	550	55										



HSS End mills													
E2572	E2573	E2516	E2553	E2SET553	E2554	E2574	E2595	E2597	E2753	E2762	E2755	E2751	E2752
3	3	3	3	3	3	4	4	4&6	Multi Flute	Multi Flute	3	Multi Flute	Multi Flute
≈ 30°	≈ 30°	30°	30°	30°	30°	≈ 30°	≈ 30°	45°	30°	30°	37°	30°	30°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING
D1.5	D1.0	D2.0	D1.0	D2.0	D1.5	D2.0	D2.0	D2.0	D6.0	D6.0	D6.0	D6.0	D6.0
D32.0	D40.0	D40.0	D20.0	D10.0	D10.0	D20.0	D25.0	D20.0	D40.0	D40.0	D30.0	D50.0	D40.0
C655	C656	C658	C660	C661	C662	C663	C664	C665	C666	C667	C668	C669	C671
STUB LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH THROW AWAY	THROW AWAY SET	LONG LENGTH THROW AWAY	SHORT LENGTH	SHORT LENGTH CENTER CUTTING	LONG LENGTH CENTER CUTTING	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH
Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated	Uncoated / TiAIN	Uncoated / TiAIN
HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8



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◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	2
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	3
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	4
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	5
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	6
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	7
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	8
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	9
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														19
														20
○	○	○	○	○	○	○	○	○	○	○	○	○	○	21
○	○	○	○	○	○	○	○	○	○	○	○	○	○	22
○	○	○	○	○	○	○	○	○	○	○	○	○	○	23
○	○	○	○	○	○	○	○	○	○	○	○	○	○	24
○	○	○	○	○	○	○	○	○	○	○	○	○	○	25
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														40
														41

**SELECTION GUIDE**



**MILLING TOOLS**

SERIES

FLUTE

HELIX ANGLE  
CUTTING EDGE  
SHAPE

SIZE MIN

SIZE MAX

PAGE

LENGTH

SURFACE TREATMENT

Milling Cutting					
ML012, ML022 ML112, ML122	ML032, ML042 ML132, ML142	ML062, ML162	ML072, ML172	ML092	ML102
-	-	-	-	-	-
0°	0°	10°-20°	10°-20°	10°	-
DOVETAIL CUTTERS	DOVETAIL CUTTERS	WOODRUFF KEYSEAT CUTTERS	T-SLOT CUTTERS	SIDE AND FACE MILLING CUTTERS	SIDE AND FACE MILLING CUTTERS
D16.0	D16.0	D10.5	D12.5	D50.0	D50.0
D50.0	D38.0	D45.5	D40.0	D125.0	D200.0
<b>C706</b>	<b>C707</b>	<b>C708</b>	<b>C709</b>	<b>C711</b>	<b>C713</b>
Type A, C, E	Type B, D, F	Type B, D, F	Type AA, AB, AD	with STRAIGHT TEETH	with STAGGERED TEETH
Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E

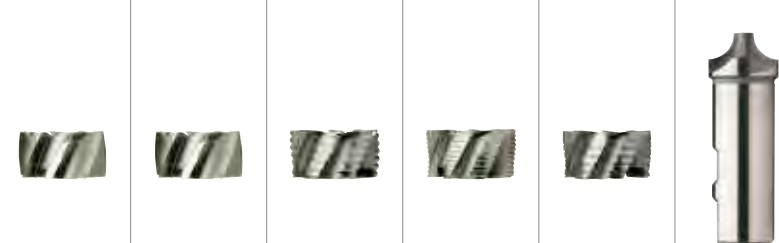


Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

⊙ : Excellent  
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	ML012, ML022, ML112, ML122	ML032, ML042, ML132, ML142	ML062, ML162	ML072, ML172	ML092	ML102
<b>P</b>	1	Non-alloy steel	125	13	⊙	⊙	⊙	⊙	⊙	⊙
	2		190	25	⊙	⊙	⊙	⊙	⊙	⊙
	3		250	28	⊙	⊙	⊙	⊙	⊙	⊙
	4		270	32	⊙	⊙	⊙	⊙	⊙	⊙
	5		300	10	⊙	⊙	⊙	⊙	⊙	⊙
	6	Low alloy steel	180	29	⊙	⊙	⊙	⊙	⊙	⊙
	7		275	32	⊙	⊙	⊙	⊙	⊙	⊙
	8		300	38	○	○	○	○	○	○
	9		350	15	⊙	⊙	⊙	⊙	⊙	⊙
	10		200	35	○	○	○	○	○	○
	11	High alloyed steel, and tool steel	325	15	○	○	○	○	○	○
<b>M</b>	12	Stainless steel	200	23						
	13		240	10						
	14		180	10						
<b>K</b>	15	Grey cast iron	180	26						
	16		260	3						
	17	Nodular cast iron	160	25						
	18		250	21						
	19	Malleable cast iron	130							
20	230									
<b>N</b>	21	Aluminum-wrought alloy	60		○	○	○	○	○	○
	22		100		○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○
	24		90		○	○	○	○	○	○
	25		130		○	○	○	○	○	○
	26		110							
	27	Copper and Copper Alloys (Bronze / Brass)	90							
	28		100							
	29									
	30	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
<b>S</b>	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
<b>H</b>	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42						
41	Hardened Cast Iron	550	55							

Milling Cutting					
E2675	E2676	E2677	E2678	E2679	E2498
Multi Flute	Multi Flute	Multi Flute	Multi Flute	Multi Flute	4
30°	42°	30°	30°	30°	0°
SHELL END MILL	SHELL END MILL	ROUGHING SHELL END MILL	ROUGHING SHELL END MILL	ROUGHING & FINISHING SHELL END MILL	CORNER ROUNDING CUTTERS
D30.0	D30.0	D40.0	D40.0	D40.0	D8.0
D160.0	D100.0	D160.0	D160.0	D160.0	D56.0
<b>C719</b>	<b>C720</b>	<b>C721</b>	<b>C722</b>	<b>C723</b>	<b>C724</b>
-	for ALUMINUM	-	-	-	-
Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated
HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8



ISO	VDI 3323	Material Description	HB	HRc	E2675	E2676	E2677	E2678	E2679	E2498
<b>P</b>	1	Non-alloy steel	125	13	⊙	○	⊙	⊙	⊙	⊙
	2		190	25	⊙	○	⊙	⊙	⊙	⊙
	3		250	28	⊙	○	⊙	⊙	⊙	⊙
	4		270	32	⊙	○	⊙	⊙	⊙	⊙
	5		300	10	⊙	○	○	○	○	○
	6	Low alloy steel	180	29	⊙	○	⊙	⊙	⊙	⊙
	7		275	32	⊙	○	⊙	⊙	⊙	⊙
	8		300	38	○	○	○	○	○	○
	9		350	15	⊙	○	⊙	⊙	⊙	⊙
	10		200	35	○	○	○	○	○	○
	11	High alloyed steel, and tool steel	325	15	○	○	○	○	○	○
<b>M</b>	12	Stainless steel	200	23						
	13		240	10						
	14		180	10						
<b>K</b>	15	Grey cast iron	180	26						
	16		260	3						
	17	Nodular cast iron	160	25						
	18		250	21						
	19	Malleable cast iron	130							
20	230									
<b>N</b>	21	Aluminum-wrought alloy	60		○	○	○	○	○	○
	22		100		○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○
	24		90		○	○	○	○	○	○
	25		130		○	○	○	○	○	○
	26		110							
	27	Copper and Copper Alloys (Bronze / Brass)	90							
	28		100							
	29									
	30	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
<b>S</b>	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
<b>H</b>	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42						
41	Hardened Cast Iron	550	55							



HSS

CBN  
END MILLS

i-Xmill  
END MILLS

i-SMART  
MODULAR  
END MILLS

X5070  
END MILLS

4G MILL  
END MILLS

X-POWER  
PRO  
END MILLS

TitaNox-  
POWER  
END MILLS

JET-POWER  
END MILLS

V7 PLUS  
END MILLS

ALU-POWER  
HPC  
END MILLS

ALU-  
POWER  
END MILLS

D-POWER  
GRAPHITE  
END MILLS

CRX S  
END MILLS

K-2  
END MILLS

ONLY ONE  
COATED PM60  
END MILLS

TANK-  
POWER  
END MILLS

GENERAL  
HSS  
END MILLS

MILLING  
CUTTERS

TECHNICAL  
DATA





Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation

**CBN**

# **CBN** (Cubic Boron Nitride) **CBN FRÄSER**

- CBN(Cubic Boron Nitride) Machining High Hardened Steels up to HRc70 Mirror Finish
- CBN (Kubisches Bornitrid) zur Bearbeitung von hochgehärteten Stählen bis HRc70 Hochglanzoberfläche



**SELECTION GUIDE**



**CBN END MILLS**

Cubic Boron Nitride, Machining High Hardened Steels up to HRC70, Mirror Finish

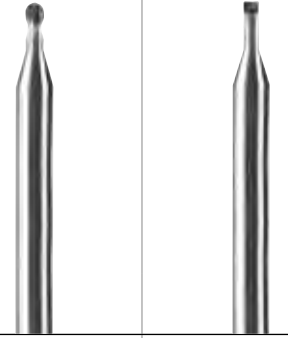


◎ : Excellent ○ : Good

Recommended cutting conditions : p. C37

SERIES	ESB94	ESD02
FLUTE	2	2
HELIX ANGLE	30°	0°
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS
SIZE MIN	R0.2	D0.5
SIZE MAX	R1.5	D2.0
PAGE	C35	C36

UNCOATED UNCOATED



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	
P	1	Non-alloy steel	About 0.15% C Annealed	125		
	2		About 0.45% C Annealed	190	13	
	3		About 0.45% C Quenched & Tempered	250	25	
	4		About 0.75% C Annealed	270	28	
	5		About 0.75% C Quenched & Tempered	300	32	
	6	Low alloy steel	Annealed	180	10	
	7		Quenched & Tempered	275	29	
	8		Quenched & Tempered	300	32	
	9		Quenched & Tempered	350	38	
	10		High alloyed steel, and tool steel	Annealed	200	15
	11			Quenched & Tempered	325	35
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	
	13		Martensitic Quenched & Tempered	240	23	
	14		Austenitic	180	10	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	
	16		Pearlitic (Martensitic)	260	26	
	17	Nodular cast iron	Ferritic	160	3	
	18		Pearlitic	250	25	
	19		Ferritic	130		
	20	Malleable cast iron	Pearlitic	230	21	
N	21	Aluminum-wrought alloy	Not Curable	60		
	22		Curable Hardened	100		
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		
	24		≤ 12% Si, Curable Hardened	90		
	25		> 12% Si, Not Curable	130		
	26		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90	
	27	Non Metallic Materials	Cutting Alloys, PB>1%	110		
	28		CuSn, lead-free copper and electrolytic copper	100		
	29		Duroplastic, Fiber Reinforced Plastic			
	30	Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	
	32		Cured	280	30	
	33		Annealed	250	25	
	34		Cured	350	38	
	35		Cast	320	34	
	36	Titanium Alloys	Pure Titanium	400 Rm		
	37		Alpha + Beta Alloys Hardened	1050 Rm		
H	38	Hardened steel	Hardened	550	55	
	39		Hardened	630	60	
	40	Chilled Cast Iron	Cast	400	42	
	41	Hardened Cast Iron	Hardened	550	55	



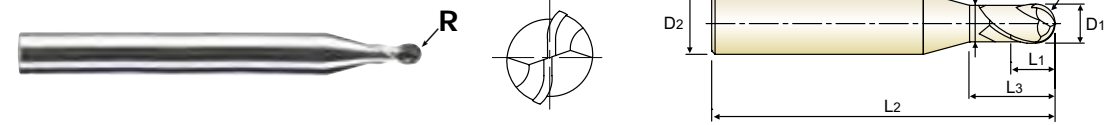
PLAIN SHANK **ESB94** SERIES

**CBN, 2 FLUTE BALL NOSE**

- CBN, 2 SCHNEIDEN STIRNRADIUS
- CBN, fraise 2 dents, hémisphérique
- CBN, 2 TAGLIENTI, SEMISFERICA

- Achieves stable machining and higher accuracy for duration.
- Saves setting time and cost from the reduction of frequent tool change.
- Improves repeatability in performance.
- Special designed geometry improving tool rigidity at High Speed Cutting.
- Tighter Radius Tolerance of ±0.005mm and higher accuracy with longer tool life.

- Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.
- Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.
- Verbessert die Wiederholgenauigkeit.
- Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.
- Engere Radiustoleranz ±0.005, höhere Genauigkeit und längere Werkzeuglebenszeit.



CBN 2 30° ±0.005 PLAIN UNCOATED p. C37

Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
ESB94004012	R0.2	0.4	4	0.3	1.2	50	0.37
ESB94005015	R0.25	0.5	4	0.4	1.5	50	0.46
ESB94006015	R0.3	0.6	4	0.5	1.5	50	0.56
ESB94008020	R0.4	0.8	4	0.6	2	50	0.76
ESB94010025	R0.5	1.0	4	0.6	2.5	50	0.95
ESB94010040	R0.5	1.0	4	0.6	4	50	0.95
ESB94010060	R0.5	1.0	4	0.6	6	50	0.95
ESB94012030	R0.6	1.2	4	0.8	3	50	1.15
ESB94015030	R0.75	1.5	4	0.95	3	50	1.45
ESB94015040	R0.75	1.5	4	0.95	4	50	1.45
ESB94015060	R0.75	1.5	4	0.95	6	50	1.45
ESB94020050	R1.0	2.0	4	1.2	5	50	1.95
ESB94020060	R1.0	2.0	4	1.2	6	50	1.95
ESB94030060	R1.5	3.0	4	1.8	6	50	2.85

Radius Tolerance(Mm)	Shank Dia. Tolerance
± 0.005	h5

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend																		◎	◎		◎	





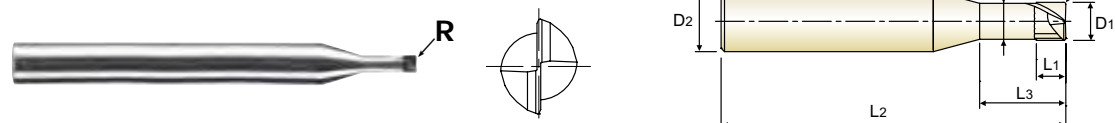
PLAIN SHANK **ESD02** SERIES

### CBN, 2 FLUTE CORNER RADIUS

- CBN, 2 SCHNEIDEN ECKENRADIUS
- CBN, fraise 2 dents, torique
- CBN, 2 TAGLIENTI, TORICA

- ▶ Achieves stable machining and higher accuracy for duration.
- ▶ Saves setting time and cost from the reduction of frequent tool change.
- ▶ Improves repeatability in performance.
- ▶ Special designed geometry improving tool rigidity at High Speed Cutting.
- ▶ Tighter Radius Tolerance of ±0.005mm and higher accuracy with longer tool life.

- ▶ **Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.**
- ▶ **Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.**
- ▶ **Verbessert die Wiederholgenauigkeit.**
- ▶ **Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.**
- ▶ **Engere Radiustoleranz ±0.005, höhere Genauigkeit und längere Werkzeuglebenszeit.**



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
ESD02005052	R0.05	0.5	4	0.3	2	50	0.46
ESD02005053	R0.05	0.5	4	0.3	3	50	0.46
ESD02010053	R0.05	1.0	4	0.7	3	50	0.95
ESD02010055	R0.05	1.0	4	0.7	5	50	0.95
ESD02010103	R0.1	1.0	4	0.7	3	50	0.95
ESD02010105	R0.1	1.0	4	0.7	5	50	0.95
ESD02015105	R0.1	1.5	4	1.0	5	50	1.45
ESD02015108	R0.1	1.5	4	1.0	8	50	1.45
ESD02015205	R0.2	1.5	4	1.0	5	50	1.45
ESD02015208	R0.2	1.5	4	1.0	8	50	1.45
ESD02020106	R0.1	2.0	4	1.2	6	50	1.95
ESD02020100	R0.1	2.0	4	1.2	10	50	1.95
ESD02020206	R0.2	2.0	4	1.2	6	50	1.95
ESD02020200	R0.2	2.0	4	1.2	10	50	1.95

Corner Radius(mm)	Shank Dia. Tolerance
± 0.005	h5

◎ : Excellent ○ : Good

ISO	P										M					K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎		◎

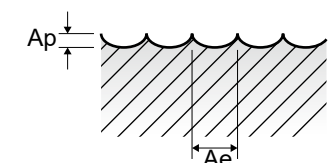


### RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

#### ESB94 SERIES 2 FLUTE BALL NOSE

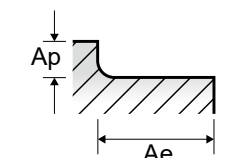
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						0.4	0.5	0.6	0.8	1.0	1.2	1.5	2.0	3.0	
H	38	Hardened steel	0.5D	0.2R	Vc	65	80	95	125	155	190	235	250	250	
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04	
					RPM	51725	50930	50399	49736	49338	50399	49869	39789	26526	
					FEED	1241	1528	2016	1989	2960	3024	2992	3183	2122	
					Vc	65	80	95	125	155	190	235	250	250	
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04	
	39.1		0.5D	0.1R	Vc	65	80	95	125	155	190	235	250	250	
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04	
					RPM	51725	50930	50399	49736	49338	50399	49869	39789	26526	
					FEED	1241	1528	2016	1989	2960	3024	2992	3183	2122	
					Vc	65	80	95	125	155	190	235	200	205	
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.039	0.04	
39.2	0.5D	0.1R	Vc	65	80	95	125	155	190	235	200	205			
			fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.039	0.04			
			RPM	51725	50930	50399	49736	49338	50399	49869	31831	21751			
			FEED	1241	1528	2016	1989	2960	3024	2992	2483	1740			
			Vc	65	80	95	125	155	190	235	200	205			
			fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.039	0.04			
39.3	R0.2~R0.4 = 0.005mm R0.5~R1.5 = 0.01mm	R0.2~R0.4 = 0.005mm R0.5~R1.5 = 0.01mm	Vc	65	80	95	125	155	190	235	200	205			
			fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.039	0.04			
			RPM	51725	50930	50399	49736	49338	50399	49869	31831	21751			
			FEED	1241	1528	2016	1989	2960	3024	2992	2483	1740			
			Vc	65	80	95	125	155	190	235	250	250			
			fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04			
41	Hardened Cast Iron	0.5D	0.2R	Vc	65	80	95	125	155	190	235	250	250		
				fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04		
				RPM	51725	50930	50399	49736	49338	50399	49869	39789	26526		
				FEED	1241	1528	2016	1989	2960	3024	2992	3183	2122		
				Vc	65	80	95	125	155	190	235	250	250		
				fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04		



#### ESD02 SERIES 2 FLUTE CORNER RADIUS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)				
				0.5	1.0	1.5	2.0	
H	38 39.1	Hardened steel	Vc	80	135	140	140	
			fz	0.007	0.012	0.017	0.02	
			RPM	50930	42972	29709	22282	
			FEED	713	1031	1010	891	
			Ae	0.1	0.2	0.4	0.6	
			Ap	0.01	0.01	0.02	0.03	
	39.2 39.3		0.006	Vc	80	95	90	90
				fz	0.006	0.012	0.018	0.029
				RPM	50930	30239	19099	14324
				FEED	611	726	688	831
				Ae	0.06	0.1	0.2	0.3
				Ap	0.005	0.01	0.02	0.03
41	Hardened Cast Iron	Vc	80	135	140	140		
		fz	0.007	0.012	0.017	0.02		
		RPM	50930	42972	29709	22282		
		FEED	713	1031	1010	891		
		Ae	0.1	0.2	0.4	0.6		
		Ap	0.01	0.01	0.02	0.03		





Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation



## CARBIDE INSERT & HOLDER

# *i*-Xmill END MILLS

## i-Xmills, HM-Wendeplatten Fräser

- Various Applications Type of Inserts Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steels and Graphite
- Für die verschiedensten Anwendungen sind Wendeplatten verfügbar, für allgemeine Stähle, vorgehärtete Stähle, hochgehärtete Stähle, rostfreie Stähle und Graphit





SELECTION GUIDE



CARBIDE INSERT & HOLDER **i-Xmill** END MILLS

Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steel and Graphite

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

⊙ : Excellent ○ : Good

Recommended cutting conditions : p. C60

SERIES	XMB110A	XMB120C	XMB260T	XMB130A
FLUTE	2	2	2	2
HELIX ANGLE	-	-	-	-
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R4.0	R4.0	R4.0	R4.0
SIZE MAX	R16.5	R16.5	R16.5	R16.5
PAGE	C42	C42	C42	C43

	AITiN	X-Coating	Z-Coating	AITiN
GENERAL PURPOSE	○	⊙	⊙	○
		PRE-HARDENED STEELS	HIGH HARDENED STEELS	STAINLESS STEELS



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc				
P	1	Non-alloy steel	About 0.15% C Annealed	125		⊙			
	2		About 0.45% C Annealed	190	13	⊙			
	3		About 0.45% C Quenched & Tempered	250	25	⊙			
	4		About 0.75% C Annealed	270	28	⊙			
	5		About 0.75% C Quenched & Tempered	300	32	⊙			
	6	Low alloy steel	Annealed	180	10	⊙			
	7		Quenched & Tempered	275	29	⊙			
	8		Quenched & Tempered	300	32	⊙			
	9		Quenched & Tempered	350	38	⊙	⊙		
	10		High alloyed steel, and tool steel	Annealed	200	15	○		
	11	Quenched & Tempered		325	35	○			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				⊙
	13		Martensitic Quenched & Tempered	240	23				⊙
	14		Austenitic	180	10				⊙
	15		Pearlitic / ferritic	180	10		⊙		
K	16	Grey cast iron	Pearlitic (Martensitic)	260	26		⊙		
	17		Ferritic	160	3		⊙		
	18		Nodular cast iron	Pearlitic	250	25		⊙	
	19		Ferritic	130			⊙		
	20		Malleable cast iron	Pearlitic	230	21		⊙	
N	21	Aluminum-wrought alloy	Not Curable	60					○
	22		Curable Hardened	100					○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75					○
	24		≤ 12% Si, Curable Hardened	90					○
	25		> 12% Si, Not Curable	130					○
	26		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90				
	27	Non Metallic Materials	Cutting Alloys, PB>1%	110					
	28		CuSn, lead-free copper and electrolytic copper	100					
	29		Duroplastic, Fiber Reinforced Plastic						
	30	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15				
	32		Cured	280	30				
	33		Annealed	250	25				
	34		Cured	350	38				
	35	Cast	320	34					
	36	Titanium Alloys	Pure Titanium	400 Rm					
37	Alpha + Beta Alloys Hardened		1050 Rm						
H	38	Hardened steel	Hardened	550	55		○	⊙	
	39		Hardened	630	60			⊙	
	40		Cast	400	42				○
	41		Hardened	550	55				⊙

XMM110V	XMB110D	XMR110A	XMR120C	XMR260T	XMF110V	XMR110D	ZBC	ZBS	ZBT	ZRC	ZRS	ZRT
2	2	2	2	2	2	2	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
R4.0	R4.0	D8.0	D8.0	D8.0	D8.0	D8.0	-	-	-	-	-	-
R16.5	R16.5	D33.0	D33.0	D33.0	D33.0	D33.0	-	-	-	-	-	-
C43	C43	C44	C44	C44	C49	C49	C54	C55	C56	C57	C58	C58
FULL RADIUS	-	-	-	-	HIGH FEED	-	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK
Y-Coating	Diamond	AITiN	X-Coating	Z-Coating	Y-Coating	Diamond	Carbide	Steel	Steel	Carbide	Steel	Steel
GENERAL PURPOSE	GRAPHITE	GENERAL PURPOSE STAINLESS STEELS	PRE-HARDENED STEELS	HIGH HARDENED STEELS	GENERAL PURPOSE	GRAPHITE						
⊙		⊙			⊙							1
⊙		⊙			⊙							2
⊙		⊙			⊙							3
⊙		⊙			⊙							4
⊙		⊙			⊙							5
⊙		⊙			⊙							6
⊙		⊙			⊙							7
⊙		⊙			⊙							8
⊙		⊙		⊙	⊙							9
⊙		⊙		○	⊙							10
		⊙		○								11
		⊙		○								12
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		⊙		⊙								15
		⊙		⊙								16
		⊙		⊙								17
		⊙		⊙								18
		⊙		⊙								19
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**XMB110A** SERIES  
**XMB120C** SERIES  
**XMB260T** SERIES

**i-Xmill BALL INSERTS**

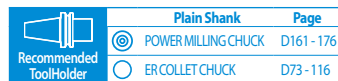
- i-Xmill WECHSELPLATTE mit RUNDER STIRN
- i-Xmill - Plaquette hémisphérique
- i-Xmill Placca emisferica

- ▶ Indexable Ball End Mill for economic use
- ▶ Three Types of Inserts are available
  - For General Purpose (~HRc50)
  - For Hardened Material (HRc40~HRc65)
  - For Graphite
- ▶ Special Geometry and Coating for Excellent Performance

- ▶ Kopierfräser mit Wechselplatte für wirtschaftlichen Einsatz.
- ▶ Drei Typen von Schneideinsätzen lieferbar
  - Für allgemeinen Einsatz (HRc50)
  - Für gehärtete Materialien (HRc40~HRc65)
  - Für Graphit
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu



cutting conditions : p.C60



EDP No.			Radius of Ball Nose	Mill Diameter	Height	Thickness
AITIN	X-Coating	Z-Coating				
For General Purpose	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMB110A080	XMB120C080	XMB260T080	R4.0	8.0	8.0	2.4
XMB110A100	XMB120C100	XMB260T100	R5.0	10.0	9.5	2.7
XMB110A110	XMB120C110	XMB260T110	R5.5	11.0	10.0	2.7
XMB110A120	XMB120C120	XMB260T120	R6.0	12.0	11.0	3.2
XMB110A130	XMB120C130	XMB260T130	R6.5	13.0	11.5	3.2
XMB110A160	XMB120C160	XMB260T160	R8.0	16.0	13.0	4.2
XMB110A170	XMB120C170	XMB260T170	R8.5	17.0	13.5	4.2
XMB110A200	XMB120C200	XMB260T200	R10.0	20.0	16.0	5.2
XMB110A210	XMB120C210	XMB260T210	R10.5	21.0	16.5	5.2
XMB110A250	XMB120C250	XMB260T250	R12.5	25.0	19.5	6.2
XMB110A260	XMB120C260	XMB260T260	R13.0	26.0	20.0	6.2
XMB110A300	XMB120C300	XMB260T300	R15.0	30.0	23.5	7.2
XMB110A320	XMB120C320	XMB260T320	R16.0	32.0	24.5	7.2
XMB110A330	XMB120C330	XMB260T330	R16.5	33.0	25.0	7.2

▶ The ball radius tolerance is ±0.01mm and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	10	26	3	25	10	21	21	21	21	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
XMB110A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎	
XMB120C																					
XMB260T																					

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMB110A																					
XMB120C																					
XMB260T																					



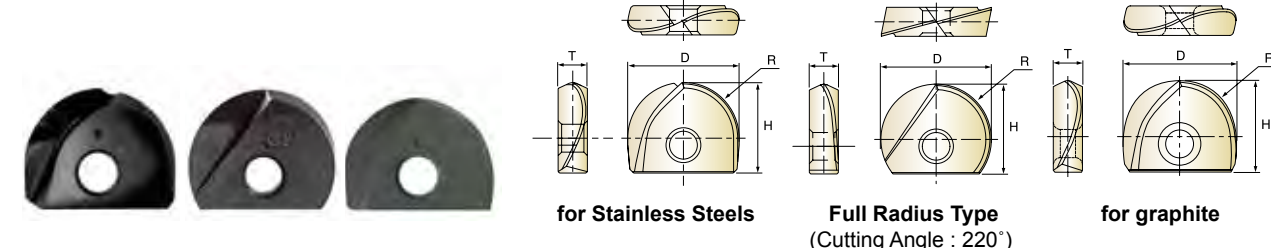
**XMB130A** SERIES  
**XMM110V** SERIES  
**XMB110D** SERIES

**i-Xmill BALL INSERTS**

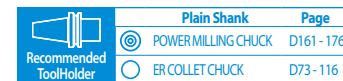
- i-Xmill WECHSELPLATTE mit RUNDER STIRN
- i-Xmill - Plaquette hémisphérique
- i-Xmill Placca emisferica

- ▶ Indexable Ball End Mill for economic use
- ▶ Three Types of Inserts are available
  - For General Purpose (~HRc50)
  - For Hardened Material (HRc40~HRc65)
  - For Graphite
- ▶ Special Geometry and Coating for Excellent Performance

- ▶ Kopierfräser mit Wechselplatte für wirtschaftlichen Einsatz.
- ▶ Drei Typen von Schneideinsätzen lieferbar
  - Für allgemeinen Einsatz (HRc50)
  - Für gehärtete Materialien (HRc40~HRc65)
  - Für Graphit
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu



cutting conditions : p.C60



EDP No.			Radius of Ball Nose	Mill Diameter	Height	Thickness
AITIN	Y-Coating	Diamond				
For Stainless Steels	For General Purpose Full Radius Type	For Graphite	R	D	H	T
XMB130A080	XMM110V080	XMB110D080	R4.0	8.0	8.0	2.4
XMB130A100	XMM110V100	XMB110D100	R5.0	10.0	9.5	2.7
XMB130A110	XMM110V110	XMB110D110	R5.5	11.0	10.0	2.7
XMB130A120	XMM110V120	XMB110D120	R6.0	12.0	11.0	3.2
XMB130A130	XMM110V130	XMB110D130	R6.5	13.0	11.5	3.2
XMB130A160	XMM110V160	XMB110D160	R8.0	16.0	13.0	4.2
XMB130A170	XMM110V170	XMB110D170	R8.5	17.0	13.5	4.2
XMB130A200	XMM110V200	XMB110D200	R10.0	20.0	16.0	5.2
XMB130A210	XMM110V210	XMB110D210	R10.5	21.0	16.5	5.2
XMB130A250	XMM110V250	XMB110D250	R12.5	25.0	19.5	6.2
XMB130A260	XMM110V260	XMB110D260	R13.0	26.0	20.0	6.2
XMB130A300	XMM110V300	XMB110D300	R15.0	30.0	23.5	7.2
XMB130A320	XMM110V320	XMB110D320	R16.0	32.0	24.5	7.2
XMB130A330	XMM110V330	XMB110D330	R16.5	33.0	25.0	7.2

▶ The ball radius tolerance is ±0.01mm and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	10	26	3	25	10	21	21	21	21	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
XMB130A												◎	◎	◎							
XMM110V	◎	◎	◎	◎		◎	◎														
XMB110D																					

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMB130A																					
XMM110V																					
XMB110D	○	○	○	○																	



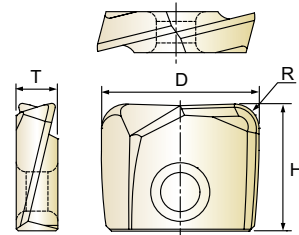
**XMR110A** SERIES  
**XMR120C** SERIES  
**XMR260T** SERIES

**i-Xmill CORNER RADIUS INSERT**

- i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
- i-Xmill - Plaquette pour usage général et inox
- INSERTI IN MD, TORICI

- ▶ The optimized geometry of the tool achieves better reliability and less vibration and cutting load.
- ▶ Interchangeable with i-Xmill ball holder, but precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The varied and wide cutting range makes it possible to machine from roughing through to finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



Recommended ToolHolder	Plain Shank	Page
⊙	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

cutting conditions : p.C62

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AITIN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A080 03	XMR120C080 03	XMR260T080 03	R0.3	8.0	8.0	2.4
XMR110A080 05	XMR120C080 05	XMR260T080 05	R0.5	8.0	8.0	2.4
XMR110A080 10	XMR120C080 10	XMR260T080 10	R1.0	8.0	8.0	2.4
XMR110A080 20	XMR120C080 20	XMR260T080 20	R2.0	8.0	8.0	2.4
XMR110A100 03	XMR120C100 03	XMR260T100 03	R0.3	10.0	9.5	2.7
XMR110A100 05	XMR120C100 05	XMR260T100 05	R0.5	10.0	9.5	2.7
XMR110A100 10	XMR120C100 10	XMR260T100 10	R1.0	10.0	9.5	2.7
XMR110A100 15	XMR120C100 15	XMR260T100 15	R1.5	10.0	9.5	2.7
XMR110A100 20	XMR120C100 20	XMR260T100 20	R2.0	10.0	9.5	2.7
XMR110A100 30	XMR120C100 30	XMR260T100 30	R3.0	10.0	9.5	2.7
XMR110A110 03	XMR120C110 03	XMR260T110 03	R0.3	11.0	9.5	2.7
XMR110A110 05	XMR120C110 05	XMR260T110 05	R0.5	11.0	9.5	2.7
XMR110A110 10	XMR120C110 10	XMR260T110 10	R1.0	11.0	9.5	2.7
XMR110A110 15	XMR120C110 15	XMR260T110 15	R1.5	11.0	9.5	2.7
XMR110A110 20	XMR120C110 20	XMR260T110 20	R2.0	11.0	9.5	2.7
XMR110A110 30	XMR120C110 30	XMR260T110 30	R3.0	11.0	9.5	2.7

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

⊙ : Excellent ○ : Good

ISO	P											M				K				
	Non-alloy steel					Low alloy steel						High alloyed steel, and tool steel	Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	13	25	28	32	38	10	29	32	38	10	26	15	23	10	10	26	3	25	10	21
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
XMR110A	⊙	⊙	⊙	⊙	⊙															
XMR120C										⊙	○	⊙	⊙	⊙						
XMR260T																				

ISO	N						S					H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	450	550	550
HB																					
XMR110A																					
XMR120C																		○			
XMR260T																		⊙	⊙	○	⊙



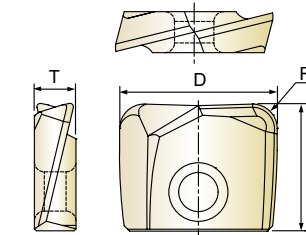
**XMR110A** SERIES  
**XMR120C** SERIES  
**XMR260T** SERIES

**i-Xmill CORNER RADIUS INSERT**

- i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
- i-Xmill - Plaquette pour usage général et inox
- INSERTI IN MD, TORICI

- ▶ The optimum geometry of the tool to achieve better reliability and less vibration and cutting load.
- ▶ Interchangeable with i-Xmill ball holder, but precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The varied and wide cutting range makes it possible to machine from roughing through to finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



Recommended ToolHolder	Plain Shank	Page
⊙	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

cutting conditions : p.C62

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AITIN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A120 03	XMR120C120 03	XMR260T120 03	R0.3	12.0	11.0	3.2
XMR110A120 05	XMR120C120 05	XMR260T120 05	R0.5	12.0	11.0	3.2
XMR110A120 10	XMR120C120 10	XMR260T120 10	R1.0	12.0	11.0	3.2
XMR110A120 15	XMR120C120 15	XMR260T120 15	R1.5	12.0	11.0	3.2
XMR110A120 20	XMR120C120 20	XMR260T120 20	R2.0	12.0	11.0	3.2
XMR110A120 30	XMR120C120 30	XMR260T120 30	R3.0	12.0	11.0	3.2
XMR110A130 03	XMR120C130 03	XMR260T130 03	R0.3	13.0	11.2	3.2
XMR110A130 05	XMR120C130 05	XMR260T130 05	R0.5	13.0	11.2	3.2
XMR110A130 10	XMR120C130 10	XMR260T130 10	R1.0	13.0	11.2	3.2
XMR110A130 15	XMR120C130 15	XMR260T130 15	R1.5	13.0	11.2	3.2
XMR110A130 20	XMR120C130 20	XMR260T130 20	R2.0	13.0	11.2	3.2
XMR110A130 30	XMR120C130 30	XMR260T130 30	R3.0	13.0	11.2	3.2
XMR110A160 03	XMR120C160 03	XMR260T160 03	R0.3	16.0	13.0	4.2
XMR110A160 05	XMR120C160 05	XMR260T160 05	R0.5	16.0	13.0	4.2
XMR110A160 10	XMR120C160 10	XMR260T160 10	R1.0	16.0	13.0	4.2
XMR110A160 15	XMR120C160 15	XMR260T160 15	R1.5	16.0	13.0	4.2
XMR110A160 20	XMR120C160 20	XMR260T160 20	R2.0	16.0	13.0	4.2
XMR110A160 30	XMR120C160 30	XMR260T160 30	R3.0	16.0	13.0	4.2

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

⊙ : Excellent ○ : Good

ISO	P											M				K				
	Non-alloy steel					Low alloy steel						High alloyed steel, and tool steel	Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
XMR110A	⊙	⊙	⊙	⊙	⊙															
XMR120C										⊙	⊙	⊙	⊙	⊙						
XMR260T																				

ISO	N						S					H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	450	550	550
HB																					
XMR110A																					
XMR120C																		○			
XMR260T																		⊙	⊙	○	⊙





**XMR110A** SERIES  
**XMR120C** SERIES  
**XMR260T** SERIES

**i-Xmill CORNER RADIUS INSERT**

- i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
- i-Xmill - Plaquette pour usage général et inox
- INSERTI IN MD, TORICI

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- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



cutting conditions : p.C62

Recommended ToolHolder	Plain Shank	Page
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK	D73 - 116

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AITIN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A170 03	XMR120C170 03	XMR260T170 03	R0.3	17.0	13.0	4.2
XMR110A170 05	XMR120C170 05	XMR260T170 05	R0.5	17.0	13.0	4.2
XMR110A170 10	XMR120C170 10	XMR260T170 10	R1.0	17.0	13.0	4.2
XMR110A170 15	XMR120C170 15	XMR260T170 15	R1.5	17.0	13.0	4.2
XMR110A170 20	XMR120C170 20	XMR260T170 20	R2.0	17.0	13.0	4.2
XMR110A170 30	XMR120C170 30	XMR260T170 30	R3.0	17.0	13.0	4.2
XMR110A200 03	XMR120C200 03	XMR260T200 03	R0.3	20.0	16.0	5.2
XMR110A200 05	XMR120C200 05	XMR260T200 05	R0.5	20.0	16.0	5.2
XMR110A200 10	XMR120C200 10	XMR260T200 10	R1.0	20.0	16.0	5.2
XMR110A200 15	XMR120C200 15	XMR260T200 15	R1.5	20.0	16.0	5.2
XMR110A200 20	XMR120C200 20	XMR260T200 20	R2.0	20.0	16.0	5.2
XMR110A200 30	XMR120C200 30	XMR260T200 30	R3.0	20.0	16.0	5.2
XMR110A210 03	XMR120C210 03	XMR260T210 03	R0.3	21.0	16.0	5.2
XMR110A210 05	XMR120C210 05	XMR260T210 05	R0.5	21.0	16.0	5.2
XMR110A210 10	XMR120C210 10	XMR260T210 10	R1.0	21.0	16.0	5.2
XMR110A210 15	XMR120C210 15	XMR260T210 15	R1.5	21.0	16.0	5.2
XMR110A210 20	XMR120C210 20	XMR260T210 20	R2.0	21.0	16.0	5.2
XMR110A210 30	XMR120C210 30	XMR260T210 30	R3.0	21.0	16.0	5.2

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm. ▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
	Non-alloy steel						Low alloy steel						High alloyed steel, and tool steel	Stainless steel			Grey cast iron		Nodular cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	13	25	28	32	38	10	29	32	38	10	11	15	23	10	10	26	3	25	10	21
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
XMR120C										◎	○	◎			◎	◎	◎	◎	◎	◎
XMR260T																				

ISO	S																				
	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
XMR110A																					
XMR120C																					
XMR260T																					



**XMR110A** SERIES  
**XMR120C** SERIES  
**XMR260T** SERIES

**i-Xmill CORNER RADIUS INSERT**

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- i-Xmill - Plaquette pour usage général et inox
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cutting conditions : p.C62

Recommended ToolHolder	Plain Shank	Page
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK	D73 - 116

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AITIN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A250 03	XMR120C250 03	XMR260T250 03	R0.3	25.0	19.5	6.2
XMR110A250 05	XMR120C250 05	XMR260T250 05	R0.5	25.0	19.5	6.2
XMR110A250 10	XMR120C250 10	XMR260T250 10	R1.0	25.0	19.5	6.2
XMR110A250 15	XMR120C250 15	XMR260T250 15	R1.5	25.0	19.5	6.2
XMR110A250 20	XMR120C250 20	XMR260T250 20	R2.0	25.0	19.5	6.2
XMR110A250 30	XMR120C250 30	XMR260T250 30	R3.0	25.0	19.5	6.2
XMR110A260 03	XMR120C260 03	XMR260T260 03	R0.3	26.0	19.5	6.2
XMR110A260 05	XMR120C260 05	XMR260T260 05	R0.5	26.0	19.5	6.2
XMR110A260 10	XMR120C260 10	XMR260T260 10	R1.0	26.0	19.5	6.2
XMR110A260 15	XMR120C260 15	XMR260T260 15	R1.5	26.0	19.5	6.2
XMR110A260 20	XMR120C260 20	XMR260T260 20	R2.0	26.0	19.5	6.2
XMR110A260 30	XMR120C260 30	XMR260T260 30	R3.0	26.0	19.5	6.2
XMR110A300 03	XMR120C300 03	XMR260T300 03	R0.3	30.0	23.5	7.2
XMR110A300 05	XMR120C300 05	XMR260T300 05	R0.5	30.0	23.5	7.2
XMR110A300 10	XMR120C300 10	XMR260T300 10	R1.0	30.0	23.5	7.2
XMR110A300 15	XMR120C300 15	XMR260T300 15	R1.5	30.0	23.5	7.2
XMR110A300 20	XMR120C300 20	XMR260T300 20	R2.0	30.0	23.5	7.2
XMR110A300 30	XMR120C300 30	XMR260T300 30	R3.0	30.0	23.5	7.2

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm. ▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
	Non-alloy steel						Low alloy steel						High alloyed steel, and tool steel	Stainless steel			Grey cast iron		Nodular cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	13	25	28	32	38	10	29	32	38	10	11	15	23	10	10	26	3	25	10	21
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
XMR120C										◎	◎	◎			◎	◎	◎	◎	◎	◎
XMR260T																				

ISO	S																				
	Aluminum-wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
XMR110A																					
XMR120C																					
XMR260T																					





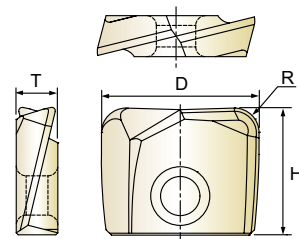
**XMR110A** SERIES  
**XMR120C** SERIES  
**XMR260T** SERIES

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Recommended ToolHolder	Plain Shank	Page
○ POWER MILLING CHUCK	○ D161 - 176	
○ ER COLLET CHUCK	○ D73 - 116	

cutting conditions : p.C62

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AITIN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A320 03	XMR120C320 03	XMR260T320 03	R0.3	32.0	23.5	7.2
XMR110A320 05	XMR120C320 05	XMR260T320 05	R0.5	32.0	23.5	7.2
XMR110A320 10	XMR120C320 10	XMR260T320 10	R1.0	32.0	23.5	7.2
XMR110A320 15	XMR120C320 15	XMR260T320 15	R1.5	32.0	23.5	7.2
XMR110A320 20	XMR120C320 20	XMR260T320 20	R2.0	32.0	23.5	7.2
XMR110A320 30	XMR120C320 30	XMR260T320 30	R3.0	32.0	23.5	7.2
XMR110A330 03	XMR120C330 03	XMR260T330 03	R0.3	33.0	23.5	7.2
XMR110A330 05	XMR120C330 05	XMR260T330 05	R0.5	33.0	23.5	7.2
XMR110A330 10	XMR120C330 10	XMR260T330 10	R1.0	33.0	23.5	7.2
XMR110A330 15	XMR120C330 15	XMR260T330 15	R1.5	33.0	23.5	7.2
XMR110A330 20	XMR120C330 20	XMR260T330 20	R2.0	33.0	23.5	7.2
XMR110A330 30	XMR120C330 30	XMR260T330 30	R3.0	33.0	23.5	7.2

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
XMR120C									◎	○	◎				◎	◎	◎	◎	◎	◎	
XMR260T																					

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMR110A																					
XMR120C																					
XMR260T																					



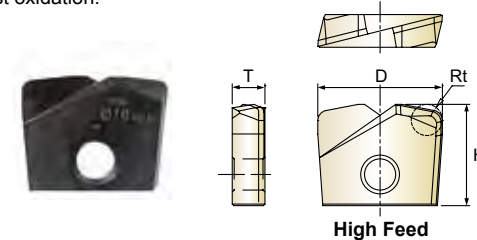
**XMF110V** SERIES  
**XMR110D** SERIES

**i-Xmill CORNER RADIUS INSERT**

- i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
- i-Xmill Plaquette Torique AVEC RAYON de coupe frontale
- INSERTI IN MD, TORICI & TORICI HIGH FEED

- ▶ The optimized geometry of the tool achieves better reliability and less vibration and cutting load.
- ▶ Interchangeable with i-Xmill ball holder, but precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The varied and wide cutting range makes it possible to machine from roughing through to finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



Recommended ToolHolder	Plain Shank	Page
○ POWER MILLING CHUCK	○ D161 - 176	
○ ER COLLET CHUCK	○ D73 - 116	

cutting conditions : p.C63

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D080 03	R0.3	8.0	8.0	2.4	0.4
-	XMR110D080 05	R0.5	8.0	8.0	2.4	0.4
XMF110V080 08	-	R0.8	8.0	8.0	2.4	0.4
-	XMR110D080 10	R1.0	8.0	8.0	2.4	0.4
-	XMR110D080 20	R2.0	8.0	8.0	2.4	0.4
-	XMR110D100 03	R0.3	10.0	9.5	2.7	0.5
-	XMR110D100 05	R0.5	10.0	9.5	2.7	0.5
XMF110V100 10	XMR110D100 10	R1.0	10.0	9.5	2.7	0.5
-	XMR110D100 15	R1.5	10.0	9.5	2.7	0.5
-	XMR110D100 20	R2.0	10.0	9.5	2.7	0.5
-	XMR110D100 30	R3.0	10.0	9.5	2.7	0.5
-	XMR110D110 03	R0.3	11.0	9.5	2.7	0.5
-	XMR110D110 05	R0.5	11.0	9.5	2.7	0.5
XMF110V110 10	XMR110D110 10	R1.0	11.0	9.5	2.7	0.5
-	XMR110D110 15	R1.5	11.0	9.5	2.7	0.5
-	XMR110D110 20	R2.0	11.0	9.5	2.7	0.5
-	XMR110D110 30	R3.0	11.0	9.5	2.7	0.5

▶ The corner radius tolerance is ±0.015mm(Rt tolerance is ±0.05mm) and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
XMF110V	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎										
XMR110D																					

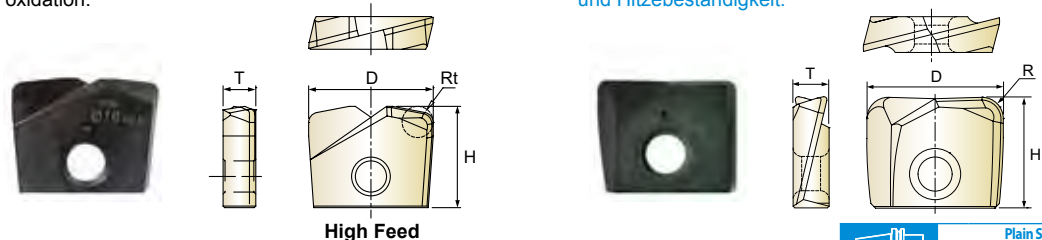
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V																					
XMR110D	○	○	○	○																	

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cutting conditions : p.C63



Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D120 03	R0.3	12.0	11.0	2.7	0.6
-	XMR110D120 05	R0.5	12.0	11.0	2.7	0.6
XMF110V120 10	XMR110D120 10	R1.0	12.0	11.0	2.7	0.6
-	XMR110D120 15	R1.5	12.0	11.0	2.7	0.6
-	XMR110D120 20	R2.0	12.0	11.0	2.7	0.6
-	XMR110D120 30	R3.0	12.0	11.0	2.7	0.6
-	XMR110D130 03	R0.3	13.0	11.2	2.7	0.6
-	XMR110D130 05	R0.5	13.0	11.2	2.7	0.6
XMF110V130 10	XMR110D130 10	R1.0	13.0	11.2	2.7	0.6
-	XMR110D130 15	R1.5	13.0	11.2	2.7	0.6
-	XMR110D130 20	R2.0	13.0	11.2	2.7	0.6
-	XMR110D130 30	R3.0	13.0	11.2	2.7	0.6
-	XMR110D160 03	R0.3	16.0	13.0	4.2	0.8
-	XMR110D160 05	R0.5	16.0	13.0	4.2	0.8
-	XMR110D160 10	R1.0	16.0	13.0	4.2	0.8
XMF110V160 15	XMR110D160 15	R1.5	16.0	13.0	4.2	0.8
-	XMR110D160 20	R2.0	16.0	13.0	4.2	0.8
-	XMR110D160 30	R3.0	16.0	13.0	4.2	0.8

▶ The corner radius tolerance is ±0.015mm(Rt tolerance is ±0.05mm) and the set-up accuracy is ±0.02mm. ▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎									
XMR110D																				

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V	○	○	○	○	○																
XMR110D	○	○	○	○	○																

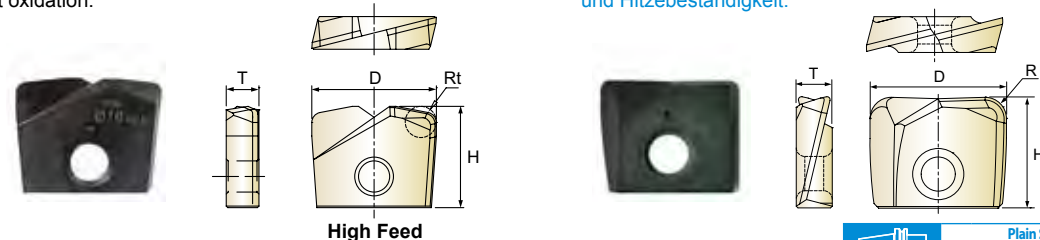


**i-Xmill CORNER RADIUS INSERT**

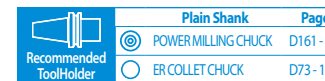
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cutting conditions : p.C63



Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D170 03	R0.3	17.0	13.0	4.2	0.8
-	XMR110D170 05	R0.5	17.0	13.0	4.2	0.8
-	XMR110D170 10	R1.0	17.0	13.0	4.2	0.8
XMF110V170 15	XMR110D170 15	R1.5	17.0	13.0	4.2	0.8
-	XMR110D170 20	R2.0	17.0	13.0	4.2	0.8
-	XMR110D170 30	R3.0	17.0	13.0	4.2	0.8
-	XMR110D200 03	R0.3	20.0	16.0	5.2	1.0
-	XMR110D200 05	R0.5	20.0	16.0	5.2	1.0
-	XMR110D200 10	R1.0	20.0	16.0	5.2	1.0
-	XMR110D200 15	R1.5	20.0	16.0	5.2	1.0
XMF110V200 20	XMR110D200 20	R2.0	20.0	16.0	5.2	1.0
-	XMR110D200 30	R3.0	20.0	16.0	5.2	1.0
-	XMR110D210 03	R0.3	21.0	16.0	5.2	1.0
-	XMR110D210 05	R0.5	21.0	16.0	5.2	1.0
-	XMR110D210 10	R1.0	21.0	16.0	5.2	1.0
-	XMR110D210 15	R1.5	21.0	16.0	5.2	1.0
XMF110V210 20	XMR110D210 20	R2.0	21.0	16.0	5.2	1.0
-	XMR110D210 30	R3.0	21.0	16.0	5.2	1.0

▶ The corner radius tolerance is ±0.015mm(Rt tolerance is ±0.05mm) and the set-up accuracy is ±0.02mm. ▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎									
XMR110D																				

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V	○	○	○	○	○																
XMR110D	○	○	○	○	○																

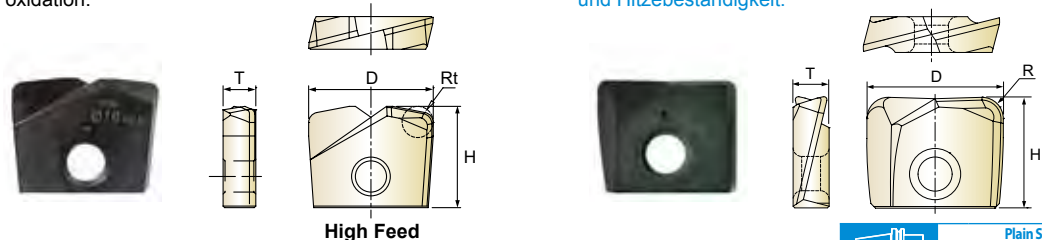


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cutting conditions : p.C63

Plain Shank	Page
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D250 03	R0.3	25.0	19.5	6.2	1.25
-	XMR110D250 05	R0.5	25.0	19.5	6.2	1.25
-	XMR110D250 10	R1.0	25.0	19.5	6.2	1.25
-	XMR110D250 15	R1.5	25.0	19.5	6.2	1.25
-	XMR110D250 20	R2.0	25.0	19.5	6.2	1.25
XMF110V250 25	-	R2.5	25.0	19.5	6.2	1.25
-	XMR110D250 30	R3.0	25.0	19.5	6.2	1.25
-	XMR110D260 03	R0.3	26.0	19.5	6.2	1.25
-	XMR110D260 05	R0.5	26.0	19.5	6.2	1.25
-	XMR110D260 10	R1.0	26.0	19.5	6.2	1.25
-	XMR110D260 15	R1.5	26.0	19.5	6.2	1.25
-	XMR110D260 20	R2.0	26.0	19.5	6.2	1.25
XMF110V260 25	-	R2.5	26.0	19.5	6.2	1.25
-	XMR110D260 30	R3.0	26.0	19.5	6.2	1.25
-	XMR110D300 03	R0.3	30.0	23.5	7.2	1.6
-	XMR110D300 05	R0.5	30.0	23.5	7.2	1.6
-	XMR110D300 10	R1.0	30.0	23.5	7.2	1.6
-	XMR110D300 15	R1.5	30.0	23.5	7.2	1.6
-	XMR110D300 20	R2.0	30.0	23.5	7.2	1.6
XMF110V300 30	XMR110D300 30	R3.0	30.0	23.5	7.2	1.6

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▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎			◎										
XMR110D																				

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	55	60	42	55			
HB	60	100	75	90	130	110	90	100													
XMF110V																					
XMR110D	○	○	○	○						◎											

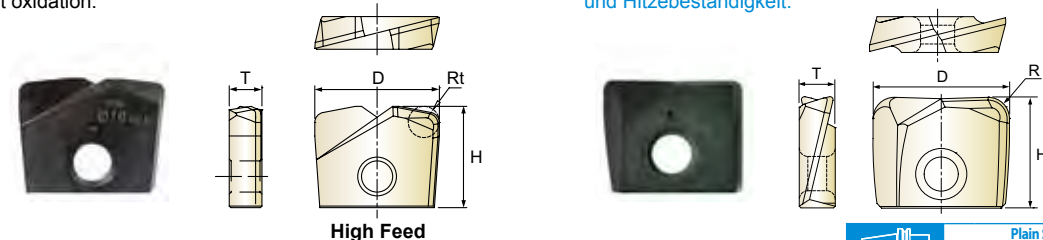


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- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



cutting conditions : p.C63

Plain Shank	Page
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D320 03	R0.3	32.0	23.5	7.2	1.6
-	XMR110D320 05	R0.5	32.0	23.5	7.2	1.6
-	XMR110D320 10	R1.0	32.0	23.5	7.2	1.6
-	XMR110D320 15	R1.5	32.0	23.5	7.2	1.6
-	XMR110D320 20	R2.0	32.0	23.5	7.2	1.6
-	XMR110D320 30	R3.0	32.0	23.5	7.2	1.6
XMF110V320 32	XMR110D320 32	R3.2	32.0	23.5	7.2	1.6
-	XMR110D330 03	R0.3	33.0	23.5	7.2	1.6
-	XMR110D330 05	R0.5	33.0	23.5	7.2	1.6
-	XMR110D330 10	R1.0	33.0	23.5	7.2	1.6
-	XMR110D330 15	R1.5	33.0	23.5	7.2	1.6
-	XMR110D330 20	R2.0	33.0	23.5	7.2	1.6
-	XMR110D330 30	R3.0	33.0	23.5	7.2	1.6
XMF110V330 32	XMR110D330 32	R3.2	33.0	23.5	7.2	1.6

▶ The corner radius tolerance is ±0.015mm(Rt tolerance is ±0.05mm) and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

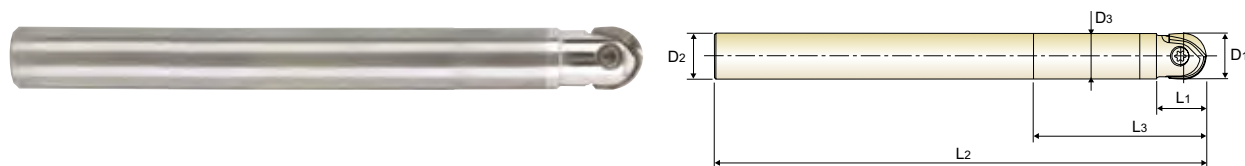
ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎			◎										
XMR110D																				

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	55	60	42	55			
HB	60	100	75	90	130	110	90	100													
XMF110V																					
XMR110D	○	○	○	○						◎											

**i-Xmill CARBIDE BALL HOLDER - STRAIGHT NECK**

● i-Xmill HARTMETAL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT  
 (●) Porte-plaquette i-Xmill en Carbone, entrée droite, pour plaquette à bout hémisphérique  
 (●) CORPO FRESA IN MD PER INSERTI SEMISFERICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length of Cut	Length Below Shank	Overall Length	Length Type	Wrench No.	Screw No.
	D1	D2	D3	L1	L3	L2			
★ ZBC0801080	8	8	7.6	12	25	130	Regular	TWFT07	TX2508T07
★ ZBC0802080	8	8	7.6	12	40	130	Regular		
★ ZBC0803080	8	8	7.6	12	65	130	Regular		
ZBC0804080	8	8	7.6	12	60	150	Regular		
ZBC0805080	8	8	7.6	12	60	200	Long	TWFT08	TX3010T08
ZBC0806080	8	8	7.6	12	25	80	Short		
★ ZBC1001100	10, 11	10	9.5	15	30	140	Regular		
★ ZBC1002100	10, 11	10	9.5	15	50	140	Regular		
★ ZBC1003100	10, 11	10	9.5	15	75	140	Regular	TWFT10	TX3512T10
ZBC1004100	10, 11	10	9.5	15	60	180	Regular		
ZBC1005100	10, 11	10	9.5	15	60	200	Long		
ZBC1006100	10, 11	10	9.5	15	30	80	Short		
ZBC120001P	12, 13	12	11.4	17	40	200	Long	TWFT15	TX4016T15
★ ZBC1201120	12, 13	12	11.4	17	35	150	Regular		
★ ZBC1202120	12, 13	12	11.4	17	60	150	Regular		
★ ZBC1203120	12, 13	12	11.4	17	85	150	Regular		
ZBC1204120	12, 13	12	11.4	17	60	250	Long	TWBT20	TX5020T20
ZBC1205120	12, 13	12	11.4	17	35	100	Short		
ZBC160001P	16, 17	16	15.0	20	50	150	Regular		
★ ZBC1601160	16, 17	16	15.0	20	50	200	Long		
★ ZBC1602160	16, 17	16	15.0	20	80	200	Long	TWBT25	TX6025T25
★ ZBC1603160	16, 17	16	15.0	20	120	200	Long		
★ ZBC1604160	16, 17	16	15.0	20	80	250	Long		
ZBC1605160	16, 17	16	15.0	20	50	120	Short		
ZBC200002P	20, 21	20	19.0	25	60	150	Regular	TWBT30	TX8030T30
★ ZBC2001200	20, 21	20	19.0	25	60	200	Regular		
★ ZBC2002200	20, 21	20	19.0	25	80	200	Regular		
★ ZBC2003200	20, 21	20	19.0	25	100	250	Long		
★ ZBC2004200	20, 21	20	19.0	25	150	250	Long	TWBT25	TX6025T25
ZBC2005200	20, 21	20	19.0	25	100	300	Long		
ZBC250001P	25, 26	25	24.0	30	75	150	Regular		
★ ZBC2501250	25, 26	25	24.0	30	75	200	Regular		
★ ZBC2502250	25, 26	25	24.0	30	120	250	Regular	TWBT30	TX8030T30
★ ZBC2503250	25, 26	25	24.0	30	190	300	Long		
ZBC2504250	25, 26	25	24.0	30	120	350	Long		
ZBC2505250	25, 26	25	24.0	30	60	300	Long		
★ ZBC3001320	30, 32, 33	32	29.0	40	90	250	Regular	TWBT30	TX8030T30
★ ZBC3002320	30, 32, 33	32	29.0	40	150	300	Long		
★ ZBC3003320	30, 32, 33	32	29.0	40	190	300	Long		
ZBC3004320	30, 32, 33	32	29.0	40	120	350	Long		
ZBC3005320	30, 32, 33	32	29.0	40	150	400	Long		

\* Upon request, the broken holder is able to be regenerated  
 \* Your carbide holder can be regenerated as YG-1 type upon request

● Required to use T-HANDLE (TWH600)  
 ★ Stock Item

**i-Xmill STEEL BALL HOLDER - STRAIGHT NECK**

● i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT  
 (●) Porte-plaquette i-Xmill en acier, entrée droite, pour plaquette à bout hémisphérique  
 (●) CORPO FRESA IN ACCIAIO PER INSERTI SEMISFERICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length Below Shank	Overall Length	Length Type	Wrench No.	Screw No.
	D1	D2	D3	L3	L2			
★ ZBS1201120	12, 13	12	10.5	35	90	Short	TWFT10	TX3512T10
★ ZBS1202120	12, 13	12	10.5	55	110	Regular		
ZBS120001P	12, 13	12	10.5	40	150	Long	TWFT15	TX4016T15
★ ZBS1601160	16, 17	16	14.5	35	95	Short		
★ ZBS1602160	16, 17	16	14.5	65	125	Regular		
ZBS160001P	16, 17	16	14.5	60	200	Long		
★ ZBS2001200	20, 21	20	18.0	40	110	Short	TWBT20	TX5020T20
★ ZBS2002200	20, 21	20	18.0	75	145	Regular		
ZBS200001P	20, 21	20	18.0	80	200	Long		
ZBS200002P	20, 21	20	18.0	60	200	Long		
★ ZBS2501250	25, 26	25	22.5	45	125	Short	TWBT25	TX6025T25
★ ZBS2502250	25, 26	25	22.5	90	170	Regular		
ZBS2503250	25, 26	25	22.5	100	250	Long		
ZBS250001P	25, 26	25	22.5	90	200	Long		
ZBS250002P	25, 26	25	22.5	60	200	Long	TWBT30	TX8030T30
★ ZBS3001320	30, 32, 33	32	27.0	55	140	Short		
★ ZBS3002320	30, 32, 33	32	27.0	110	195	Regular		
ZBS3004320	30, 32, 33	32	27.0	150	350	Long		
ZBS300001P	30, 32, 33	32	27.0	100	250	Long		

● Required to use T-HANDLE (TWH600)  
 ★ Stock Item

**i-Xmill STEEL BALL HOLDER - TAPER NECK**

● i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit KONISCH ABGESETZTEM SCHAFTTEIL  
 ( ) Porte-plaquette i-Xmill en acier, entrée conique, pour plaquette à bout hémisphérique  
 ( ) CORPO FRESA IN ACCIAIO PER INSERTI SEMISFERICI i-Xmill - CONICO



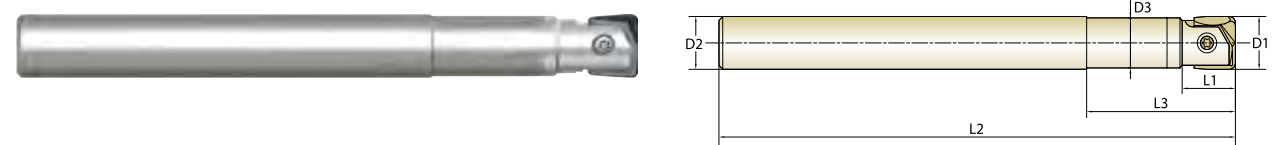
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length of Cut	Length Below Shank	Overall Length	Interference Angle	Length Type	Wrench No.	Screw No.
	D1	D2	D3	L1	L3	L2	θ°			
★ ZBT0801120	8	12	7.2	12	35	90	4° 43'	Short	TWFT07	TX2508T07
★ ZBT0802120	8	12	7.2	25	55	110	3° 37'	Regular		
★ ZBT1001120	10, 11	12	9.0	15	35	90	2° 51'	Short	TWFT08	TX3010T08
★ ZBT1002120	10, 11	12	9.0	30	55	110	2° 17'	Regular		
★ ZBT1201160	12, 13	16	10.5	17	55	110	3° 23'	Short	TWFT10	TX3512T10
★ ZBT1601200	16, 17	20	14.5	20	65	125	2° 51'	Short		
ZBT1604200	16, 17	20	14.5	20	115	200	1° 22'	Regular	TWFT15	TX4016T15
★ ZBT2001250	20, 21	25	18.0	25	75	145	3° 26'	Short		
ZBT2004250	20, 21	25	18.0	25	115	200	1° 55'	Regular	TWBT20	TX5020T20
ZBT2005250	20, 21	25	18.0	25	160	250	1° 17'	Long		
★ ZBT2501320	25, 26	32	22.5	30	90	170	4° 03'	Short	TWBT25	TX6025T25
ZBT2504320	25, 26	32	22.5	30	160	250	1° 53'	Regular		
ZBT2505320	25, 26	32	22.5	30	190	300	1° 32'	Long	TWBT30	TX8030T30
★ ZBT3001320	30,32,33	32	27.0	40	110	195	1° 38'	Short		
ZBT3004320	30,32,33	32	27.0	40	160	250	0° 58'	Regular	TWBT30	TX8030T30
ZBT3005320	30,32,33	32	27.0	40	190	300	0° 46'	Long		

\* ● Required to use T-HANDLE (TWH600)  
 \* ★ Stock Item

**i-Xmill CARBIDE CORNER RADIUS HOLDER - STRAIGHT NECK**

● i-Xmill HARTMETAL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit GERADER SCHAFT  
 ( ) Porte-plaquette i-Xmill en Carbure, entrée droite, pour plaquette à bout torique  
 ( ) CORPO FRESA IN MD PER INSERTI TORICI i-Xmill - CILINDRICO



Unit : mm

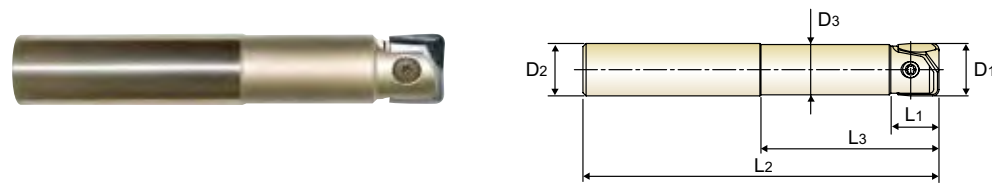
EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length of Cut	Length Below Shank	Overall Length	Length Type	Wrench No.	Screw No.
	D1	D2	D3	L1	L3	L2			
★ ZRC0801080	8	8	7.6	12	25	130	Regular	TWFT07	TX2508T07
★ ZRC0802080	8	8	7.6	12	40	130	Regular		
★ ZRC0803080	8	8	7.6	12	65	130	Regular	TWFT08	TX3010T08
★ ZRC1001100	10	10	9.5	15	30	140	Regular		
★ ZRC1002100	10	10	9.5	15	50	140	Regular	TWFT10	TX3512T10
★ ZRC1201120	12, 13	12	11.4	17	35	150	Regular		
★ ZRC1202120	12, 13	12	11.4	17	60	150	Regular	TWFT15	TX4016T15
★ ZRC1203120	12, 13	12	11.4	17	85	150	Regular		
★ ZRC1601160	16, 17	16	15.0	20	50	200	Long	TWFT15	TX4016T15
★ ZRC1602160	16, 17	16	15.0	20	80	200	Long		
★ ZRC1603160	16, 17	16	15.0	20	120	200	Long	TWBT20	TX5020T20
★ ZRC1604160	16, 17	16	15.0	20	80	250	Long		
★ ZRC2001200	20, 21	20	19.0	25	60	200	Regular	TWBT20	TX5020T20
★ ZRC2002200	20, 21	20	19.0	25	80	250	Regular		
★ ZRC2003200	20, 21	20	19.0	25	100	250	Long	TWBT25	TX6025T25
★ ZRC2004200	20, 21	20	19.0	25	150	250	Long		
★ ZRC2501250	25, 26	25	24.0	30	75	200	Regular	TWBT25	TX6025T25
★ ZRC2502250	25, 26	25	24.0	30	120	250	Regular		
★ ZRC2503250	25, 26	25	24.0	30	190	300	Long	TWBT30	TX8030T30
★ ZRC3001320	30,32,33	32	29.0	40	90	250	Regular		
★ ZRC3002320	30,32,33	32	29.0	40	150	300	Long	TWBT30	TX8030T30
★ ZRC3003320	30,32,33	32	29.0	40	190	300	Long		

\* ● Required to use T-HANDLE (TWH600)  
 \* ★ Stock Item



**i-Xmill STEEL CORNER RADIUS HOLDER - STRAIGHT NECK**

- i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit GERADER SCHAFT
- Ⓜ Porte-plaquette i-Xmill en acier, entrée droite, pour plaquette torique
- Ⓜ CORPO FRESA IN ACCIAIO PER INSERTI TORICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length of Cut	Length Below Shank	Overall Length	Length Type	Wrench No.	Screw No.
	D1	D2	D3	L1	L3	L2			
★ ZRS1201120	12, 13	12	11.0	13	30	110	Regular	TWFT10	TX3512T10
★ ZRS1601160	16, 17	16	15.0	15	50	130	Regular	TWFT15	TX4016T15
★ ZRS1602160	16, 17	16	15.0	15	65	165	Intermediate		
ZRS1603160	16, 17	16	15.0	15	65	200	Long	● TWBT20	TX5020T20
★ ZRS2001200	20, 21	20	19.0	18	60	140	Regular		
★ ZRS2002200	20, 21	20	19.0	18	80	180	Intermediate	● TWBT25	TX6025T25
ZRS2003200	20, 21	20	19.0	18	80	250	Long		
★ ZRS2501250	25, 26	25	24.0	23	70	150	Regular	● TWBT30	TX8030T30
★ ZRS2502250	25, 26	25	24.0	23	90	200	Intermediate		
ZRS2503250	25, 26	25	24.0	23	90	300	Long	● TWBT30	TX8030T30
★ ZRS3001320	30, 32, 33	32	29.0	27	80	160	Regular		
★ ZRS3002320	30, 32, 33	32	29.0	27	100	220	Intermediate	● TWBT30	TX8030T30
ZRS3003320	30, 32, 33	32	29.0	27	100	350	Long		

- Required to use T-HANDLE (TWH600)
- ★ Stock Item

**i-Xmill STEEL CORNER RADIUS HOLDER - TAPER NECK**

- i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit KONISCH ABGESETZTEM SCHAFTTEIL
- Ⓜ Porte-plaquette i-Xmill en acier, entrée conique, pour plaquette torique
- Ⓜ CORPO FRESA IN ACCIAIO PER INSERTI TORICI i-Xmill - CONICO

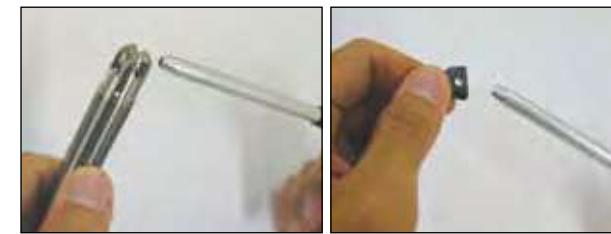


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length of Cut	Length Below Shank	Overall Length	Interference Angle	Length Type	Wrench No.	Screw No.
	D1	D2	D3	L1	L3	L2	θ°			
★ ZRT0801120	8	12	6.7	10	22	100	9°	Regular	TWFT07	TX2508T07
★ ZRT0802120	8	12	6.7	10	50	130	2° 43'	Long	TWFT08	TX3010T08
★ ZRT1001120	10, 11	12	8.6	13	25	100	4° 45'	Regular		
★ ZRT1002120	10, 11	12	8.6	13	50	150	1° 32'	Long	TWFT10	TX3512T10
★ ZRT1202160	12, 13	16	10.2	15	60	160	2° 32'	Long		

- ★ Stock Item

ASSEMBLY of i-Xmill  
MONTAGE DES i-Xmill



- ▲ Make sure to clean the insert and insert seat.  
Wechselplatte und Plattensitz sorgfältig reinigen.



- ▲ Slide the insert into the slot of the holder.  
Tighten the screw using anti-seize compound.  
Wechselplatte in den Sitz des Halters einführen.  
Die Schraube fest anziehen und dabei Spezialfett verwenden

SIZE (ØD)	CLAMPING TORQUE [N·m]
Ø8.0	1.0
Ø10.0	1.5
Ø12.0, Ø13.0	2.5
Ø16.0, Ø17.0	3.5
Ø20.0, Ø21.0	5.0
Ø25.0, Ø26.0	6.0
Ø30.0, Ø32.0	6.5

- \* When the screw is worn out, please change the a new screw.
- \* Wenn das Schraubengewinde verschlissen ist, bitte neue Schraube verwenden.
- \* Please tighten up the screw with recommended torque. (Please refer to the table)
- \* Die Feststellschraube mit dem empfohlenen Anzugsmoment anziehen (siehe Tabelle).
- \* Don't press down the insert, when the screw is tightened.
- \* Die Wechselplatte nicht nach unten drücken, wenn die Schraube angezogen ist.

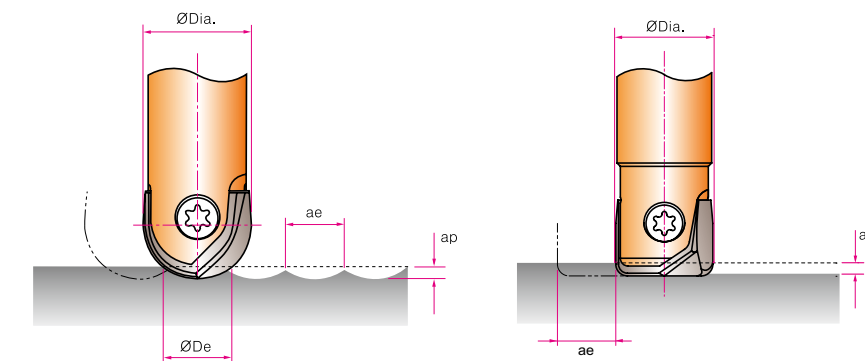


Wrench No.

WRENCH TYPE	PRODUCT NO.	T-HANDLE No.
WING TYPE	TWFT10	-
	TWFT15	-
TORX BIT TYPE	● TWBT20	TWH600
	● TWBT25	
	● TWBT30	

- Required to use T-HANDLE (TWH600)

CUTTING CONDITION  
SCHNEIDKONDITIONEN



- RPM = revolution per minute (rev/min)
- Vc = surface meter per minute (M/min)
- Dia. = diameter of insert (mm)
- Vf = feed speed (mm/min)
- f = feed per revolution (mm/rev)
- De = effective tool diameter (mm)
- ap = axial depth of cut (mm)
- ae = radial depth of cut (mm)

$$Vc [M/min] = \frac{(RPM) \cdot (\pi) \cdot (Dia.)}{1000}$$

$$Vf [mm/min] = (RPM) \cdot (f)$$

$$RPM [rev/min] = \frac{(Vc) \cdot (1000)}{(\pi) \cdot (Dia.)}$$

$$De [mm] = 2 \cdot \sqrt{(ap) \cdot (Dia. - ap)}$$

**XMB110A SERIES** BALL INSERTS for GENERAL PURPOSE

Vc = m/min.  
Fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
P	1-4	Non-alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60	
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430	
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910	
	5	Non-alloy steel	Vc	120~280	120~300	120~350	120~380	120~420	120~480	120~550	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60	
			RPM	4770~11140	3820~9550	3180~9280	2390~7560	1910~6680	1530~6110	1270~5840	
			FEED	1910~4460	1530~3820	1270~3710	1190~4540	950~5350	760~6110	640~7000	
	6-7	Low alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60	
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430	
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910	
8	Low alloy steel	Vc	120~280	120~300	120~350	120~380	120~420	120~480	120~550		
		fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60		
		RPM	4770~11140	3820~9550	3180~9280	2390~7560	1910~6680	1530~6110	1270~5840		
		FEED	1910~4460	1530~3820	1270~3710	1190~4540	950~5350	760~6110	640~7000		

**XMB120C SERIES** BALL INSERTS for PRE-HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
P	9-11	Low alloy steel, High alloyed steel, and tool steel	Vc	100~220	100~260	100~280	100~350	100~400	100~450	100~500	
			fz	0.15~0.20	0.15~0.20	0.15~0.20	0.20~0.30	0.20~0.40	0.20~0.50	0.20~0.60	
			RPM	3980~8750	3180~8280	2650~7430	1990~6960	1590~6370	1270~5730	1060~5310	
K	15-20	Grey cast iron, Nodular cast iron, Malleable cast iron	Vc	160~320	160~360	160~400	160~500	160~550	160~620	160~720	
			fz	0.30~0.30	0.30~0.30	0.30~0.30	0.35~0.40	0.35~0.40	0.35~0.50	0.35~0.60	
			RPM	6370~12730	5090~11460	4240~10610	3180~9950	2550~8750	2040~7890	1700~7640	
H	38	Hardened steel	Vc	80~180	80~200	80~220	80~260	80~320	80~360	80~400	
			fz	0.10~0.20	0.10~0.20	0.10~0.20	0.15~0.30	0.15~0.40	0.15~0.50	0.15~0.60	
			RPM	3180~7160	2550~6370	2120~5840	1590~5170	1270~5090	1020~4580	850~4240	
H	38	Hardened steel	FEED	640~2860	510~2550	420~2330	480~3100	380~4070	310~4580	250~5090	

**XMB260T SERIES** BALL INSERTS for HIGH HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
H	38-41	Hardened steel	Vc	80~180	80~200	80~220	80~260	80~320	80~360	80~400	
			fz	0.10~0.15	0.10~0.15	0.10~0.15	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.30	
			RPM	3180~7160	2550~6370	2120~5840	1590~5170	1270~5090	1020~4580	850~4240	
			FEED	640~2150	510~1910	420~1750	480~2590	380~2550	310~2290	250~2550	

**XMB130A SERIES** BALL INSERTS for STAINLESS STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
M	12-14	Stainless steel	Vc	90~130	90~130	90~130	90~130	90~130	90~130	90~130	
			fz	0.10~0.12	0.13~0.15	0.15~0.20	0.15~0.20	0.15~0.20	0.20~0.25	0.20~0.25	
			RPM	3580~5170	2860~4140	2390~3450	1790~2590	1430~2070	1150~1660	950~1380	
			FEED	720~1290	720~1240	720~1380	540~1030	430~830	460~830	380~690	

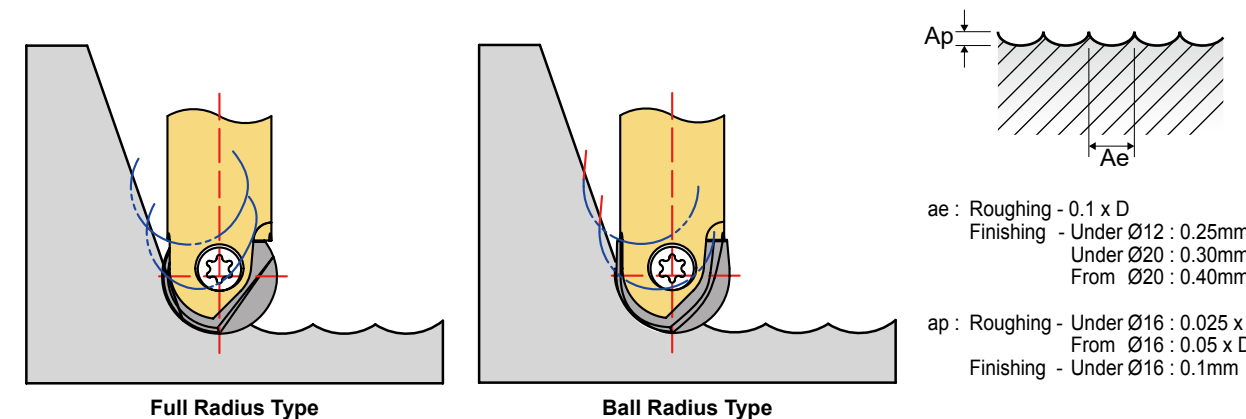
**XMM110V SERIES** BALL INSERTS for GENERAL PURPOSE - FULL RADIUS

Vc = m/min.  
Fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
P	1-4	Non-alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60	
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430	
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910	
	6-7	Low alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60	
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430	
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910	
	10	High alloyed steel, and tool steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60	
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430	
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910	

**XMB110D SERIES** BALL INSERTS for GRAPHITE

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
N	21~22	Aluminum-wrought alloy	Vc	300~400	300~400	300~400	300~400	300~480	300~560	300~650	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.30~0.35	0.35~0.40	0.40~0.50	
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~7640	3820~7130	3180~6900	
N	23~24	Aluminum-cast, alloyed	Vc	300~400	300~400	300~400	300~400	300~480	300~560	300~650	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.30~0.35	0.35~0.40	0.40~0.50	
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~7640	3820~7130	3180~6900	
N	29.2	Graphite	Vc	300~400	300~400	300~400	300~400	300~480	300~560	300~650	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.30~0.35	0.35~0.40	0.40~0.50	
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~7640	3820~7130	3180~6900	
N	29.2	Graphite	FEED	4770~6370	3820~5090	3180~4240	2980~4770	2860~5350	2670~5700	2550~6900	



- ▶ When the length of overhang exceeds 4xD, we recommend using the carbide shank holder with 20% lower feed
- ▶ When using long (long & intermediate type holder) tools, we recommend reducing the feed rate to 70 ~ 85%.

**XMR110A SERIES** CORNER RADIUS INSERTS for GENERAL PURPOSE & STAINLESS STEELS

Vc = m/min.  
Fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
P	1-4	Non-alloy steel	Vc	160~300	160~300	160~300	160~300	160~300	160~300	160~300	160~300
			fz	0.20~0.15	0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20
			RPM	6370~11940	5090~9550	4240~7960	3180~5970	2550~4770	2040~3820	1700~3180	
			FEED	2550~3580	2040~2860	1700~2390	1590~2390	1270~1910	1020~1530	850~1270	
			Vc	120~280	120~280	120~280	120~280	120~280	120~280	120~280	
			fz	0.20~0.15	0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20	
	5	RPM	4770~11140	3820~8910	3180~7430	2390~5570	1910~4460	1530~3570	1270~2970		
		FEED	1910~3340	1530~2670	1270~2230	1190~2230	950~1780	760~1430	640~1190		
		6-7	Low alloy steel	Vc	160~300	160~300	160~300	160~300	160~300	160~300	160~300
				fz	0.20~0.15	0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20
				RPM	6370~11940	5090~9550	4240~7960	3180~5970	2550~4770	2040~3820	1700~3180
				FEED	2550~3580	2040~2860	1700~2390	1590~2390	1270~1910	1020~1530	850~1270
Vc	120~280			120~280	120~280	120~280	120~280	120~280	120~280		
fz	0.20~0.15			0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20		
8	RPM	4770~11140	3820~8910	3180~7430	2390~5570	1910~4460	1530~3570	1270~2970			
	FEED	1910~3340	1530~2670	1270~2230	1190~2230	950~1780	760~1430	640~1190			
	M	Stainless steel	Vc	90~130	90~130	90~130	90~130	90~130	90~130	90~130	
			fz	0.10~0.10	0.11~0.11	0.12~0.11	0.13~0.13	0.13~0.13	0.13~0.12	0.13~0.12	
			RPM	3580~5170	2860~4140	2390~3450	1790~2590	1430~2070	1150~1660	950~1380	
			FEED	720~1030	630~910	550~790	450~650	360~520	290~410	240~340	

**XMR120C SERIES** CORNER RADIUS INSERTS for PRE-HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
P	9-11	Low alloy steel High alloyed steel, and tool steel	Vc	100~280	100~280	100~280	100~280	100~280	100~280	100~280	
			fz	0.12~0.06	0.13~0.06	0.13~0.06	0.15~0.08	0.15~0.08	0.15~0.08	0.15~0.08	
			RPM	3980~11140	3180~8910	2650~7430	1990~5570	1590~4460	1270~3570	1060~2970	
			FEED	990~1340	800~1070	690~890	600~840	480~670	380~570	320~450	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	160~380	160~380	160~380	160~380	160~380	160~380	160~380	
			fz	0.30~0.20	0.30~0.20	0.30~0.20	0.35~0.30	0.35~0.30	0.35~0.30	0.35~0.30	
			RPM	6370~15120	5090~12100	4240~10080	3180~7560	2550~6050	2040~4840	1700~4030	
			FEED	3820~6050	3060~4840	2550~4030	2230~4540	1780~3630	1430~2900	1190~2420	
H	38	Hardened steel	Vc	80~220	80~220	80~220	80~220	80~220	80~220	80~220	
			fz	0.10~0.05	0.10~0.05	0.10~0.05	0.15~0.06	0.15~0.06	0.15~0.06	0.15~0.06	
			RPM	3180~8750	2550~7000	2120~5840	1590~4380	1270~3500	1020~2800	850~2330	
			FEED	640~880	510~700	420~580	420~530	380~420	310~340	250~280	

**XMR260T SERIES** CORNER RADIUS INSERTS for HIGH HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
H	38-41	Hardened steel	Vc	80~220	80~220	80~220	80~220	80~220	80~220	80~220	
			fz	0.10~0.05	0.10~0.05	0.10~0.05	0.15~0.06	0.15~0.06	0.15~0.06	0.15~0.06	
			RPM	3180~8750	2550~7000	2120~5840	1590~4380	1270~3500	1020~2800	850~2330	
			FEED	640~880	510~700	420~580	480~530	380~420	310~340	250~280	

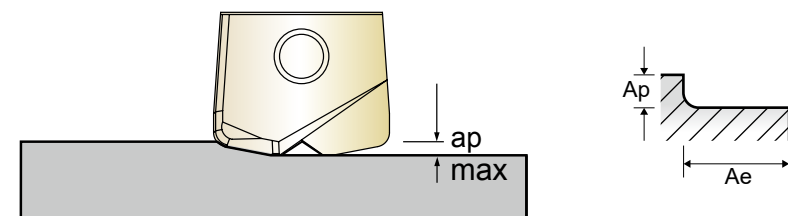
**XMF110V SERIES** CORNER RADIUS INSERTS for GENERAL PURPOSE - HIGH FEED

Vc = m/min.  
Fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
P	1-7	Non-alloy steel Low alloy steel	Vc	150~200	150~200	150~200	150~200	150~200	150~200	150~200	
			fz	0.60~0.40	0.75~0.50	0.90~0.60	1.20~0.80	1.50~1.00	1.80~1.40	2.30~1.80	
			RPM	5970~7960	4770~6370	3980~5310	2980~3980	2390~3180	1910~2550	1590~2120	
			FEED	7160~6370	7160~6370	7160~6370	7160~6370	7160~6370	6880~7140	7320~7640	
			Ap(Max)	0.4	0.5	0.6	0.8	1.0	1.3	1.6	
			10	High alloyed steel, and tool steel	Vc	150~200	150~200	150~200	150~200	150~200	150~200
	fz	0.60~0.40			0.75~0.50	0.90~0.60	1.20~0.80	1.50~1.00	1.80~1.40	2.30~1.80	
	RPM	5970~7960			4770~6370	3980~5310	2980~3980	2390~3180	1910~2550	1590~2120	
	FEED	7160~6370			7160~6370	7160~6370	7160~6370	7160~6370	6880~7140	7320~7640	
	Ap(Max)	0.4			0.5	0.6	0.8	1.0	1.3	1.6	

**XMR110D SERIES** CORNER RADIUS INSERTS for GRAPHITE

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33	
N	21~22	Aluminum-wrought alloy	Vc	300~400	300~400	300~400	300~400	300~400	300~400	300~400	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.25	0.25~0.25	0.25~0.25	
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~6370	3820~5090	3180~4240	
			FEED	4770~6370	3820~5090	3180~4240	2390~3180	2390~3180	1910~2550	1590~2120	
N	23~24	Aluminum-cast, alloyed	Vc	300~400	300~400	300~400	300~400	300~400	300~400	300~400	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.25	0.25~0.25	0.25~0.25	
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~6370	3820~5090	3180~4240	
			FEED	4770~6370	3820~5090	3180~4240	2390~3180	2390~3180	1910~2550	1590~2120	
N	29.2	Graphite	Vc	300~400	300~400	300~400	300~400	300~400	300~400	300~400	
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.25	0.25~0.25	0.25~0.25	
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~6370	3820~5090	3180~4240	
			FEED	4770~6370	3820~5090	3180~4240	2390~3180	2390~3180	1910~2550	1590~2120	



ae : Roughing - 0.1 x D  
Finishing - 0.2mm

ap : Roughing - Under Ø16 : 0.025 x D  
From Ø16 : 0.05 x D  
Finishing - Under Ø16 : 0.1mm  
From Ø16 : 0.2mm

- ▶ When the length of overhang exceeds 4xD, we recommend using the carbide shank holder with 20% lower feed
- ▶ When using long (long & intermediate type holder) tools, we recommend reducing the feed rate to 70 ~ 85%.





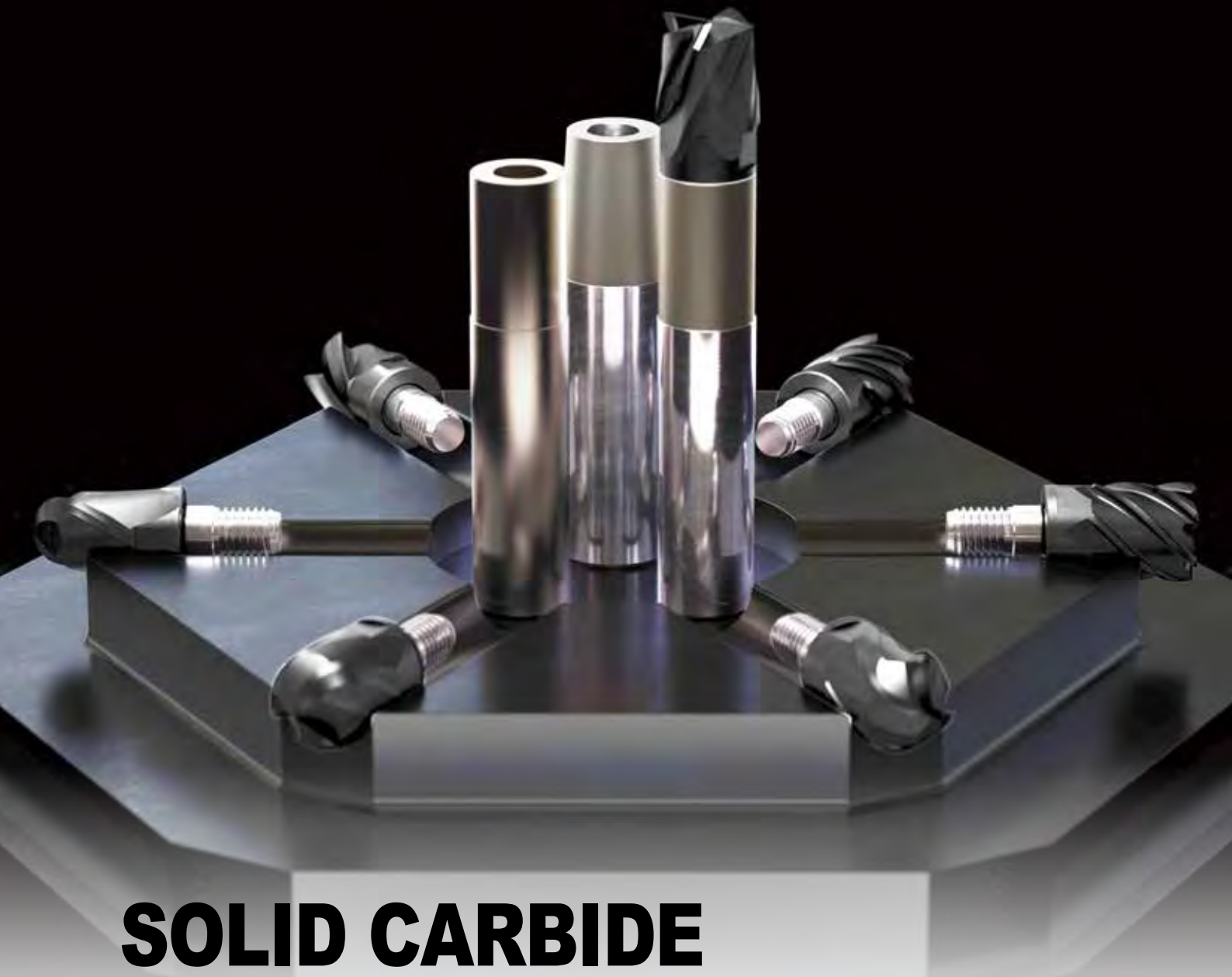
Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation



**SOLID CARBIDE**

# ***i* - SMART MODULAR TYPE END MILL**

**i-Smart, Schafffräser mit auswechselbaren VHM Schneidköpfen**

- For General Steels, Hardened Steels and Cast Iron
- Für allgemeine Stähle, gehärtete Stähle und Gusseisen





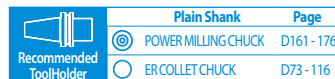
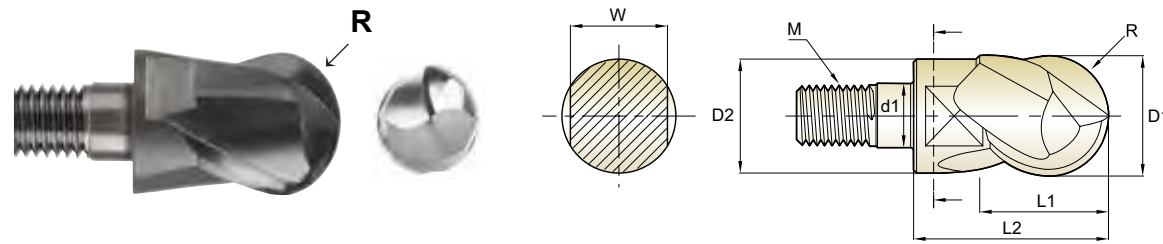




**XSEMD98** SERIES

**CARBIDE MODULAR HEAD, 2 FLUTE BALL NOSE (Center Match)**

- Vollhartmetall, 2 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
- CARBURE TÊTE MODULAIRE, 2 DENTS À BOUT HÉMISPHERIQUE (Coupe au Centre)
- TESTINA MODULARE IN MD, 2 TAGLIENTI, SEMISFERICA



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEMD98100	R5.0	10.0	9.2	10	17.5	8	6.5	M6
XSEMD98120	R6.0	12.0	11.2	12	20.5	10	6.5	M6
XSEMD98160	R8.0	16.0	15.0	16	25.5	13	8.5	M8
XSEMD98200	R10.0	20.0	19.0	20	30.0	17	10.5	M10
XSEMD98250	R12.5	25.0	24.0	25	37.0	22	12.5	M12
XSEMD98300	R15.0	30.0	29.0	30	43.0	27	17.0	M16
XSEMD98320	R16.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.010	0 ~ - 0.02

◎ : Excellent ○ : Good

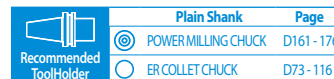
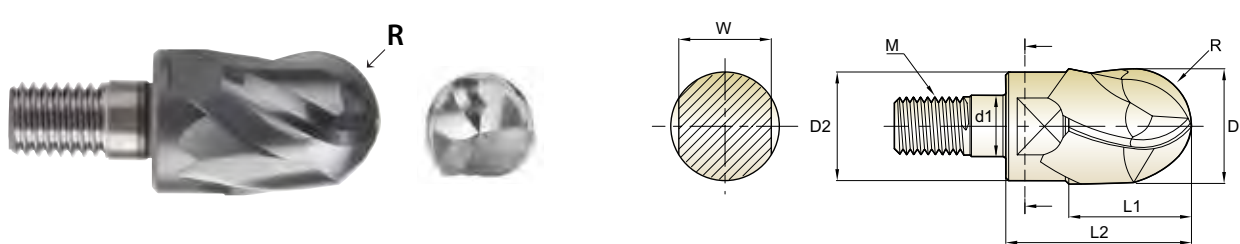
ISO Material Description	P										M					K																									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel			Grey cast iron		Nodular cast iron			Malleable cast iron																	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230																					
Recommend	○	○	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**XSEME59** SERIES

**CARBIDE MODULAR HEAD, 3 FLUTE BALL NOSE (Center Match)**

- Vollhartmetall, 3 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
- CARBURE TÊTE MODULAIRE, 3 DENTS À BOUT HÉMISPHERIQUE (Coupe au Centre)
- TESTINA MODULARE IN MD, 3 TAGLIENTI, SEMISFERICA



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME59100	R5.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME59120	R6.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME59160	R8.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME59200	R10.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME59250	R12.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME59300	R15.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME59320	R16.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.010	0 ~ - 0.02

◎ : Excellent ○ : Good

ISO Material Description	P										M					K																									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel			Grey cast iron		Nodular cast iron			Malleable cast iron																	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230																					
Recommend	○	○	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



CARBIDE MODULAR HEAD, 2 FLUTE BALL NOSE (Center Match)

- Vollhartmetall, 2 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
- CARBURE TÊTE MODULAIRE, 2 DENTS À BOUT HÉMISPHERIQUE (Coupe au Centre)
- TESTINA MODULARE IN MD, 2 TAGLIENTI, SEMISFERICA



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEMD98100	R5.0	10.0	9.2	10	17.5	8	6.5	M6
XSEMD98120	R6.0	12.0	11.2	12	20.5	10	6.5	M6
XSEMD98160	R8.0	16.0	15.0	16	25.5	13	8.5	M8
XSEMD98200	R10.0	20.0	19.0	20	30.0	17	10.5	M10
XSEMD98250	R12.5	25.0	24.0	25	37.0	22	12.5	M12
XSEMD98300	R15.0	30.0	29.0	30	43.0	27	17.0	M16
XSEMD98320	R16.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.010	0 ~ - 0.02

◎ : Excellent ○ : Good

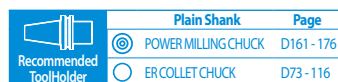
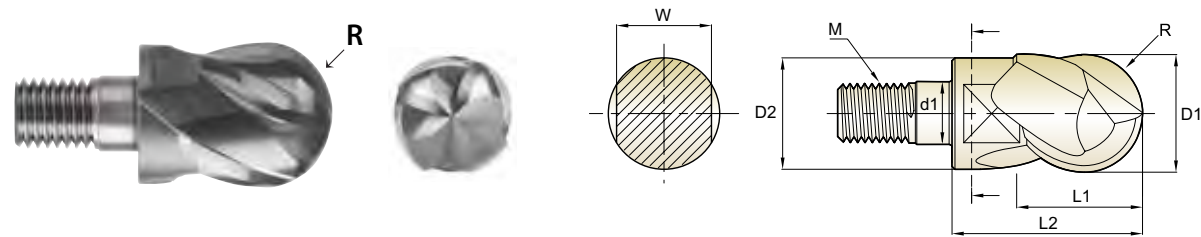
ISO Material Description	P										M					K																									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel			Grey cast iron		Nodular cast iron			Malleable cast iron																	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230																					
Recommend	○	○	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**XSEME60** SERIES

**CARBIDE MODULAR HEAD, 4 FLUTE BALL NOSE (Center Match)**

- Vollhartmetall, 4 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
- CARBURE TÊTE MODULAIRE, 4 DENTS À BOUT HÉMISPHERIQUE (Coupe au Centre)
- TESTINA MODULARE IN MD, 4 TAGLIENTI, SEMISFERICA



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME60100	R5.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME60120	R6.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME60160	R8.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME60200	R10.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME60250	R12.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME60300	R15.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME60320	R16.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
±0.010	0 ~ -0.02

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

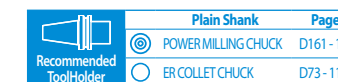
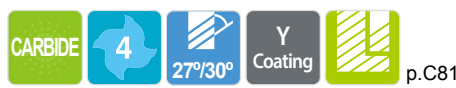
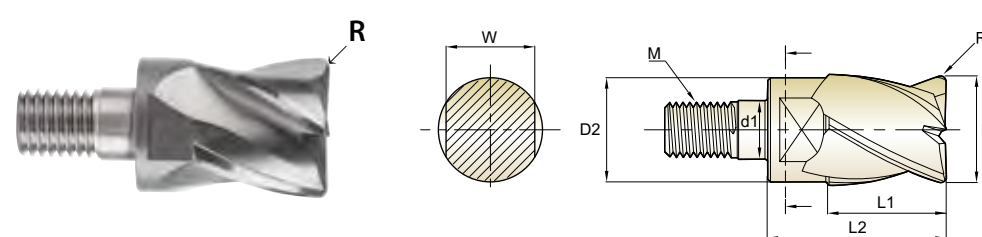
ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**XSEME01** SERIES

**CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS**

- Vollhartmetall, 4 Schneiden mit M-Helix und Eckradius
- CARBURE TÊTE MODULAIRE, 4 DENTS TORIQUE, HÉLICE MULTIPLE
- TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE, TORICA



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME01100 010	R0.1	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 020	R0.2	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 030	R0.3	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 050	R0.5	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 100	R1.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 150	R1.5	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 200	R2.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 250	R2.5	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 300	R3.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME01100 400	R4.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME01120 010	R0.1	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 020	R0.2	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 030	R0.3	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 050	R0.5	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 100	R1.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 150	R1.5	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 200	R2.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 250	R2.5	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 300	R3.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 400	R4.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME01120 500	R5.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME01160 050	R0.5	16.0	15.0	16	25.5	13	8.5	M8
XSEME01160 100	R1.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME01160 150	R1.5	16.0	15.0	16	25.5	13	8.5	M8

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
±0.02	0 ~ -0.03

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

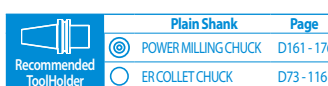
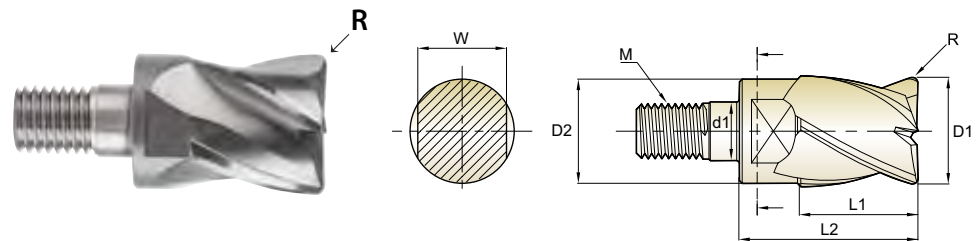
ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**XSEME01** SERIES

**CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS**

- Vollhartmetall, 4 Schneiden mit M-Helix und Eckradius
- CARBURE TÊTE MODULAIRE, 4 DENTS TORIQUE, HÉLICE MULTIPLE
- TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE, TORICA



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME01160 200	R2.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME01200 050	R0.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME01200 100	R1.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME01200 150	R1.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME01200 200	R2.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME01250 050	R0.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME01250 100	R1.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME01250 150	R1.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME01250 200	R2.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME01300 050	R0.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME01300 100	R1.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME01300 150	R1.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME01300 200	R2.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME01320 050	R0.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME01320 100	R1.0	32.0	31.0	32	45.0	27	17.0	M16
XSEME01320 150	R1.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME01320 200	R2.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.02	0 ~ - 0.03

◎ : Excellent ○ : Good

ISO Material Description	P										M					K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	15	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

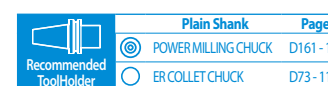
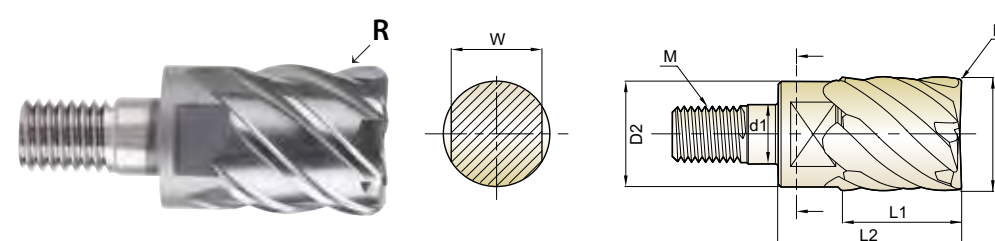
ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	



**XSEME68** SERIES

**CARBIDE MODULAR HEAD, 6 FLUTE 45° HELIX CORNER RADIUS**

- Vollhartmetall, 6 Schneiden mit 45° und Eckradius
- CARBURE TÊTE MODULAIRE, 6 DENTS TORIQUE, HÉLICE À 45°
- TESTINA MODULARE IN MD, 6 TAGLIENTI, ELICA 45°, TORICA



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME68100 030	R0.3	10.0	9.2	10	17.5	8	6.5	M6
XSEME68100 050	R0.5	10.0	9.2	10	17.5	8	6.5	M6
XSEME68100 100	R1.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME68120 030	R0.3	12.0	11.2	12	20.5	10	6.5	M6
XSEME68120 050	R0.5	12.0	11.2	12	20.5	10	6.5	M6
XSEME68120 100	R1.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME68160 050	R0.5	16.0	15.0	16	25.5	13	8.5	M8
XSEME68160 100	R1.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME68160 150	R1.5	16.0	15.0	16	25.5	13	8.5	M8
XSEME68160 200	R2.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME68200 050	R0.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME68200 100	R1.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME68200 150	R1.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME68200 200	R2.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME68250 050	R0.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME68250 100	R1.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME68250 150	R1.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME68250 200	R2.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME68300 050	R0.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME68300 100	R1.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME68300 150	R1.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME68300 200	R2.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME68320 050	R0.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME68320 100	R1.0	32.0	31.0	32	45.0	27	17.0	M16
XSEME68320 150	R1.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME68320 200	R2.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.015	0 ~ - 0.03

◎ : Excellent ○ : Good

ISO Material Description	P										M					K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	15	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

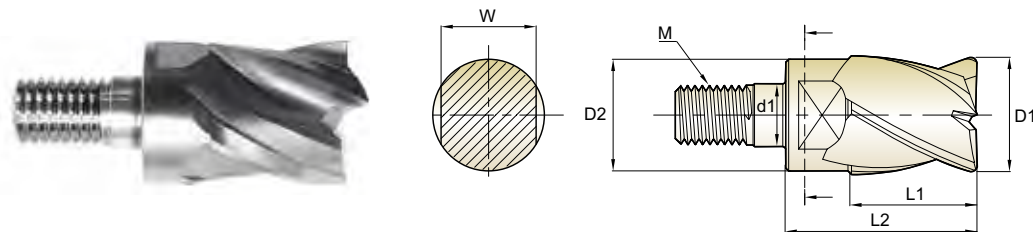




**XSEME36** SERIES

**CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX**

- Vollhartmetall, 4 Schneiden mit M-Helix
- CARBURE TÊTE MODULAIRE, 4 DENTS HÉLICE MULTIPLE
- TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE



CARBIDE 4 27°/30° Coating Y p.C82

Plain Shank Page  
 Recommended ToolHolder  
 POWER MILLING CHUCK D161-176  
 ER COLLET CHUCK D73-116

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D1	D2	L1	L2	W	d1	M
XSEME36100	10.0	9.2	10	17.5	8	6.5	M6
XSEME36120	12.0	11.2	12	20.5	10	6.5	M6
XSEME36160	16.0	15.0	16	25.5	13	8.5	M8
XSEME36200	20.0	19.0	20	30.0	17	10.5	M10
XSEME36250	25.0	24.0	25	37.0	22	12.5	M12
XSEME36300	30.0	29.0	30	43.0	27	17.0	M16
XSEME36320	32.0	31.0	32	45.0	27	17.0	M16

Mill Dia. Tolerance(mm)  
0 ~ -0.03

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	15	23	10	26	3	25	
HB	125	190	250	270	300	180	275	300	350	400	200	240	180	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

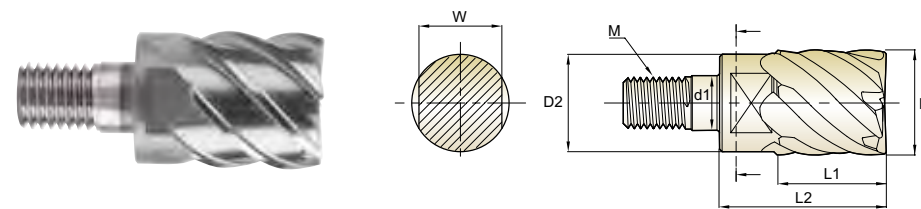
ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100														
Recommend																						



**XSEME75** SERIES

**CARBIDE MODULAR HEAD, 6 FLUTE 45° HELIX**

- Vollhartmetall, 6 Schneiden mit 45°
- CARBURE TÊTE MODULAIRE, 6 DENTS HÉLICE À 45°
- TESTINA MODULARE IN MD, 6 TAGLIENTI, ELICA 45°



CARBIDE 6 45° Coating Y p.C83

Plain Shank Page  
 Recommended ToolHolder  
 POWER MILLING CHUCK D161-176  
 ER COLLET CHUCK D73-116

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D1	D2	L1	L2	W	d1	M
XSEME75100	10.0	9.2	10	17.5	8	6.5	M6
XSEME75120	12.0	11.2	12	20.5	10	6.5	M6
XSEME75160	16.0	15.0	16	25.5	13	8.5	M8
XSEME75200	20.0	19.0	20	30.0	17	10.5	M10
XSEME75250	25.0	24.0	25	37.0	22	12.5	M12
XSEME75300	30.0	29.0	30	43.0	27	17.0	M16
XSEME75320	32.0	31.0	32	45.0	27	17.0	M16

Mill Dia. Tolerance(mm)  
0 ~ -0.03

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	15	23	10	26	3	25	
HB	125	190	250	270	300	180	275	300	350	400	200	240	180	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

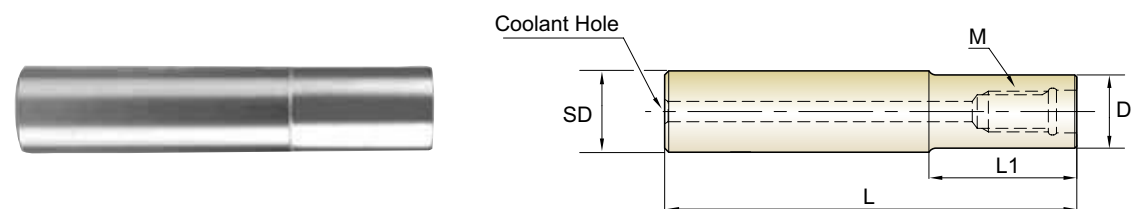
  

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100														
Recommend																						



**CARBIDE HOLDER - STRAIGHT NECK TYPE**

- Vollhartmetallschaft - zylindrisch
- PORTE-OUTIL CARBURE - Entrée Droite
- STELO IN MD, SCARICO CILINDRICO



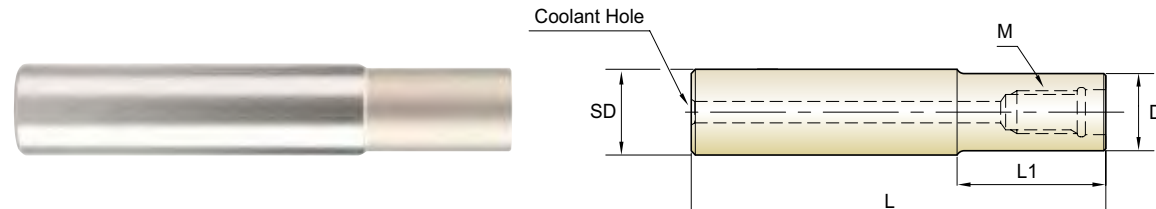
Unit : mm

EDP No.	Mill Diameter	Shank Diameter SD	Overall Length L	Neck Length L1	Neck Diameter D	Thread Size M	Wrench No.	Coolant Hole
ZMC1001100	10.0	10	70	20	9.5	M6	SPIS0810	2
ZMC1002100	10.0	10	100	40	9.5	M6	SPIS0810	2
ZMC1003100	10.0	10	130	70	9.5	M6	SPIS0810	2
ZMC1201120	12.0	12	80	20	11.5	M6	SPIS0810	2
ZMC1202120	12.0	12	100	40	11.5	M6	SPIS0810	2
ZMC1203120	12.0	12	130	70	11.5	M6	SPIS0810	2
ZMC1601160	16.0	16	100	40	15.5	M8	SPIS1300	3
ZMC1602160	16.0	16	150	80	15.5	M8	SPIS1300	3
ZMC1603160	16.0	16	200	120	15.5	M8	SPIS1300	3
ZMC2001200	20.0	20	100	40	19.5	M10	SPIS1700	4
ZMC2002200	20.0	20	150	80	19.5	M10	SPIS1700	4
ZMC2003200	20.0	20	200	120	19.5	M10	SPIS1700	4
ZMC2004200	20.0	20	250	160	19.5	M10	SPIS1700	4
ZMC2501250	25.0	25	150	70	24.3	M12	SPIS2200	5
ZMC2502250	25.0	25	200	100	24.3	M12	SPIS2200	5
ZMC2503250	25.0	25	250	150	24.3	M12	SPIS2200	5
ZMC2504250	25.0	25	300	200	24.3	M12	SPIS2200	5
ZMC3001320	30.0 / 32.0	32	150	70	29.0	M16	SPIS2700	6
ZMC3002320	30.0 / 32.0	32	200	120	29.0	M16	SPIS2700	6
ZMC3003320	30.0 / 32.0	32	250	150	29.0	M16	SPIS2700	6
ZMC3004320	30.0 / 32.0	32	300	200	29.0	M16	SPIS2700	6
ZMC3005320	30.0 / 32.0	32	350	250	29.0	M16	SPIS2700	6

- ▶The wrench (1pc) for the relevant item is included.  
If more is needed, available for sale.
- ▶Please refer to the wrench table on the next page.

**STEEL HOLDER - STRAIGHT NECK TYPE**

- Stahlschaft - zylindrisch
- PORTE-OUTIL ACIER - Entrée Droite
- STELO IN ACCIAIO, SCARICO CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter SD	Overall Length L	Neck Length L1	Neck Diameter D	Thread Size M	Wrench No.	Coolant Hole
ZMS1001100	10.0	10	70	20	9	M6	SPIS0810	3
ZMS1201120	12.0	12	90	30	11	M6	SPIS0810	3
ZMS1601160	16.0	16	100	30	15	M8	SPIS1300	4
ZMS2001200	20.0	20	100	30	19	M10	SPIS1700	5
ZMS2501250	25.0	25	115	40	24	M12	SPIS2200	5
ZMS3001320	30.0 / 32.0	32	125	40	29	M16	SPIS2700	6

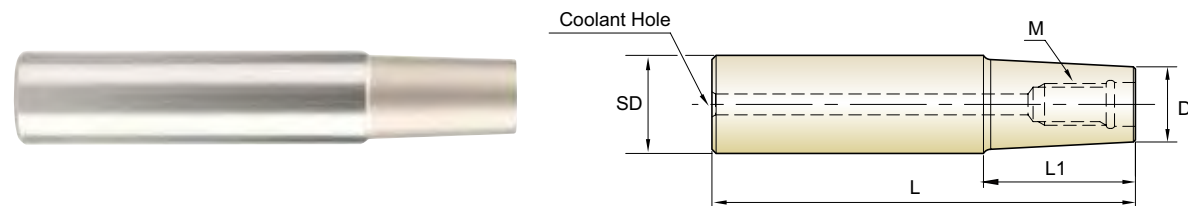
- ▶The wrench (1pc) for the relevant item is included.  
If more is needed, available for sale.

**Wrench**

Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
	SPIS1700	17	20.0	12
	SPIS2200	22	25.0	15
	SPIS2700	27	30.0 / 32.0	20

**STEEL HOLDER - TAPER NECK TYPE**

- **Stahlschaft - konisch**
- **PORTE-OUTIL ACIER - Entrée Conique**
- **STELO IN ACCIAIO, SCARICO CONICO**



Unit : mm

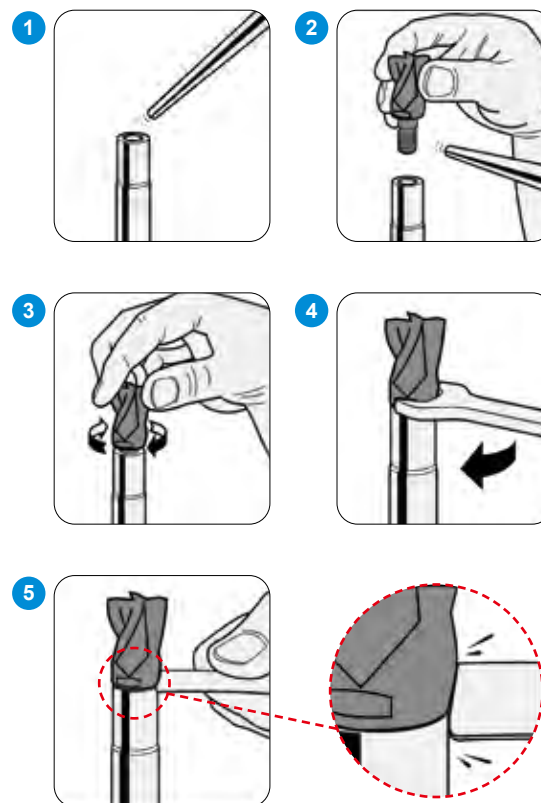
EDP No.	Mill Diameter	Shank Diameter SD	Overall Length L	Neck Length L1	Neck Diameter D	Thread Size M	Wrench No.	Coolant Hole
ZMT1001120	10.0	12	100	50	9	M6	SPIS0810	3
ZMT1201160	12.0	16	130	70	11	M6	SPIS0810	3
ZMT1601200	16.0	20	150	90	15	M8	SPIS1300	4
ZMT2001250	20.0	25	170	100	19	M10	SPIS1700	5
ZMT2501320	25.0	32	200	110	24	M12	SPIS2200	5
ZMT3001320	30.0 / 32.0	32	200	110	29	M16	SPIS2700	6

►The wrench(1pc) for the relevant item is included.  
If more is needed, available for sale.

**Wrench**

Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
		17	20.0	12
	SPIS2200	22	25.0	15
		27	30.0 / 32.0	20

**Instruction Manual**  
**BEDIENUNGSAMLEITUNG**



**Step 1, 2 : Clean**

Please be sure to remove dirt and debris on all adjoining surfaces before assembling. (air preferred)

**Schritt 1, 2: Reinigen**

Achten Sie darauf, Schmutz und Verunreinigungen an allen angrenzenden Flächen vor dem Zusammenbau zu entfernen. (bevorzugt durch Luft)

**Step 3, 4 : Assembly**

Mount the modular head onto the shank by hand until it fits then use the supplied wrench to tighten.

**Schritt 3, 4: Zusammenbau**

Montieren Sie den modularen Kopf von Hand auf den Schaft, bis er passt. Benutzen Sie dann den mitgelieferten Schraubenschlüssel.

**Step 5 : Final Check**

Re-check that there is no gap.

**Schritt 5, 6: Endkontrolle**

Überprüfen Sie, dass es kein mehr Spalt sichtbar ist.

**Notice**

Please tighten the screw with designated torque, too much torque will damage the screw.

**Achtung**

Ziehen Sie die Schraube mit dem vorgesehenen Drehmoment an, zu viel Drehmoment wird die Schraube beschädigen.

Mill Diameter (D)	Clamping Torque [ N·m ]
10.0	6.5
12.0	6.5
16.0	10.0
20.0	12.0
25.0	15.0
30.0	20.0
32.0	20.0



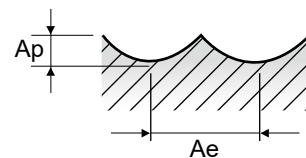


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**XSEMD98 SERIES 2 FLUTE BALL NOSE**

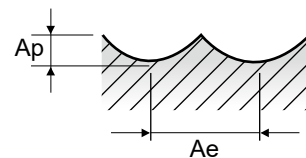
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	1-8	Non-alloy steel	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
	RPM	5580	4510	3340	2670	2130	1770	1660				
	FEED	2220	1910	1590	1410	1150	1060	995				
	9	Low alloy steel	0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
	RPM	5340	4380	3220	2580	2060	1720	1610				
	FEED	1860	1645	1320	1170	950	860	805				
	10-11.1	High alloyed steel, and tool steel	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
	RPM	5580	4510	3340	2670	2130	1770	1660				
	FEED	2220	1910	1590	1410	1150	1060	995				
11.2	High alloyed steel, and tool steel	0.08D	0.03D	Vc	168	165	162	162	162	162	162	
				fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250	
RPM	5340	4380	3220	2580	2060	1720	1610					
FEED	1860	1645	1320	1170	950	860	805					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
					RPM	5580	4510	3340	2670	2130	1770	1660
					FEED	2220	1910	1590	1410	1150	1060	995
H	38.1 - 38.2	Hardened steel	0.08D	0.03D	Vc	141	138	136	136	136	136	136
					fz	0.160	0.170	0.189	0.208	0.211	0.229	0.230
	RPM	4500	3660	2700	2160	1730	1440	1350				
	FEED	1440	1245	1020	900	730	660	620				
	40	Chilled Cast Iron	0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
	RPM	5340	4380	3220	2580	2060	1720	1610				
	FEED	1860	1645	1320	1170	950	860	805				
	41	Hardened Cast Iron	0.08D	0.03D	Vc	141	138	136	136	136	136	136
					fz	0.160	0.170	0.189	0.208	0.211	0.229	0.230
	RPM	4500	3660	2700	2160	1730	1440	1350				
	FEED	1440	1245	1020	900	730	660	620				



**XSEME59 SERIES 3 FLUTE BALL NOSE**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	1-8	Non-alloy steel	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
	RPM	9770	8150	6100	4880	3910	3260	3050				
	FEED	5890	5490	4280	3490	2910	2530	2450				
	9	Low alloy steel	0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
	RPM	8190	6830	5110	4090	3270	2730	2560				
	FEED	4130	3830	3050	2560	2150	1880	1800				
	10-11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
	RPM	9770	8150	6100	4880	3910	3260	3050				
	FEED	5890	5490	4280	3490	2910	2530	2450				
11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	257	257	257	257	257	257	257	
				fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234	
RPM	8190	6830	5110	4090	3270	2730	2560					
FEED	4130	3830	3050	2560	2150	1880	1800					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
					RPM	9770	8150	6100	4880	3910	3260	3050
					FEED	5890	5490	4280	3490	2910	2530	2450
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	208	208	208	208	208	208	208
					fz	0.156	0.173	0.180	0.190	0.200	0.210	0.221
	RPM	6620	5520	4140	3310	2650	2210	2070				
	FEED	3100	2870	2240	1890	1590	1390	1370				
	40	Chilled Cast Iron	0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
	RPM	8190	6830	5110	4090	3270	2730	2560				
	FEED	4130	3830	3050	2560	2150	1880	1800				
	41	Hardened Cast Iron	0.05D	0.02D	Vc	208	208	208	208	208	208	208
					fz	0.156	0.173	0.180	0.190	0.200	0.210	0.221
	RPM	6620	5520	4140	3310	2650	2210	2070				
	FEED	3100	2870	2240	1890	1590	1390	1370				

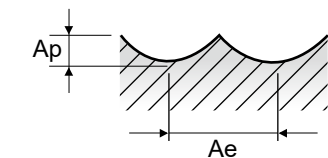


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**XSEME60 SERIES 4 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	1-8	Non-alloy steel	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
	RPM	10850	9050	6780	5430	4340	3620	3390				
	FEED	6430	5960	4750	3880	3230	2810	2720				
	9	Low alloy steel	0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
	RPM	9100	7500	5680	4550	3640	3030	2840				
	FEED	4590	4260	3390	2840	2390	2090	2000				
	10-11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
	RPM	10850	9050	6780	5430	4340	3620	3390				
	FEED	6430	5960	4750	3880	3230	2810	2720				
11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	286	286	286	286	286	286	286	
				fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176	
RPM	9100	7500	5680	4550	3640	3030	2840					
FEED	4590	4260	3390	2840	2390	2090	2000					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
					RPM	10850	9050	6780	5430	4340	3620	3390
					FEED	6430	5960	4750	3880	3230	2810	2720
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	231	231	231	231	231	231	231
					fz	0.117	0.130	0.135	0.143	0.150	0.157	0.165
	RPM	7350	6130	4600	3680	2940	2450	2300				
	FEED	3450	3190	2490	2100	1760	1540	1520				
	40	Chilled Cast Iron	0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
	RPM	9100	7500	5680	4550	3640	3030	2840				
	FEED	4590	4260	3390	2840	2390	2090	2000				
	41	Hardened Cast Iron	0.05D	0.02D	Vc	231	231	231	231	231	231	231
					fz	0.117	0.130	0.135	0.143	0.150	0.157	0.165
	RPM	7350	6130	4600	3680	2940	2450	2300				
	FEED	3450	3190	2490	2100	1760	1540	1520				



**XSEME01 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	1-8	Non-alloy steel	0.05D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
	RPM	4970	4140	3100	2480	1990	1650	1550				
	FEED	455	380	280	230	180	150	140				
	9	Low alloy steel	0.05D	0.8D	Vc	105	105	105	105	105	105	105
					fz	0.027	0.027	0.027	0.027	0.027	0.027	0.026
	RPM	3340	2780	2090	1670	1340	1110	1040				
	FEED	360	300	225	180	145	120	110				
	10-11.1	High alloyed steel, and tool steel	0.05D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
	RPM	4970	4140	3100	2480	1990	1650	1550				
	FEED	455	380	280	230	180	150	140				
11.2	High alloyed steel, and tool steel	0.05D	0.8D	Vc	105	105</						

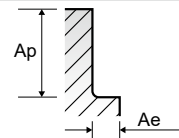


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**XSEME68 SERIES 6 FLUTE CORNER RADIUS - SIDE CUTTING**

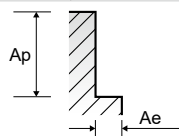
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	1-8	Non-alloy steel	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
	RPM	9600	8010	6000	4800	3850	3200	3000				
	FEED	2940	2790	2400	2010	1615	1440	1350				
	9	Low alloy steel	0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
	RPM	9360	7800	5850	4680	3740	3120	2920				
	FEED	1400	1170	880	690	600	540	525				
	10-11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
	RPM	9600	8010	6000	4800	3850	3200	3000				
	FEED	2940	2700	2400	2010	1615	1440	1350				
11.2	High alloyed steel, and tool steel	0.05D	1.0D	Vc	294	294	294	294	294	294	294	
				fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030	
RPM	9360	7800	5850	4680	3740	3120	2920					
FEED	1400	1170	880	690	600	540	525					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
RPM	9600	8010	6000	4800	3850	3200	3000					
FEED	2940	2790	2400	2010	1615	1440	1350					
H	38.1 - 38.2	Hardened steel	0.02D	1.0D	Vc	181	181	181	181	181	181	181
					fz	0.006	0.006	0.006	0.006	0.007	0.007	0.007
	RPM	5760	4800	3600	2880	2305	1920	1800				
	FEED	210	180	130	110	90	85	80				
	40	Chilled Cast Iron	0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
	RPM	9360	7800	5850	4680	3740	3120	2920				
	FEED	1400	1170	880	690	600	540	525				
	41	Hardened Cast Iron	0.02D	1.0D	Vc	181	181	181	181	181	181	181
					fz	0.006	0.006	0.006	0.006	0.007	0.007	0.007
	RPM	5760	4800	3600	2880	2305	1920	1800				
	FEED	210	180	130	110	90	85	80				



**XSEME36 SERIES 4 FLUTE - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	1-8	Non-alloy steel	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.040	0.040	0.040	0.040	0.040	0.040	0.040
	RPM	4080	3430	2590	2100	1700	1420	1330				
	FEED	650	545	415	335	270	230	215				
	9	Low alloy steel	0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
	RPM	2500	2100	1590	1300	1050	870	820				
	FEED	300	250	190	155	130	110	105				
	10-11.1	High alloyed steel, and tool steel	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.040	0.040	0.040	0.040	0.040	0.040	0.040
	RPM	4080	3430	2590	2100	1700	1420	1330				
	FEED	650	545	415	335	270	230	215				
11.2	High alloyed steel, and tool steel	0.05D	0.6D	Vc	79	79	80	82	82	82	82	
				fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032	
RPM	2500	2100	1590	1300	1050	870	820					
FEED	300	250	190	155	130	110	105					
M	12-14	Stainless steel	0.05D	0.6D	Vc	66	66	66	66	67	67	67
					fz	0.035	0.035	0.035	0.035	0.035	0.035	0.035
RPM	2100	1750	1310	1050	850	710	670					
FEED	300	245	180	150	120	100	95					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.039	0.040	0.040	0.040	0.040	0.040	0.040
RPM	4080	3430	2590	2100	1700	1420	1330					
FEED	640	545	415	335	270	230	215					
H	38.1 - 38.2	Hardened steel	0.05D	0.6D	Vc	53	53	53	53	53	53	53
					fz	0.013	0.013	0.013	0.012	0.011	0.011	0.011
	RPM	1700	1400	1050	850	680	560	530				
	FEED	90	70	55	40	30	25	25				
	40	Chilled Cast Iron	0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
	RPM	2500	2100	1590	1300	1050	870	820				
	FEED	300	250	190	155	130	110	105				
	41	Hardened Cast Iron	0.05D	0.6D	Vc	53	53	53	53	53	53	53
					fz	0.013	0.013	0.013	0.012	0.011	0.011	0.011
	RPM	1700	1400	1050	850	680	560	530				
	FEED	90	70	55	40	30	25	25				



**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**XSEME75 SERIES 6 FLUTE - SIDE CUTTING**

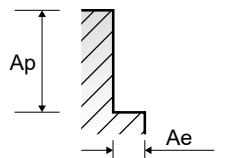
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

**NORMAL SPEED**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	1-8	Non-alloy steel	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
	RPM	3530	2945	2205	1765	1410	1180	1100				
	FEED	2100	1750	1325	1060	845	710	660				
	9	Low alloy steel	0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
	RPM	2450	2040	1530	1220	980	815	765				
	FEED	1380	1150	860	690	555	460	430				
	10-11.1	High alloyed steel, and tool steel	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
	RPM	3530	2945	2205	1765	1410	1180	1100				
	FEED	2100	1750	1325	1060	845	710	660				
11.2	High alloyed steel, and tool steel	0.05D	0.8D	Vc	77	77	77	77	77	77	77	
				fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094	
RPM	2450	2040	1530	1220	980	815	765					
FEED	1380	1150	860	690	555	460	430					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
RPM	3530	2940	2205	1765	1410	1180	1100					
FEED	2100	1765	1325	1060	845	710	660					
H	38.1 - 38.2	Hardened steel	0.05D	0.6D	Vc	33	33	33	33	33	33	33
					fz	0.033	0.034	0.034	0.035	0.035	0.036	0.036
	RPM	1050	880	655	525	420	350	330				
	FEED	210	180	130	110	85	75	70				
	40	Chilled Cast Iron	0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
	RPM	2450	2040	1530	1220	980	815	765				
	FEED	1380	1150	860	690	555	460	430				
	41	Hardened Cast Iron	0.05D	0.6D	Vc	33	33	33	33	33	33	33
					fz	0.033	0.034	0.034	0.035	0.035	0.036	0.036
	RPM	1050	880	655	525	420	350	330				
	FEED	210	180	130	110	85	75	70				

**HIGH SPEED**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						10	12	16	20	25	30	32
P	11.2	High alloyed steel, and tool steel	0.05D	0.6D	Vc	332	332	332	332	332	332	332
					fz	0.095	0.095	0.095	0.095	0.095	0.095	0.095
RPM	10570	8810	6600	5290	4230	3520	3300					
FEED	6020	5020	3765	3050	2400	2000	1890					
H	38.1 - 38.2	Hardened steel	0.05D	0.4D	Vc	166	166	166	166	166	166	166
					fz	0.096	0.095	0.095	0.095	0.095	0.095	0.095
RPM	5290	4410	3300	2645	2114	1761	1651					
FEED	3050	2520	1880	1470	1200	1000	940					
40	Chilled Cast Iron	0.05D	0.6D	Vc	332	332	332	332	332	332	332	
				fz	0.095	0.095	0.095	0.095	0.095	0.095	0.095	
RPM	10570	8810	6600	5290	4230	3520	3300					
FEED	6020	5020	3765	3050	2400	2000	1890					
41	Hardened Cast Iron	0.05D	0.4D	Vc	166	166	166	166	166	166	166	
				fz	0.096	0.095	0.095	0.095	0.095	0.095	0.095	
RPM	5290	4410	3300	2645	2114	1761	1651					
FEED	3050	2520	1880	1470	1200	1000	940					





Global Cutting Tool Leader **YG-1**



# MILLING





Leading Through Innovation



**SOLID CARBIDE**

# **X5070 END MILLS**

## **X5070 NANO-VHM - FRÄSER**

- For High Hardened Steels (HRc45 to HRc70)  
High Speed Machining and Dry Cutting
- Für hochgehärtete Stähle (HRc45 bis HRc70)  
Hochgeschwindigkeitsbearbeitung und Trockenbearbeitung



SELECTION GUIDE



**SOLID CARBIDE**  
**X5070**  
**END MILLS**

High Hardened Steels HRc45 to HRc70,  
High Speed Machining, Dry Cutting

Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

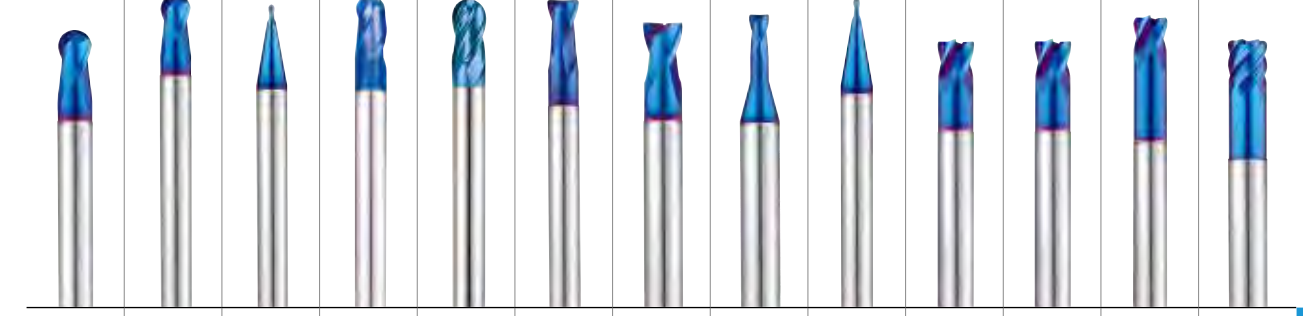
Recommended cutting conditions : p. C123

SERIES	G8B59	G8B54	G8A46	G8A54
FLUTE	4	4	2	2
HELIX ANGLE	0°	0°	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE
SIZE MIN	D2.0	D2.0	R0.05	R0.25
SIZE MAX	D12.0	D16.0	R2.0	R1.0
PAGE	C89	C90	C91	C95
	HIGH FEED	HIGH FEED LONG SHANK	RIB PROCESSING	RIB PROCESSING
	Blue Coating	Blue Coating	Blue Coating	Blue Coating



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	G8B59	G8B54	G8A46	G8A54
P	1	Non-alloy steel	About 0.15% C Annealed	125					
	2		About 0.45% C Annealed	190	13				
	3		About 0.45% C Quenched & Tempered	250	25				
	4		About 0.75% C Annealed	270	28				
	5	About 0.75% C Quenched & Tempered	300	32	○	○	○	○	
	6	Low alloy steel	Annealed	180	10				
	7		Quenched & Tempered	275	29				
	8		Quenched & Tempered	300	32	○	○	○	○
	9		Quenched & Tempered	350	38	○	○	○	○
	10		High alloyed steel, and tool steel	Annealed	200	15			
	11	Quenched & Tempered		325	35	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				
	13		Martensitic Quenched & Tempered	240	23				
	14		Austenitic	180	10				
K	15	Grey cast iron	Pearlitic / ferritic	180	10				
	16		Pearlitic (Martensitic)	260	26				
	17	Nodular cast iron	Ferritic	160	3				
	18		Pearlitic	250	25				
	19		Ferritic	130					
20	Malleable cast iron	Pearlitic	230	21					
N	21	Aluminum-wrought alloy	Not Curable	60					
	22		Curable Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75					
	24		≤ 12% Si, Curable Hardened	90					
	25		> 12% Si, Not Curable	130					
	26	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90					
	27	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	28		Rubber, Wood, etc.						
	29								
30									
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15				
	32		Cured	280	30				
	33		Annealed	250	25				
	34		Ni or Co Based Cured	350	38				
	35		Cast	320	34				
	36	Titanium Alloys	Pure Titanium	400 Rm					
	37		Alpha + Beta Alloys Hardened	1050 Rm					
H	38	Hardened steel	Hardened	550	55	◎	◎	◎	◎
	39		Hardened	630	60	◎	◎	◎	◎
	40	Chilled Cast Iron	Cast	400	42	○	○	○	○
	41	Hardened Cast Iron	Hardened	550	55	◎	◎	◎	◎

G8A28	G8A38	G8A53	G8A59	G8D62	G8A60	G8A36	G8A52	G8A50	G8A47	G8A37	G8B08	G8A39
2	2	2	3	4	2	2	2	2	4	4	4	6
30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	45°
BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
R0.05	R0.5	R0.2	R1.5	R1.5	D0.5	D0.3	D0.5	D0.3	D3.0	D1.0	D6.0	D6.0
R6.0	R12.5	115	R10.0	R10.0	D12.0	D20.0	D2.0	D2.0	D12.0	D20.0	D12.0	D20.0
C96	C98	C99	C100	C101	C102	C107	C109	C110	C111	C112	C113	C114
-	EXTENDED NECK	MINIATURE	Center Match	Center Match	RIB PROCESSING	EXTENDED NECK	RIB PROCESSING	MINIATURE	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK
Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating



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◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	41



SELECTION GUIDE



SERIES	G8A45	G8A01	G8A02	G8D63	G8D64
FLUTE	2	2	4	6&8	6&8
HELIX ANGLE	30°	30°	30°	45°	45°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D0.1	D0.1	D1.0	D6.0	D6.0
SIZE MAX	D4.0	D20.0	D20.0	D25.0	D25.0
PAGE	C115	C119	C120	C121	C122

SOLID CARBIDE  
**X5070**  
END MILLS

High Hardened Steels HRc45 to HRc70,  
High Speed Machining, Dry Cutting

RIB PROCESSING	EXTENDED NECK	EXTENDED NECK	LONG LENGTH	EXTRA LONGLENGTH
Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C123

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc						
P	1	Non-alloy steel	About 0.15% C	Annealed	125						
	2		About 0.45% C	Annealed	190	13					
	3		About 0.45% C	Quenched & Tempered	250	25					
	4		About 0.75% C	Annealed	270	28					
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	
	6	Low alloy steel	Annealed	180	10						
	7		Quenched & Tempered	275	29						
	8		Quenched & Tempered	300	32	○	○	○	○	○	
	9		Quenched & Tempered	350	38	○	○	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200	15					
	11			Quenched & Tempered	325	35	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15					
	13		Martensitic	Quenched & Tempered	240	23					
	14	Austenitic	180	10							
K	15	Grey cast iron	Pearlitic / ferritic	180	10						
	16		Pearlitic (Martensitic)	260	26						
	17	Nodular cast iron	Ferritic	160	3						
	18		Pearlitic	250	25						
	19		Ferritic	130							
	20	Malleable cast iron	Pearlitic	230	21						
N	21	Aluminum-wrought alloy	Not Curable	60							
	22		Curable	Hardened	100						
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75							
	24		≤ 12% Si, Curable	Hardened	90						
	25		> 12% Si, Not Curable	130							
	26		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90						
	27		CuSn, lead-free copper and electrolytic copper	100							
	28		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	29			Rubber, Wood, etc.							
	30										
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					
	32		Cured	280	30						
	33		Annealed	250	25						
	34		Ni or Co Based	Cured	350	38					
	35	Cast	320	34							
	36	Titanium Alloys	Pure Titanium	400 Rm							
	37		Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel	Hardened	550	55	◎	◎	◎	◎	◎	
	39		Hardened	630	60	◎	◎	◎	◎	◎	
	40	Chilled Cast Iron	Cast	400	42	○	○	○	○	○	
	41	Hardened Cast Iron	Hardened	550	55	◎	◎	◎	◎	◎	



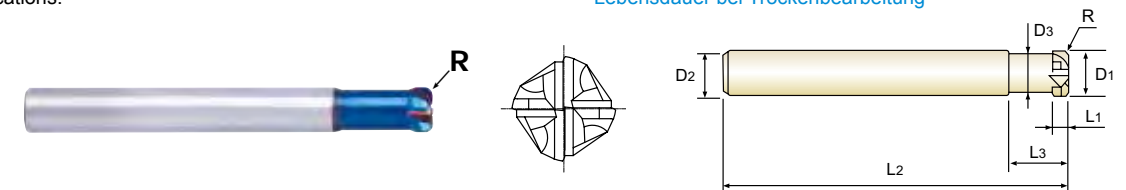
PLAIN SHANK **G8B59** SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED

● VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB  
○ Fraise carbure, 4 dents, torique, grande avance, extra-courte  
○ 4 TAGLIENTI, TORICA

- ▶ Excellent wear resistance at heavy feed rates on high hardened material.
- ▶ Designed with reduced clearance angles and short flutes for strength.
- ▶ High hardness & heat resistance coating for long life in dry applications.

- ▶ Hervorragende Verschleißigenschaften bei hohen Schnittwerten in gehärteten Materialien
- ▶ Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- ▶ Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung



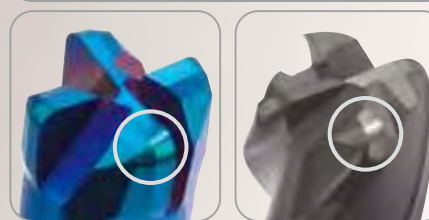
Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8B5902005	R0.5	2.0	6	1	6	50	1.8
G8B5903005	R0.5	3.0	6	1.2	8	50	2.8
G8B5904005	R0.5	4.0	6	1.5	10	50	3.8
G8B5906005	R0.5	6.0	6	2.5	12	60	5.4
G8B5906010	R1.0	6.0	6	2.5	12	60	5.4
G8B5908010	R1.0	8.0	8	3.5	16	60	7.2
G8B5908020	R2.0	8.0	8	3.5	16	60	7.2
G8B5910010	R1.0	10.0	10	4	20	70	9
G8B5910020	R2.0	10.0	10	4	20	70	9
G8B5912020	R2.0	12.0	12	5	25	80	11
G8B5912030	R3.0	12.0	12	5	25	80	11

Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.02	± 0.005	h5

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Comparison of the endteeth shape



- Reduced clearance angles and short flutes strengthens corner radius and reduces chattering
- Extra-short flute length for high rigidity
- Heavy core with reduced diameter allows greater depths and maximum rigidity

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	42	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○										○	○	○	○	○	○	○	○	○	○	
ISO	N								S							H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	260	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	260	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎								◎							◎	◎	◎	◎		

HSS

CBN END MILLS

i-Xmill END MILLS

i-SMART MODULAR END MILLS

X5070 END MILLS

4G MILL END MILLS

X-POWER PRO END MILLS

TitaNox-POWER END MILLS

JET-POWER END MILLS

V7 PLUS END MILLS

ALU-POWER HPC END MILLS

ALU-POWER END MILLS

D-POWER GRAPHITE END MILLS

CRX S END MILLS

K-2 END MILLS

ONLY ONE COATED PM60 END MILLS

TANK-POWER END MILLS

GENERAL HSS END MILLS

MILLING CUTTERS

TECHNICAL DATA







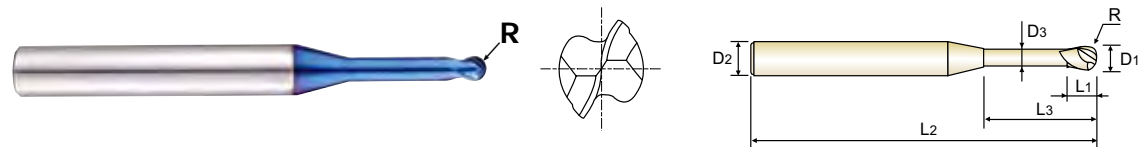
PLAIN SHANK **G8A46** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- 2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finishes.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Exzellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



p.C124-125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46916	R0.3	0.6	4	0.5	6	45	0.55
G8A46917	R0.3	0.6	4	0.5	8	45	0.55
G8A46990	R0.3	0.6	4	0.5	10	45	0.55
G8A46918	R0.4	0.8	4	0.6	2	45	0.75
G8A46919	R0.4	0.8	4	0.6	4	45	0.75
G8A46008	R0.4	0.8	4	0.6	6	45	0.75
G8A46901	R0.4	0.8	4	0.6	8	45	0.75
G8A46965	R0.4	0.8	4	0.6	10	45	0.75
G8A46920	R0.5	1.0	4	0.8	3	45	0.95
G8A46921	R0.5	1.0	4	0.8	4	45	0.95
G8A46923	R0.5	1.0	4	0.8	5	45	0.95
G8A46010	R0.5	1.0	4	0.8	6	45	0.95
G8A46924	R0.5	1.0	4	0.8	7	45	0.95
G8A46902	R0.5	1.0	4	0.8	8	45	0.95
G8A46925	R0.5	1.0	4	0.8	9	45	0.95
G8A46903	R0.5	1.0	4	0.8	10	45	0.95
G8A46904	R0.5	1.0	4	0.8	12	45	0.95
G8A46926	R0.5	1.0	4	0.8	14	50	0.95
G8A46927	R0.5	1.0	4	0.8	16	50	0.95
G8A46966	R0.5	1.0	4	0.8	20	55	0.95
G8A46982	R0.6	1.2	4	1.0	6	45	1.15
G8A46012	R0.6	1.2	4	1.0	8	45	1.15

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○				○											

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎



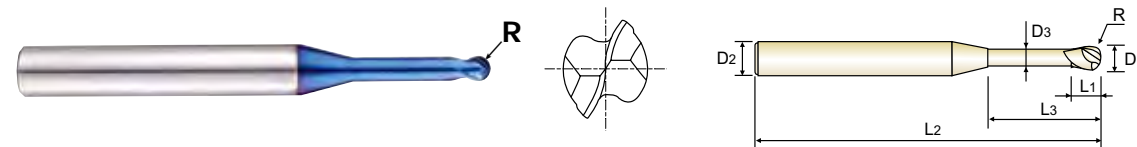
PLAIN SHANK **G8A46** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- 2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Exzellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



p.C124-125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46983	R0.6	1.2	4	1.0	10	45	1.15
G8A46905	R0.6	1.2	4	1.0	12	45	1.15
G8A46930	R0.75	1.5	4	1.2	6	45	1.45
G8A46015	R0.75	1.5	4	1.2	8	45	1.45
G8A46931	R0.75	1.5	4	1.2	10	45	1.45
G8A46906	R0.75	1.5	4	1.2	12	45	1.45
G8A46992	R0.75	1.5	4	1.2	14	50	1.45
G8A46907	R0.75	1.5	4	1.2	16	50	1.45
G8A46932	R0.75	1.5	4	1.2	20	55	1.45
G8A46939	R1.0	2.0	4	1.6	4	45	1.95
G8A46940	R1.0	2.0	4	1.6	6	45	1.95
G8A46020	R1.0	2.0	4	1.6	8	45	1.95
G8A46941	R1.0	2.0	4	1.6	10	45	1.95
G8A46942	R1.0	2.0	4	1.6	12	50	1.95
G8A46943	R1.0	2.0	4	1.6	14	50	1.95
G8A46909	R1.0	2.0	4	1.6	16	50	1.95
G8A46993	R1.0	2.0	4	1.6	18	55	1.95
G8A46910	R1.0	2.0	4	1.6	20	55	1.95
G8A46944	R1.0	2.0	4	1.6	22	60	1.95
G8A46945	R1.0	2.0	4	1.6	25	60	1.95
G8A46967	R1.0	2.0	4	1.6	30	70	1.95
G8A46948	R1.5	3.0	6	2.4	12	50	2.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○				○											

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎



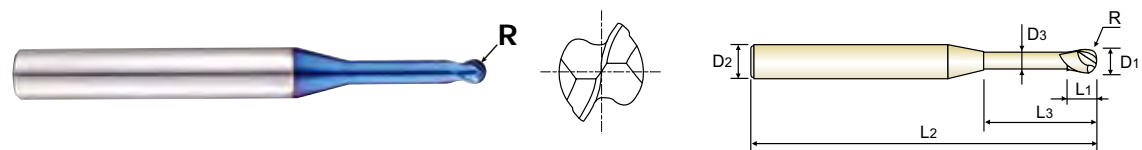
PLAIN SHANK **G8A46** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- ② 2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Recommended ToolHolder	Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72	
POWER MILLING CHUCK	D161-176	
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201	

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46984	R1.5	3.0	6	2.4	14	55	2.85
G8A46030	R1.5	3.0	6	2.4	16	55	2.85
G8A46985	R1.5	3.0	6	2.4	18	60	2.85
G8A46911	R1.5	3.0	6	2.4	20	60	2.85
G8A46968	R1.5	3.0	6	2.4	25	65	2.85
G8A46969	R1.5	3.0	6	2.4	30	70	2.85
G8A46970	R1.5	3.0	6	2.4	35	80	2.85
G8A46950	R2.0	4.0	6	3.2	12	60	3.85
G8A46040	R2.0	4.0	6	3.2	16	60	3.85
G8A46912	R2.0	4.0	6	3.2	20	65	3.85
G8A46913	R2.0	4.0	6	3.2	25	70	3.85
G8A46971	R2.0	4.0	6	3.2	30	70	3.85
G8A46972	R2.0	4.0	6	3.2	35	80	3.85
G8A46973	R2.0	4.0	6	3.2	40	90	3.85
G8A46974	R2.0	4.0	6	3.2	45	90	3.85
G8A46975	R2.0	4.0	6	3.2	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○		○		○	○		○			○		○		○		○		○		○	



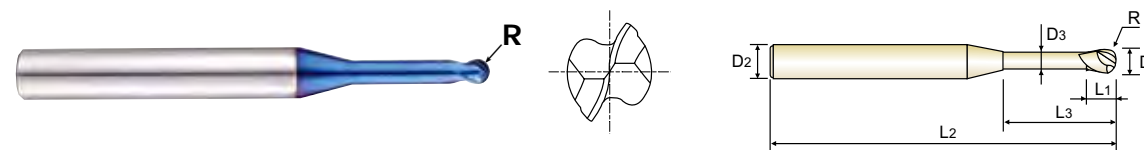
PLAIN SHANK **G8A54** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- ② 2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Recommended ToolHolder	Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72	
POWER MILLING CHUCK	D161-176	
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201	

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A54005	R0.25	0.5	6	0.5	1.5	50	0.45
G8A54901	R0.25	0.5	6	0.5	3.3	50	0.45
G8A54006	R0.3	0.6	6	0.6	2	50	0.55
G8A54902	R0.3	0.6	6	0.6	4	50	0.55
G8A54008	R0.4	0.8	6	0.8	2.5	50	0.75
G8A54903	R0.4	0.8	6	0.8	5.5	50	0.75
G8A54010	R0.5	1.0	6	1	3.3	50	0.95
G8A54904	R0.5	1.0	6	1	6.7	50	0.95
G8A54905	R0.5	1.0	6	1	12	50	0.95
G8A54012	R0.6	1.2	6	1.2	4.4	50	1.15
G8A54906	R0.6	1.2	6	1.2	8	50	1.15
G8A54015	R0.75	1.5	6	1.5	5	50	1.45
G8A54907	R0.75	1.5	6	1.5	9.7	50	1.45
G8A54908	R0.75	1.5	6	1.5	15	50	1.45
G8A54020	R1.0	2.0	6	2	6	50	1.95
G8A54909	R1.0	2.0	6	2	13	50	1.95
G8A54910	R1.0	2.0	6	2	20	60	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○		○		○	○		○			○		○		○		○		○		○	





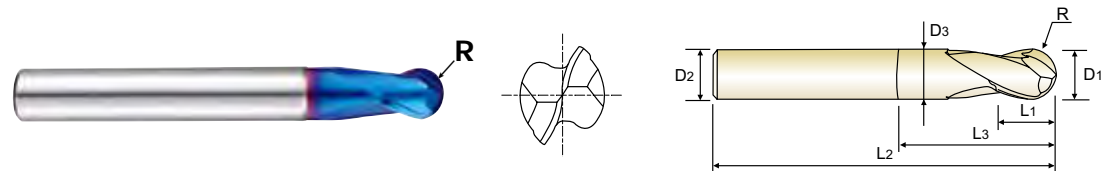
PLAIN SHANK **G8A28** SERIES

**CARBIDE, 2 FLUTE BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- Fraise carbure, 2 dents, hémisphérique
- 2 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN BLUE p.C126-127

Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A28001	R0.05	0.1	4	0.2	-	40	-
G8A28002	R0.1	0.2	4	0.3	-	40	-
G8A28003	R0.15	0.3	4	0.5	-	40	-
G8A28004	R0.2	0.4	4	0.6	-	40	-
G8A28005	R0.25	0.5	4	0.7	-	40	-
G8A28006	R0.3	0.6	4	0.9	-	40	-
G8A28007	R0.35	0.7	4	1.1	-	40	-
G8A28008	R0.4	0.8	4	1.2	-	40	-
G8A28009	R0.45	0.9	4	1.4	-	40	-
G8A280104S	R0.5	1.0	4	1.5	3	50	0.95
G8A28010	R0.5	1.0	6	1.5	3	50	0.95
G8A280154S	R0.75	1.5	4	2	4	50	1.45
G8A28015	R0.75	1.5	6	2	4	50	1.45
G8A280204S	R1.0	2.0	4	2.5	5	50	1.95
G8A28020	R1.0	2.0	6	2.5	5	50	1.95
G8A280254S	R1.25	2.5	4	3	7	50	2.4
G8A28025	R1.25	2.5	6	3	7	50	2.4
G8A28030	R1.5	3.0	6	4	10	60	2.85
G8A28035	R1.75	3.5	6	4.5	10	60	3.35
G8A28040	R2.0	4.0	6	5	10	60	3.85
G8A28045	R2.25	4.5	6	5.5	10	60	4.35
G8A28050	R2.5	5.0	6	6	12	60	4.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○							



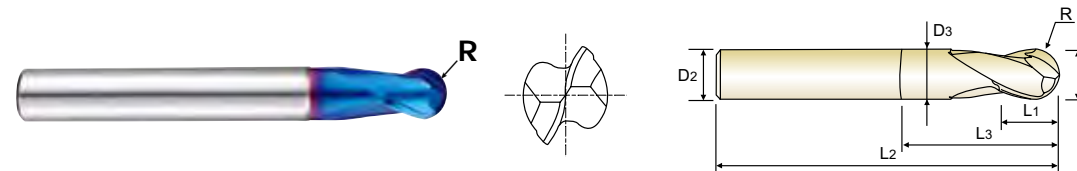
PLAIN SHANK **G8A28** SERIES

**CARBIDE, 2 FLUTE BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- Fraise carbure, 2 dents, hémisphérique
- 2 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN BLUE p.C126-127

Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (± 0.005)	D1	D2	L1	L3	L2	D3
G8A28055	R2.75	5.5	6	6.5	12	60	5.35
G8A28060	R3.0	6.0	6	7	15	60	5.85
G8A28903	R3.0	6.0	6	9	30	90	5.85
G8A28901	R4.0	8.0	8	9	15	60	7.7
G8A28080	R4.0	8.0	8	9	15	80	7.7
G8A28904	R4.0	8.0	8	12	30	100	7.7
G8A28902	R5.0	10.0	10	11	25	60	9.7
G8A28100	R5.0	10.0	10	11	25	80	9.7
G8A28905	R5.0	10.0	10	15	30	100	9.7
G8A28120	R6.0	12.0	12	14	25	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○							



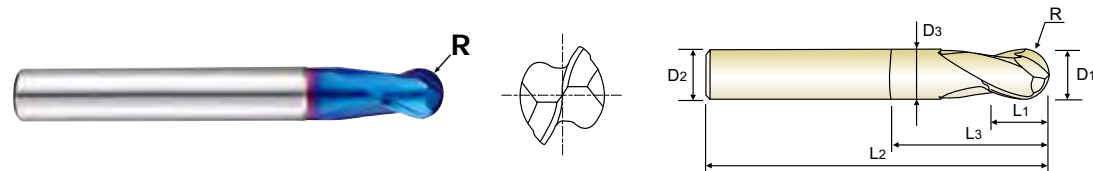
PLAIN SHANK **G8A38** SERIES

**CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ STIRNRADIUS mit ABGESETZTEM SCHAFFTEIL
- ① Fraise carbure, 2 dents, hémisphérique, détalonnée, extra-courte
- ② 2 TAGLIENTI, SEMISFERICA TAGLIENTE CORTO CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.5-R3 R3.5-R12.5

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A38010	R0.5	1.0	4	1	2.2	50	0.95
G8A38012	R0.6	1.2	4	1.2	2.6	50	1.15
G8A38015	R0.75	1.5	4	1.5	3	50	1.45
G8A380204S	R1.0	2.0	4	2	4	50	1.95
G8A38020	R1.0	2.0	6	2	4	50	1.95
G8A38030	R1.5	3.0	6	3	6	60	2.85
G8A38040	R2.0	4.0	6	4	8	70	3.85
G8A38050	R2.5	5.0	6	5	10	80	4.85
G8A38060	R3.0	6.0	6	6	12	90	5.85
G8A38070	R3.5	7.0	8	7	14	90	6.7
G8A38080	R4.0	8.0	8	8	16	100	7.7
G8A38090	R4.5	9.0	10	9	18	100	8.7
G8A38100	R5.0	10.0	10	10	20	100	9.7
G8A38120	R6.0	12.0	12	12	24	110	11.7
G8A38140	R7.0	14.0	14	14	28	110	13.7
G8A38160	R8.0	16.0	16	16	32	140	15.7
G8A38180	R9.0	18.0	18	18	36	140	17.7
G8A38200	R10.0	20.0	20	20	40	160	19.7
G8A38250	R12.5	25.0	25	25	50	180	24.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○				○	○										

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎



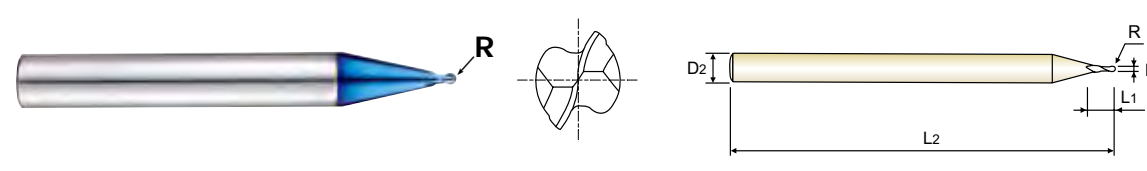
PLAIN SHANK **G8A53** SERIES

**CARBIDE, 2 FLUTE MINIATURE BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS
- ① Fraise carbure, 2 dents, hémisphérique, micro-fraise
- ② 2 TAGLIENTI, SEMISFERICA MINI

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.005)	D1	D2	L1	L2
G8A53004	R0.2	0.4	6	0.4	50
G8A53005	R0.25	0.5	6	0.5	50
G8A53006	R0.3	0.6	6	0.6	50
G8A53008	R0.4	0.8	6	0.8	50
G8A53010	R0.5	1.0	6	1.0	50
G8A53012	R0.6	1.2	6	1.2	50
G8A53015	R0.75	1.5	6	1.5	50
G8A53020	R1.0	2.0	6	2.0	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○				○	○										

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎



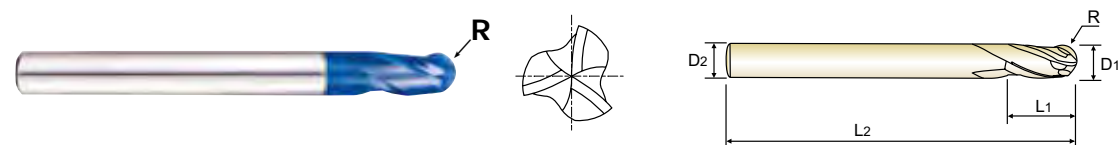
PLAIN SHANK **G8A59** SERIES

**CARBIDE, 3 FLUTE BALL NOSE - Center Match**

- VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt
- Fraise carbure, 3 dents, hémisphérique, coupe au centre
- 3 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 3 30° ±0.005 ±0.010 PLAIN BLUE p.C128

Recommended ToolHolder

Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
G8A59030	R1.5	3.0	6	8	60
G8A59040	R2.0	4.0	6	8	70
G8A59050	R2.5	5.0	6	10	80
G8A59060	R3.0	6.0	6	12	90
G8A59080	R4.0	8.0	8	14	100
G8A59100	R5.0	10.0	10	18	100
G8A59120	R6.0	12.0	12	22	110
G8A59160	R8.0	16.0	16	30	140
G8A59200	R10.0	20.0	20	38	160

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100										550	630	400	550
Recommend	◎					◎					◎					◎		○	◎		



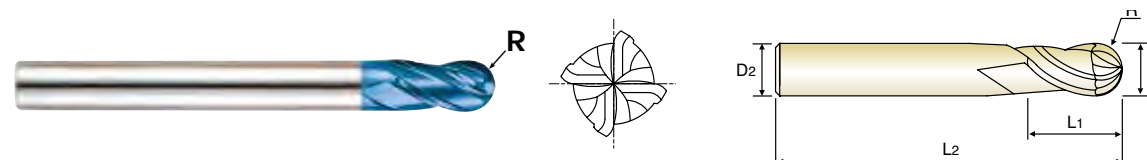
PLAIN SHANK **G8D62** SERIES

**CARBIDE, 4 FLUTE BALL NOSE - Center Match**

- VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt
- Fraise carbure, 4 dents, hémisphérique - coupe au centre
- 4 TAGLIENTI, SEMISFERICA - 4 TAGLIENTI A CENTRO FRESA

- ▶ Applied center match type & special new design on ball center shape.
- ▶ Excellent high wear resistance and high performance.
- ▶ Applied for high speed and feed.
- ▶ Increased the surface roughness.

- ▶ Neues Design der Kugelschneidengeometrie
- ▶ Hohe Verschleißfestigkeit, hohe Leistung.
- ▶ Geeignet für hohe Schnittgeschwindigkeiten und hohe Vorschübe
- ▶ verbessert deutlich die Oberflächenrauigkeit



CARBIDE 4 30° ±0.005 ±0.010 PLAIN BLUE p.C129

Recommended ToolHolder

Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
G8D62030	R1.5	3.0	6	8	60
G8D62040	R2.0	4.0	6	8	70
G8D62050	R2.5	5.0	6	10	80
G8D62060	R3.0	6.0	6	12	90
G8D62080	R4.0	8.0	8	14	100
G8D62100	R5.0	10.0	10	18	100
G8D62120	R6.0	12.0	12	22	110
G8D62160	R8.0	16.0	16	30	140
G8D62200	R10.0	20.0	20	38	160

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100										550	630	400	550
Recommend	◎					◎					◎					◎		○	◎		

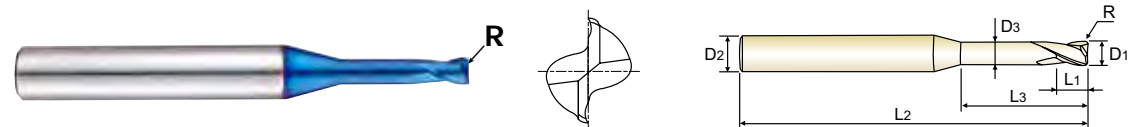


**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN**
- **Fraise carbure, 2 dents, torique pour usinage de rainure**
- **2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN BLUE p.C130-131

Recommended ToolHolder: HYDRAULIC CHUCK (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116, D183-201), SK SLIM CHUCK

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60936	R0.05	0.5	4	0.7	1.5	45	0.45
G8A60932	R0.05	0.5	4	0.7	2.5	45	0.45
G8A60935	R0.05	0.5	4	0.7	4	45	0.45
G8A60931	R0.05	0.6	4	0.9	2	45	0.55
G8A60933	R0.05	0.6	4	0.9	3	45	0.55
G8A60934	R0.05	0.6	4	0.9	4	45	0.55
G8A600060102	R0.1	0.6	4	0.9	2	45	0.55
G8A600070104	R0.1	0.7	4	1	4	45	0.65
G8A600080102	R0.1	0.8	4	1.2	2	45	0.75
G8A60008	R0.1	0.8	4	1.2	4	45	0.75
G8A60924	R0.1	0.8	4	1.2	6	45	0.75
G8A609254S	R0.1	1.0	4	1.5	4	50	0.95
G8A609264S	R0.1	1.0	4	1.5	6	50	0.95
G8A600100204	R0.2	1.0	4	1.5	4	50	0.95
G8A600100206	R0.2	1.0	4	1.5	6	50	0.95
G8A609114S	R0.2	1.0	4	1.5	8	50	0.95
G8A600100304	R0.3	1.0	4	1.5	4	50	0.95
G8A600100306	R0.3	1.0	4	1.5	6	50	0.95
G8A60980	R0.3	1.0	4	1.5	8	50	0.95
G8A60925	R0.1	1.0	6	1.5	4	50	0.95
G8A60926	R0.1	1.0	6	1.5	6	50	0.95
G8A60010	R0.2	1.0	6	1.5	4	50	0.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○		○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎		◎		◎		◎		◎			◎			◎			◎			

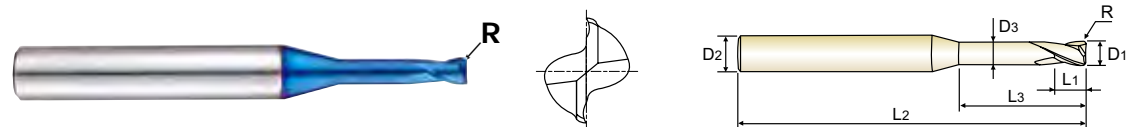


**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN**
- **Fraise carbure, 2 dents, torique pour usinage de rainure**
- **2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE**

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- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
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- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
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CARBIDE 2 30° ±0.010 ±0.015 PLAIN BLUE p.C130-131

Recommended ToolHolder: HYDRAULIC CHUCK (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116, D183-201), SK SLIM CHUCK

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60910	R0.2	1.0	6	1.5	6	50	0.95
G8A60911	R0.2	1.0	6	1.5	8	50	0.95
G8A60912	R0.3	1.0	6	1.5	4	50	0.95
G8A60930	R0.3	1.0	6	1.5	6	50	0.95
G8A600100308	R0.3	1.0	6	1.5	8	50	0.95
G8A600154S	R0.2	1.5	4	2.5	4	50	1.45
G8A6001502064S	R0.2	1.5	4	2.5	6	50	1.45
G8A6001502084S	R0.2	1.5	4	2.5	8	50	1.45
G8A609134S	R0.2	1.5	4	2.5	10	50	1.45
G8A609144S	R0.2	1.5	4	2.5	12	50	1.45
G8A609154S	R0.3	1.5	4	2.5	4	50	1.45
G8A6001503064S	R0.3	1.5	4	2.5	6	50	1.45
G8A6001503084S	R0.3	1.5	4	2.5	8	50	1.45
G8A60015	R0.2	1.5	6	2.5	4	50	1.45
G8A600150206	R0.2	1.5	6	2.5	6	50	1.45
G8A600150208	R0.2	1.5	6	2.5	8	50	1.45
G8A60913	R0.2	1.5	6	2.5	10	50	1.45
G8A60914	R0.2	1.5	6	2.5	12	50	1.45
G8A60915	R0.3	1.5	6	2.5	4	50	1.45
G8A600150306	R0.3	1.5	6	2.5	6	50	1.45
G8A600150308	R0.3	1.5	6	2.5	8	50	1.45
G8A609274S	R0.2	2.0	4	3	6	50	1.95

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Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○		○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎		◎		◎		◎		◎			◎			◎			◎			

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

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- ▶ Abgesetzter Schaft für größere Reichweite.
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- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN BLUE p.C130-131

Recommended ToolHolder: HYDRAULIC CHUCK (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116, D183-201), SK SLIM CHUCK

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A6002002084S	R0.2	2.0	4	3	8	50	1.95
G8A6002002104S	R0.2	2.0	4	3	10	55	1.95
G8A6002002124S	R0.2	2.0	4	3	12	55	1.95
G8A609164S	R0.3	2.0	4	3	6	50	1.95
G8A6002003084S	R0.3	2.0	4	3	8	50	1.95
G8A6002003104S	R0.3	2.0	4	3	10	55	1.95
G8A6002003124S	R0.3	2.0	4	3	12	55	1.95
G8A6002003164S	R0.3	2.0	4	3	16	55	1.95
G8A609174S	R0.5	2.0	4	3	6	50	1.95
G8A600204S	R0.5	2.0	4	3	10	55	1.95
G8A609184S	R0.5	2.0	4	3	12	55	1.95
G8A60927	R0.2	2.0	6	3	6	50	1.95
G8A600200208	R0.2	2.0	6	3	8	50	1.95
G8A600200210	R0.2	2.0	6	3	10	55	1.95
G8A600200212	R0.2	2.0	6	3	12	55	1.95
G8A60916	R0.3	2.0	6	3	6	50	1.95
G8A600200308	R0.3	2.0	6	3	8	50	1.95
G8A600200310	R0.3	2.0	6	3	10	55	1.95
G8A600200312	R0.3	2.0	6	3	12	55	1.95
G8A600200316	R0.3	2.0	6	3	16	55	1.95
G8A60917	R0.5	2.0	6	3	6	50	1.95
G8A60020	R0.5	2.0	6	3	10	55	1.95

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Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	35	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○							

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎										◎					◎					

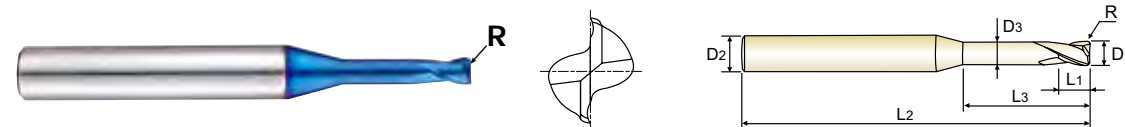


**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN**
- **Fraise carbure, 2 dents, torique pour usinage de rainure**
- **2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE**

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- ▶ Excellente Werkstückoberflächen.
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- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN BLUE p.C130-131

Recommended ToolHolder: HYDRAULIC CHUCK (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116, D183-201), SK SLIM CHUCK

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60918	R0.5	2.0	6	3	12	55	1.95
G8A600300208	R0.2	3.0	6	4	8	55	2.85
G8A600300210	R0.2	3.0	6	4	10	55	2.85
G8A600300212	R0.2	3.0	6	4	12	55	2.85
G8A600300216	R0.2	3.0	6	4	16	55	2.85
G8A600300308	R0.3	3.0	6	4	8	55	2.85
G8A60919	R0.3	3.0	6	4	10	55	2.85
G8A600300312	R0.3	3.0	6	4	12	55	2.85
G8A600300316	R0.3	3.0	6	4	16	55	2.85
G8A60030	R0.5	3.0	6	4	10	55	2.85
G8A600300512	R0.5	3.0	6	4	12	55	2.85
G8A60901	R0.5	3.0	6	4	16	55	2.85
G8A60902	R0.5	3.0	6	4	20	55	2.85
G8A600400212	R0.2	4.0	6	5	12	55	3.85
G8A600400216	R0.2	4.0	6	5	16	55	3.85
G8A600400220	R0.2	4.0	6	5	20	55	3.85
G8A600400310	R0.3	4.0	6	5	10	55	3.85
G8A60920	R0.3	4.0	6	5	12	55	3.85
G8A600400316	R0.3	4.0	6	5	16	55	3.85
G8A600400320	R0.3	4.0	6	5	20	55	3.85
G8A60040	R0.5	4.0	6	5	12	55	3.85
G8A60903	R0.5	4.0	6	5	16	55	3.85

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Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	35	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○							

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎										◎					◎					



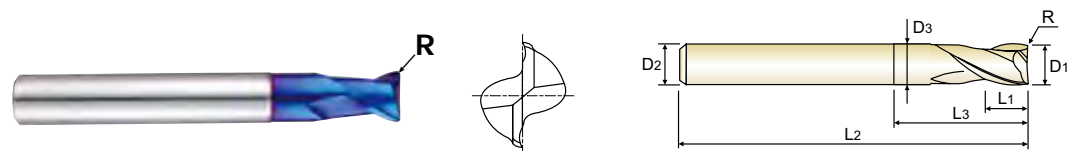
PLAIN SHANK **G8A60** SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

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Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60904	R0.5	4.0	6	5	20	55	3.85
G8A600401012	R1.0	4.0	6	5	12	55	3.85
G8A600401016	R1.0	4.0	6	5	16	55	3.85
G8A60921	R0.3	6.0	6	7	20	60	5.85
G8A60060	R0.5	6.0	6	7	20	60	5.85
G8A60905	R1.0	6.0	6	7	20	60	5.85
G8A60906	R1.5	6.0	6	7	20	60	5.85
G8A600602020	R2.0	6.0	6	7	20	60	5.85
G8A60922	R0.3	8.0	8	9	25	60	7.7
G8A60929	R0.5	8.0	8	9	25	60	7.7
G8A60080	R1.0	8.0	8	9	25	60	7.7
G8A60907	R1.5	8.0	8	9	25	60	7.7
G8A600802025	R2.0	8.0	8	9	25	60	7.7
G8A60923	R0.3	10.0	10	11	32	70	9.7
G8A601000532	R0.5	10.0	10	11	32	70	9.7
G8A60100	R1.0	10.0	10	11	32	70	9.7
G8A60908	R1.5	10.0	10	11	32	70	9.7
G8A601002032	R2.0	10.0	10	11	32	70	9.7
G8A601200538	R0.5	12.0	12	12	38	80	11.7
G8A60120	R1.0	12.0	12	12	38	80	11.7
G8A60909	R1.5	12.0	12	12	38	80	11.7
G8A601202038	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○				○											

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎



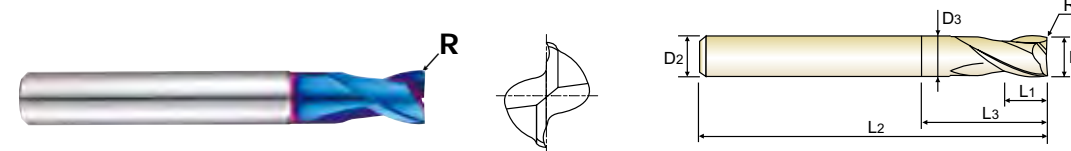
PLAIN SHANK **G8A36** SERIES

**CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- ① Fraise carbure, 2 dents, torique, détalonnée, extra-courte
- ② 2 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A36003	-	0.3	3	0.45	-	40	-
G8A36004	-	0.4	3	0.6	-	40	-
G8A36005	R0.05	0.5	3	0.7	-	40	-
G8A36907	R0.05	0.5	4	1	-	40	-
G8A36006	R0.05	0.6	3	0.9	-	40	-
G8A36908	R0.05	0.6	4	1.2	-	40	-
G8A36909	R0.05	0.7	4	1.4	-	40	-
G8A36008	R0.05	0.8	3	1.2	-	40	-
G8A36910	R0.05	0.8	4	1.6	-	40	-
G8A36911	R0.05	0.9	4	2	-	40	-
G8A36010	R0.1	1.0	3	1.5	-	40	-
G8A36901	R0.1	1.0	4	1.5	-	40	-
G8A36903	R0.1	1.0	6	1.5	-	40	-
G8A36015	R0.1	1.5	3	2.2	-	40	-
G8A36904	R0.1	1.5	6	2.2	-	40	-
G8A36020	R0.1	2.0	3	3	6	40	1.95
G8A36902	R0.1	2.0	4	3	6	40	1.95
G8A36905	R0.1	2.0	6	3	6	40	1.95
G8A36025	R0.1	2.5	3	4	6	40	2.4
G8A36906	R0.1	2.5	6	4	6	40	2.4
G8A36030	R0.1	3.0	6	4	7	45	2.85
G8A36035	R0.1	3.5	6	5	9	45	3.35

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend					○				○												

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎





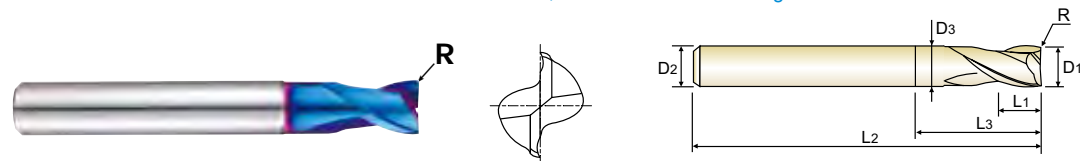
PLAIN SHANK **G8A36** SERIES

**CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- Fraise carbure, 2 dents, torique, détalonnée, extra-courte
- 2 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN BLUE p.C137-139

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A36040	R0.1	4.0	6	5	9	45	3.85
G8A36045	R0.1	4.5	6	6	10	45	4.35
G8A36050	R0.2	5.0	6	6	11	50	4.85
G8A36060	R0.2	6.0	6	7	14	50	5.85
G8A36080	R0.2	8.0	8	9	18	60	7.7
G8A36100	R0.2	10.0	10	12	25	75	9.7
G8A36120	R0.3	12.0	12	15	30	75	11.7
G8A36160	R0.3	16.0	16	18	38	90	15.7
G8A36200	R0.3	20.0	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎		◎			◎		◎			◎			◎			◎			◎		



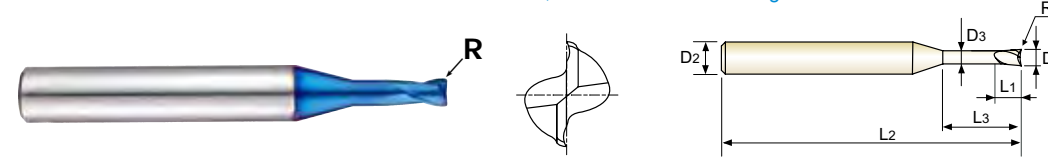
PLAIN SHANK **G8A52** SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
- Fraise carbure, 2 dents, torique pour usinage de rainure
- 2 TAGLIENTI, TORICA, SCARIATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.010 PLAIN BLUE p.C132

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A52005	R0.05	0.5	6	0.7	1.5	50	0.45
G8A52901	R0.05	0.5	6	0.7	3.3	50	0.45
G8A52006	R0.05	0.6	6	0.9	2	50	0.55
G8A52902	R0.05	0.6	6	0.9	4	50	0.55
G8A52008	R0.05	0.8	6	1.2	2.5	50	0.75
G8A52903	R0.05	0.8	6	1.2	5.5	50	0.75
G8A52010	R0.10	1.0	6	1.5	3.3	50	0.95
G8A52904	R0.10	1.0	6	1.5	6.7	50	0.95
G8A52012	R0.10	1.2	6	1.8	4.4	50	1.15
G8A52905	R0.10	1.2	6	1.8	8	50	1.15
G8A52015	R0.15	1.5	6	2.2	5	50	1.45
G8A52906	R0.15	1.5	6	2.2	9.7	50	1.45
G8A52020	R0.15	2.0	6	2.2	6	50	1.95
G8A52907	R0.15	2.0	6	2.2	13	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎		◎			◎		◎			◎			◎			◎			◎		



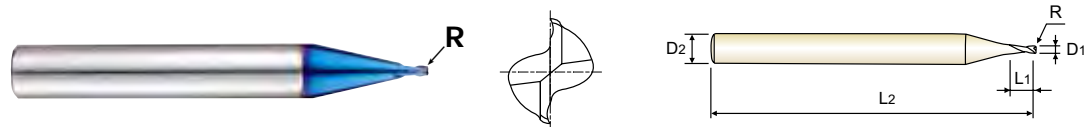
PLAIN SHANK **G8A50** SERIES

**CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS**

- VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS
- ① Fraise carbure, 2 dents, torique, micro-fraise
- ② 2 TAGLIENTI, TORICA MINI

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 2 30° ±0.010 PLAIN BLUE p.C133

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116, D183-201)

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
G8A50003	-	0.3	6	0.45	50
G8A50004	-	0.4	6	0.6	50
G8A50005	R0.05	0.5	6	0.7	50
G8A50006	R0.05	0.6	6	0.9	50
G8A50008	R0.05	0.8	6	1.2	50
G8A50010	R0.10	1.0	6	1.5	50
G8A50012	R0.10	1.2	6	1.8	50
G8A50015	R0.15	1.5	6	2.2	50
G8A50020	R0.15	2.0	6	2.2	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○		○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommend	◎		◎			◎		◎			◎			◎			◎				



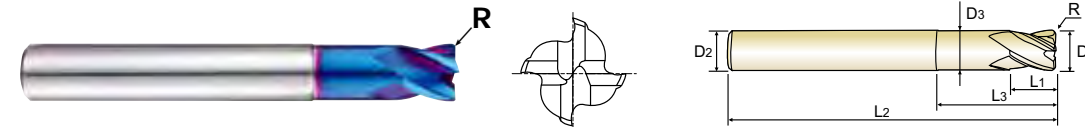
PLAIN SHANK **G8A47** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- ① Fraise carbure, 2 dents, torique, micro-fraise
- ② 4 TAGLIENTI, TORICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 4 30° ±0.010 ±0.015 PLAIN BLUE p.C134

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116, D183-201)

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A47916	R0.3	3.0	6	4	12	55	2.85
G8A47917	R0.3	3.0	6	4	16	55	2.85
G8A47918	R0.3	3.0	6	4	20	55	2.85
G8A47030	R0.5	3.0	6	4	10	55	2.85
G8A47901	R0.5	3.0	6	4	16	55	2.85
G8A47902	R0.5	3.0	6	4	20	55	2.85
G8A47919	R0.3	4.0	6	5	12	55	3.85
G8A47920	R0.3	4.0	6	5	16	55	3.85
G8A47921	R0.3	4.0	6	5	20	55	3.85
G8A47040	R0.5	4.0	6	5	12	55	3.85
G8A47903	R0.5	4.0	6	5	16	55	3.85
G8A47904	R0.5	4.0	6	5	20	55	3.85
G8A47922	R1.0	4.0	6	5	12	55	3.85
G8A47060	R0.5	6.0	6	7	20	60	5.85
G8A47905	R1.0	6.0	6	7	20	60	5.85
G8A47906	R1.5	6.0	6	7	20	60	5.85
G8A47910	R0.5	8.0	8	9	25	60	7.7
G8A47080	R1.0	8.0	8	9	25	60	7.7
G8A47907	R1.5	8.0	8	9	25	60	7.7
G8A47913	R2.0	8.0	8	9	25	60	7.7
G8A47911	R0.5	10.0	10	11	32	70	9.7
G8A47100	R1.0	10.0	10	11	32	70	9.7
G8A47908	R1.5	10.0	10	11	32	70	9.7
G8A47914	R2.0	10.0	10	11	32	70	9.7
G8A47912	R0.5	12.0	12	12	38	80	11.7
G8A47120	R1.0	12.0	12	12	38	80	11.7
G8A47909	R1.5	12.0	12	12	38	80	11.7
G8A47915	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○		○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommend	◎		◎			◎		◎			◎			◎			◎				



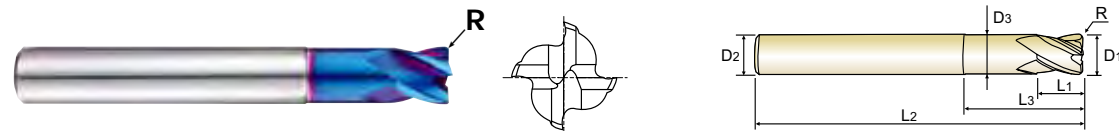
PLAIN SHANK **G8A37** SERIES

**CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- Ⓢ Fraise carbure, 4 dents, torique, détalonnée, extra-courte
- Ⓢ 4 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 4 30° R R PLAIN BLUE p.C140

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A37010	R0.1	1.0	3	1.5	-	40	-
G8A37901	R0.1	1.0	6	1.5	-	40	-
G8A37015	R0.1	1.5	3	2.2	-	40	-
G8A37902	R0.1	1.5	6	2.2	-	40	-
G8A37020	R0.1	2.0	3	3	6	40	1.95
G8A37903	R0.1	2.0	6	3	6	40	1.95
G8A37025	R0.1	2.5	3	4	6	40	2.4
G8A37904	R0.1	2.5	6	4	6	40	2.4
G8A37030	R0.1	3.0	6	4	7	45	2.85
G8A37035	R0.1	3.5	6	5	9	45	3.35
G8A37040	R0.1	4.0	6	5	9	45	3.85
G8A37045	R0.1	4.5	6	6	10	45	4.35
G8A37050	R0.2	5.0	6	6	11	50	4.85
G8A37060	R0.2	6.0	6	7	14	50	5.85
G8A37080	R0.2	8.0	8	9	18	60	7.7
G8A37100	R0.2	10.0	10	12	25	75	9.7
G8A37120	R0.3	12.0	12	15	30	75	11.7
G8A37160	R0.3	16.0	16	18	38	90	15.7
G8A37200	R0.3	20.0	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○		○					

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎		◎			◎		◎			◎		◎		◎		◎		◎		◎	



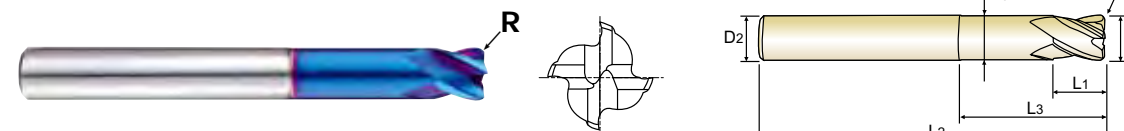
PLAIN SHANK **G8B08** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- Ⓢ Fraise carbure, 4 dents, torique, détalonnée
- Ⓢ 4 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE 4 30° R R PLAIN BLUE p.C134

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8B0806005090	R0.5	6.0	6	9	20	90	5.85
G8B0806010090	R1.0	6.0	6	9	20	90	5.85
G8B0808005100	R0.5	8.0	8	12	25	100	7.7
G8B0808010100	R1.0	8.0	8	12	25	100	7.7
G8B0810005100	R0.5	10.0	10	15	32	100	9.7
G8B0810010100	R1.0	10.0	10	15	32	100	9.7
G8B0810020100	R2.0	10.0	10	15	32	100	9.7
G8B0812005110	R0.5	12.0	12	18	38	110	11.7
G8B0812010110	R1.0	12.0	12	18	38	110	11.7
G8B0812020110	R2.0	12.0	12	18	38	110	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○		○		○					

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎		◎			◎		◎			◎		◎		◎		◎		◎		◎	

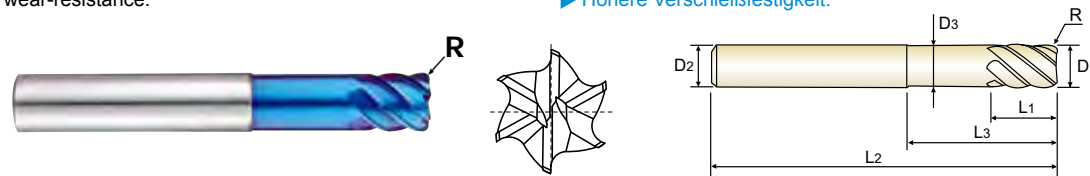


**CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS with EXTENDED NECK**

● **VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL**  
 (●) **Fraise carbure, 6 dents, torique, hélice 45°, détalonnée**  
 (●) **6 TAGLIENTI, TORICA, ELICA 45°, SCARICATA**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A39916	R0.25	6.0	6	6	14	50	5.85
G8A39060	R0.5	6.0	6	6	14	50	5.85
G8A39901	R0.5	6.0	6	13	-	70	-
* G8A39910	R0.5	6.0	6	26	-	70	-
G8A39080	R0.5	8.0	8	8	24	60	7.7
G8A39902	R0.5	8.0	8	19	-	90	-
* G8A39911	R0.5	8.0	8	36	-	90	-
G8A39903	R0.5	10.0	10	22	-	100	-
G8A39100	R1.0	10.0	10	10	30	70	9.7
G8A39904	R1.0	10.0	10	22	-	100	-
* G8A39912	R1.0	10.0	10	46	-	100	-
G8A39905	R0.5	12.0	12	26	-	110	-
G8A39120	R1.0	12.0	12	12	30	75	11.7
G8A39906	R1.0	12.0	12	26	-	110	-
* G8A39913	R1.0	12.0	12	56	-	110	-
G8A39160	R1.0	16.0	16	32	-	130	-
G8A39907	R1.5	16.0	16	32	-	130	-
* G8A39914	R1.5	16.0	16	66	-	130	-
G8A39200	R1.0	20.0	20	38	-	140	-
G8A39908	R1.5	20.0	20	38	-	140	-
G8A39909	R2.0	20.0	20	38	-	140	-
* G8A39915	R2.0	20.0	20	76	-	140	-

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

\* Mill Dia. Tolerance(mm) for Extra Long Type : 0~-0.03

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend					○				○	○											

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											◎	◎						◎	◎	○	◎

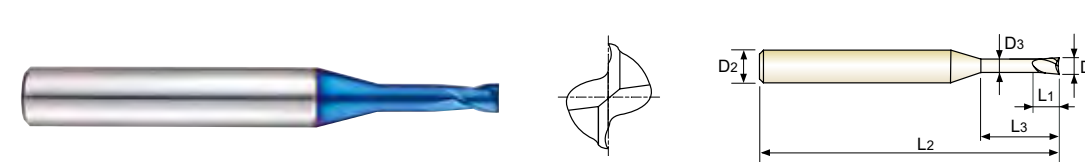


**CARBIDE, 2 FLUTE for RIB PROCESSING**

● **VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN**  
 (●) **Fraise carbure, 2 dents pour usinage de rainure**  
 (●) **2 TAGLIENTI PER NERVATURE**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45863	0.1	4	0.15	0.3	45	0.085
G8A45864	0.1	4	0.15	0.5	45	0.085
G8A45002	0.2	4	0.3	0.5	45	0.17
G8A45815	0.2	4	0.3	1	45	0.17
G8A45816	0.2	4	0.3	1.5	45	0.17
G8A45003	0.3	4	0.45	1	45	0.27
G8A45844	0.3	4	0.45	1.5	45	0.27
G8A45817	0.3	4	0.45	2	45	0.27
G8A45818	0.3	4	0.45	3	45	0.27
G8A45842	0.3	4	0.45	4	45	0.27
G8A45843	0.4	4	0.6	1	45	0.37
G8A45004	0.4	4	0.6	2	45	0.37
G8A45984	0.4	4	0.6	3	45	0.37
G8A45985	0.4	4	0.6	4	45	0.37
G8A45986	0.4	4	0.6	5	45	0.37
G8A45005	0.5	4	0.7	2	45	0.45
G8A45861	0.5	4	0.7	2.5	45	0.45
G8A45988	0.5	4	0.7	4	45	0.45
G8A45989	0.5	4	0.7	6	45	0.45
G8A45990	0.5	4	0.7	8	45	0.45
G8A45006	0.6	4	0.9	2	45	0.55
G8A45860	0.6	4	0.9	3	45	0.55

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend					○				○	○											

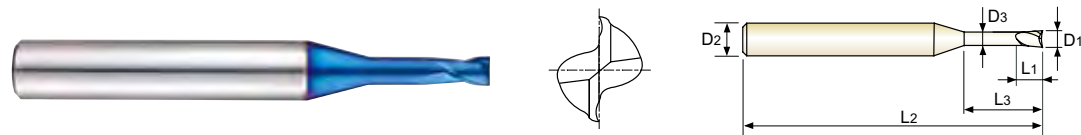
ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											◎	◎						◎	◎	○	◎

**CARBIDE, 2 FLUTE for RIB PROCESSING**

● **VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN**  
 (●) **Fraise carbure, 2 dents pour usinage de rainure**  
 (●) **2 TAGLIANTI PER NERVATURE**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



p.C135-136

Recommended ToolHolder	Plain Shank	Page
HYDRAULIC CHUCK	D15-46	D15-46
SHRINK FIT HOLDER	D47-72	D47-72
POWER MILLING CHUCK	D161-176	D161-176
ER COLLET CHUCK	D73-116	D73-116
SK SLIM CHUCK	D183-201	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45991	0.6	4	0.9	4	45	0.55
G8A45992	0.6	4	0.9	6	45	0.55
G8A45993	0.6	4	0.9	8	45	0.55
G8A45819	0.6	4	0.9	10	45	0.55
G8A45862	0.8	4	1.2	2	45	0.75
G8A45008	0.8	4	1.2	4	45	0.75
G8A45908	0.8	4	1.2	6	45	0.75
G8A45909	0.8	4	1.2	8	45	0.75
G8A45994	0.8	4	1.2	10	45	0.75
G8A45995	0.8	4	1.2	12	45	0.75
G8A45996	1.0	4	1.5	4	45	0.95
G8A45010	1.0	4	1.5	6	45	0.95
G8A45912	1.0	4	1.5	8	45	0.95
G8A45913	1.0	4	1.5	10	45	0.95
G8A45914	1.0	4	1.5	12	45	0.95
G8A45997	1.0	4	1.5	16	50	0.95
G8A45998	1.0	4	1.5	20	55	0.95
G8A45012	1.2	4	1.8	6	45	1.15
G8A45915	1.2	4	1.8	8	45	1.15
G8A45916	1.2	4	1.8	10	45	1.15
G8A45917	1.2	4	1.8	12	45	1.15
G8A45999	1.2	4	1.8	16	50	1.15

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○				○	○										

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

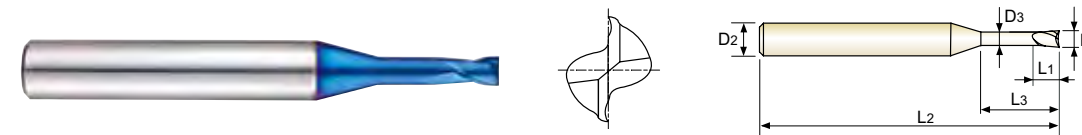


**CARBIDE, 2 FLUTE for RIB PROCESSING**

● **VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN**  
 (●) **Fraise carbure, 2 dents pour usinage de rainure**  
 (●) **2 TAGLIANTI PER NERVATURE**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



p.C135-136

Recommended ToolHolder	Plain Shank	Page
HYDRAULIC CHUCK	D15-46	D15-46
SHRINK FIT HOLDER	D47-72	D47-72
POWER MILLING CHUCK	D161-176	D161-176
ER COLLET CHUCK	D73-116	D73-116
SK SLIM CHUCK	D183-201	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45015	1.5	4	2.3	6	45	1.45
G8A45923	1.5	4	2.3	8	45	1.45
G8A45924	1.5	4	2.3	10	45	1.45
G8A45925	1.5	4	2.3	12	45	1.45
G8A45926	1.5	4	2.3	14	50	1.45
G8A45927	1.5	4	2.3	16	50	1.45
G8A45928	1.5	4	2.3	18	55	1.45
G8A45810	1.5	4	2.3	20	55	1.45
G8A45958	2.0	4	3.0	6	45	1.95
G8A45020	2.0	4	3.0	8	45	1.95
G8A45959	2.0	4	3.0	10	45	1.95
G8A45960	2.0	4	3.0	12	45	1.95
G8A45961	2.0	4	3.0	14	50	1.95
G8A45962	2.0	4	3.0	16	50	1.95
G8A45963	2.0	4	3.0	18	55	1.95
G8A45964	2.0	4	3.0	20	55	1.95
G8A45966	2.0	4	3.0	25	60	1.95
G8A45814	2.0	4	3.0	30	70	1.95
G8A45975	3.0	6	4.5	10	45	2.85
G8A45976	3.0	6	4.5	12	45	2.85
G8A45977	3.0	6	4.5	14	50	2.85
G8A45978	3.0	6	4.5	16	55	2.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○				○	○										

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎



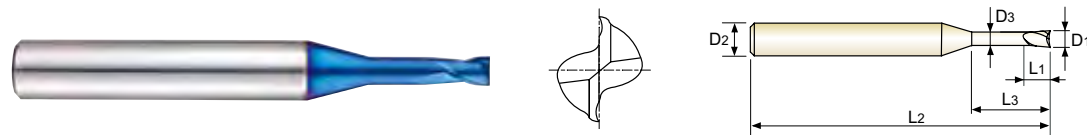
PLAIN SHANK **G8A45** SERIES

**CARBIDE, 2 FLUTE for RIB PROCESSING**

- **VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN**
- **Fraise carbure, 2 dents pour usinage de rainure**
- **2 TAGLIENTI PER NERVATURE**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



p.C135-136

Recommended ToolHolder	Plain Shank	Page
HYDRAULIC CHUCK	D15-46	D15-46
SHRINK FIT HOLDER	D47-72	D47-72
POWER MILLING CHUCK	D161-176	D161-176
ER COLLET CHUCK	D73-116	D73-116
SK SLIM CHUCK	D183-201	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45979	3.0	6	4.5	18	55	2.85
G8A45980	3.0	6	4.5	20	60	2.85
G8A45981	3.0	6	4.5	25	65	2.85
G8A45832	3.0	6	4.5	30	70	2.85
G8A45833	3.0	6	4.5	35	80	2.85
G8A45983	3.0	6	4.5	40	90	2.85
G8A45040	4.0	6	6	12	50	3.85
G8A45801	4.0	6	6	16	60	3.85
G8A45802	4.0	6	6	20	60	3.85
G8A45803	4.0	6	6	25	70	3.85
G8A45834	4.0	6	6	30	70	3.85
G8A45835	4.0	6	6	35	80	3.85
G8A45836	4.0	6	6	40	90	3.85
G8A45837	4.0	6	6	45	90	3.85
G8A45838	4.0	6	6	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H														
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	42	55		
Recommend	◎					◎					◎					◎		◎		◎		◎		◎	



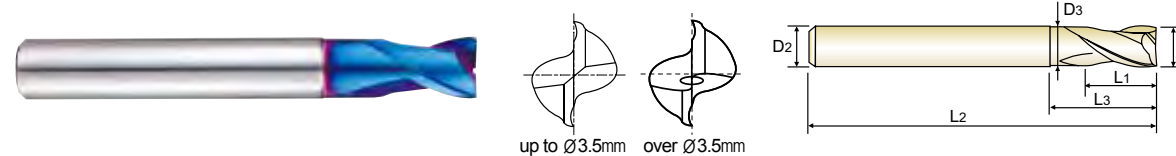
PLAIN SHANK **G8A01** SERIES

**CARBIDE, 2 FLUTE with EXTENDED NECK**

- **VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL**
- **Fraise carbure, 2 dents, détalonnée**
- **2 TAGLIENTI CON SCARICO ESTESO**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



p.C137-139

Recommended ToolHolder	Plain Shank	Page
HYDRAULIC CHUCK	D15-46	D15-46
SHRINK FIT HOLDER	D47-72	D47-72
POWER MILLING CHUCK	D161-176	D161-176
ER COLLET CHUCK	D73-116	D73-116
SK SLIM CHUCK	D183-201	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A01001	0.1	4	0.2	-	40	-
G8A01002	0.2	4	0.4	-	40	-
G8A01003	0.3	4	0.6	-	40	-
G8A01004	0.4	4	0.8	-	40	-
G8A01005	0.5	4	1	-	40	-
G8A01006	0.6	4	1.2	-	40	-
G8A01007	0.7	4	1.4	-	40	-
G8A01008	0.8	4	1.6	-	40	-
G8A01009	0.9	4	2	-	40	-
G8A010104S	1.0	4	1.5	3	50	0.95
G8A01010	1.0	6	1.5	3	50	0.95
G8A010154S	1.5	4	1.7	4	50	1.45
G8A01015	1.5	6	1.7	4	50	1.45
G8A010204S	2.0	4	2	5	50	1.95
G8A01020	2.0	6	2	5	50	1.95
G8A010254S	2.5	4	2.5	6	55	2.4
G8A01025	2.5	6	2.5	6	55	2.4
G8A01030	3.0	6	3	8	55	2.85
G8A01035	3.5	6	3.5	9	55	3.35
G8A01040	4.0	6	4	10	55	3.85
G8A01050	5.0	6	5	13	55	4.85
G8A01060	6.0	6	6	15	55	5.85
G8A01080	8.0	8	8	20	65	7.7
G8A01100	10.0	10	10	25	75	9.7
G8A01120	12.0	12	12	28	85	11.7
G8A01160	16.0	16	16	32	90	15.7
G8A01200	20.0	20	20	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

ISO Material Description	N					S					H														
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	42	55		
Recommend	◎					◎					◎					◎		◎		◎		◎		◎	





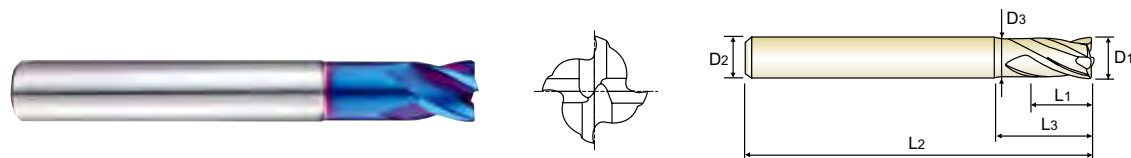
PLAIN SHANK **G8A02** SERIES

**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL
- Fraise carbure, 4 dents, détalonnée
- 4 TAGLIENTI CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Recommended ToolHolder	Plain Shank	Page
○	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
○	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A02010	1.0	6	1.5	3	50	0.95
G8A02020	2.0	6	2	5	50	1.95
G8A02030	3.0	6	3	8	55	2.85
G8A02040	4.0	6	4	10	55	3.85
G8A02050	5.0	6	5	13	55	4.85
G8A02060	6.0	6	6	15	55	5.85
G8A02080	8.0	8	8	20	65	7.7
G8A02100	10.0	10	10	25	75	9.7
G8A02120	12.0	12	12	28	85	11.7
G8A02160	16.0	16	16	32	90	15.7
G8A02200	20.0	20	20	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○									○				○						

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎						◎						◎			◎	◎	◎			



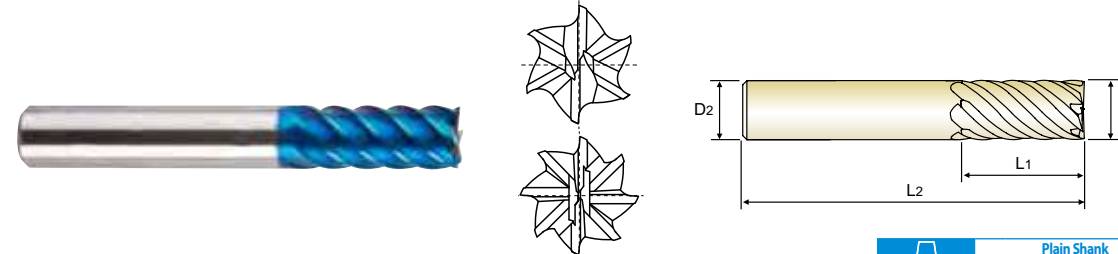
PLAIN SHANK **G8D63** SERIES

**CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH**

- VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
- Fraise carbure, 6&8 dents, hélice 45°, longue
- 6&8 TAGLIENTI, ELICA 45°, TAGLIENTE LUNGO

- ▶ Designed to machine high hardened materials.
- ▶ Designed for high abrasion resistance thanks to negative rake angle.
- ▶ Excellent side-cutting of press mold field.

- ▶ Speziell ausgelegt für die Hartbearbeitung
- ▶ Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- ▶ hervorragend geeignet für die Seitenbearbeitung im Formenbau



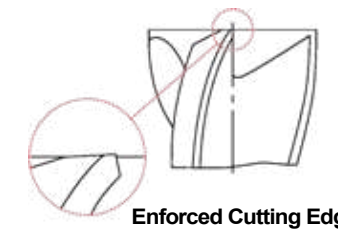
Recommended ToolHolder	Plain Shank	Page
○	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
○	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D1	D2	L1	L2	
G8D63060	6.0	6	13	57	6
G8D63080	8.0	8	19	63	6
G8D63100	10.0	10	22	72	6
G8D63120	12.0	12	26	83	6
G8D63140	14.0	14	26	83	6
G8D63160	16.0	16	32	92	6
G8D63180	18.0	18	32	92	8
G8D63200	20.0	20	38	104	8
G8D63250	25.0	25	44	104	8

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5



◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○									○				○						

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎						◎						◎			◎	◎	◎			



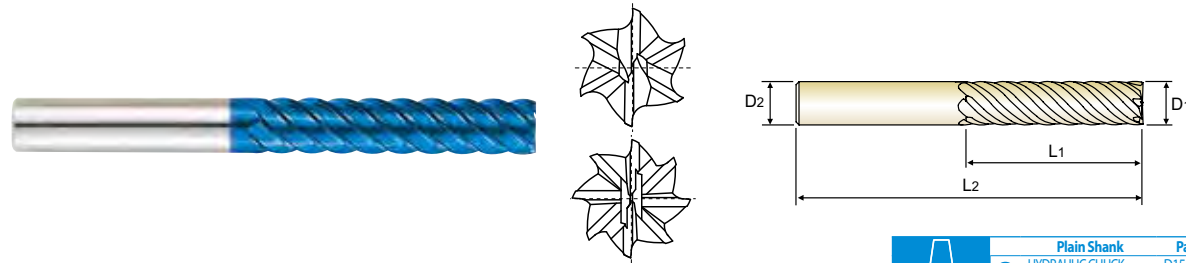
PLAIN SHANK **G8D64** SERIES

**CARBIDE, 6&8 FLUTE 45° HELIX EXTRA LONG LENGTH**

- VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG
- Fraise carbure, 6&8 dents, hélice 45°, extra-longue
- 6&8 TAGLIENTI, ELICA 45°, TAGLIENTE EXTRA LUNGO

- ▶ Designed to machine high hardened materials.
- ▶ Designed for high abrasion resistance thanks to negative rake angle.
- ▶ Excellent side-cutting of press mold field.

- ▶ Speziell ausgelegt für die Hartbearbeitung
- ▶ Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- ▶ Hervorragend geeignet für die Seitenbearbeitung im Formenbau

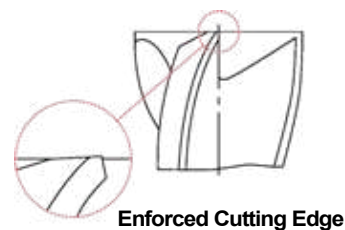


Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D1	D2	L1	L2	
<b>G8D64060</b>	<b>6.0</b>	<b>6</b>	<b>26</b>	<b>70</b>	<b>6</b>
<b>G8D64080</b>	<b>8.0</b>	<b>8</b>	<b>36</b>	<b>90</b>	<b>6</b>
<b>G8D64100</b>	<b>10.0</b>	<b>10</b>	<b>46</b>	<b>100</b>	<b>6</b>
<b>G8D64120</b>	<b>12.0</b>	<b>12</b>	<b>56</b>	<b>110</b>	<b>6</b>
<b>G8D64160</b>	<b>16.0</b>	<b>16</b>	<b>66</b>	<b>130</b>	<b>6</b>
<b>G8D64200</b>	<b>20.0</b>	<b>20</b>	<b>76</b>	<b>140</b>	<b>8</b>
<b>G8D64250</b>	<b>25.0</b>	<b>25</b>	<b>92</b>	<b>180</b>	<b>8</b>

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



◎ : Excellent ○ : Good

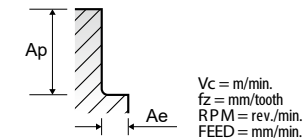
ISO	P										M					K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	64	66	68	70
HB	125	190	250	270	300	180	215	235	270	300	350	200	240	180	180	260	160	250	130	230
Recommend	○					○					○		○			○		○		

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100										550	630	400	550
Recommend	◎		◎			◎					◎		◎			◎		◎	◎	◎	



**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**



**G8B59, G8B54** SERIES

**4 FLUTE CORNER RADIUS - SIDE CUTTING**

**HIGH SPEED**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	
P	5	Non-alloy steel	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974	
					FEED	14782	15835	17588	17953	18561	18422	18398	18595	18402	
					Vc	180	205	215	235	255	250	250	250	250	
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	
	8-9	Low alloy steel	0.3D	0.1R	RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974	
					FEED	14782	15835	17588	17953	18561	18422	18398	18595	18402	
					Vc	180	205	215	235	255	250	250	250	250	
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974	
					FEED	14782	15835	17588	17953	18561	18422	18398	18595	18402	
11.1	High alloyed steel, and tool steel	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195		
				fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897		
				RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879		
				FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919		
				Vc	140	160	165	175	200	200	200	200	195		
				fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897		
11.2	High alloyed steel, and tool steel	0.3D	0.1R	RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879		
				FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919		
				Vc	95	200	140	155	170	170	170	170	165		
				fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833		
				RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283		
				FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938		
H	38.1	Hardened steel	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195	
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897	
					RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879	
					FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919	
					Vc	95	200	140	155	170	170	170	170	165	
					fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833	
	38.2	Hardened steel	0.3D	0.1R	RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283	
					FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938	
					Vc	70	90	100	110	120	120	120	120	120	
					fz	0.101	0.121	0.172	0.214	0.25	0.349	0.447	0.547	0.729	
					RPM	11141	9549	7958	7003	6366	4775	3820	3183	2387	
					FEED	4501	4622	5475	5994	6366	6665	6830	6965	6961	
	39.1	Hardened steel	0.3D	0.05R	Vc	55	65	70	75	85	85	85	85	85	
					fz	0.07	0.091	0.129	0.158	0.2	0.301	0.352	0.4	0.5	
					RPM	8754	6897	5570	4775	4509	3382	2706	2255	1691	
					FEED	2451	2510	2874	3018	3608	4072	3810	3608	3382	
					Vc	140	160	165	175	200	200	200	200	195	
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897	
	39.2	Hardened steel	0.3D	0.05R	RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879	
					FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919	
					Vc	95	200	140	155	170	170	170	170	165	
					fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833	
					RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283	
					FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938	
40	Chilled Cast Iron	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195		
				fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897		
				RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879		
				FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919		
				Vc	95	200	140	155	170	170	170	170	165		
				fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833		
41	Hardened Cast Iron	0.3D	0.1R	RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283		
				FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938		
				Vc	95	200	140	155	170	170	170	170	165		
				fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833		
				RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283		
				FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938		

**NORMAL SPEED**

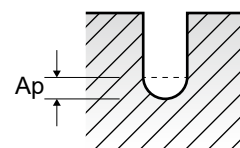
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	
P	5	Non-alloy steel	0.5D	0.2R	Vc	85	90	100	100	110	110	110	110	110	
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188	
					FEED	6494	6494	7003	7156	7703	7703	7647	7691	7607	
					Vc	85	90	100	100	110	110	110	110	110	
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	
	8-9	Low alloy steel	0.5D	0.2R	RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188	
					FEED	6494	6494	7003	7156	7703	7703	7647	7691	7607	
					Vc	85	90	100	100	110	110	110	110	110	
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188	
					FEED	6494	6494	7003	7156	7703	7703	7647	7691	7607	
11.1	High alloyed steel, and tool steel	0.5D	0.2R	Vc	60	65	70	75	75	75	75	75	80		
				fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79		
				RPM	9549	6897	5570	4775	3979	2984	2387	1989	1592		
				FEED	3782	4138	4456								

**G8A46, G8A54 SERIES 2 FLUTE BALL NOSE FOR RIB PROCESSING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)				
				0.2	0.3	0.4	0.5	0.6
P	5	Non-alloy steel	Vc	31	45~47	60~63	50~55	50~56
			fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015
			RPM	50000	48000~50000	48000~50000	31900~35200	26400~29700
			FEED	265~310	440~460	450~550	450~540	440~540
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
	8-9	Low alloy steel	Vc	31	45~47	60~63	54~78	54~77
			fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015
			RPM	50000	48000~50000	48000~50000	34100~49500	28600~40700
			FEED	300~350	480~520	720~790	600~870	590~850
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
11.1 - 11.2	High alloyed steel, and tool steel	Vc	31	45~47	60~63	54~78	54~77	
		fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015	
		RPM	50000	48000~50000	48000~50000	34100~49500	28600~40700	
		FEED	300~350	480~520	720~790	600~870	590~850	
		Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034	
		Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034	
H	38.1 - 38.2	Hardened steel	Vc	31	45~47	60~63	50~55	50~56
			fz	0.003~0.003	0.004~0.005	0.005~0.006	0.006~0.008	0.007~0.010
			RPM	50000	48000~50000	48000~50000	31900~35200	26400~29700
			FEED	265~310	440~460	450~550	450~540	440~540
			Ap	0.005~0.013	0.008~0.014	0.011~0.026	0.005~0.023	0.006~0.028
			Ap	0.005~0.013	0.008~0.014	0.011~0.026	0.005~0.023	0.006~0.028
	39.1	Hardened steel	Vc	31	43~47	58~63	50~55	50~56
			fz	0.009~0.011	0.017~0.017	0.017~0.018	0.028~0.027	0.030~0.032
			RPM	50000	46000~50000	46000~50000	31900~35200	26400~29700
			FEED	225~265	390~420	400~460	440~480	400~480
			Ap	0.005~0.012	0.007~0.013	0.010~0.024	0.005~0.021	0.006~0.025
			Ap	0.005~0.012	0.007~0.013	0.010~0.024	0.005~0.021	0.006~0.025
39.2	Hardened steel	Vc	31	43~47	58~63	50~55	50~56	
		fz	0.009~0.011	0.017~0.017	0.017~0.018	0.028~0.027	0.030~0.032	
		RPM	50000	46000~50000	46000~50000	31900~35200	26400~29700	
		FEED	225~265	390~420	400~460	440~480	400~480	
		Ap	0.005~0.012	0.007~0.013	0.010~0.024	0.005~0.021	0.006~0.025	
		Ap	0.005~0.012	0.007~0.013	0.010~0.024	0.005~0.021	0.006~0.025	
40	Chilled Cast Iron	Vc	31	45~47	60~63	54~78	54~77	
		fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015	
		RPM	50000	48000~50000	48000~50000	34100~49500	28600~40700	
		FEED	300~350	480~520	720~790	600~870	590~850	
		Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034	
		Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034	
41	Hardened Cast Iron	Vc	31	45~47	60~63	50~55	50~56	
		fz	0.003~0.003	0.004~0.005	0.005~0.006	0.006~0.008	0.007~0.010	
		RPM	50000	48000~50000	48000~50000	31900~35200	26400~29700	
		FEED	265~310	440~460	450~550	450~540	440~540	
		Ap	0.005~0.013	0.008~0.014	0.011~0.026	0.005~0.023	0.006~0.028	
		Ap	0.005~0.013	0.008~0.014	0.011~0.026	0.005~0.023	0.006~0.028	

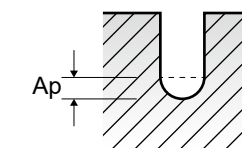
▶ NEXT PAGE



**G8A46, G8A54 SERIES 2 FLUTE BALL NOSE FOR RIB PROCESSING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

VDI 3323	Parameter	Diameter (Ø)							
		0.8	1.0	1.2	1.5	2.0	3.0	4.0	
5	Vc	50~55	48~55	45~53	47~54	50~55	50~55	50~55	
	fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115	
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3950~4400	
	FEED	460~550	470~540	460~540	440~540	470~530	590~650	550~620	
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320	
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320	
	8-9	Vc	55~77	55~76	54~70	52~67	53~69	54~77	54~78
		fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115
		RPM	22000~30800	17600~24200	14300~18700	11000~14300	8500~11000	5700~8200	4300~6200
		FEED	640~890	600~850	590~780	580~760	590~800	730~1000	680~990
		Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320
		Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320
11.1 - 11.2	Vc	55~77	55~76	54~70	52~67	53~69	54~77	54~78	
	fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115	
	RPM	22000~30800	17600~24200	14300~18700	11000~14300	8500~11000	5700~8200	4300~6200	
	FEED	640~890	600~850	590~780	580~760	590~800	730~1000	680~990	
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320	
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320	
38.1 - 38.2	Vc	50~55	48~55	45~53	47~54	50~55	50~55	50~55	
	fz	0.010~0.014	0.013~0.018	0.016~0.023	0.019~0.027	0.027~0.034	0.051~0.061	0.063~0.078	
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3950~4400	
	FEED	460~550	470~540	460~540	440~540	470~530	590~650	550~620	
	Ap	0.013~0.052	0.007~0.065	0.020~0.026	0.025~0.039	0.020~0.130	0.052~0.195	0.065~0.260	
	Ap	0.013~0.052	0.007~0.065	0.020~0.026	0.025~0.039	0.020~0.130	0.052~0.195	0.065~0.260	
39.1	Vc	50~55	48~55	45~53	47~54	50~55	50~55	48~55	
	fz	0.044~0.045	0.057~0.057	0.070~0.069	0.084~0.083	0.111~0.109	0.208~0.214	0.275~0.259	
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3850~4400	
	FEED	440~500	440~500	420~480	420~480	440~480	550~620	530~570	
	Ap	0.012~0.048	0.006~0.060	0.018~0.024	0.023~0.036	0.018~0.120	0.048~0.120	0.060~0.240	
	Ap	0.012~0.048	0.006~0.060	0.018~0.024	0.023~0.036	0.018~0.120	0.048~0.120	0.060~0.240	
39.2	Vc	50~55	48~55	45~53	47~54	50~55	50~55	48~55	
	fz	0.044~0.045	0.057~0.057	0.070~0.069	0.084~0.083	0.111~0.109	0.208~0.214	0.275~0.259	
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3850~4400	
	FEED	440~500	440~500	420~480	420~480	440~480	550~620	530~570	
	Ap	0.012~0.048	0.006~0.060	0.018~0.024	0.023~0.036	0.018~0.120	0.048~0.120	0.060~0.240	
	Ap	0.012~0.048	0.006~0.060	0.018~0.024	0.023~0.036	0.018~0.120	0.048~0.120	0.060~0.240	
40	Vc	55~77	55~76	54~70	52~67	53~69	54~77	54~78	
	fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115	
	RPM	22000~30800	17600~24200	14300~18700	11000~14300	8500~11000	5700~8200	4300~6200	
	FEED	640~890	600~850	590~780	580~760	590~800	730~1000	680~990	
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320	
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320	
41	Vc	50~55	48~55	45~53	47~54	50~55	50~55	50~55	
	fz	0.010~0.014	0.013~0.018	0.016~0.023	0.019~0.027	0.027~0.034	0.051~0.061	0.063~0.078	
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3950~4400	
	FEED	460~550	470~540	460~540	440~540	470~530	590~650	550~620	
	Ap	0.013~0.052	0.007~0.065	0.020~0.026	0.025~0.039	0.020~0.130	0.052~0.195	0.065~0.260	
	Ap	0.013~0.052	0.007~0.065	0.020~0.026	0.025~0.039	0.020~0.130	0.052~0.195	0.065~0.260	



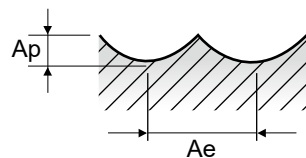


**G8A28, G8A38, G8A53 SERIES 2 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						0.2	0.3	0.4	0.5	0.6	0.8	1.0
P	5	Non-alloy steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1146	1432	1966	2445	2923	3879	4736
	8-9	Low alloy steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1146	1432	1966	2445	2923	3879	4736
	11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1146	1432	1966	2445	2923	3879	4736
11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155	
				fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042	
				RPM	47746	47746	51725	50930	50399	49736	49338	
				FEED	1050	1337	1759	2139	2520	3283	4144	
H	38.1	Hardened steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1050	1337	1759	2139	2520	3283	4144
	38.2	Hardened steel	0.05D	0.02D	Vc	30	40	55	70	85	115	140
					fz	0.011	0.013	0.017	0.021	0.024	0.033	0.042
					RPM	47746	42441	43768	44563	45094	45757	44563
					FEED	1050	1103	1488	1872	2165	3020	3743
	39.1	Hardened steel	0.05D	0.02D	Vc	25	40	50	65	75	100	125
					fz	0.01	0.012	0.015	0.019	0.023	0.03	0.038
					RPM	39789	42441	39789	41380	39789	39789	39789
					FEED	796	1019	1194	1572	1830	2387	3024
39.2	Hardened steel	0.05D	0.02D	Vc	20	35	45	55	65	90	110	
				fz	0.01	0.012	0.015	0.019	0.023	0.03	0.037	
				RPM	31831	37136	35810	35014	34484	35810	35014	
				FEED	637	891	1074	1331	1586	2149	2591	
39.3	Hardened steel	0.05D	0.02D	Vc	20	30	40	50	60	80	110	
				fz	0.009	0.011	0.014	0.017	0.022	0.029	0.033	
				RPM	31831	31831	31831	31831	31831	31831	35014	
				FEED	573	700	891	1082	1401	1846	2311	
40	Chilled Cast Iron	0.05D	0.02D	Vc	30	45	65	80	95	125	155	
				fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042	
				RPM	47746	47746	51725	50930	50399	49736	49338	
				FEED	1050	1337	1759	2139	2520	3283	4144	
41	Hardened Cast Iron	0.05D	0.02D	Vc	30	40	55	70	85	115	140	
				fz	0.011	0.013	0.017	0.021	0.024	0.033	0.042	
				RPM	47746	47746	51725	50930	50399	49736	49338	
				FEED	1050	1337	1759	2139	2520	3283	4144	

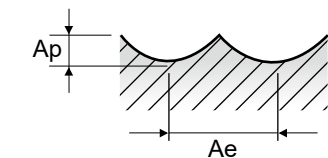
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**G8A28, G8A38, G8A53 SERIES 2 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

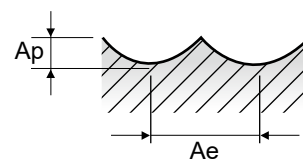
VDI 3323	Parameter	Diameter (Ø)											
		1.2	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
5	Vc	190	235	310	310	315	290	260	280	290	260	280	280
	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264
	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456
	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
8-9	Vc	190	235	310	310	315	290	260	280	290	260	280	280
	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264
	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456
	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
11.1	Vc	190	235	310	310	315	290	260	280	290	260	280	280
	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264
	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456
	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
11.2	Vc	180	225	300	300	300	280	255	270	280	250	270	270
	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
38.1	Vc	180	225	300	300	300	280	255	270	280	250	270	270
	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
38.2	Vc	160	205	250	250	250	235	205	225	235	210	225	225
	fz	0.045	0.047	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17	0.189	0.208
	RPM	42441	43502	39789	26526	19894	14961	10876	8952	7480	5570	4476	3581
	FEED	3820	4089	3979	3979	3979	3740	3067	2686	2394	1894	1692	1490
39.1	Vc	145	175	220	220	220	210	190	200	205	190	200	200
	fz	0.039	0.042	0.045	0.067	0.09	0.113	0.125	0.134	0.144	0.155	0.169	0.188
	RPM	38462	37136	35014	23343	17507	13369	10080	7958	6525	5040	3979	3183
	FEED	3000	3119	3151	3128	3151	3021	2520	2133	1879	1562	1345	1197
39.2	Vc	130	155	200	200	200	180	165	175	180	165	175	175
	fz	0.04	0.041	0.044	0.067	0.088	0.111	0.122	0.132	0.142	0.142	0.143	0.143
	RPM	34484	32892	31831	21221	15915	11459	8754	6963	5730	4377	3482	2785
	FEED	2759	2697	2801	2844	2801	2544	2136	1838	1627	1243	996	797
39.3	Vc	115	140	180	180	180	165	150	165	165	150	160	160
	fz	0.038	0.039	0.04	0.061	0.079	0.1	0.109	0.119	0.13	0.131	0.133	0.129
	RPM	30505	29709	28648	19099	14324	10504	7958	6565	5252	3979	3183	2546
	FEED	2318	2317	2292	2330	2263	2101	1735	1562	1366	1042	847	657
40	Vc	180	225	300	300	300	280	255	270	280	250	270	270
	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
41	Vc	160	205	250	250	250	235	205	225	235	210	225	225
	fz	0.045	0.047	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17	0.189	0.208
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951



**G8A59 SERIES 3 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

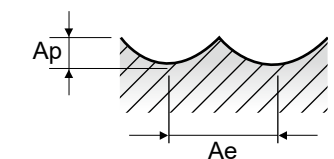
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
<b>P</b>	5	Non-alloy steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
					RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411
	8-9	Low alloy steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
					RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411
	11.1 - 11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
					RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411
<b>H</b>	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	255	255	265	285	285	285	285	285	285
					fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192
					RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536
					FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613
					Vc	185	185	195	230	230	230	230	230	230
					fz	0.072	0.087	0.099	0.123	0.144	0.156	0.173	0.18	0.18
	39.1	Hardened steel	0.05D	0.02D	RPM	19629	14722	12414	12202	9151	7321	6101	4576	3661
					FEED	4240	3842	3687	4502	3953	3426	3166	2471	1977
					Vc	175	180	185	210	210	210	210	210	205
					fz	0.072	0.086	0.099	0.115	0.134	0.144	0.145	0.144	0.145
					RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263
					FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419
	39.2	Hardened steel	0.05D	0.02D	Vc	120	120	125	145	145	145	145	145	145
					fz	0.072	0.087	0.099	0.108	0.125	0.144	0.144	0.144	0.143
					RPM	12732	9549	7958	7692	5769	4615	3846	2885	2308
					FEED	2750	2492	2363	2492	2164	1994	1662	1246	990
					Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
39.3	Hardened steel	0.05D	0.02D	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	
				FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604	
				Vc	255	255	265	285	285	285	285	285	285	
				fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	
				RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	
				FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	
40	Chilled Cast Iron	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340	
				fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	
				RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	
				FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604	
				Vc	255	255	265	285	285	285	285	285	285	
				fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	
41	Hardened Cast Iron	0.05D	0.02D	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	
				FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	



**G8D62 SERIES 4 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

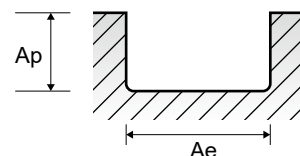
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
<b>P</b>	5	Non-alloy steel	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
					RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411
	8-9	Low alloy steel	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
					RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411
	11.1 - 11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
					RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411
<b>H</b>	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	285	285	280	285	285	285	285	285	285
					fz	0.06	0.07	0.081	0.092	0.103	0.111	0.125	0.129	0.126
					RPM	30239	22680	17825	15120	11340	9072	7560	5670	4536
					FEED	7257	6350	5775	5564	4672	4028	3780	2926	2286
					Vc	230	230	230	230	230	230	230	230	230
					fz	0.05	0.06	0.071	0.082	0.096	0.104	0.115	0.119	0.119
	39.1	Hardened steel	0.05D	0.02D	RPM	24404	18303	14642	12202	9151	7321	6101	4576	3661
					FEED	4881	4393	4158	4002	3514	3046	2806	2178	1743
					Vc	210	210	210	210	210	210	210	210	205
					fz	0.045	0.055	0.067	0.077	0.089	0.095	0.097	0.096	0.096
					RPM	22282	16711	13369	11141	8356	6685	5570	4178	3263
					FEED	4011	3676	3583	3431	2975	2540	2161	1604	1253
	39.2	Hardened steel	0.05D	0.02D	Vc	145	145	145	145	145	145	145	145	145
					fz	0.04	0.05	0.062	0.072	0.082	0.096	0.094	0.096	0.097
					RPM	15385	11539	9231	7692	5769	4615	3846	2885	2228
					FEED	2462	2308	2289	2215	1892	1772	1446	1108	864
					Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
39.3	Hardened steel	0.05D	0.02D	RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411	
				FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117	
				Vc	285	285	280	285	285	285	285	285	285	
				fz	0.06	0.07	0.081	0.092	0.103	0.111	0.125	0.129	0.126	
				RPM	30239	22680	17825	15120	11340	9072	7560	5670	4536	
				FEED	7257	6350	5775	5564	4672	4028	3780	2926	2286	
40	Chilled Cast Iron	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340	
				fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144	
				RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411	
				FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117	
				Vc	285	285	280	285	285	285	285	285	285	
				fz	0.06	0.07	0.081	0.092	0.103	0.111	0.125	0.129	0.126	
41	Hardened Cast Iron	0.05D	0.02D	RPM	30239	22680	17825	15120	11340	9072	7560	5670	4536	
				FEED	7257	6350	5775	5564	4672	4028	3780	2926	2286	



**G8A60 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
P	5	Non-alloy steel	1.0D	0.05D	Vc	80	95	125	150	210	205	210	245	245	250	245	250	
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051	
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631	
					FEED	102	202	199	573	668	653	702	811	754	736	671	676	
	8-9	Low alloy steel	1.0D	0.05D	Vc	80	95	125	150	210	205	210	245	245	250	245	250	
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051	
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631	
					FEED	102	202	199	573	668	653	702	811	754	736	671	676	
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	80	95	125	150	210	205	210	245	245	250	245	250	
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051	
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631	
					FEED	102	202	199	573	668	653	702	811	754	736	671	676	
11.2	High alloyed steel, and tool steel	1.0D	0.05D	Vc	70	85	100	120	165	165	165	195	195	195	195	200		
				fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051		
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305		
				FEED	89	180	159	458	525	560	551	646	621	574	546	541		
H	38.1	Hardened steel	1.0D	0.05D	Vc	70	85	100	120	165	165	165	195	195	195	195	200	
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051	
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305	
					FEED	89	180	159	458	525	560	551	646	621	574	546	541	
	38.2	Hardened steel	1.0D	0.05D	Vc	65	75	75	80	110	110	110	130	130	130	130	130	
					fz	0.001	0.001	0.002	0.006	0.01	0.015	0.02	0.024	0.028	0.034	0.04	0.047	
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448	
					FEED	83	80	119	306	350	350	350	397	386	352	331	324	
	39.1	Hardened steel	1.0D	0.05D	Vc	50	55	65	65	90	90	90	100	100	100	100	100	
					fz	0.001	0.001	0.001	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	
					RPM	31831	29178	25863	20690	14324	9549	7162	6366	5305	3979	3183	2653	
					FEED	64	58	52	166	201	210	215	229	223	207	191	191	
39.2	Hardened steel	1.0D	0.05D	Vc	40	45	50	50	70	70	70	80	80	80	80	80		
				fz	0.001	0.001	0.001	0.003	0.006	0.009	0.012	0.014	0.017	0.02	0.024	0.029		
				RPM	25465	23873	19894	15915	11141	7427	5570	5093	4244	3183	2546	2122		
				FEED	51	48	40	95	134	134	134	143	144	127	122	123		
39.3	Hardened steel	1.0D	0.02D	Vc	30	40	40	40	60	60	60	70	70	70	70	70		
				fz	0.001	0.001	0.001	0.003	0.005	0.007	0.01	0.012	0.014	0.017	0.021	0.024		
				RPM	19099	21221	15915	12732	9549	6366	4775	4456	3714	2785	2228	1857		
				FEED	19	25	29	71	90	89	96	105	100	95	91	90		
40	Chilled Cast Iron	1.0D	0.05D	Vc	70	85	100	120	165	165	165	195	195	195	195	200		
				fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051		
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305		
				FEED	89	180	159	458	525	560	551	646	621	574	546	541		
41	Hardened Cast Iron	1.0D	0.05D	Vc	65	75	75	80	110	110	110	130	130	130	130	130		
				fz	0.001	0.001	0.002	0.006	0.01	0.015	0.02	0.024	0.028	0.034	0.04	0.047		
				RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448		
				FEED	83	80	119	306	350	350	350	397	386	352	331	324		



**G8A60 SERIES 2 FLUTE CORNER RADIUS - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

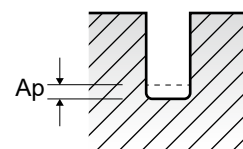
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
P	5	Non-alloy steel	0.03D	1.0D	Vc	80	95	125	150	210	205	210	245	245	250	245	250	
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072	
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631	
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955	
	8-9	Low alloy steel	0.03D	1.0D	Vc	80	95	125	150	210	205	210	245	245	250	245	250	
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072	
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631	
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955	
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	80	95	125	150	210	205	210	245	245	250	245	250	
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072	
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631	
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955	
11.2	High alloyed steel, and tool steel	0.03D	1.0D	Vc	70	85	100	120	165	165	165	195	195	195	195	200		
				fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074		
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305		
				FEED	178	180	239	688	788	770	788	919	890	822	782	785		
H	38.1	Hardened steel	0.03D	1.0D	Vc	70	85	100	120	165	165	165	195	195	195	195	200	
					fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074	
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305	
					FEED	178	180	239	688	788	770	788	919	890	822	782	785	
	38.2	Hardened steel	0.03D	1.0D	Vc	65	75	75	80	110	110	110	130	130	130	130	130	
					fz	0.002	0.002	0.003	0.008	0.014	0.021	0.028	0.034	0.04	0.049	0.058	0.067	
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448	
					FEED	166	159	179	407	490	490	490	563	552	507	480	462	
	39.1	Hardened steel	0.03D	1.0D	Vc	50	55	65	65	90	90	90	100	100	100	100	100	
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.043	0.051	
					RPM	31831	29178	25863	20690	14324	9549	7162	6366	5305	3979	3183	2653	
					FEED	64	117	103	248	286	306	301	331	318	294	274	271	
39.2	Hardened steel	0.03D	1.0D	Vc	40	45	50	50	70	70	70	80	80	80	80	80		
				fz	0.001	0.001	0.002	0.005	0.008	0.012	0.017	0.02	0.024	0.029	0.035	0.042		
				RPM	25465	23873	19894	15915	11141	7427	5570	5093	4244	3183	2546	2122		
				FEED	51	48	40	95	134	134	134	143	144	127	122	123		
39.3	Hardened steel	0.03D	1.0D	Vc	30	40	40	40	60	60	60	70	70	70	70	70		
				fz	0.001	0.001	0.001	0.004	0.007	0.01	0.012	0.014	0.017	0.021	0.024	0.029		
				RPM	19099	21221	15915	12732	9549	6366	4775	4456	3714	2785	2228	1857		
				FEED	38	42	32	102	134	127	134	152	149	134	129	126		
40	Chilled Cast Iron	0.03D	1.0D	Vc	70	85	100	120	165	165	165	195	195	195	195	200		
				fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074		
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305		
				FEED	178	180	239	688	788	770	788	919	890	822	782	785		
41	Hardened Cast Iron	0.03D	1.0D	Vc	65	75	75	80	110	110								



**G8A52 SERIES 2 FLUTE CORNER RADIUS FOR RIB PROCESSING - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)						
				0.5	0.6	0.8	1.0	1.2	1.5	2.0
P	5	Non-alloy steel	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66
			fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045
			RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550
			FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
	8-9	Low alloy steel	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66
			fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045
			RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550
			FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
11.1 - 11.2	High alloyed steel, and tool steel	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66	
		fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045	
		RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550	
		FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570	
		Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400	
		Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400	
H	38.1 - 38.2	Hardened steel	Vc	37~41	38~41	38~42	33~36	34~38	33~38	38~42
			fz	0.005~0.007	0.004~0.007	0.006~0.010	0.008~0.013	0.009~0.015	0.011~0.020	0.015~0.025
			RPM	23750~26000	19900~22000	15200~16700	10500~11500	9100~10000	7000~8000	6100~6700
			FEED	285~315	190~290	210~310	190~280	180~280	180~280	200~300
			Ap	0.0040~0.0250	0.0450~0.0210	0.0060~0.0280	0.0075~0.0200	0.0150~0.0420	0.0115~0.0550	0.0150~0.1000
			Ap	0.0040~0.0250	0.0450~0.0210	0.0060~0.0280	0.0075~0.0200	0.0150~0.0420	0.0115~0.0550	0.0150~0.1000
	39.1 - 39.3	Hardened steel	Vc	22~28	22~29	23~29	20~25	20~26	20~26	23~30
			fz	0.016~0.014	0.017~0.015	0.024~0.021	0.032~0.029	0.037~0.033	0.047~0.042	0.056~0.051
			RPM	14200~18000	11900~15500	9000~11700	6300~8050	5400~7000	4300~5500	3600~4700
			FEED	115~130	100~120	110~125	100~115	100~115	100~115	100~120
			Ap	0.016~0.014	0.017~0.015	0.024~0.021	0.032~0.029	0.037~0.033	0.047~0.042	0.056~0.051
			Ap	0.016~0.014	0.017~0.015	0.024~0.021	0.032~0.029	0.037~0.033	0.047~0.042	0.056~0.051
40	Chilled Cast Iron	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66	
		fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045	
		RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550	
		FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570	
		Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400	
		Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400	
41	Hardened Cast Iron	Vc	37~41	38~41	38~42	33~36	34~38	33~38	38~42	
		fz	0.005~0.007	0.004~0.007	0.006~0.010	0.008~0.013	0.009~0.015	0.011~0.020	0.015~0.025	
		RPM	23750~26000	19900~22000	15200~16700	10500~11500	9100~10000	7000~8000	6100~6700	
		FEED	285~315	190~290	210~310	190~280	180~280	180~280	200~300	
		Ap	0.0040~0.0250	0.0450~0.0210	0.0060~0.0280	0.0075~0.0200	0.0150~0.0420	0.0115~0.0550	0.0150~0.1000	
		Ap	0.0040~0.0250	0.0450~0.0210	0.0060~0.0280	0.0075~0.0200	0.0150~0.0420	0.0115~0.0550	0.0150~0.1000	



**G8A50 SERIES 2 FLUTE CORNER RADIUS FOR RIB PROCESSING - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

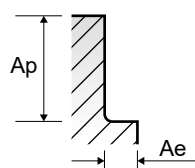
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	2.0	
P	5	Non-alloy steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210	
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013	
					RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423	
					FEED	191	207	407	504	597	764	764	817	869	
					Vc	45	65	80	95	125	150	160	175	210	
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013	
	8-9	Low alloy steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210	
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013	
					RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423	
					FEED	191	207	407	504	597	764	764	817	869	
					Vc	45	65	80	95	125	150	160	175	210	
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013	
11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210		
				fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013		
				RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423		
				FEED	191	207	407	504	597	764	764	817	869		
				Vc	45	65	80	95	125	150	160	175	210		
				fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013		
11.2	High alloyed steel, and tool steel	1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165		
				fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013		
				RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261		
				FEED	170	175	267	361	477	611	621	677	683		
				Vc	40	55	70	85	100	120	130	145	165		
				fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013		
H	38.1	Hardened steel	1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165	
					fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013	
					RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261	
					FEED	170	175	267	361	477	611	621	677	683	
					Vc	40	55	70	85	100	120	130	145	165	
					fz	0.001	0.002	0.003	0.004	0.005	0.007	0.008	0.01	0.012	
	38.2	Hardened steel	1.0D	0.05D	Vc	40	50	65	75	75	80	85	100	110	
					fz	0.001	0.002	0.003	0.004	0.005	0.007	0.008	0.01	0.012	
					RPM	42441	39789	41380	39789	29842	25465	22547	21221	17507	
					FEED	85	159	248	318	298	357	361	424	420	
					Vc	30	40	50	55	65	75	80	90		
					fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.009	
39.1	Hardened steel	1.0D	0.02D	Vc	30	40	50	55	65	75	80	90			
				fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.009		
				RPM	31831	31831	31831	29178	25863	20690	19894	16977	14324		
				FEED	64	64	127	175	207	207	239	238	258		
				Vc	25	30	40	45	50	50	55	60	70		
				fz	0.001	0.001	0.002	0.002	0.003	0.004	0.005	0.006	0.007		
39.2	Hardened steel	1.0D	0.02D	Vc	25	30	40	45	50	50	55	60	70		
				fz	0.001	0.001	0.002	0.002	0.003	0.004	0.005	0.006	0.007		
				RPM	26526	23873	25465	23873	19894	15915	14589	12732	11141		
				FEED	53	48	102	95	119	127	146	153	156		
				Vc	40	55	70	85	100	120	130	145	165		
				fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013		
40	Chilled Cast Iron	1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165		
				fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013		
				RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261		
				FEED	170	175	267	361	477	611	621	677	683		
				Vc	40	55	70	85	100	120	130	145	165		
				fz											

**G8A47, G8B08 SERIES**

**4 FLUTE CORNER RADIUS - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																																																							
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0																																													
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045									
					8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045					
									11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045	
													11.2	High alloyed steel, and tool steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063	RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	917	1050	980	1050	1192	1117	1086	1018
	H	38.1	Hardened steel	0.03D													1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063	RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	917	1050	980	1050	1192	1117	1086
					38.2	Hardened steel	0.03D	1.0D										Vc	80	110	110	110	130	130	130	130	130	130	130	fz	0.006	0.01	0.015	0.02	0.024	0.028	0.035	0.041	0.048	0.056	0.063	RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	FEED	611	700	700	700	794	772	724
									39.1	Hardened steel	0.03D	1.0D						Vc	65	90	90	90	100	100	100	100	100	100	100	fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048	RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592	FEED	331	401	420	430	458	446	414
													39.2	Hardened steel	0.03D	1.0D		Vc	50	70	70	70	80	80	80	80	80	80	80	fz	0.003	0.006	0.009	0.012	0.015	0.017	0.021	0.024	0.029	0.034	0.038	RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	191	267	267	267	306	289	267
		39.3	Hardened steel	0.03D													1.0D	Vc	40	60	60	60	70	70	70	70	70	70	70	fz	0.003	0.005	0.007	0.01	0.012	0.014	0.017	0.02	0.024	0.029	0.033	RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	153	191	178	191	214	208	189
					40	Chilled Cast Iron	0.03D	1.0D										Vc	120	165	165	165	195	195	195	195	200	195	195	fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063	RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	917	1050	980	1050	1192	1117	1086
									41	Hardened Cast Iron	0.03D	1.0D						Vc	80	110	110	110	130	130	130	130	130	130	130	fz	0.006	0.01	0.015	0.02	0.024	0.028	0.035	0.041	0.048	0.056	0.063	RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	FEED	611	700	700	700	794	772	724



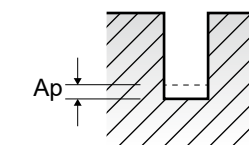
**G8A45 SERIES**

**2 FLUTE for RIB PROCESSING - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)																														
				0.2	0.3	0.4	0.5	0.6	0.8																									
P	5	Non-alloy steel	Vc	31	41~47	39~63	40~52	39~66	41~66	fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011	RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400	FEED	300~350	330~420	350~590	370~470	330~560	360~590				
			8-9	Low alloy steel	Vc	31	41~47	39~63	40~52	39~66	41~66	fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011	RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400	FEED	300~350	330~420	350~590	370~470	330~560	360~590		
					11.1 - 11.2	High alloyed steel, and tool steel	Vc	31	41~47	39~63	40~52	39~66	41~66	fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011	RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400	FEED	300~350	330~420	350~590	370~470	330~560	360~590
							38.1 - 38.2	Hardened steel	Vc	31	38~44	38~44	37~41	38~41	38~42	fz	0.003~0.003	0.003~0.003	0.005~0.005	0.006~0.006	0.007~0.007	0.009~0.009	RPM	50000	39900~46200	30500~35200	23750~26000	19900~22000	15200~16700	FEED	265~310	265~310	295~340	285~315
	39.1 - 39.2	Hardened steel							Vc	31	23~30	23~31	22~28	22~29	23~29	fz	0.002~0.003	0.002~0.003	0.003~0.004	0.004~0.004	0.004~0.004	0.006~0.005	RPM	50000	23900~32300	18300~24600	14200~18000	11900~15500	9000~11700	FEED	225~265	105~185	120~200	115~130
			40	Chilled Cast Iron					Vc	31	41~47	39~63	40~52	39~66	41~66	fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011	RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400	FEED	300~350	330~420	350~590	370~470
					41	Hardened Cast Iron			Vc	31	38~44	38~44	37~41	38~41	38~42	fz	0.003~0.003	0.003~0.003	0.005~0.005	0.006~0.006	0.007~0.007	0.009~0.009	RPM	50000	39900~46200	30500~35200	23750~26000	19900~22000	15200~16700	FEED	265~310	265~310	295~340	285~315

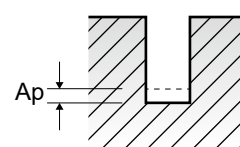
▶ NEXT PAGE



**G8A45 SERIES 2 FLUTE for RIB PROCESSING - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)					
				1.0	1.2	1.5	2.0	3.0	4.0
P	5	Non-alloy steel	Vc	39~59	39~66	43~83	40~66	41~66	40~67
			fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064
			RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300
			FEED	350~540	350~590	430~830	340~570	550~900	400~675
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
	8-9	Low alloy steel	Vc	39~59	39~66	43~83	40~66	41~66	40~67
			fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064
			RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300
			FEED	350~540	350~590	430~830	340~570	550~900	400~675
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
11.1 - 11.2	High alloyed steel, and tool steel	Vc	39~59	39~66	43~83	40~66	41~66	40~67	
		fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064	
		RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300	
		FEED	350~540	350~590	430~830	340~570	550~900	400~675	
		Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280	
		Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280	
H	38.1 - 38.2	Hardened steel	Vc	33~36	34~38	33~38	38~42	38~43	38~43
			fz	0.012~0.012	0.014~0.014	0.018~0.018	0.022~0.022	0.056~0.056	0.056~0.056
			RPM	10500~11500	9100~10000	7000~8000	6100~6700	3990~4600	3000~3400
			FEED	250~280	250~280	250~280	270~300	445~515	335~380
			Ap	0.008~0.020	0.015~0.042	0.012~0.055	0.015~0.100	0.040~0.150	0.053~0.200
			Ap	0.008~0.020	0.015~0.042	0.012~0.055	0.015~0.100	0.040~0.150	0.053~0.200
	39.1 - 39.2	Hardened steel	Vc	20~25	20~26	20~26	23~30	23~30	23~30
			fz	0.008~0.007	0.009~0.008	0.012~0.01	0.014~0.013	0.022~0.048	0.021~0.048
			RPM	6300~8050	5400~7000	4300~5500	3600~4700	2400~3200	1800~2400
			FEED	100~115	100~115	100~115	100~120	105~310	75~230
			Ap	0.005~0.012	0.009~0.026	0.007~0.033	0.009~0.060	0.024~0.090	0.032~0.120
			Ap	0.005~0.012	0.009~0.026	0.007~0.033	0.009~0.060	0.024~0.090	0.032~0.120
40	Chilled Cast Iron	Vc	39~59	39~66	43~83	40~66	41~66	40~67	
		fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064	
		RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300	
		FEED	350~540	350~590	430~830	340~570	550~900	400~675	
		Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280	
		Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280	
41	Hardened Cast Iron	Vc	33~36	34~38	33~38	38~42	38~43	38~43	
		fz	0.012~0.012	0.014~0.014	0.018~0.018	0.022~0.022	0.056~0.056	0.056~0.056	
		RPM	10500~11500	9100~10000	7000~8000	6100~6700	3990~4600	3000~3400	
		FEED	250~280	250~280	250~280	270~300	445~515	335~380	
		Ap	0.008~0.020	0.015~0.042	0.012~0.055	0.015~0.100	0.040~0.150	0.053~0.200	
		Ap	0.008~0.020	0.015~0.042	0.012~0.055	0.015~0.100	0.040~0.150	0.053~0.200	



**G8A01, G8A36 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.0	2.0	
P	5	Non-alloy steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210	
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013	
					RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423	
					FEED	95	191	207	407	504	597	693	955	869	
					Vc	30	45	65	80	95	125	140	150	210	
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013	
	8-9	Low alloy steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210	
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013	
					RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423	
					FEED	95	191	207	407	504	597	693	955	869	
					Vc	30	45	65	80	95	125	140	150	210	
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013	
11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210		
				fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013		
				RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423		
				FEED	95	191	207	407	504	597	693	955	869		
				Vc	30	45	65	80	95	125	140	150	210		
				fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013		
11.2	High alloyed steel, and tool steel	1.0D	0.05D	Vc	30	40	55	70	85	100	110	120	165		
				fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013		
				RPM	47746	42441	43768	44563	45094	39789	38905	38197	26261		
				FEED	95	170	175	267	361	477	545	611	683		
				Vc	30	40	55	70	85	100	110	120	165		
				fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013		
H	38.1	Hardened steel	1.0D	0.05D	Vc	30	40	55	70	85	100	110	120	165	
					fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013	
					RPM	47746	42441	43768	44563	45094	39789	38905	38197	26261	
					FEED	95	170	175	267	361	477	545	611	683	
					Vc	25	40	50	65	75	80	80	80	110	
					fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.012	
	38.2	Hardened steel	1.0D	0.05D	Vc	25	40	50	65	75	80	80	80	110	
					fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.012	
					RPM	39789	42441	39789	41380	39789	29842	28294	25465	17507	
					FEED	80	85	159	248	318	298	340	357	420	
					Vc	20	30	40	50	55	65	65	65	90	
					fz	0.001	0.001	0.001	0.002	0.003	0.004	0.005	0.005	0.009	
39.1	Hardened steel	1.0D	0.05D	Vc	20	30	40	50	55	65	65	65	90		
				fz	0.001	0.001	0.001	0.002	0.003	0.004	0.005	0.005	0.009		
				RPM	31831	31831	31831	31831	29178	25863	22989	20690	14324		
				FEED	64	64	64	127	175	207	230	207	258		
				Vc	20	25	30	40	45	50	50	50	70		
				fz	0.001	0.001	0.001	0.002	0.002	0.003	0.004	0.004	0.007		
39.2	Hardened steel	1.0D	0.05D	Vc	20	25	30	40	45	50	50	50	70		
				fz	0.001	0.001	0.001	0.002	0.002	0.003	0.004	0.004	0.007		
				RPM	31831	26526	23873	25465	23873	19894	17684	15915	11141		
				FEED	64	53	48	102	95	119	141	127	156		
				Vc	15	20	25	30	40	40	40	40	60		
				fz	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.006		
39.3	Hardened steel	1.0D	0.02D	Vc	23873	21221	19894	19099	21221	15915	14147	12732	9549		
				fz	29	38	40	57	81	83	91	87	116		
				RPM	29	38	40	57	81	83	91	87	116		
				FEED	29	38	40	57	81	83	91	87	116		
				Vc	30	40	55	70	85	100	110	120	165		
				fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013		
40	Chilled Cast Iron	1.0D	0.05D	Vc	47746	42441	43768	44563	45094	39789	38905	38197	26261		
				fz	95	170	175	267	361	477	545	611	683		
				RPM	95	170	175	267	361	477	545	611	683		
				FEED	95	170	175	267	361	477	545	611	683		
				Vc	25	40	50	65	75	80	80	80	110		
				fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.012		
41	Hardened Cast Iron	1.0D	0.05D	Vc	39789	42441	39789	41380	39789	29842	28294	25465	17507		



**G8A01, G8A36 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																																						
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0																														
P	5	Non-alloy steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245	fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	827	869	998	936	935	842	849	721	663
					Vc	205	210	245	245	250	245	250	245	245	fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	827	869	998	936	935	842	849	721	663
					Vc	205	210	245	245	250	245	250	245	245	fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	827	869	998	936	935	842	849	721	663
					Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528
	8-9	Low alloy steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245	fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	827	869	998	936	935	842	849	721	663
					Vc	205	210	245	245	250	245	250	245	245	fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	827	869	998	936	935	842	849	721	663
					Vc	205	210	245	245	250	245	250	245	245	fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	827	869	998	936	935	842	849	721	663
					Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528
					Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528
					Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528
					Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528
11.2	High alloyed steel, and tool steel	1.0D	0.05D	Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528	
				Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528	
				Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528	
				Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528	
H	38.1		1.0D	0.05D	Vc	165	165	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528	
					Vc	110	110	130	130	130	130	130	130	130	fz	0.018	0.025	0.03	0.035	0.043	0.051	0.059	0.07	0.082	RPM	11671	8754	8276	6897	5173	4138	3448	2586	2069	FEED	420	438	497	483	445	422	407	362	339
					Vc	90	90	100	100	100	100	100	100	100	fz	0.014	0.019	0.022	0.026	0.032	0.038	0.045	0.053	0.061	RPM	9549	7162	6366	5305	3979	3183	2653	1989	1592	FEED	267	272	280	276	255	242	239	211	194
					Vc	70	70	80	80	80	80	80	80	80	fz	0.011	0.015	0.018	0.021	0.026	0.03	0.037	0.042	0.048	RPM	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	163	167	183	178	166	153	157	134	122
	38.2		1.0D	0.05D	Vc	90	90	100	100	100	100	100	100	100	fz	0.014	0.019	0.022	0.026	0.032	0.038	0.045	0.053	0.061	RPM	9549	7162	6366	5305	3979	3183	2653	1989	1592	FEED	267	272	280	276	255	242	239	211	194
					Vc	70	70	80	80	80	80	80	80	80	fz	0.011	0.015	0.018	0.021	0.026	0.03	0.037	0.042	0.048	RPM	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	163	167	183	178	166	153	157	134	122
					Vc	60	60	70	70	70	70	70	70	70	fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039	RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	115	118	132	131	119	114	112	94	86
					Vc	165	165	195	195	195	195	200	195	195	fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	700	709	794	766	714	683	690	574	528
	39.1	Hardened steel	1.0D	0.05D	Vc	110	110	130	130	130	130	130	130	130	fz	0.018	0.025	0.03	0.035	0.043	0.051	0.059	0.07	0.082	RPM	11671	8754	8276	6897	5173	4138	3448	2586	2069	FEED	420	438	497	483	445	422	407	362	339
					Vc	90	90	100	100	100	100	100	100	100	fz	0.014	0.019	0.022	0.026	0.032	0.038	0.045	0.053	0.061	RPM	9549	7162	6366	5305	3979	3183	2653	1989	1592	FEED	267	272	280	276	255	242	239	211	194
					Vc	70	70	80	80	80	80	80	80	80	fz	0.011	0.015	0.018	0.021	0.026	0.03	0.037	0.042	0.048	RPM	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	163	167	183	178	166	153	157	134	122
					Vc	60	60	70	70	70	70	70	70	70	fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039	RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	115	118	132	131	119	114	112	94	86
39.2	Hardened steel	1.0D	0.05D	Vc	60	60	70	70	70	70	70	70	70	fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039	RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	115	118	132	131	119	114	112	94	86	
				Vc	60	60	70	70	70	70	70	70	70	fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039	RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	115	118	132	131	119	114	112	94	86	
				Vc	60	60	70	70	70	70	70	70	70	fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039	RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	115	118	132	131	119	114	112	94	86	
				Vc	60	60	70	70	70	70	70	70	70	fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039	RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	115	118	132	131	119	114	112	94	86	
39.3		1.0D	0.02D	Vc	120	165	165	165	165	195	19																																	

**G8A02, G8A37 SERIES**

**4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

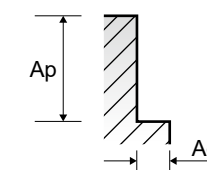
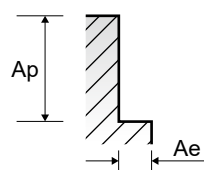
**G8A39 SERIES**

**6 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	
					FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294	
	8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	
					FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294	
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	
					FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294	
11.2	High alloyed steel, and tool steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195		
				fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078		
				RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104		
				FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968		
H	38.1	Hardened steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078	
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	
					FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968	
	38.2	Hardened steel	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130	
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.07	0.079	
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	
					FEED	713	840	840	875	993	938	890	844	828	724	654	
	39.1	Hardened steel	0.03D	1.0D	Vc	65	90	90	90	100	100	100	100	100	100	100	
					fz	0.005	0.009	0.014	0.019	0.023	0.026	0.033	0.038	0.045	0.053	0.059	
					RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592	
					FEED	414	516	535	544	586	552	525	484	478	422	376	
39.2	Hardened steel	0.03D	1.0D	Vc	50	70	70	70	80	80	80	80	80	80	80		
				fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048		
				RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273		
				FEED	255	312	327	334	367	356	331	306	306	267	244		
39.3	Hardened steel	0.03D	1.0D	Vc	40	60	60	60	70	70	70	70	70	70	70		
				fz	0.004	0.007	0.009	0.013	0.016	0.018	0.022	0.025	0.03	0.036	0.041		
				RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114		
				FEED	204	267	229	248	285	267	245	223	223	201	183		
40	Chilled Cast Iron	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195		
				fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078		
				RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104		
				FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968		
41	Hardened Cast Iron	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130		
				fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.07	0.079		
				RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069		
				FEED	713	840	840	875	993	938	890	844	828	724	654		

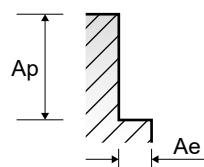
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
					FEED	1490	1502	1456	1359	1300	913
	8-9	Low alloy steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
					FEED	1490	1502	1456	1359	1300	913
	11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
					FEED	1490	1502	1456	1359	1300	913
11.2	High alloyed steel, and tool steel	0.05D	1.0D	Vc	106	108	106	106	108	110	
				fz	0.036	0.049	0.058	0.065	0.083	0.095	
				RPM	5623	4297	3374	2812	2149	1751	
				FEED	1215	1263	1174	1097	1070	998	
H	38.1	Hardened steel	0.05D	1.0D	Vc	106	108	106	106	108	110
					fz	0.036	0.049	0.058	0.065	0.083	0.095
					RPM	5623	4297	3374	2812	2149	1751
					FEED	1215	1263	1174	1097	1070	998
	38.2	Hardened steel	0.05D	1.0D	Vc	95	97	94	95	97	98
					fz	0.035	0.046	0.055	0.062	0.079	0.091
					RPM	5040	3860	2992	2520	1930	1560
					FEED	1058	1065	987	937	915	852
	39.1	Hardened steel	0.03D	1.0D	Vc	83	83	82	83	83	87
					fz	0.033	0.044	0.053	0.059	0.076	0.072
					RPM	4403	3302	2610	2202	1651	1385
					FEED	872	872	830	780	753	598
39.2	Hardened steel	0.03D	1.0D	Vc	72	72	72	72	72	75	
				fz	0.031	0.042	0.05	0.056	0.072	0.069	
				RPM	3820	2865	2292	1910	1432	1194	
				FEED	711	722	688	642	619	494	
39.3	Hardened steel	0.03D	1.0D	Vc	48	48	49	50	48	45	
				fz	0.028	0.037	0.045	0.05	0.064	0.071	
				RPM	2546	1910	1560	1326	955	716	
				FEED	428	424	421	398	367	305	
40	Chilled Cast Iron	0.05D	1.0D	Vc	106	108	106	106	108	110	
				fz	0.036	0.049	0.058	0.065	0.083	0.095	
				RPM	5623	4297	3374	2812	2149	1751	
				FEED	1215	1263	1174	1097	1070	998	
41	Hardened Cast Iron	0.05D	1.0D	Vc	95	97	94	95	97	98	
				fz	0.035	0.046	0.055	0.062	0.079	0.091	
				RPM	5040	3860	2992	2520	1930	1560	
				FEED	1058	1065	987	937	915	852	



**G8D63 SERIES 6&8 FLUTE LONG LENGTH - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

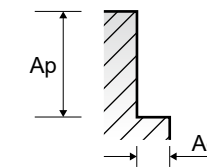
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	5	Non-alloy steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401
	8-9	Low alloy steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401
	11.1	High alloyed steel, and tool steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401
11.2	High alloyed steel, and tool steel	0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95	
				fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096	
				RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210	
				FEED	1058	1043	998	937	907	896	1075	1159	929	
H	38.1 - 38.2	Hardened steel	0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95
					fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096
					RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210
					FEED	1058	1043	998	937	907	896	1075	1159	929
	39.1 - 39.2	Hardened steel	0.04D	1.5D	Vc	70	70	70	70	70	70	70	75	75
					fz	0.031	0.042	0.05	0.056	0.066	0.072	0.073	0.069	0.087
					RPM	3714	2785	2228	1857	1592	1393	1238	1194	955
					FEED	691	702	668	624	630	602	723	659	665
	39.3	Chilled Cast Iron	0.04D	1.5D	Vc	50	50	50	50	45	50	50	45	50
					fz	0.028	0.037	0.045	0.05	0.051	0.064	0.066	0.071	0.079
					RPM	2653	1989	1592	1326	1023	995	884	716	637
					FEED	446	442	430	398	313	382	467	407	403
40	Chilled Cast Iron	0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95	
				fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096	
				RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210	
				FEED	1058	1043	998	937	907	896	1075	1159	929	
41	Hardened Cast Iron	0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95	
				fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096	
				RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210	
				FEED	1058	1043	998	937	907	896	1075	1159	929	



**G8D64 SERIES 6&8 FLUTE EXTRA LONG LENGTH - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	5	Non-alloy steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	764	716	688	669	614	580	721	657	544
	8-9	Low alloy steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	764	716	688	669	614	580	721	657	544
	11.1	High alloyed steel, and tool steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	764	716	688	669	614	580	721	657	544
11.2	High alloyed steel, and tool steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60	
				fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08	
				RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
				FEED	573	573	573	583	540	509	679	688	489	
H	38.1 - 38.2	Hardened steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	573	573	573	583	540	509	679	688	489
	39.1 - 39.2	Hardened steel	0.01D	3.0D	Vc	50	50	50	50	50	50	50	50	50
					fz	0.03	0.04	0.05	0.06	0.066	0.071	0.081	0.091	0.081
					RPM	2653	1989	1592	1326	1137	995	884	796	637
					FEED	478	477	478	477	450	424	573	579	413
	40	Chilled Cast Iron	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	573	573	573	583	540	509	679	688	489
41	Hardened Cast Iron	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60	
				fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08	
				RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
				FEED	573	573	573	583	540	509	679	688	489	







Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation

**SOLID CARBIDE**

# 4G Mill END MILLS

## 4G Mill VHM - FRÄSER

- High Speed Cutting for Pre-Hardened Steels up to HRc55
- Hochgeschwindigkeitsbearbeitung für vorvergehärtete Stähle bis HRc55







SELECTION GUIDE



SERIES	G9D75 G9D67	G9D76 G9D68	G9D77 G9D69
FLUTE	4&5	4&5	4&5
HELIX ANGLE	44°~45° (MULTIPLE HELIX)	44°~45° (MULTIPLE HELIX)	44°~45° (MULTIPLE HELIX)
CUTTING EDGE SHAPE	CORNER RADIUS ROUGHING	CORNER RADIUS ROUGHING	CORNER RADIUS ROUGHING
SIZE MIN	D6.0	D6.0	D6.0
SIZE MAX	D20.0	D20.0	D20.0
PAGE	C257	C258	C259

SOLID CARBIDE  
**4G Mill**  
END MILLS

X-SPEED ROUGHER

High Speed Cutting  
for Pre-Hardened Steels up to HRc55

SHORT LENGTH	LONG LENGTH	LONG LENGTH
X-Coating	X-Coating	X-Coating



Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C260

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	G9D75 G9D67	G9D76 G9D68	G9D77 G9D69
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○
	2		About 0.45% C Annealed	190	13	○	○	○
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel	Annealed	180	10	○	○	○
	7		Quenched & Tempered	275	29	◎	◎	◎
	8		Quenched & Tempered	300	32	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○
	11	Quenched & Tempered	325	35	◎	◎	◎	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○
	13		Martensitic Quenched & Tempered	240	23	○	○	○
	14		Austenitic	180	10	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎
	16		Pearlitic (Martensitic)	260	26	◎	◎	◎
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎
	18		Pearlitic	250	25	◎	◎	◎
	19		Ferritic	130		◎	◎	◎
20	Malleable cast iron	Pearlitic	230	21	◎	◎	◎	
N	21	Aluminum-wrought alloy	Not Curable	60				
	22		Curable Hardened	100				
	23		≤ 12% Si, Not Curable	75				
	24	Aluminum-cast, alloyed	≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
30	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Cured	350	38			
	35	Cast	320	34				
	36	Titanium Alloys	Pure Titanium	400 Rm				
37	Alpha + Beta Alloys Hardened		1050 Rm					
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40	Hardened Cast Iron	Cast	400	42			
	41		Hardened	550	55			

X-SPEED ROUGHER

CHARACTERISTICS

Unique flute design for excellent chip evacuation and vibration reduction.  
Optimal roughing tooth profile to reduce cutting forces.  
Special tool geometry for high feed rate and heavy cutting.  
Strong end tooth design for plunge and pocket milling.  
Custom engineered coating to allow long tool life and excellent chip evacuation.

▶ 4 FLUTE

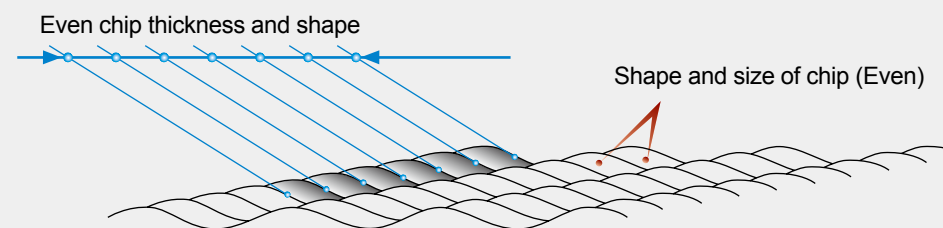


▶ 5 FLUTE

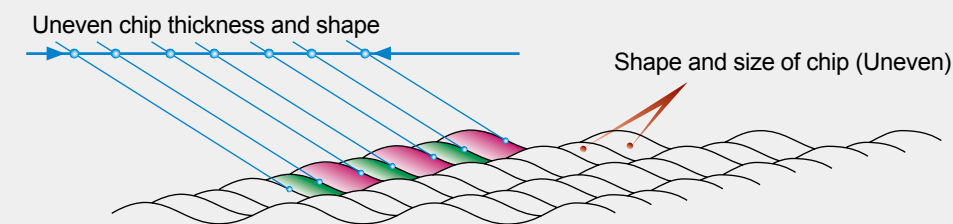


CHIP THICKNESS AND SHAPE

▶ Conventional Roughing End Mills



▶ X-SPEED Rougher

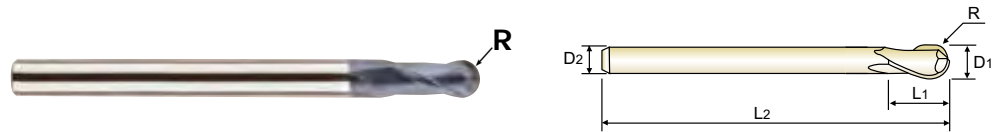


**CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- Fraise carbure, 2 dents, hémisphérique
- MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.  
 ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° R ±0.005 R ±0.010 PLAIN Coating Y p.C260-261

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R325-R125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEMD98001SE	R0.05	0.1	4	0.1	40	Short
★ SEMD98001E	R0.05	0.1	4	0.2	40	Regular
SEMD980013SE	R0.05	0.1	3	0.2	40	3mm Shank
SEMD980015SE	R0.075	0.15	4	0.15	40	Short
SEMD980015E	R0.075	0.15	4	0.3	40	Regular
SEMD9800153SE	R0.075	0.15	3	0.3	40	3mm Shank
★ SEMD98002SE	R0.1	0.2	4	0.2	40	Short
★ SEMD98002E	R0.1	0.2	4	0.4	40	Regular
SEMD980023SE	R0.1	0.2	3	0.4	40	3mm Shank
★ SEMD98003SE	R0.15	0.3	4	0.3	40	Short
★ SEMD98003E	R0.15	0.3	4	0.6	40	Regular
SEMD980033SE	R0.15	0.3	3	0.6	40	3mm Shank
SEMD98004SE	R0.2	0.4	4	0.4	40	Short
★ SEMD98004E	R0.2	0.4	4	0.8	40	Regular
SEMD980043SE	R0.2	0.4	3	0.8	40	3mm Shank
★ SEMD98005SE	R0.25	0.5	4	0.5	40	Short
SEMD98005S6SE	R0.25	0.5	6	0.8	40	-
★ SEMD98005E	R0.25	0.5	4	1.0	40	Regular
SEMD980053SE	R0.25	0.5	3	1.0	40	3mm Shank
SEMD98006SE	R0.3	0.6	4	0.6	40	Short
★ SEMD98006E	R0.3	0.6	4	1.2	40	Regular
SEMD980063SE	R0.3	0.6	3	1.2	40	3mm Shank
SEMD98007SE	R0.35	0.7	4	0.7	40	Short
★ SEMD98007E	R0.35	0.7	4	1.4	40	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRC											15	30	25	38	34	55	60	42	55				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

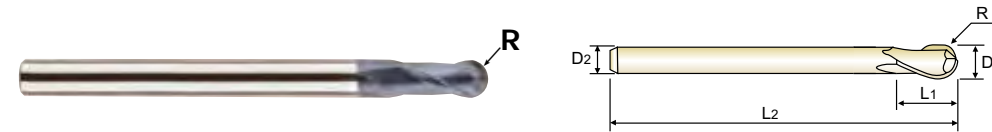


**CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)**

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 ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.  
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CARBIDE 2 30° R ±0.005 R ±0.010 PLAIN Coating Y p.C260-261

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R325-R125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEMD980073SE	R0.35	0.7	3	1.4	40	3mm Shank
SEMD98008SE	R0.4	0.8	4	0.8	40	Short
★ SEMD98008E	R0.4	0.8	4	1.6	40	Regular
SEMD980083SE	R0.4	0.8	3	1.6	40	3mm Shank
SEMD98009SE	R0.45	0.9	4	0.9	40	Short
★ SEMD98009E	R0.45	0.9	4	1.8	40	Regular
SEMD980093SE	R0.45	0.9	3	1.8	40	3mm Shank
SEMD98010040E	R0.5	1.0	6	1.5	40	Short
SEMD980103SE	R0.5	1.0	3	2.5	50	3mm Shank
SEMD98010S4SE	R0.5	1.0	4	1.5	40	-
★ SEMD980104SE	R0.5	1.0	4	2.5	50	Regular
★ SEMD98010E	R0.5	1.0	6	2.5	50	Regular
★ SEMD98010070E	R0.5	1.0	6	2.5	70	Long Shank
SEMD98010100E	R0.5	1.0	6	2.5	100	Long Shank
SEMD98012040E	R0.6	1.2	6	2	40	Short
SEMD980123SE	R0.6	1.2	3	3	50	3mm Shank
SEMD980124SE	R0.6	1.2	4	3	50	Regular
★ SEMD98012E	R0.6	1.2	6	3	50	Regular
SEMD98012070E	R0.6	1.2	6	3	70	Long Shank
SEMD98012100E	R0.6	1.2	6	3	100	Long Shank
SEMD98015040E	R0.75	1.5	6	2.5	40	Short
SEMD980153SE	R0.75	1.5	3	4	50	3mm Shank
★ SEMD980154SE	R0.75	1.5	4	4	50	Regular
★ SEMD98015E	R0.75	1.5	6	4	50	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRC											15	30	25	38	34	55	60	42	55				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	



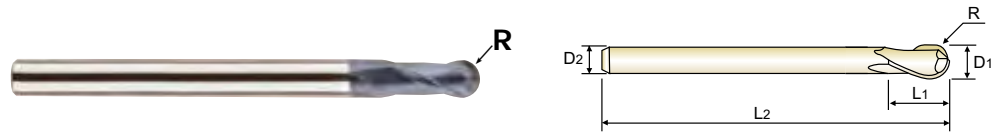
PLAIN SHANK SEMD98 SERIES

**CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- ( ) Fraise carbure, 2 dents, hémisphérique
- ( ) MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C260-261

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R3.25-R125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEMD98015070E	R0.75	1.5	6	4	70	Long Shank
SEMD98015100E	R0.75	1.5	6	4	100	Long Shank
★ SEMD98020040E	R1.0	2.0	6	3	40	Short
SEMD9802035E	R1.0	2.0	3	5	50	3mm Shank
★ SEMD9802045E	R1.0	2.0	4	5	50	Regular
★ SEMD98020E	R1.0	2.0	6	5	50	Regular
★ SEMD98020080E	R1.0	2.0	6	5	80	Long Shank
SEMD98020100E	R1.0	2.0	6	5	100	Long Shank
SEMD98025040E	R1.25	2.5	6	4	40	Short
SEMD9802535E	R1.25	2.5	3	6	60	3mm Shank
★ SEMD9802545E	R1.25	2.5	4	6	60	Regular
★ SEMD98025E	R1.25	2.5	6	6	60	Regular
★ SEMD98025080E	R1.25	2.5	6	6	80	Long Shank
SEMD98025100E	R1.25	2.5	6	6	100	Long Shank
★ SEMD98030040E	R1.5	3.0	6	4.5	40	Short
SEMD9803035E	R1.5	3.0	3	6	60	3mm Shank
★ SEMD9803045E	R1.5	3.0	4	6	60	Regular
★ SEMD98030E	R1.5	3.0	6	6	60	Regular
★ SEMD98030080E	R1.5	3.0	6	6	80	Long Shank
★ SEMD98030100E	R1.5	3.0	6	6	100	Long Shank
★ SEMD98035E	R1.75	3.5	6	8	70	-
★ SEMD98040050E	R2.0	4.0	6	6	50	Short
★ SEMD9804045E	R2.0	4.0	4	8	70	Regular
★ SEMD98040E	R2.0	4.0	6	8	70	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	



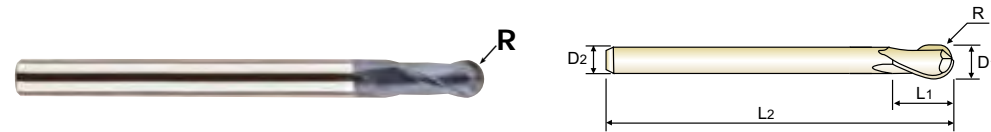
PLAIN SHANK SEMD98 SERIES

**CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- ( ) Fraise carbure, 2 dents, hémisphérique
- ( ) MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C260-261

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R3.25-R125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEMD980401004SE	R2.0	4.0	4	8	100	Long Shank
SEMD980401204SE	R2.0	4.0	4	8	120	Long Shank
★ SEMD98040100E	R2.0	4.0	6	8	100	Long Shank
★ SEMD98040120E	R2.0	4.0	6	8	120	Long Shank
★ SEMD98045E	R2.25	4.5	6	9	80	-
★ SEMD98050060E	R2.5	5.0	6	7.5	60	Short
★ SEMD98050E	R2.5	5.0	6	10	80	Regular
SEMD9805055E	R2.5	5.0	5	10	80	5mm Shank
★ SEMD98055E	R2.75	5.5	6	11	90	-
★ SEMD98060050E	R3.0	6.0	6	9	50	Short
★ SEMD98060060E	R3.0	6.0	6	9	60	Short
★ SEMD98060080E	R3.0	6.0	6	9	80	Short
★ SEMD98060E	R3.0	6.0	6	12	90	Regular
★ SEMD98060110E	R3.0	6.0	6	12	110	Long Shank
★ SEMD98060130E	R3.0	6.0	6	12	130	Long Shank
★ SEMD98060150E	R3.0	6.0	6	12	150	Long Shank
★ SEMD98065E	R3.25	6.5	8	13	90	-
★ SEMD98070E	R3.5	7.0	8	14	90	-
★ SEMD98080050E	R4.0	8.0	8	12	50	Short
★ SEMD98080060E	R4.0	8.0	8	12	60	Short
★ SEMD98080080E	R4.0	8.0	8	12	80	Short
★ SEMD98080090E	R4.0	8.0	8	12	90	Short
★ SEMD98080E	R4.0	8.0	8	14	100	Regular
★ SEMD98080130E	R4.0	8.0	8	14	130	Long Shank

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	





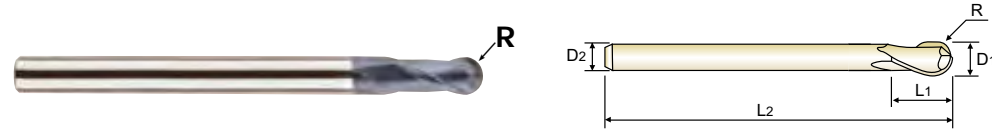
PLAIN SHANK SEMD98 SERIES

**CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- Fraise carbure, 2 dents, hémisphérique
- MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C260-261

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R325-R125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEMD98080150E	R4.0	8.0	8	14	150	Long Shank
★ SEMD98085E	R4.25	8.5	10	16	100	-
★ SEMD98090E	R4.5	9.0	10	18	100	-
SEMD98100050E	R5.0	10.0	10	15	50	Short
★ SEMD98100060E	R5.0	10.0	10	15	60	Short
★ SEMD98100080E	R5.0	10.0	10	15	80	Short
★ SEMD98100090E	R5.0	10.0	10	15	90	Short
★ SEMD98100E	R5.0	10.0	10	18	100	Regular
★ SEMD98100130E	R5.0	10.0	10	18	130	Long Shank
★ SEMD98100150E	R5.0	10.0	10	18	150	Long Shank
★ SEMD98100180E	R5.0	10.0	10	18	180	Long Shank
SEMD98100200E	R5.0	10.0	10	18	200	Long Shank
★ SEMD98110E	R5.5	11.0	12	20	100	-
SEMD98120060E	R6.0	12.0	12	18	60	Short
★ SEMD98120080E	R6.0	12.0	12	18	80	Short
SEMD98120090E	R6.0	12.0	12	18	90	Short
★ SEMD98120100E	R6.0	12.0	12	18	100	Short
★ SEMD98120E	R6.0	12.0	12	22	110	Regular
★ SEMD98120130E	R6.0	12.0	12	22	130	Long Shank
★ SEMD98120150E	R6.0	12.0	12	22	150	Long Shank
★ SEMD98120180E	R6.0	12.0	12	22	180	Long Shank
★ SEMD98120200E	R6.0	12.0	12	22	200	Long Shank
★ SEMD98130E	R6.5	13.0	12	24	100	-
★ SEMD98140E	R7.0	14.0	12	26	100	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○	○	



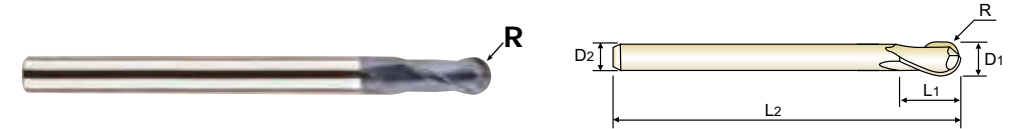
PLAIN SHANK SEMD98 SERIES

**CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- Fraise carbure, 2 dents, hémisphérique
- MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C260-261

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R325-R125

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEMD9814014SE	R7.0	14.0	14	26	100	-
SEMD9814016SE	R7.0	14.0	16	26	100	-
SEMD98150E	R7.5	15.0	16	28	140	-
★ SEMD98160100E	R8.0	16.0	16	24	100	Short
SEMD98160130E	R8.0	16.0	16	24	130	Short
★ SEMD98160E	R8.0	16.0	16	30	150	Regular
SEMD98160180E	R8.0	16.0	16	30	180	Long Shank
★ SEMD98160200E	R8.0	16.0	16	30	200	Long Shank
★ SEMD98180E	R9.0	18.0	16	34	150	Regular
SEMD9818018SE	R9.0	18.0	18	34	150	-
★ SEMD98200100E	R10.0	20.0	20	30	100	Short
SEMD98200130E	R10.0	20.0	20	30	130	Short
★ SEMD98200E	R10.0	20.0	20	38	150	Regular
SEMD98200200E	R10.0	20.0	20	38	200	Long Shank
SEMD98250120E	R12.5	25.0	25	50	120	Short
SEMD98250E	R12.5	25.0	25	50	180	Regular

★ : Stock Item

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○	○	



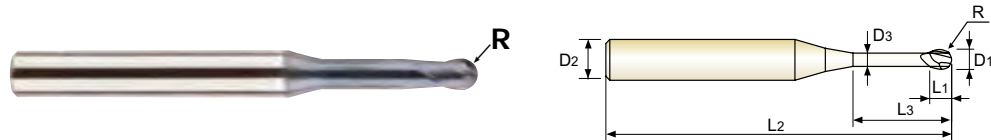
PLAIN SHANK SEM846 SERIES

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL  
 (●) Fraise carbure, 2 dents, hémisphérique, détalonnée  
 (●) MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C262-273

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SEM846001002E	R0.05	0.1	4	0.1	0.2	40	0.085
SEM846001003E	R0.05	0.1	4	0.1	0.3	40	0.085
SEM846001005E	R0.05	0.1	4	0.1	0.5	40	0.085
SEM84600101E	R0.05	0.1	4	0.1	1	40	0.085
★ SEM846002005E	R0.1	0.2	4	0.2	0.5	40	0.17
★ SEM84600201E	R0.1	0.2	4	0.2	1	40	0.17
SEM846002015E	R0.1	0.2	4	0.2	1.5	40	0.17
★ SEM84600202E	R0.1	0.2	4	0.2	2	40	0.17
SEM84600203E	R0.1	0.2	4	0.2	3	40	0.17
★ SEM84600301E	R0.15	0.3	4	0.3	1	40	0.27
★ SEM846003015E	R0.15	0.3	4	0.3	1.5	40	0.27
★ SEM84600302E	R0.15	0.3	4	0.3	2	40	0.27
SEM846003025E	R0.15	0.3	4	0.3	2.5	40	0.27
★ SEM84600303E	R0.15	0.3	4	0.3	3	40	0.27
★ SEM84600304E	R0.15	0.3	4	0.3	4	40	0.27
SEM84600305E	R0.15	0.3	4	0.3	5	40	0.27
★ SEM84600401E	R0.2	0.4	4	0.4	1	40	0.37
★ SEM846004015E	R0.2	0.4	4	0.4	1.5	40	0.37
★ SEM84600402E	R0.2	0.4	4	0.4	2	40	0.37
★ SEM846004025E	R0.2	0.4	4	0.4	2.5	40	0.37
★ SEM84600403E	R0.2	0.4	4	0.4	3	40	0.37
★ SEM84600404E	R0.2	0.4	4	0.4	4	40	0.37
★ SEM84600405E	R0.2	0.4	4	0.4	5	40	0.37
★ SEM84600406E	R0.2	0.4	4	0.4	6	40	0.37

★ : Stock Item ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



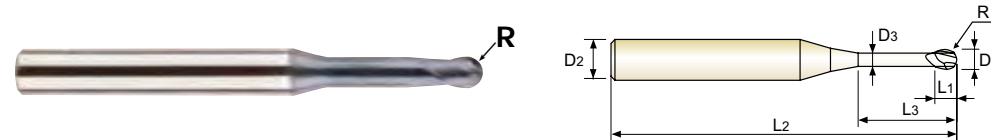
PLAIN SHANK SEM846 SERIES

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL  
 (●) Fraise carbure, 2 dents, hémisphérique, détalonnée  
 (●) MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C262-273

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SEM84600408E	R0.2	0.4	4	0.4	8	40	0.37
SEM84600410E	R0.2	0.4	4	0.4	10	40	0.37
★ SEM84600501E	R0.25	0.5	4	0.5	1	45	0.45
★ SEM846005015E	R0.25	0.5	4	0.5	1.5	45	0.45
★ SEM84600502E	R0.25	0.5	4	0.5	2	45	0.45
SEM846005025E	R0.25	0.5	4	0.5	2.5	45	0.45
★ SEM84600503E	R0.25	0.5	4	0.5	3	45	0.45
★ SEM84600504E	R0.25	0.5	4	0.5	4	45	0.45
★ SEM84600505E	R0.25	0.5	4	0.5	5	45	0.45
★ SEM84600506E	R0.25	0.5	4	0.5	6	45	0.45
★ SEM84600508E	R0.25	0.5	4	0.5	8	45	0.45
★ SEM84600510E	R0.25	0.5	4	0.5	10	45	0.45
SEM84600512E	R0.25	0.5	4	0.5	12	45	0.45
SEM84600514E	R0.25	0.5	4	0.5	14	45	0.45
SEM84600516E	R0.25	0.5	4	0.5	16	45	0.45
★ SEM84600601E	R0.3	0.6	4	0.6	1	45	0.55
★ SEM84600602E	R0.3	0.6	4	0.6	2	45	0.55
★ SEM84600603E	R0.3	0.6	4	0.6	3	45	0.55
★ SEM84600604E	R0.3	0.6	4	0.6	4	45	0.55
★ SEM84600605E	R0.3	0.6	4	0.6	5	45	0.55
★ SEM84600606E	R0.3	0.6	4	0.6	6	45	0.55
★ SEM84600608E	R0.3	0.6	4	0.6	8	45	0.55
★ SEM84600610E	R0.3	0.6	4	0.6	10	45	0.55
★ SEM84600612E	R0.3	0.6	4	0.6	12	45	0.55

★ : Stock Item ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



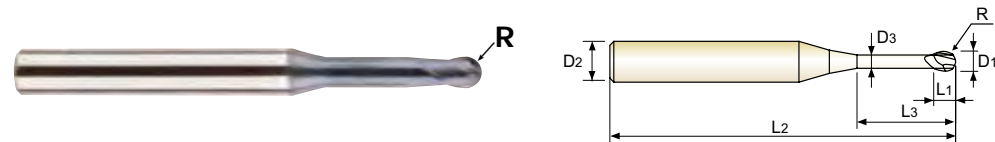
PLAIN SHANK SEM846 SERIES

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL  
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 (●) MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

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- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° R R PLAIN Coating Y p.C262-273 Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SEM84600614E	R0.3	0.6	4	0.6	14	45	0.55
SEM84600616E	R0.3	0.6	4	0.6	16	45	0.55
★ SEM84600702E	R0.35	0.7	4	0.7	2	45	0.65
★ SEM84600704E	R0.35	0.7	4	0.7	4	45	0.65
★ SEM84600706E	R0.35	0.7	4	0.7	6	45	0.65
SEM84600708E	R0.35	0.7	4	0.7	8	45	0.65
SEM84600710E	R0.35	0.7	4	0.7	10	45	0.65
SEM84600712E	R0.35	0.7	4	0.7	12	45	0.65
SEM84600801E	R0.4	0.8	4	0.8	1	45	0.75
★ SEM84600802E	R0.4	0.8	4	0.8	2	45	0.75
★ SEM84600803E	R0.4	0.8	4	0.8	3	45	0.75
★ SEM84600804E	R0.4	0.8	4	0.8	4	45	0.75
★ SEM84600805E	R0.4	0.8	4	0.8	5	45	0.75
★ SEM84600806E	R0.4	0.8	4	0.8	6	45	0.75
★ SEM84600808E	R0.4	0.8	4	0.8	8	45	0.75
★ SEM84600810E	R0.4	0.8	4	0.8	10	45	0.75
★ SEM84600812E	R0.4	0.8	4	0.8	12	45	0.75
SEM84600814E	R0.4	0.8	4	0.8	14	45	0.75
SEM84600816E	R0.4	0.8	4	0.8	16	45	0.75
SEM84600820E	R0.4	0.8	4	0.8	20	45	0.75
★ SEM84600904E	R0.45	0.9	4	0.9	4	45	0.85
SEM84600906E	R0.45	0.9	4	0.9	6	45	0.85
★ SEM84600908E	R0.45	0.9	4	0.9	8	45	0.85
SEM84600910E	R0.45	0.9	4	0.9	10	45	0.85

★ : Stock Item ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M					K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



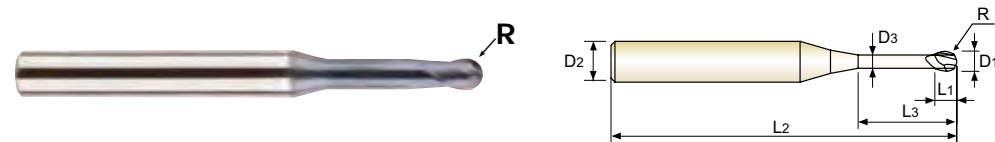
PLAIN SHANK SEM846 SERIES

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL  
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- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
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- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° R R PLAIN Coating Y p.C262-273 Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
★ SEM84601002E	R0.5	1.0	4	1	2	50	0.95
★ SEM84601003E	R0.5	1.0	4	1	3	50	0.95
★ SEM84601004E	R0.5	1.0	4	1	4	50	0.95
★ SEM84601005E	R0.5	1.0	4	1	5	50	0.95
★ SEM84601006E	R0.5	1.0	4	1	6	50	0.95
★ SEM84601007E	R0.5	1.0	4	1	7	50	0.95
★ SEM84601008E	R0.5	1.0	4	1	8	50	0.95
SEM84601009E	R0.5	1.0	4	1	9	50	0.95
★ SEM84601010E	R0.5	1.0	4	1	10	50	0.95
★ SEM84601012E	R0.5	1.0	4	1	12	50	0.95
★ SEM84601014E	R0.5	1.0	4	1	14	50	0.95
★ SEM84601016E	R0.5	1.0	4	1	16	50	0.95
★ SEM84601018E	R0.5	1.0	4	1	18	50	0.95
★ SEM84601020E	R0.5	1.0	4	1	20	50	0.95
SEM84601022E	R0.5	1.0	4	1	22	60	0.95
★ SEM84601026E	R0.5	1.0	4	1	26	60	0.95
★ SEM84601030E	R0.5	1.0	4	1	30	70	0.95
SEM84601040E	R0.5	1.0	4	1	40	80	0.95
SEM84601050E	R0.5	1.0	4	1	50	100	0.95
★ SEM84601204E	R0.6	1.2	4	1.2	4	50	1.15
★ SEM84601206E	R0.6	1.2	4	1.2	6	50	1.15
★ SEM84601208E	R0.6	1.2	4	1.2	8	50	1.15
★ SEM84601210E	R0.6	1.2	4	1.2	10	50	1.15
★ SEM84601212E	R0.6	1.2	4	1.2	12	50	1.15

★ : Stock Item ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

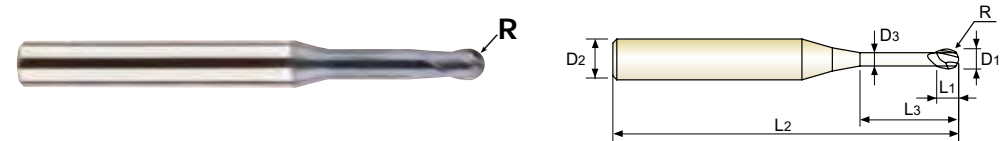
ISO Material Description	P										M					K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL  
 ( ) Fraise carbure, 2 dents, hémisphérique, détalonnée  
 ( ) MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
  - ▶ Due to unique ball nose geometry and cutting edges, cutting force decreased, and so wear resistance increased.
  - ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
  - ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
  - ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C262-273

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
★ SEM84601216E	R0.6	1.2	4	1.2	16	50	1.15
SEM84601220E	R0.6	1.2	4	1.2	20	50	1.15
SEM84601226E	R0.6	1.2	4	1.2	26	60	1.15
SEM84601406E	R0.7	1.4	4	1.4	6	50	1.35
SEM84601408E	R0.7	1.4	4	1.4	8	50	1.35
SEM84601410E	R0.7	1.4	4	1.4	10	50	1.35
SEM84601412E	R0.7	1.4	4	1.4	12	50	1.35
SEM84601416E	R0.7	1.4	4	1.4	16	50	1.35
★ SEM84601503E	R0.75	1.5	4	1.5	3	50	1.45
★ SEM84601504E	R0.75	1.5	4	1.5	4	50	1.45
★ SEM84601505E	R0.75	1.5	4	1.5	5	50	1.45
★ SEM84601506E	R0.75	1.5	4	1.5	6	50	1.45
SEM84601507E	R0.75	1.5	4	1.5	7	50	1.45
★ SEM84601508E	R0.75	1.5	4	1.5	8	50	1.45
★ SEM84601510E	R0.75	1.5	4	1.5	10	50	1.45
★ SEM84601512E	R0.75	1.5	4	1.5	12	50	1.45
★ SEM84601514E	R0.75	1.5	4	1.5	14	50	1.45
★ SEM84601516E	R0.75	1.5	4	1.5	16	50	1.45
★ SEM84601518E	R0.75	1.5	4	1.5	18	50	1.45
★ SEM84601520E	R0.75	1.5	4	1.5	20	50	1.45
SEM84601522E	R0.75	1.5	4	1.5	22	60	1.45
SEM84601526E	R0.75	1.5	4	1.5	26	60	1.45
SEM84601530E	R0.75	1.5	4	1.5	30	70	1.45
SEM84601535E	R0.75	1.5	4	1.5	35	70	1.45

★ : Stock Item      ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

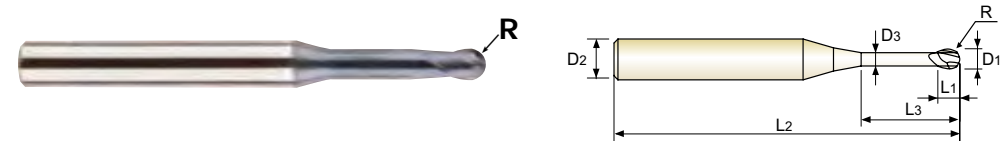
ISO Material Description	P										M					K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



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  - ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
  - ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 ±0.010 PLAIN Coating Y p.C262-273

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SEM84601540E	R0.75	1.5	4	1.5	40	80	1.45
SEM84601604E	R0.8	1.6	4	1.6	4	50	1.55
SEM84601606E	R0.8	1.6	4	1.6	6	50	1.55
★ SEM84601608E	R0.8	1.6	4	1.6	8	50	1.55
SEM84601610E	R0.8	1.6	4	1.6	10	50	1.55
★ SEM84601612E	R0.8	1.6	4	1.6	12	50	1.55
★ SEM84601616E	R0.8	1.6	4	1.6	16	50	1.55
SEM84601620E	R0.8	1.6	4	1.6	20	50	1.55
★ SEM84601804E	R0.9	1.8	4	1.8	4	50	1.75
SEM84601806E	R0.9	1.8	4	1.8	6	50	1.75
★ SEM84601808E	R0.9	1.8	4	1.8	8	50	1.75
SEM84601810E	R0.9	1.8	4	1.8	10	50	1.75
★ SEM84601812E	R0.9	1.8	4	1.8	12	50	1.75
★ SEM84601816E	R0.9	1.8	4	1.8	16	50	1.75
SEM84601820E	R0.9	1.8	4	1.8	20	50	1.75
★ SEM84602004E	R1.0	2.0	4	2	4	50	1.95
★ SEM84602006E	R1.0	2.0	4	2	6	50	1.95
★ SEM84602008E	R1.0	2.0	4	2	8	50	1.95
★ SEM84602010E	R1.0	2.0	4	2	10	50	1.95
★ SEM84602012E	R1.0	2.0	4	2	12	50	1.95
★ SEM84602014E	R1.0	2.0	4	2	14	50	1.95
★ SEM84602016E	R1.0	2.0	4	2	16	50	1.95
★ SEM84602018E	R1.0	2.0	4	2	18	50	1.95
★ SEM84602020E	R1.0	2.0	4	2	20	50	1.95

★ : Stock Item      ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

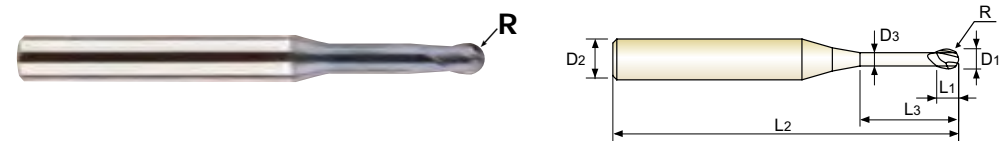
ISO Material Description	P										M					K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETEL  
 (●) Fraise carbure, 2 dents, hémisphérique, détalonnée  
 (●) MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.  
 ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R4-R6 Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SEM84602022E	R1.0	2.0	4	2	22	60	1.95
★ SEM84602026E	R1.0	2.0	4	2	26	60	1.95
★ SEM84602030E	R1.0	2.0	4	2	30	70	1.95
★ SEM84602035E	R1.0	2.0	4	2	35	70	1.95
SEM84602040E	R1.0	2.0	4	2	40	80	1.95
SEM84602045E	R1.0	2.0	4	2	45	90	1.95
SEM84602050E	R1.0	2.0	4	2	50	100	1.95
SEM84602060E	R1.0	2.0	4	2	60	110	1.95
★ SEM84602508E	R1.25	2.5	4	2.5	8	50	2.40
★ SEM84602510E	R1.25	2.5	4	2.5	10	50	2.40
★ SEM84602512E	R1.25	2.5	4	2.5	12	50	2.40
★ SEM84602516E	R1.25	2.5	4	2.5	16	50	2.40
★ SEM84602520E	R1.25	2.5	4	2.5	20	50	2.40
SEM84602522E	R1.25	2.5	4	2.5	22	60	2.40
SEM84602526E	R1.25	2.5	4	2.5	26	60	2.40
SEM84602530E	R1.25	2.5	4	2.5	30	70	2.40
SEM84602535E	R1.25	2.5	4	2.5	35	70	2.40
SEM84602540E	R1.25	2.5	4	2.5	40	80	2.40
SEM84602545E	R1.25	2.5	4	2.5	45	90	2.40
SEM84602550E	R1.25	2.5	4	2.5	50	100	2.40
★ SEM84603006E	R1.5	3.0	6	3	6	50	2.85
★ SEM84603008E	R1.5	3.0	6	3	8	50	2.85
★ SEM84603010E	R1.5	3.0	6	3	10	50	2.85
★ SEM84603012E	R1.5	3.0	6	3	12	50	2.85

★ : Stock Item ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75	78	80	82	85	88	90	92	95	98	100	102	105	108	110	112	115	118	120		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	300	250	130	230	160	250	130	230	160	250	130	230	160	250	130	230	160	250	130	230	160	250	130	230	
Recommend	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description Aluminum-wrought alloy Aluminum-cast, alloyed Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials Heat Resistant Super Alloys Titanium Alloys Hardened steel Chilled Cast Iron Hardened Cast Iron

VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETEL  
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▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.  
 ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.  
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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

R0.05-R3 R4-R6 Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
★ SEM84603014E	R1.5	3.0	6	3	14	60	2.85
SEM84603015E	R1.5	3.0	6	3	15	60	2.85
★ SEM84603016E	R1.5	3.0	6	3	16	60	2.85
★ SEM84603018E	R1.5	3.0	6	3	18	60	2.85
★ SEM84603020E	R1.5	3.0	6	3	20	60	2.85
★ SEM84603022E	R1.5	3.0	6	3	22	65	2.85
★ SEM84603026E	R1.5	3.0	6	3	26	65	2.85
★ SEM84603030E	R1.5	3.0	6	3	30	70	2.85
★ SEM84603035E	R1.5	3.0	6	3	35	70	2.85
★ SEM84603040E	R1.5	3.0	6	3	40	80	2.85
★ SEM84603045E	R1.5	3.0	6	3	45	90	2.85
★ SEM84603050E	R1.5	3.0	6	3	50	100	2.85
SEM84603060E	R1.5	3.0	6	3	60	100	2.85
★ SEM84604008E	R2.0	4.0	6	4	8	50	3.85
★ SEM84604010E	R2.0	4.0	6	4	10	50	3.85
★ SEM84604012E	R2.0	4.0	6	4	12	50	3.85
★ SEM84604014E	R2.0	4.0	6	4	14	60	3.85
★ SEM84604016E	R2.0	4.0	6	4	16	60	3.85
★ SEM84604018E	R2.0	4.0	6	4	18	60	3.85
★ SEM84604020E	R2.0	4.0	6	4	20	60	3.85
★ SEM84604022E	R2.0	4.0	6	4	22	65	3.85
★ SEM84604026E	R2.0	4.0	6	4	26	65	3.85
★ SEM84604030E	R2.0	4.0	6	4	30	70	3.85
★ SEM84604035E	R2.0	4.0	6	4	35	70	3.85

★ : Stock Item ▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75	78	80	82	85	88	90	92	95	98	100	102	105	108	110	112	115	118	120		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	300	250	130	230	160	250	130	230	160	250	130	230	160	250	130	230	160	250	130	230	160	250	130	230	
Recommend	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description Aluminum-wrought alloy Aluminum-cast, alloyed Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials Heat Resistant Super Alloys Titanium Alloys Hardened steel Chilled Cast Iron Hardened Cast Iron

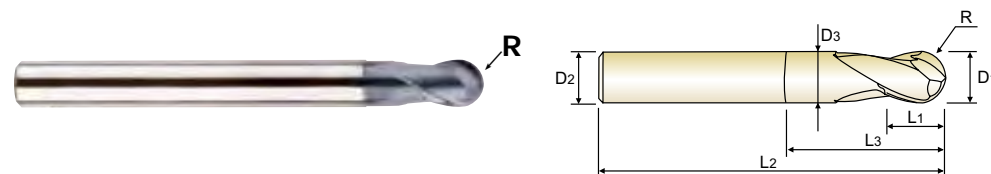
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL  
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- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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CARBIDE 2 30° R R PLAIN Coating Y p.C262-273 Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
★ SEM84604040E	R2.0	4.0	6	4	40	80	3.85
SEM84604045E	R2.0	4.0	6	4	45	90	3.85
★ SEM84604050E	R2.0	4.0	6	4	50	100	3.85
SEM84604055E	R2.0	4.0	6	4	55	100	3.85
SEM84604060E	R2.0	4.0	6	4	60	100	3.85
SEM84605015E	R2.5	5.0	6	6	15	60	4.85
★ SEM84605020E	R2.5	5.0	6	6	20	60	4.85
★ SEM84605026E	R2.5	5.0	6	6	26	65	4.85
★ SEM84605030E	R2.5	5.0	6	6	30	70	4.85
★ SEM84605035E	R2.5	5.0	6	6	35	70	4.85
★ SEM84605040E	R2.5	5.0	6	6	40	80	4.85
SEM84605045E	R2.5	5.0	6	6	45	90	4.85
★ SEM84605050E	R2.5	5.0	6	6	50	100	4.85
SEM84605055E	R2.5	5.0	6	6	55	100	4.85
SEM84605060E	R2.5	5.0	6	6	60	100	4.85
★ SEM84606020E	R3.0	6.0	6	8	20	60	5.85
★ SEM84606030E	R3.0	6.0	6	8	30	60	5.85
★ SEM84606020090E	R3.0	6.0	6	12	20	90	5.85
★ SEM84606030090E	R3.0	6.0	6	12	30	90	5.85
★ SEM84608025E	R4.0	8.0	8	10	25	70	7.70
★ SEM84608035E	R4.0	8.0	8	10	35	70	7.70
SEM84608025100E	R4.0	8.0	8	14	25	100	7.70
★ SEM84608035100E	R4.0	8.0	8	14	35	100	7.70
★ SEM84610030E	R5.0	10.0	10	12	30	75	9.70

★ : Stock Item

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

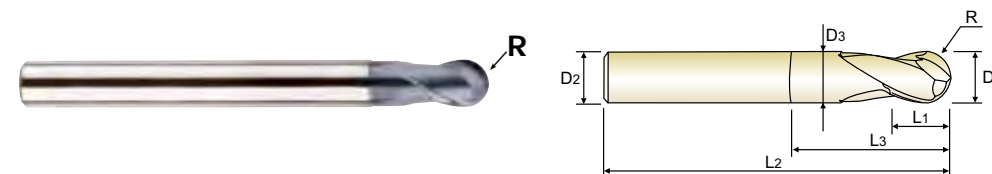


**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK**

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CARBIDE 2 30° R R PLAIN Coating Y p.C262-273 Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
★ SEM84610040E	R5.0	10.0	10	12	40	75	9.70
★ SEM84610030100E	R5.0	10.0	10	18	30	100	9.70
★ SEM84610040100E	R5.0	10.0	10	18	40	100	9.70
★ SEM84612032E	R6.0	12.0	12	14	32	80	11.70
SEM84612045E	R6.0	12.0	12	14	45	80	11.70
★ SEM84612032110E	R6.0	12.0	12	22	32	110	11.70
★ SEM84612045110E	R6.0	12.0	12	22	45	110	11.70

★ : Stock Item

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	





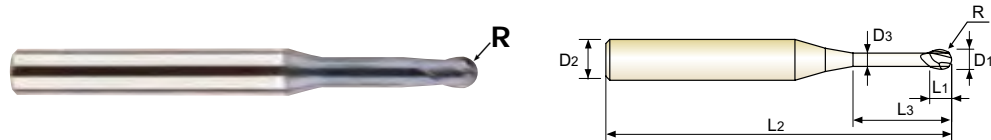
PLAIN SHANK SEM846 SERIES

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)
- Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)
- MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SEM846005016SE	R0.25	0.5	6	0.5	1	45	0.45
SEM846005026SE	R0.25	0.5	6	0.5	2	45	0.45
SEM846005046SE	R0.25	0.5	6	0.5	4	45	0.45
SEM846006016SE	R0.3	0.6	6	0.6	1	45	0.55
SEM846006026SE	R0.3	0.6	6	0.6	2	45	0.55
SEM846006036SE	R0.3	0.6	6	0.6	3	45	0.55
SEM846006046SE	R0.3	0.6	6	0.6	4	45	0.55
SEM846006056SE	R0.3	0.6	6	0.6	5	45	0.55
★ SEM846006066SE	R0.3	0.6	6	0.6	6	45	0.55
SEM846006086SE	R0.3	0.6	6	0.6	8	45	0.55
SEM846006106SE	R0.3	0.6	6	0.6	10	45	0.55
SEM846006126SE	R0.3	0.6	6	0.6	12	45	0.55
SEM846006146SE	R0.3	0.6	6	0.6	14	45	0.55
SEM846006166SE	R0.3	0.6	6	0.6	16	45	0.55
SEM846008016SE	R0.4	0.8	6	0.8	1	45	0.75
SEM846008026SE	R0.4	0.8	6	0.8	2	45	0.75
SEM846008036SE	R0.4	0.8	6	0.8	3	45	0.75
SEM846008046SE	R0.4	0.8	6	0.8	4	45	0.75
SEM846008056SE	R0.4	0.8	6	0.8	5	45	0.75
SEM846008066SE	R0.4	0.8	6	0.8	6	45	0.75
SEM846008086SE	R0.4	0.8	6	0.8	8	45	0.75
SEM846008106SE	R0.4	0.8	6	0.8	10	45	0.75
SEM846008126SE	R0.4	0.8	6	0.8	12	45	0.75
SEM846008146SE	R0.4	0.8	6	0.8	14	45	0.75

★ : Stock Item      ▶ NEXT PAGE

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.005	0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	◎	○



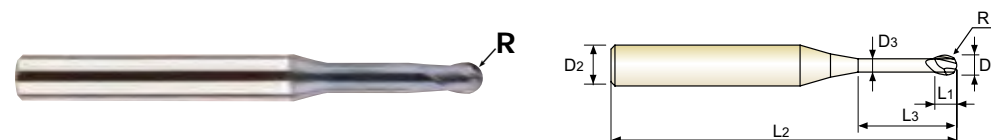
PLAIN SHANK SEM846 SERIES

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)
- Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)
- MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SEM846008166SE	R0.4	0.8	6	0.8	16	45	0.75
SEM846008206SE	R0.4	0.8	6	0.8	20	45	0.75
SEM846010026SE	R0.5	1.0	6	1	2	50	0.95
SEM846010036SE	R0.5	1.0	6	1	3	50	0.95
★ SEM846010046SE	R0.5	1.0	6	1	4	50	0.95
SEM846010056SE	R0.5	1.0	6	1	5	50	0.95
★ SEM846010066SE	R0.5	1.0	6	1	6	50	0.95
SEM846010076SE	R0.5	1.0	6	1	7	50	0.95
SEM846010086SE	R0.5	1.0	6	1	8	50	0.95
SEM846010096SE	R0.5	1.0	6	1	9	50	0.95
★ SEM846010106SE	R0.5	1.0	6	1	10	50	0.95
SEM846010126SE	R0.5	1.0	6	1	12	50	0.95
SEM846010146SE	R0.5	1.0	6	1	14	50	0.95
SEM846010166SE	R0.5	1.0	6	1	16	50	0.95
SEM846010186SE	R0.5	1.0	6	1	18	50	0.95
SEM846010206SE	R0.5	1.0	6	1	20	50	0.95
SEM846010226SE	R0.5	1.0	6	1	22	60	0.95
SEM846010266SE	R0.5	1.0	6	1	26	60	0.95
SEM846010306SE	R0.5	1.0	6	1	30	70	0.95
SEM846015036SE	R0.75	1.5	6	1.5	3	50	1.45
SEM846015046SE	R0.75	1.5	6	1.5	4	50	1.45
★ SEM846015066SE	R0.75	1.5	6	1.5	6	50	1.45
★ SEM846015086SE	R0.75	1.5	6	1.5	8	50	1.45
★ SEM846015106SE	R0.75	1.5	6	1.5	10	50	1.45

★ : Stock Item      ▶ NEXT PAGE

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.005	0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	◎	○



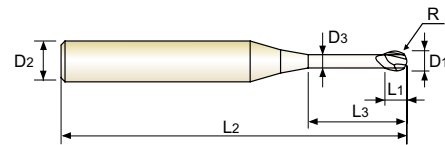
PLAIN SHANK SEM846 SERIES

**CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)
- Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)
- MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE 2 30° ±0.005 PLAIN Coating Y p.C262-273

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
★ SEM846015126SE	R0.75	1.5	6	1.5	12	50	1.45
SEM846015146SE	R0.75	1.5	6	1.5	14	50	1.45
SEM846015166SE	R0.75	1.5	6	1.5	16	50	1.45
SEM846015186SE	R0.75	1.5	6	1.5	18	50	1.45
SEM846015206SE	R0.75	1.5	6	1.5	20	50	1.45
SEM846015226SE	R0.75	1.5	6	1.5	22	60	1.45
SEM846015266SE	R0.75	1.5	6	1.5	26	60	1.45
SEM846015306SE	R0.75	1.5	6	1.5	30	70	1.45
SEM846015356SE	R0.75	1.5	6	1.5	35	70	1.45
SEM846015406SE	R0.75	1.5	6	1.5	40	80	1.45
SEM846020046SE	R1.0	2.0	6	2	4	50	1.95
★ SEM846020066SE	R1.0	2.0	6	2	6	50	1.95
★ SEM846020086SE	R1.0	2.0	6	2	8	50	1.95
★ SEM846020106SE	R1.0	2.0	6	2	10	50	1.95
★ SEM846020126SE	R1.0	2.0	6	2	12	50	1.95
SEM846020146SE	R1.0	2.0	6	2	14	50	1.95
★ SEM846020166SE	R1.0	2.0	6	2	16	50	1.95
SEM846020186SE	R1.0	2.0	6	2	18	50	1.95
★ SEM846020206SE	R1.0	2.0	6	2	20	50	1.95
SEM846020226SE	R1.0	2.0	6	2	22	60	1.95
SEM846020266SE	R1.0	2.0	6	2	26	60	1.95
SEM846020306SE	R1.0	2.0	6	2	30	70	1.95
SEM846020356SE	R1.0	2.0	6	2	35	70	1.95
SEM846020406SE	R1.0	2.0	6	2	40	80	1.95
SEM846020456SE	R1.0	2.0	6	2	45	90	1.95
SEM846020506SE	R1.0	2.0	6	2	50	100	1.95

★ : Stock Item

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.005	0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



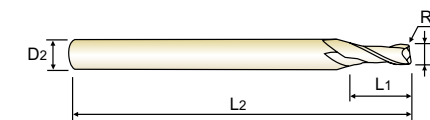
PLAIN SHANK SEMD99 SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
- Fraise carbure, 2 dents, torique
- MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C274-275

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

002-06 07-020

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEMD99002002E	R0.02	0.2	4	0.4	40	-
SEMD99002005E	R0.05	0.2	4	0.4	40	-
SEMD99003002E	R0.02	0.3	4	0.6	40	-
SEMD99003005E	R0.05	0.3	4	0.6	40	-
SEMD99004005E	R0.05	0.4	4	0.8	40	-
SEMD9900401E	R0.1	0.4	4	0.8	40	-
SEMD99005005E	R0.05	0.5	4	1	40	-
SEMD9900501E	R0.1	0.5	4	1	40	-
SEMD99006005E	R0.05	0.6	4	1.2	40	-
SEMD9900601E	R0.1	0.6	4	1.2	40	-
SEMD9900602E	R0.2	0.6	4	1.2	40	-
SEMD99007005E	R0.05	0.7	4	1.4	40	-
SEMD9900701E	R0.1	0.7	4	1.4	40	-
SEMD9900702E	R0.2	0.7	4	1.4	40	-
SEMD99008005E	R0.05	0.8	4	1.6	40	-
SEMD9900801E	R0.1	0.8	4	1.6	40	-
SEMD9900802E	R0.2	0.8	4	1.6	40	-
SEMD99009005E	R0.05	0.9	4	1.8	40	-
SEMD9900901E	R0.1	0.9	4	1.8	40	-
SEMD990100054SE	R0.05	1.0	4	2.5	50	4mm Shank
SEMD99010014SE	R0.1	1.0	4	2.5	50	4mm Shank
SEMD99010024SE	R0.2	1.0	4	2.5	50	4mm Shank
SEMD99010034SE	R0.3	1.0	4	2.5	50	4mm Shank
SEMD99010005E	R0.05	1.0	6	2.5	50	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

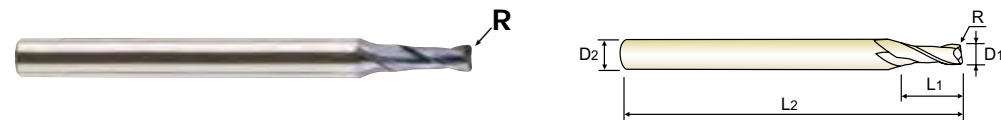
ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)**

- **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS**
- **Fraise carbure, 2 dents, torique**
- **MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)**

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.  
 ▶ Available in short, regular and long shank end mills.  
 ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.  
 ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang  
 ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020 Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEMD9901001E	R0.1	1.0	6	2.5	50	-
★ SEMD9901002E	R0.2	1.0	6	2.5	50	-
★ SEMD9901003E	R0.3	1.0	6	2.5	50	-
SEMD990120054SE	R0.05	1.2	4	3	50	4mm Shank
SEMD99012014SE	R0.1	1.2	4	3	50	4mm Shank
SEMD99012024SE	R0.2	1.2	4	3	50	4mm Shank
SEMD99012034SE	R0.3	1.2	4	3	50	4mm Shank
SEMD99012005E	R0.05	1.2	6	3	50	-
SEMD9901201E	R0.1	1.2	6	3	50	-
SEMD9901202E	R0.2	1.2	6	3	50	-
SEMD9901203E	R0.3	1.2	6	3	50	-
SEMD990150054SE	R0.05	1.5	4	4	50	-
SEMD99015014SE	R0.1	1.5	4	4	50	4mm Shank
SEMD99015024SE	R0.2	1.5	4	4	50	4mm Shank
SEMD99015034SE	R0.3	1.5	4	4	50	4mm Shank
SEMD99015054SE	R0.5	1.5	4	4	50	4mm Shank
SEMD99015005E	R0.05	1.5	6	4	50	-
SEMD9901501E	R0.1	1.5	6	4	50	-
★ SEMD9901502E	R0.2	1.5	6	4	50	-
★ SEMD9901503E	R0.3	1.5	6	4	50	-
★ SEMD9901505E	R0.5	1.5	6	4	50	-
SEMD99020014SE	R0.1	2.0	4	6	50	4mm Shank
SEMD99020024SE	R0.2	2.0	4	6	50	4mm Shank
SEMD99020034SE	R0.3	2.0	4	6	50	4mm Shank

★ : Stock Item ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

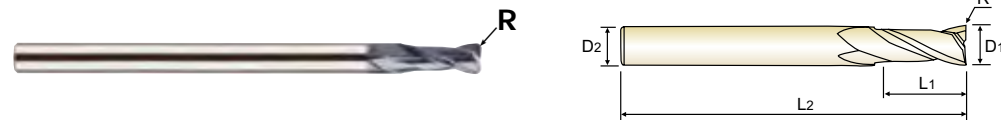


**CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)**

- **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS**
- **Fraise carbure, 2 dents, torique**
- **MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)**

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.  
 ▶ Available in short, regular and long shank end mills.  
 ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.  
 ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang  
 ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020 Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEMD99020054SE	R0.5	2.0	4	6	50	4mm Shank
SEMD9902001E	R0.1	2.0	6	6	50	-
★ SEMD9902002E	R0.2	2.0	6	6	50	-
★ SEMD9902003E	R0.3	2.0	6	6	50	-
★ SEMD9902005E	R0.5	2.0	6	6	50	-
SEMD99025014SE	R0.1	2.5	4	7	60	4mm Shank
SEMD99025024SE	R0.2	2.5	4	7	60	4mm Shank
SEMD99025034SE	R0.3	2.5	4	7	60	4mm Shank
SEMD99025054SE	R0.5	2.5	4	7	60	4mm Shank
SEMD9902501E	R0.1	2.5	6	7	60	-
SEMD9902502E	R0.2	2.5	6	7	60	-
SEMD9902503E	R0.3	2.5	6	7	60	-
SEMD9902505E	R0.5	2.5	6	7	60	-
SEMD9903001E	R0.1	3.0	6	8	60	-
★ SEMD9903002E	R0.2	3.0	6	8	60	-
★ SEMD9903003E	R0.3	3.0	6	8	60	-
★ SEMD9903005E	R0.5	3.0	6	8	60	-
SEMD9903010E	R1.0	3.0	6	8	60	-
SEMD9903501E	R0.1	3.5	6	10	70	-
SEMD9903502E	R0.2	3.5	6	10	70	-
SEMD9903503E	R0.3	3.5	6	10	70	-
SEMD9903505E	R0.5	3.5	6	10	70	-
SEMD99040014SE	R0.1	4.0	4	10	70	4mm Shank
SEMD99040024SE	R0.2	4.0	4	10	70	4mm Shank

★ : Stock Item ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

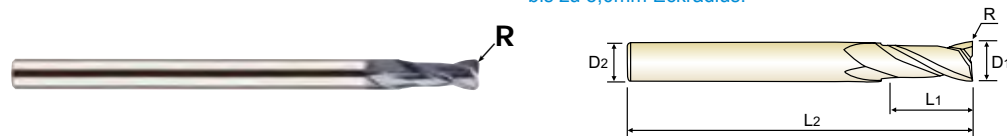


**CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)**

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 ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang  
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CARBIDE
2
30°
±0.010
±0.015
PLAIN
Coating
Y
p.C274-275

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEMD99040034SE	R0.3	4.0	4	10	70	4mm Shank
SEMD99040054SE	R0.5	4.0	4	10	70	4mm Shank
SEMD99040104SE	R1.0	4.0	4	10	70	4mm Shank
SEMD99040011004SE	R0.1	4.0	4	10	100	4mm Shank
SEMD99040021004SE	R0.2	4.0	4	10	100	4mm Shank
SEMD99040031004SE	R0.3	4.0	4	10	100	4mm Shank
SEMD99040051004SE	R0.5	4.0	4	10	100	4mm Shank
SEMD99040101004SE	R1.0	4.0	4	10	100	4mm Shank
SEMD9904001E	R0.1	4.0	6	10	70	Regular
★ SEMD9904002E	R0.2	4.0	6	10	70	Regular
★ SEMD9904003E	R0.3	4.0	6	10	70	Regular
★ SEMD9904005E	R0.5	4.0	6	10	70	Regular
★ SEMD9904010E	R1.0	4.0	6	10	70	Regular
SEMD9904501E	R0.1	4.5	6	11	80	-
SEMD9904502E	R0.2	4.5	6	11	80	-
SEMD9904503E	R0.3	4.5	6	11	80	-
SEMD9904505E	R0.5	4.5	6	11	80	-
SEMD9905001E	R0.1	5.0	6	13	90	-
★ SEMD9905002E	R0.2	5.0	6	13	90	-
★ SEMD9905003E	R0.3	5.0	6	13	90	-
★ SEMD9905005E	R0.5	5.0	6	13	90	-
★ SEMD9905010E	R1.0	5.0	6	13	90	-
SEMD9905501E	R0.1	5.5	6	13	90	-
SEMD9905502E	R0.2	5.5	6	13	90	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

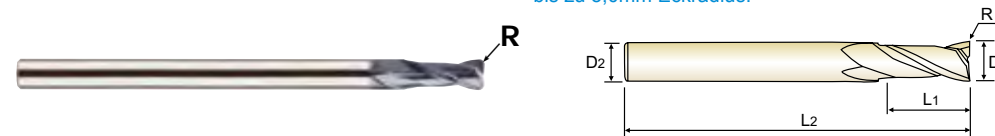


**CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)**

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CARBIDE
2
30°
±0.010
±0.015
PLAIN
Coating
Y
p.C274-275

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEMD9905503E	R0.3	5.5	6	13	90	-
SEMD9905505E	R0.5	5.5	6	13	90	-
SEMD9905510E	R1.0	5.5	6	13	90	-
★ SEMD9906002060E	R0.2	6.0	6	15	60	Short
★ SEMD9906003060E	R0.3	6.0	6	15	60	Short
★ SEMD9906005060E	R0.5	6.0	6	15	60	Short
★ SEMD9906010060E	R1.0	6.0	6	15	60	Short
SEMD9906001E	R0.1	6.0	6	15	90	Regular
★ SEMD9906002E	R0.2	6.0	6	15	90	Regular
★ SEMD9906003E	R0.3	6.0	6	15	90	Regular
★ SEMD9906005E	R0.5	6.0	6	15	90	Regular
★ SEMD9906010E	R1.0	6.0	6	15	90	Regular
SEMD9906015E	R1.5	6.0	6	15	90	Regular
SEMD9906020E	R2.0	6.0	6	15	90	Regular
SEMD9906005110E	R0.5	6.0	6	15	110	Long Shank
SEMD9906010110E	R1.0	6.0	6	15	110	Long Shank
SEMD9906005130E	R0.5	6.0	6	15	130	Long Shank
SEMD9906010130E	R1.0	6.0	6	15	130	Long Shank
SEMD9907001E	R0.1	7.0	8	16	90	-
SEMD9907002E	R0.2	7.0	8	16	90	-
SEMD9907003E	R0.3	7.0	8	16	90	-
SEMD9907005E	R0.5	7.0	8	16	90	-
SEMD9907010E	R1.0	7.0	8	16	90	-
SEMD9907020E	R2.0	7.0	8	16	90	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	



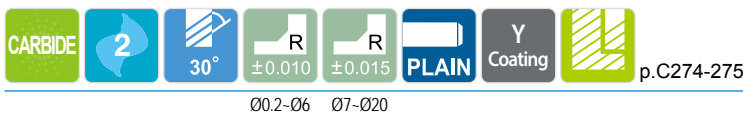
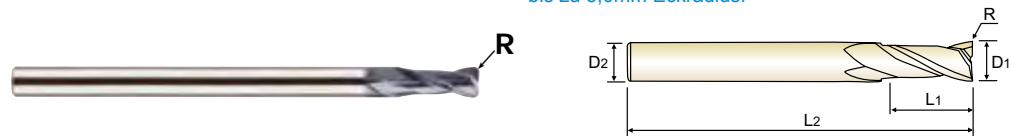
PLAIN SHANK SEMD99 SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS** (Short, Regular, Long Shank)

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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEMD9908003070E	R0.3	8.0	8	20	70	Short
★ SEMD9908005070E	R0.5	8.0	8	20	70	Short
★ SEMD9908010070E	R1.0	8.0	8	20	70	Short
SEMD9908001E	R0.1	8.0	8	20	100	Regular
SEMD9908002E	R0.2	8.0	8	20	100	Regular
SEMD9908003E	R0.3	8.0	8	20	100	Regular
★ SEMD9908005E	R0.5	8.0	8	20	100	Regular
★ SEMD9908010E	R1.0	8.0	8	20	100	Regular
★ SEMD9908015E	R1.5	8.0	8	20	100	Regular
★ SEMD9908020E	R2.0	8.0	8	20	100	Regular
SEMD9908025E	R2.5	8.0	8	20	100	Regular
SEMD9908030E	R3.0	8.0	8	20	100	Regular
SEMD9908005120E	R0.5	8.0	8	20	120	Long Shank
SEMD9908010120E	R1.0	8.0	8	20	120	Long Shank
SEMD9908015150E	R0.5	8.0	8	20	150	Long Shank
SEMD9908010150E	R1.0	8.0	8	20	150	Long Shank
SEMD9910003075E	R0.3	10.0	10	25	75	Short
★ SEMD9910005075E	R0.5	10.0	10	25	75	Short
★ SEMD9910010075E	R1.0	10.0	10	25	75	Short
SEMD9910001E	R0.1	10.0	10	25	100	Regular
SEMD9910002E	R0.2	10.0	10	25	100	Regular
SEMD9910003E	R0.3	10.0	10	25	100	Regular
★ SEMD9910005E	R0.5	10.0	10	25	100	Regular
★ SEMD9910010E	R1.0	10.0	10	25	100	Regular

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	



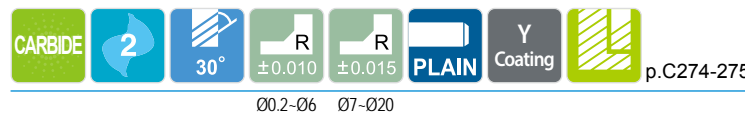
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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEMD9910015E	R1.5	10.0	10	25	100	Regular
★ SEMD9910020E	R2.0	10.0	10	25	100	Regular
SEMD9910025E	R2.5	10.0	10	25	100	Regular
SEMD9910030E	R3.0	10.0	10	25	100	Regular
SEMD9910040E	R4.0	10.0	10	25	100	Regular
SEMD9910005130E	R0.5	10.0	10	25	130	Long Shank
SEMD9910010130E	R1.0	10.0	10	25	130	Long Shank
SEMD9910005150E	R0.5	10.0	10	25	150	Long Shank
SEMD9910010150E	R1.0	10.0	10	25	150	Long Shank
SEMD9911002E	R0.2	11.0	12	25	110	-
SEMD9911003E	R0.3	11.0	12	25	110	-
SEMD9911005E	R0.5	11.0	12	25	110	-
SEMD9911010E	R1.0	11.0	12	25	110	-
SEMD9911020E	R2.0	11.0	12	25	110	-
SEMD9912003080E	R0.3	12.0	12	30	80	Short
★ SEMD9912005080E	R0.5	12.0	12	30	80	Short
★ SEMD9912010080E	R1.0	12.0	12	30	80	Short
SEMD9912001E	R0.1	12.0	12	30	110	Regular
SEMD9912002E	R0.2	12.0	12	30	110	Regular
SEMD9912003E	R0.3	12.0	12	30	110	Regular
★ SEMD9912005E	R0.5	12.0	12	30	110	Regular
★ SEMD9912010E	R1.0	12.0	12	30	110	Regular
★ SEMD9912015E	R1.5	12.0	12	30	110	Regular
★ SEMD9912020E	R2.0	12.0	12	30	110	Regular

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

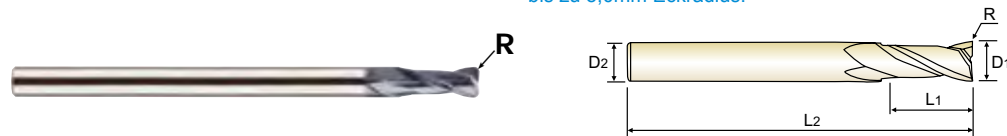
ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

**CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
- ① Fraise carbure, 2 dents, torique
- ② MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y ② p.C274-275

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Recommended ToolHolder

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEMD9912025E	R2.5	12.0	12	30	110	Regular
★ SEMD9912030E	R3.0	12.0	12	30	110	Regular
SEMD9912040E	R4.0	12.0	12	30	110	Regular
SEMD9912050E	R5.0	12.0	12	30	110	Regular
SEMD9912005130E	R0.5	12.0	12	30	130	Long Shank
SEMD9912010130E	R1.0	12.0	12	30	130	Long Shank
SEMD9912005150E	R0.5	12.0	12	30	150	Long Shank
SEMD9912010150E	R1.0	12.0	12	30	150	Long Shank
SEMD9914005E	R0.5	14.0	16	35	150	-
★ SEMD9914010E	R1.0	14.0	16	35	150	-
SEMD9914020E	R2.0	14.0	16	35	150	-
SEMD9916005E	R0.5	16.0	16	32	150	-
★ SEMD9916010E	R1.0	16.0	16	32	150	-
SEMD9916015E	R1.5	16.0	16	32	150	-
★ SEMD9916020E	R2.0	16.0	16	32	150	-
SEMD9920005E	R0.5	20.0	20	38	150	-
★ SEMD9920010E	R1.0	20.0	20	38	150	-
SEMD9920015E	R1.5	20.0	20	38	150	-
★ SEMD9920020E	R2.0	20.0	20	38	150	-

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

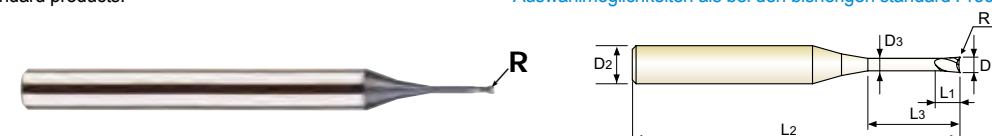


**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETEL
- ① Fraise carbure, 2 dents, torique, détalonnée
- ② MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y ② p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Recommended ToolHolder

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME61002002005E	R0.02	0.2	4	0.3	0.5	40	0.17	-
★ SEME6100200201E	R0.02	0.2	4	0.3	1	40	0.17	-
SEME61002002015E	R0.02	0.2	4	0.3	1.5	40	0.17	-
SEME6100200202E	R0.02	0.2	4	0.3	2	40	0.17	-
SEME61002005005E	R0.05	0.2	4	0.3	0.5	40	0.17	-
★ SEME6100200501E	R0.05	0.2	4	0.3	1	40	0.17	-
SEME61002005015E	R0.05	0.2	4	0.3	1.5	40	0.17	-
SEME6100200502E	R0.05	0.2	4	0.3	2	40	0.17	-
SEME61003005015SE	R0.05	0.3	4	0.25	1.5	40	0.27	-
★ SEME6100300201E	R0.02	0.3	4	0.5	1	40	0.27	-
★ SEME6100300202E	R0.02	0.3	4	0.5	2	40	0.27	-
SEME6100300203E	R0.02	0.3	4	0.5	3	40	0.27	-
★ SEME6100300501E	R0.05	0.3	4	0.5	1	40	0.27	-
★ SEME6100300502E	R0.05	0.3	4	0.5	2	40	0.27	-
SEME6100300503E	R0.05	0.3	4	0.5	3	40	0.27	-
SEME6100300502S6SE	R0.05	0.3	6	0.25	2	40	0.27	-
★ SEME6100400501E	R0.05	0.4	4	0.6	1	40	0.37	-
★ SEME61004005015E	R0.05	0.4	4	0.6	1.5	40	0.37	-
★ SEME6100400502E	R0.05	0.4	4	0.6	2	40	0.37	-
★ SEME61004005025E	R0.05	0.4	4	0.6	2.5	40	0.37	-
SEME6100400503E	R0.05	0.4	4	0.6	3	40	0.37	-
SEME6100400504E	R0.05	0.4	4	0.6	4	40	0.37	-
★ SEME610040101E	R0.1	0.4	4	0.6	1	40	0.37	-
SEME6100401015E	R0.1	0.4	4	0.6	1.5	40	0.37	-

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	







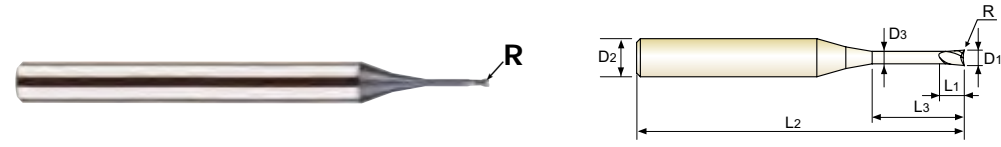
PLAIN SHANK SEME61 SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL  
 ( ) Fraise carbure, 2 dents, torique, détalonnée  
 ( ) MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610070106E	R0.1	0.7	4	1.2	6	45	0.65	-
SEME610070108E	R0.1	0.7	4	1.2	8	45	0.65	-
SEME610070110E	R0.1	0.7	4	1.2	10	45	0.65	-
SEME610070202E	R0.2	0.7	4	1.2	2	45	0.65	-
SEME610070204E	R0.2	0.7	4	1.2	4	45	0.65	-
SEME610070206E	R0.2	0.7	4	1.2	6	45	0.65	-
SEME610070208E	R0.2	0.7	4	1.2	8	45	0.65	-
SEME610070210E	R0.2	0.7	4	1.2	10	45	0.65	-
★ SEME6100800502E	R0.05	0.8	4	1.2	2	45	0.75	-
SEME6100800503E	R0.05	0.8	4	1.2	3	45	0.75	-
★ SEME6100800504E	R0.05	0.8	4	1.2	4	45	0.75	-
★ SEME6100800506E	R0.05	0.8	4	1.2	6	45	0.75	-
SEME6100800508E	R0.05	0.8	4	1.2	8	45	0.75	-
SEME6100800510E	R0.05	0.8	4	1.2	10	45	0.75	-
★ SEME610080102E	R0.1	0.8	4	1.2	2	45	0.75	-
★ SEME610080103E	R0.1	0.8	4	1.2	3	45	0.75	-
★ SEME610080104E	R0.1	0.8	4	1.2	4	45	0.75	-
★ SEME610080106E	R0.1	0.8	4	1.2	6	45	0.75	-
★ SEME610080108E	R0.1	0.8	4	1.2	8	45	0.75	-
SEME610080110E	R0.1	0.8	4	1.2	10	45	0.75	-
★ SEME610080202E	R0.2	0.8	4	1.2	2	45	0.75	-
★ SEME610080203E	R0.2	0.8	4	1.2	3	45	0.75	-
★ SEME610080204E	R0.2	0.8	4	1.2	4	45	0.75	-
★ SEME610080206E	R0.2	0.8	4	1.2	6	45	0.75	-

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	



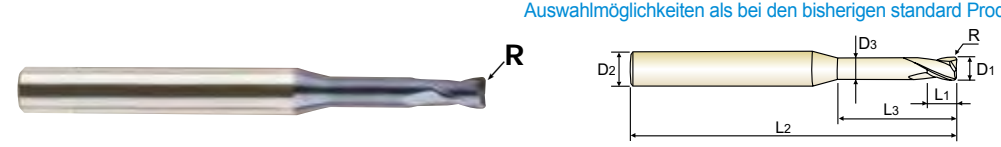
PLAIN SHANK SEME61 SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL  
 ( ) Fraise carbure, 2 dents, torique, détalonnée  
 ( ) MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME610080208E	R0.2	0.8	4	1.2	8	45	0.75	-
★ SEME610080210E	R0.2	0.8	4	1.2	10	45	0.75	-
★ SEME6101000503E	R0.05	1.0	4	1.5	3	50	0.95	-
★ SEME6101000504E	R0.05	1.0	4	1.5	4	50	0.95	-
SEME6101000505E	R0.05	1.0	4	1.5	5	50	0.95	-
★ SEME6101000506E	R0.05	1.0	4	1.5	6	50	0.95	-
SEME6101000508E	R0.05	1.0	4	1.5	8	50	0.95	-
SEME6101000510E	R0.05	1.0	4	1.5	10	50	0.95	-
SEME6101000512E	R0.05	1.0	4	1.5	12	50	0.95	-
SEME6101000514E	R0.05	1.0	4	1.5	14	50	0.95	-
SEME6101000516E	R0.05	1.0	4	1.5	16	50	0.95	-
SEME6101000520E	R0.05	1.0	4	1.5	20	50	0.95	-
★ SEME610100103E	R0.1	1.0	4	1.5	3	50	0.95	-
★ SEME610100104E	R0.1	1.0	4	1.5	4	50	0.95	-
SEME610100105E	R0.1	1.0	4	1.5	5	50	0.95	-
★ SEME610100106E	R0.1	1.0	4	1.5	6	50	0.95	-
★ SEME610100108E	R0.1	1.0	4	1.5	8	50	0.95	-
★ SEME610100110E	R0.1	1.0	4	1.5	10	50	0.95	-
SEME610100112E	R0.1	1.0	4	1.5	12	50	0.95	-
SEME610100114E	R0.1	1.0	4	1.5	14	50	0.95	-
SEME610100116E	R0.1	1.0	4	1.5	16	50	0.95	-
SEME610100120E	R0.1	1.0	4	1.5	20	50	0.95	-
★ SEME610100203E	R0.2	1.0	4	1.5	3	50	0.95	-
★ SEME610100204E	R0.2	1.0	4	1.5	4	50	0.95	-

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

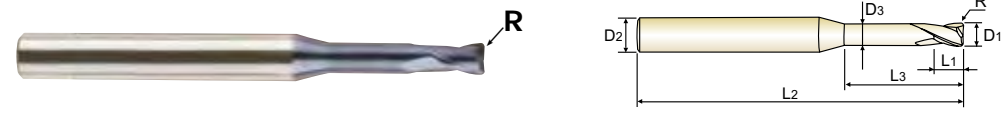
ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRC	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETEL**  
 (●) **Fraise carbure, 2 dents, torique, détalonnée**  
 (●) **MD, 2 TAGLIENTI, SCARICATA, TORICA**

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergrütem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610100205E	R0.2	1.0	4	1.5	5	50	0.95	
★ SEME610100206E	R0.2	1.0	4	1.5	6	50	0.95	-
★ SEME610100208E	R0.2	1.0	4	1.5	8	50	0.95	-
★ SEME610100210E	R0.2	1.0	4	1.5	10	50	0.95	-
★ SEME610100212E	R0.2	1.0	4	1.5	12	50	0.95	-
SEME610100214E	R0.2	1.0	4	1.5	14	50	0.95	-
SEME610100216E	R0.2	1.0	4	1.5	16	50	0.95	-
SEME610100220E	R0.2	1.0	4	1.5	20	50	0.95	-
SEME610100303E	R0.3	1.0	4	1.5	3	50	0.95	-
★ SEME610100304E	R0.3	1.0	4	1.5	4	50	0.95	-
★ SEME610100306E	R0.3	1.0	4	1.5	6	50	0.95	-
★ SEME610100308E	R0.3	1.0	4	1.5	8	50	0.95	-
★ SEME610100310E	R0.3	1.0	4	1.5	10	50	0.95	-
★ SEME610100312E	R0.3	1.0	4	1.5	12	50	0.95	-
SEME610100314E	R0.3	1.0	4	1.5	14	50	0.95	-
SEME610100316E	R0.3	1.0	4	1.5	16	50	0.95	-
SEME610100320E	R0.3	1.0	4	1.5	20	50	0.95	-
SEME6101200503E	R0.05	1.2	4	1.8	3	50	1.15	-
SEME6101200504E	R0.05	1.2	4	1.8	4	50	1.15	-
★ SEME6101200506E	R0.05	1.2	4	1.8	6	50	1.15	-
★ SEME6101200508E	R0.05	1.2	4	1.8	8	50	1.15	-
★ SEME6101200510E	R0.05	1.2	4	1.8	10	50	1.15	-
SEME6101200512E	R0.05	1.2	4	1.8	12	50	1.15	-
SEME6101200516E	R0.05	1.2	4	1.8	16	50	1.15	-

★ : Stock Item      ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

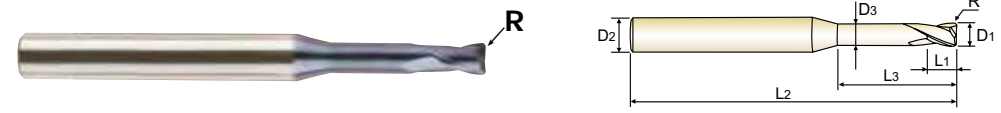


**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

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- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
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CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME6101200520E	R0.05	1.2	4	1.8	20	50	1.15	-
SEME610120103E	R0.1	1.2	4	1.8	3	50	1.15	-
★ SEME610120104E	R0.1	1.2	4	1.8	4	50	1.15	-
★ SEME610120106E	R0.1	1.2	4	1.8	6	50	1.15	-
★ SEME610120108E	R0.1	1.2	4	1.8	8	50	1.15	-
SEME610120110E	R0.1	1.2	4	1.8	10	50	1.15	-
SEME610120112E	R0.1	1.2	4	1.8	12	50	1.15	-
SEME610120116E	R0.1	1.2	4	1.8	16	50	1.15	-
SEME610120120E	R0.1	1.2	4	1.8	20	50	1.15	-
SEME610120203E	R0.2	1.2	4	1.8	3	50	1.15	-
★ SEME610120204E	R0.2	1.2	4	1.8	4	50	1.15	-
★ SEME610120206E	R0.2	1.2	4	1.8	6	50	1.15	-
★ SEME610120208E	R0.2	1.2	4	1.8	8	50	1.15	-
★ SEME610120210E	R0.2	1.2	4	1.8	10	50	1.15	-
★ SEME610120212E	R0.2	1.2	4	1.8	12	50	1.15	-
SEME610120216E	R0.2	1.2	4	1.8	16	50	1.15	-
SEME610120220E	R0.2	1.2	4	1.8	20	50	1.15	-
SEME610120303E	R0.3	1.2	4	1.8	3	50	1.15	-
★ SEME610120304E	R0.3	1.2	4	1.8	4	50	1.15	-
★ SEME610120306E	R0.3	1.2	4	1.8	6	50	1.15	-
★ SEME610120308E	R0.3	1.2	4	1.8	8	50	1.15	-
★ SEME610120310E	R0.3	1.2	4	1.8	10	50	1.15	-
SEME610120312E	R0.3	1.2	4	1.8	12	50	1.15	-
SEME610120316E	R0.3	1.2	4	1.8	16	50	1.15	-

★ : Stock Item      ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRC	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

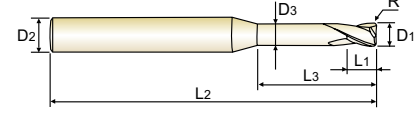


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CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610120320E	R0.3	1.2	4	1.8	20	50	1.15	-
★ SEME6101500504E	R0.05	1.5	4	2.3	4	50	1.45	-
★ SEME6101500506E	R0.05	1.5	4	2.3	6	50	1.45	-
★ SEME6101500508E	R0.05	1.5	4	2.3	8	50	1.45	-
SEME6101500510E	R0.05	1.5	4	2.3	10	50	1.45	-
SEME6101500512E	R0.05	1.5	4	2.3	12	50	1.45	-
SEME6101500514E	R0.05	1.5	4	2.3	14	50	1.45	-
SEME6101500516E	R0.05	1.5	4	2.3	16	50	1.45	-
SEME6101500520E	R0.05	1.5	4	2.3	20	50	1.45	-
SEME6101500522E	R0.05	1.5	4	2.3	22	60	1.45	-
SEME6101500526E	R0.05	1.5	4	2.3	26	60	1.45	-
★ SEME610150104E	R0.1	1.5	4	2.3	4	50	1.45	-
★ SEME610150106E	R0.1	1.5	4	2.3	6	50	1.45	-
★ SEME610150108E	R0.1	1.5	4	2.3	8	50	1.45	-
★ SEME610150110E	R0.1	1.5	4	2.3	10	50	1.45	-
★ SEME610150112E	R0.1	1.5	4	2.3	12	50	1.45	-
SEME610150114E	R0.1	1.5	4	2.3	14	50	1.45	-
SEME610150116E	R0.1	1.5	4	2.3	16	50	1.45	-
SEME610150120E	R0.1	1.5	4	2.3	20	50	1.45	-
SEME610150122E	R0.1	1.5	4	2.3	22	60	1.45	-
SEME610150126E	R0.1	1.5	4	2.3	26	60	1.45	-
★ SEME610150204E	R0.2	1.5	4	2.3	4	50	1.45	-
★ SEME610150206E	R0.2	1.5	4	2.3	6	50	1.45	-
★ SEME610150208E	R0.2	1.5	4	2.3	8	50	1.45	-

★ : Stock Item      ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

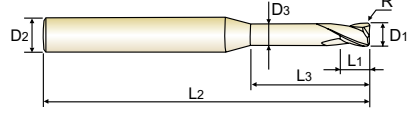
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

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Flat Shank	Page	Plain Shank	Page
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EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME610150210E	R0.2	1.5	4	2.3	10	50	1.45	-
★ SEME610150212E	R0.2	1.5	4	2.3	12	50	1.45	-
★ SEME610150214E	R0.2	1.5	4	2.3	14	50	1.45	-
★ SEME610150216E	R0.2	1.5	4	2.3	16	50	1.45	-
★ SEME610150220E	R0.2	1.5	4	2.3	20	50	1.45	-
SEME610150222E	R0.2	1.5	4	2.3	22	60	1.45	-
SEME610150226E	R0.2	1.5	4	2.3	26	60	1.45	-
★ SEME610150304E	R0.3	1.5	4	2.3	4	50	1.45	-
★ SEME610150306E	R0.3	1.5	4	2.3	6	50	1.45	-
★ SEME610150308E	R0.3	1.5	4	2.3	8	50	1.45	-
★ SEME610150310E	R0.3	1.5	4	2.3	10	50	1.45	-
★ SEME610150312E	R0.3	1.5	4	2.3	12	50	1.45	-
★ SEME610150314E	R0.3	1.5	4	2.3	14	50	1.45	-
★ SEME610150316E	R0.3	1.5	4	2.3	16	50	1.45	-
SEME610150320E	R0.3	1.5	4	2.3	20	50	1.45	-
SEME610150322E	R0.3	1.5	4	2.3	22	60	1.45	-
SEME610150326E	R0.3	1.5	4	2.3	26	60	1.45	-
★ SEME610150504E	R0.5	1.5	4	2.3	4	50	1.45	-
★ SEME610150506E	R0.5	1.5	4	2.3	6	50	1.45	-
★ SEME610150508E	R0.5	1.5	4	2.3	8	50	1.45	-
★ SEME610150510E	R0.5	1.5	4	2.3	10	50	1.45	-
★ SEME610150512E	R0.5	1.5	4	2.3	12	50	1.45	-
SEME610150514E	R0.5	1.5	4	2.3	14	50	1.45	-
★ SEME610150516E	R0.5	1.5	4	2.3	16	50	1.45	-

★ : Stock Item      ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

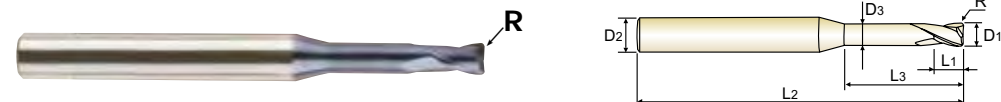


**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL**  
 (●) **Fraise carbure, 2 dents, torique, détalonnée**  
 (●) **MD, 2 TAGLIENTI, SCARICATA, TORICA**

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020 Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610150520E	R0.5	1.5	4	2.3	20	50	1.45	-
SEME610150522E	R0.5	1.5	4	2.3	22	60	1.45	-
SEME610150526E	R0.5	1.5	4	2.3	26	60	1.45	-
★ SEME610200106E	R0.1	2.0	4	3	6	50	1.95	-
★ SEME610200108E	R0.1	2.0	4	3	8	50	1.95	-
★ SEME610200110E	R0.1	2.0	4	3	10	50	1.95	-
★ SEME610200112E	R0.1	2.0	4	3	12	50	1.95	-
SEME610200114E	R0.1	2.0	4	3	14	50	1.95	-
SEME610200116E	R0.1	2.0	4	3	16	50	1.95	-
SEME610200120E	R0.1	2.0	4	3	20	50	1.95	-
SEME610200122E	R0.1	2.0	4	3	22	60	1.95	-
SEME610200126E	R0.1	2.0	4	3	26	60	1.95	-
SEME610200130E	R0.1	2.0	4	3	30	70	1.95	-
★ SEME610200206E	R0.2	2.0	4	3	6	50	1.95	-
★ SEME610200208E	R0.2	2.0	4	3	8	50	1.95	-
★ SEME610200210E	R0.2	2.0	4	3	10	50	1.95	-
★ SEME610200212E	R0.2	2.0	4	3	12	50	1.95	-
★ SEME610200214E	R0.2	2.0	4	3	14	50	1.95	-
★ SEME610200216E	R0.2	2.0	4	3	16	50	1.95	-
★ SEME610200220E	R0.2	2.0	4	3	20	50	1.95	-
SEME610200222E	R0.2	2.0	4	3	22	60	1.95	-
SEME610200226E	R0.2	2.0	4	3	26	60	1.95	-
SEME610200230E	R0.2	2.0	4	3	30	70	1.95	-
★ SEME610200306E	R0.3	2.0	4	3	6	50	1.95	-

★ : Stock Item ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

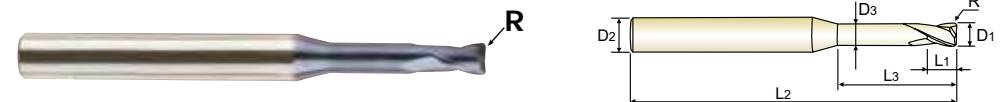


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-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020 Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME610200308E	R0.3	2.0	4	3	8	50	1.95	-
★ SEME610200310E	R0.3	2.0	4	3	10	50	1.95	-
★ SEME610200312E	R0.3	2.0	4	3	12	50	1.95	-
SEME610200314E	R0.3	2.0	4	3	14	50	1.95	-
★ SEME610200316E	R0.3	2.0	4	3	16	50	1.95	-
★ SEME610200320E	R0.3	2.0	4	3	20	50	1.95	-
SEME610200322E	R0.3	2.0	4	3	22	60	1.95	-
SEME610200326E	R0.3	2.0	4	3	26	60	1.95	-
SEME610200330E	R0.3	2.0	4	3	30	70	1.95	-
★ SEME610200506E	R0.5	2.0	4	3	6	50	1.95	-
★ SEME610200508E	R0.5	2.0	4	3	8	50	1.95	-
★ SEME610200510E	R0.5	2.0	4	3	10	50	1.95	-
★ SEME610200512E	R0.5	2.0	4	3	12	50	1.95	-
★ SEME610200514E	R0.5	2.0	4	3	14	50	1.95	-
★ SEME610200516E	R0.5	2.0	4	3	16	50	1.95	-
★ SEME610200520E	R0.5	2.0	4	3	20	50	1.95	-
SEME610200522E	R0.5	2.0	4	3	22	60	1.95	-
★ SEME610200526E	R0.5	2.0	4	3	26	60	1.95	-
★ SEME610200530E	R0.5	2.0	4	3	30	70	1.95	-
SE5E6102005086SE	R0.5	2.0	6	3	8	50	1.95	-
SEME610250108E	R0.1	2.5	4	4	8	50	2.40	-
SEME610250110E	R0.1	2.5	4	4	10	50	2.40	-
SEME610250112E	R0.1	2.5	4	4	12	50	2.40	-
SEME610250114E	R0.1	2.5	4	4	14	50	2.40	-

★ : Stock Item ▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
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over Ø6	± 0.015	0 ~ - 0.015	

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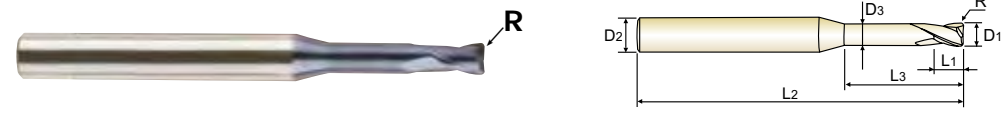
ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

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CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610250116E	R0.1	2.5	4	4	16	50	2.40	-
SEME610250120E	R0.1	2.5	4	4	20	50	2.40	-
SEME610250126E	R0.1	2.5	4	4	26	60	2.40	-
SEME610250130E	R0.1	2.5	4	4	30	70	2.40	-
SEME610250208E	R0.2	2.5	4	4	8	50	2.40	-
SEME610250210E	R0.2	2.5	4	4	10	50	2.40	-
SEME610250212E	R0.2	2.5	4	4	12	50	2.40	-
SEME610250214E	R0.2	2.5	4	4	14	50	2.40	-
SEME610250216E	R0.2	2.5	4	4	16	50	2.40	-
SEME610250220E	R0.2	2.5	4	4	20	50	2.40	-
SEME610250226E	R0.2	2.5	4	4	26	60	2.40	-
SEME610250230E	R0.2	2.5	4	4	30	70	2.40	-
SEME610250308E	R0.3	2.5	4	4	8	50	2.40	-
SEME610250310E	R0.3	2.5	4	4	10	50	2.40	-
SEME610250312E	R0.3	2.5	4	4	12	50	2.40	-
SEME610250314E	R0.3	2.5	4	4	14	50	2.40	-
SEME610250316E	R0.3	2.5	4	4	16	50	2.40	-
SEME610250320E	R0.3	2.5	4	4	20	50	2.40	-
SEME610250326E	R0.3	2.5	4	4	26	60	2.40	-
SEME610250330E	R0.3	2.5	4	4	30	70	2.40	-
★ SEME610250508E	R0.5	2.5	4	4	8	50	2.40	-
SEME610250510E	R0.5	2.5	4	4	10	50	2.40	-
SEME610250512E	R0.5	2.5	4	4	12	50	2.40	-
SEME610250514E	R0.5	2.5	4	4	14	50	2.40	-

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

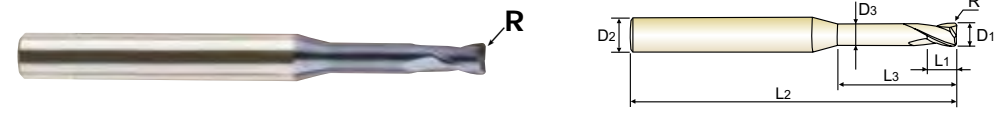
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	29	32	38	35	35	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

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CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
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EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610250516E	R0.5	2.5	4	4	16	50	2.40	-
SEME610250520E	R0.5	2.5	4	4	20	50	2.40	-
SEME610250526E	R0.5	2.5	4	4	26	60	2.40	-
SEME610250530E	R0.5	2.5	4	4	30	70	2.40	-
SEME610300108E	R0.1	3.0	6	4.5	8	50	2.85	-
★ SEME610300110E	R0.1	3.0	6	4.5	10	50	2.85	-
★ SEME610300112E	R0.1	3.0	6	4.5	12	50	2.85	-
SEME610300114E	R0.1	3.0	6	4.5	14	60	2.85	-
★ SEME610300116E	R0.1	3.0	6	4.5	16	60	2.85	-
★ SEME610300120E	R0.1	3.0	6	4.5	20	60	2.85	-
SEME610300126E	R0.1	3.0	6	4.5	26	65	2.85	-
SEME610300130E	R0.1	3.0	6	4.5	30	70	2.85	-
SEME610300135E	R0.1	3.0	6	4.5	35	70	2.85	-
SEME610300140E	R0.1	3.0	6	4.5	40	80	2.85	-
★ SEME610300208E	R0.2	3.0	6	4.5	8	50	2.85	-
★ SEME610300210E	R0.2	3.0	6	4.5	10	50	2.85	-
★ SEME610300212E	R0.2	3.0	6	4.5	12	50	2.85	-
SEME610300214E	R0.2	3.0	6	4.5	14	60	2.85	-
★ SEME610300216E	R0.2	3.0	6	4.5	16	60	2.85	-
★ SEME610300220E	R0.2	3.0	6	4.5	20	60	2.85	-
★ SEME610300226E	R0.2	3.0	6	4.5	26	65	2.85	-
SEME610300230E	R0.2	3.0	6	4.5	30	70	2.85	-
SEME610300235E	R0.2	3.0	6	4.5	35	70	2.85	-
SEME610300240E	R0.2	3.0	6	4.5	40	80	2.85	-

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
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VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	29	32	38	35	35	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○







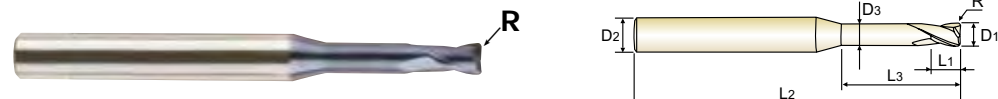
PLAIN SHANK SEME61 SERIES

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- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME610300308E	R0.3	3.0	6	4.5	8	50	2.85	-
★ SEME610300310E	R0.3	3.0	6	4.5	10	50	2.85	-
★ SEME610300312E	R0.3	3.0	6	4.5	12	50	2.85	-
★ SEME610300314E	R0.3	3.0	6	4.5	14	60	2.85	-
★ SEME610300316E	R0.3	3.0	6	4.5	16	60	2.85	-
★ SEME610300320E	R0.3	3.0	6	4.5	20	60	2.85	-
★ SEME610300326E	R0.3	3.0	6	4.5	26	65	2.85	-
SEME610300330E	R0.3	3.0	6	4.5	30	70	2.85	-
SEME610300335E	R0.3	3.0	6	4.5	35	70	2.85	-
SEME610300340E	R0.3	3.0	6	4.5	40	80	2.85	-
★ SEME610300508E	R0.5	3.0	6	4.5	8	50	2.85	-
★ SEME610300510E	R0.5	3.0	6	4.5	10	50	2.85	-
★ SEME610300512E	R0.5	3.0	6	4.5	12	50	2.85	-
★ SEME610300514E	R0.5	3.0	6	4.5	14	60	2.85	-
★ SEME610300516E	R0.5	3.0	6	4.5	16	60	2.85	-
★ SEME610300520E	R0.5	3.0	6	4.5	20	60	2.85	-
★ SEME610300526E	R0.5	3.0	6	4.5	26	65	2.85	-
★ SEME610300530E	R0.5	3.0	6	4.5	30	70	2.85	-
★ SEME610300535E	R0.5	3.0	6	4.5	35	70	2.85	-
SEME610300540E	R0.5	3.0	6	4.5	40	80	2.85	-
★ SEME610301008E	R1.0	3.0	6	4.5	8	50	2.85	-
★ SEME610301010E	R1.0	3.0	6	4.5	10	50	2.85	-
★ SEME610301012E	R1.0	3.0	6	4.5	12	50	2.85	-
SEME610301014E	R1.0	3.0	6	4.5	14	60	2.85	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○



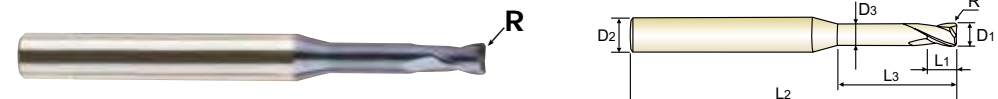
PLAIN SHANK SEME61 SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL  
 ( ) Fraise carbure, 2 dents, torique, détalonnée  
 ( ) MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME610301016E	R1.0	3.0	6	4.5	16	60	2.85	-
★ SEME610301020E	R1.0	3.0	6	4.5	20	60	2.85	-
★ SEME610301026E	R1.0	3.0	6	4.5	26	65	2.85	-
SEME610301030E	R1.0	3.0	6	4.5	30	70	2.85	-
SEME610301035E	R1.0	3.0	6	4.5	35	70	2.85	-
SEME610301040E	R1.0	3.0	6	4.5	40	80	2.85	-
★ SEME610400110E	R0.1	4.0	6	6	10	50	3.85	-
★ SEME610400112E	R0.1	4.0	6	6	12	50	3.85	-
SEME610400114E	R0.1	4.0	6	6	14	60	3.85	-
★ SEME610400116E	R0.1	4.0	6	6	16	60	3.85	-
★ SEME610400120E	R0.1	4.0	6	6	20	60	3.85	-
SEME610400126E	R0.1	4.0	6	6	26	65	3.85	-
SEME610400130E	R0.1	4.0	6	6	30	70	3.85	-
SEME610400135E	R0.1	4.0	6	6	35	70	3.85	-
SEME610400140E	R0.1	4.0	6	6	40	80	3.85	-
SEME610400145E	R0.1	4.0	6	6	45	90	3.85	-
SEME610400150E	R0.1	4.0	6	6	50	100	3.85	-
★ SEME610400210E	R0.2	4.0	6	6	10	50	3.85	-
★ SEME610400212E	R0.2	4.0	6	6	12	50	3.85	-
SEME610400214E	R0.2	4.0	6	6	14	60	3.85	-
★ SEME610400216E	R0.2	4.0	6	6	16	60	3.85	-
★ SEME610400220E	R0.2	4.0	6	6	20	60	3.85	-
★ SEME610400226E	R0.2	4.0	6	6	26	65	3.85	-
SEME610400230E	R0.2	4.0	6	6	30	70	3.85	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

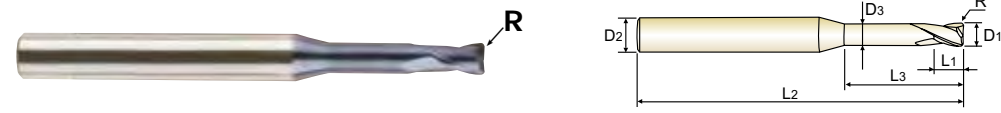
ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

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CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610400235E	R0.2	4.0	6	6	35	70	3.85	-
SEME610400240E	R0.2	4.0	6	6	40	80	3.85	-
SEME610400245E	R0.2	4.0	6	6	45	90	3.85	-
SEME610400250E	R0.2	4.0	6	6	50	100	3.85	-
SEME610400310E	R0.3	4.0	6	6	10	50	3.85	-
★ SEME610400312E	R0.3	4.0	6	6	12	50	3.85	-
SEME610400314E	R0.3	4.0	6	6	14	50	3.85	-
★ SEME610400316E	R0.3	4.0	6	6	16	50	3.85	-
★ SEME610400320E	R0.3	4.0	6	6	20	50	3.85	-
★ SEME610400326E	R0.3	4.0	6	6	26	65	3.85	-
SEME610400330E	R0.3	4.0	6	6	30	70	3.85	-
SEME610400335E	R0.3	4.0	6	6	35	70	3.85	-
SEME610400340E	R0.3	4.0	6	6	40	80	3.85	-
SEME610400345E	R0.3	4.0	6	6	45	90	3.85	-
SEME610400350E	R0.3	4.0	6	6	50	100	3.85	-
★ SEME610400510E	R0.5	4.0	6	6	10	50	3.85	-
★ SEME610400512E	R0.5	4.0	6	6	12	50	3.85	-
★ SEME610400514E	R0.5	4.0	6	6	14	60	3.85	-
★ SEME610400516E	R0.5	4.0	6	6	16	60	3.85	-
★ SEME610400520E	R0.5	4.0	6	6	20	60	3.85	-
★ SEME610400526E	R0.5	4.0	6	6	26	65	3.85	-
★ SEME610400530E	R0.5	4.0	6	6	30	70	3.85	-
★ SEME610400535E	R0.5	4.0	6	6	35	70	3.85	-
SEME610400540E	R0.5	4.0	6	6	40	80	3.85	-

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

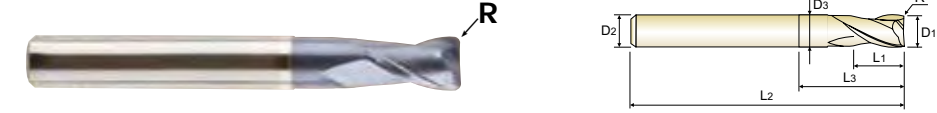


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CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME610400545E	R0.5	4.0	6	6	45	90	3.85	-
SEME610400550E	R0.5	4.0	6	6	50	100	3.85	-
★ SEME610401010E	R1.0	4.0	6	6	10	50	3.85	-
★ SEME610401012E	R1.0	4.0	6	6	12	50	3.85	-
SEME610401014E	R1.0	4.0	6	6	14	60	3.85	-
★ SEME610401016E	R1.0	4.0	6	6	16	60	3.85	-
★ SEME610401020E	R1.0	4.0	6	6	20	60	3.85	-
★ SEME610401026E	R1.0	4.0	6	6	26	65	3.85	-
★ SEME610401030E	R1.0	4.0	6	6	30	70	3.85	-
SEME610401035E	R1.0	4.0	6	6	35	70	3.85	-
★ SEME610401040E	R1.0	4.0	6	6	40	80	3.85	-
SEME610401045E	R1.0	4.0	6	6	45	90	3.85	-
SEME610401050E	R1.0	4.0	6	6	50	100	3.85	-
SEME6105001E	R0.1	5.0	6	8	15	60	4.85	-
SEME6105002E	R0.2	5.0	6	8	15	60	4.85	-
SEME6105003E	R0.3	5.0	6	8	15	60	4.85	-
SEME6105005E	R0.5	5.0	6	8	15	60	4.85	-
SEME6105010E	R1.0	5.0	6	8	15	60	4.85	-
SEME6105015E	R1.5	5.0	6	8	15	60	4.85	-
SEME6105020E	R2.0	5.0	6	8	15	60	4.85	-
SEME6106001E	R0.1	6.0	6	9	20	60	5.85	Regular
★ SEME6106002E	R0.2	6.0	6	9	20	60	5.85	Regular
★ SEME6106003E	R0.3	6.0	6	9	20	60	5.85	Regular
★ SEME6106005E	R0.5	6.0	6	9	20	60	5.85	Regular

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

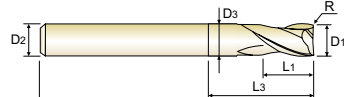


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CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME6106010E	R1.0	6.0	6	9	20	60	5.85	Regular
SEME6106015E	R1.5	6.0	6	9	20	60	5.85	Regular
SEME6106020E	R2.0	6.0	6	9	20	60	5.85	Regular
SEME6106003090E	R0.3	6.0	6	15	30	90	5.85	Long Shank
SEME610600524E	R0.5	6.0	6	9	24	90	5.85	-
★ SEME6106005090E	R0.5	6.0	6	15	30	90	5.85	Long Shank
★ SEME6106010090E	R1.0	6.0	6	15	30	90	5.85	Long Shank
SEME6108001E	R0.1	8.0	8	12	25	70	7.70	Regular
★ SEME6108002E	R0.2	8.0	8	12	25	70	7.70	Regular
★ SEME6108003E	R0.3	8.0	8	12	25	70	7.70	Regular
★ SEME6108005E	R0.5	8.0	8	12	25	70	7.70	Regular
★ SEME6108010E	R1.0	8.0	8	12	25	70	7.70	Regular
SEME6108015E	R1.5	8.0	8	12	25	70	7.70	Regular
SEME6108020E	R2.0	8.0	8	12	25	70	7.70	Regular
SEME6108003100E	R0.3	8.0	8	20	35	100	7.70	Long Shank
★ SEME6108005100E	R0.5	8.0	8	20	35	100	7.70	Long Shank
★ SEME6108010100E	R1.0	8.0	8	20	35	100	7.70	Long Shank
SEME6110001E	R0.1	10.0	10	15	30	75	9.70	Regular
SEME6110002E	R0.2	10.0	10	15	30	75	9.70	Regular
★ SEME6110003E	R0.3	10.0	10	15	30	75	9.70	Regular
★ SEME6110005E	R0.5	10.0	10	15	30	75	9.70	Regular
★ SEME6110010E	R1.0	10.0	10	15	30	75	9.70	Regular
SEME6110015E	R1.5	10.0	10	15	30	75	9.70	Regular
SEME6110020E	R2.0	10.0	10	15	30	75	9.70	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	◎	○



**CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL**  
 (●) **Fraise carbure, 2 dents, torique, détalonnée**  
 (●) **MD, 2 TAGLIENTI, SCARICATA, TORICA**

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergrütem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE 2 30° ±0.010 ±0.015 PLAIN Coating Y p.C276-283

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

00.2-06 07-020

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME6110003100E	R0.3	10.0	10	25	40	100	9.70	Long Shank
★ SEME6110005100E	R0.5	10.0	10	25	40	100	9.70	Long Shank
★ SEME6110010100E	R1.0	10.0	10	25	40	100	9.70	Long Shank
SEME6112002E	R0.2	12.0	12	18	32	80	11.70	Regular
SEME6112003E	R0.3	12.0	12	18	32	80	11.70	Regular
★ SEME6112005E	R0.5	12.0	12	18	32	80	11.70	Regular
★ SEME6112010E	R1.0	12.0	12	18	32	80	11.70	Regular
★ SEME6112015E	R1.5	12.0	12	18	32	80	11.70	Regular
SEME6112020E	R2.0	12.0	12	18	32	80	11.70	Regular
SEME6112003110E	R0.3	12.0	12	30	50	110	11.70	Long Shank
SEME6112005110E	R0.5	12.0	12	30	50	110	11.70	Long Shank
★ SEME6112010110E	R1.0	12.0	12	30	50	110	11.70	Long Shank
★ SEME6116005E	R0.5	16.0	16	20	35	100	15.70	Regular
★ SEME6116010E	R1.0	16.0	16	20	35	100	15.70	Regular
SEME6116005150E	R0.5	16.0	16	35	50	150	15.70	Long Shank
SEME6116010150E	R1.0	16.0	16	35	50	150	15.70	Long Shank
★ SEME6120005E	R0.5	20.0	20	25	40	100	19.70	Regular
★ SEME6120010E	R1.0	20.0	20	25	40	100	19.70	Regular
SEME6120005150E	R0.5	20.0	20	40	55	150	19.70	Long Shank
SEME6120010150E	R1.0	20.0	20	40	55	150	19.70	Long Shank

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	◎	○





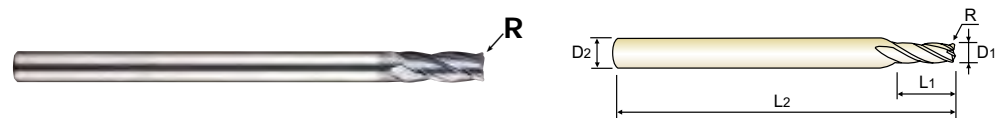
PLAIN SHANK SEME01 SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
- Fraise carbure, 4 dents, torique, hélice multiple
- MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEME010100054SE	R0.05	1.0	4	2.5	50	4mm Shank
SEME01010014SE	R0.1	1.0	4	2.5	50	4mm Shank
SEME01010024SE	R0.2	1.0	4	2.5	50	4mm Shank
SEME01010034SE	R0.3	1.0	4	2.5	50	4mm Shank
SEME01010005E	R0.05	1.0	6	2.5	50	-
★ SEME0101001E	R0.1	1.0	6	2.5	50	-
SEME0101002E	R0.2	1.0	6	2.5	50	-
SEME0101003E	R0.3	1.0	6	2.5	50	-
SEME010120054SE	R0.05	1.2	4	3	50	4mm Shank
SEME01012014SE	R0.1	1.2	4	3	50	4mm Shank
SEME01012024SE	R0.2	1.2	4	3	50	4mm Shank
SEME01012034SE	R0.3	1.2	4	3	50	4mm Shank
SEME01012005E	R0.05	1.2	6	3	50	-
SEME0101201E	R0.1	1.2	6	3	50	-
SEME0101202E	R0.2	1.2	6	3	50	-
SEME0101203E	R0.3	1.2	6	3	50	-
SEME010150054SE	R0.05	1.5	4	4	50	4mm Shank
SEME01015014SE	R0.1	1.5	4	4	50	4mm Shank
SEME01015024SE	R0.2	1.5	4	4	50	4mm Shank
SEME01015034SE	R0.3	1.5	4	4	50	4mm Shank
SEME01015054SE	R0.5	1.5	4	4	50	4mm Shank
SEME01015005E	R0.05	1.5	6	4	50	-
SEME0101501E	R0.1	1.5	6	4	50	-
SEME0101502E	R0.2	1.5	6	4	50	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



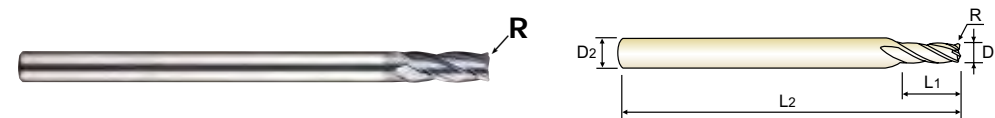
PLAIN SHANK SEME01 SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
- Fraise carbure, 4 dents, torique, hélice multiple
- MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEME0101503E	R0.3	1.5	6	4	50	-
SEME0101505E	R0.5	1.5	6	4	50	-
SEME01020014SE	R0.1	2.0	4	6	50	4mm Shank
SEME01020024SE	R0.2	2.0	4	6	50	4mm Shank
SEME01020034SE	R0.3	2.0	4	6	50	4mm Shank
SEME01020054SE	R0.5	2.0	4	6	50	4mm Shank
★ SEME0102001E	R0.1	2.0	6	6	50	-
★ SEME0102002E	R0.2	2.0	6	6	50	-
SEME0102003E	R0.3	2.0	6	6	50	-
SEME0102005E	R0.5	2.0	6	6	50	-
SEME01025014SE	R0.1	2.5	4	7	60	4mm Shank
SEME01025024SE	R0.2	2.5	4	7	60	4mm Shank
SEME01025034SE	R0.3	2.5	4	7	60	4mm Shank
SEME01025054SE	R0.5	2.5	4	7	60	4mm Shank
SEME0102501E	R0.1	2.5	6	7	60	-
SEME0102502E	R0.2	2.5	6	7	60	-
SEME0102503E	R0.3	2.5	6	7	60	-
SEME0102505E	R0.5	2.5	6	7	60	-
SEME0103001E	R0.1	3.0	6	8	60	-
★ SEME0103002E	R0.2	3.0	6	8	60	-
★ SEME0103003E	R0.3	3.0	6	8	60	-
★ SEME0103005E	R0.5	3.0	6	8	60	-
SEME0103010E	R1.0	3.0	6	8	60	-
SEME0103501E	R0.1	3.5	6	10	70	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

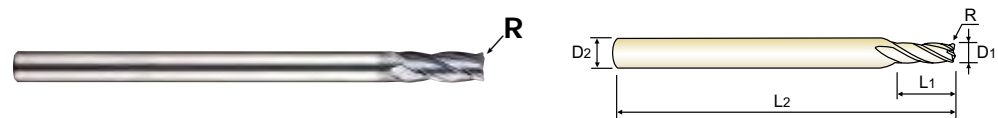
**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS** (Short, Regular, Long Shank)

**VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS**

- Fraise carbure, 4 dents, torique, hélice multiple
- MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- Available in short, regular and long shank end mills.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- Erhältlich in den Schaft-Ausführungen: standard und lang.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEME0103502E	R0.2	3.5	6	10	70	-
SEME0103503E	R0.3	3.5	6	10	70	-
SEME0103505E	R0.5	3.5	6	10	70	-
SEME01040014SE	R0.1	4.0	4	10	70	4mm Shank
SEME01040024SE	R0.2	4.0	4	10	70	4mm Shank
SEME01040034SE	R0.3	4.0	4	10	70	4mm Shank
SEME01040054SE	R0.5	4.0	4	10	70	4mm Shank
SEME01040104SE	R1.0	4.0	4	10	70	4mm Shank
SEME01040011004SE	R0.1	4.0	4	10	100	4mm Shank
SEME01040021004SE	R0.2	4.0	4	10	100	4mm Shank
SEME01040031004SE	R0.3	4.0	4	10	100	4mm Shank
SEME01040051004SE	R0.5	4.0	4	10	100	4mm Shank
SEME01040101004SE	R1.0	4.0	4	10	100	4mm Shank
SEME0104001E	R0.1	4.0	6	10	70	Regular
★ SEME0104002E	R0.2	4.0	6	10	70	Regular
★ SEME0104003E	R0.3	4.0	6	10	70	Regular
★ SEME0104005E	R0.5	4.0	6	10	70	Regular
★ SEME0104010E	R1.0	4.0	6	10	70	Regular
SEME0104501E	R0.1	4.5	6	11	80	-
SEME0104502E	R0.2	4.5	6	11	80	-
SEME0104503E	R0.3	4.5	6	11	80	-
SEME0104505E	R0.5	4.5	6	11	80	-
SEME0105001E	R0.1	5.0	6	13	90	-
SEME0105002E	R0.2	5.0	6	13	90	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron	Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS** (Short, Regular, Long Shank)

**VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS**

- Fraise carbure, 4 dents, torique, hélice multiple
- MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
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- Available in short, regular and long shank end mills.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- Erhältlich in den Schaft-Ausführungen: standard und lang.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEME0105003E	R0.3	5.0	6	13	90	-
★ SEME0105005E	R0.5	5.0	6	13	90	-
SEME0105010E	R1.0	5.0	6	13	90	-
SEME0105501E	R0.1	5.5	6	13	90	-
SEME0105502E	R0.2	5.5	6	13	90	-
SEME0105503E	R0.3	5.5	6	13	90	-
SEME0105505E	R0.5	5.5	6	13	90	-
SEME0105510E	R1.0	5.5	6	13	90	-
SEME0106001060E	R0.1	6.0	6	15	60	Short
SEME0106002060E	R0.2	6.0	6	15	60	Short
SEME0106001E	R0.1	6.0	6	15	90	Regular
★ SEME0106002E	R0.2	6.0	6	15	90	Regular
★ SEME0106003E	R0.3	6.0	6	15	90	Regular
★ SEME0106005E	R0.5	6.0	6	15	90	Regular
★ SEME0106010E	R1.0	6.0	6	15	90	Regular
SEME0106015E	R1.5	6.0	6	15	90	Regular
SEME0106020E	R2.0	6.0	6	15	90	Regular
SEME0106005110E	R0.5	6.0	6	15	110	Long Shank
SEME0106010110E	R1.0	6.0	6	15	110	Long Shank
SEME0106005130E	R0.5	6.0	6	15	130	Long Shank
SEME0106010130E	R1.0	6.0	6	15	130	Long Shank
SEME0107001E	R0.1	7.0	8	16	90	-
SEME0107002E	R0.2	7.0	8	16	90	-
SEME0107003E	R0.3	7.0	8	16	90	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron	Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK SEME01 SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
- Fraise carbure, 4 dents, torique, hélice multiple
- VMD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEME0107005E	R0.5	7.0	8	16	90	-
SEME0107010E	R1.0	7.0	8	16	90	-
SEME0107020E	R2.0	7.0	8	16	90	-
★ SEME0108003070E	R0.3	8.0	8	20	70	Short
★ SEME0108005070E	R0.5	8.0	8	20	70	Short
★ SEME0108010070E	R1.0	8.0	8	20	70	Short
SEME0108001E	R0.1	8.0	8	20	100	Regular
★ SEME0108002E	R0.2	8.0	8	20	100	Regular
★ SEME0108003E	R0.3	8.0	8	20	100	Regular
★ SEME0108005E	R0.5	8.0	8	20	100	Regular
★ SEME0108010E	R1.0	8.0	8	20	100	Regular
★ SEME0108015E	R1.5	8.0	8	20	100	Regular
★ SEME0108020E	R2.0	8.0	8	20	100	Regular
SEME0108025E	R2.5	8.0	8	20	100	Regular
SEME0108030E	R3.0	8.0	8	20	100	Regular
SEME0108005120E	R0.5	8.0	8	20	120	Long Shank
SEME0108010120E	R1.0	8.0	8	20	120	Long Shank
SEME0108005150E	R0.5	8.0	8	20	150	Long Shank
SEME0108010150E	R1.0	8.0	8	20	150	Long Shank
SEME0110003075E	R0.3	10.0	10	25	75	Short
SEME0110005075E	R0.5	10.0	10	25	75	Short
SEME0110010075E	R1.0	10.0	10	25	75	Short
SEME0110001E	R0.1	10.0	10	25	100	Regular
SEME0110002E	R0.2	10.0	10	25	100	Regular

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK SEME01 SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
- Fraise carbure, 4 dents, torique, hélice multiple
- VMD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
SEME0110003E	R0.3	10.0	10	25	100	Regular
SEME0110005E	R0.5	10.0	10	25	100	Regular
★ SEME0110010E	R1.0	10.0	10	25	100	Regular
★ SEME0110015E	R1.5	10.0	10	25	100	Regular
★ SEME0110020E	R2.0	10.0	10	25	100	Regular
★ SEME0110025E	R2.5	10.0	10	25	100	Regular
SEME0110030E	R3.0	10.0	10	25	100	Regular
SEME0110040E	R4.0	10.0	10	25	100	Regular
SEME0110005130E	R0.5	10.0	10	22	130	Long Shank
SEME0110010130E	R1.0	10.0	10	22	130	Long Shank
SEME0110005150E	R0.5	10.0	10	22	150	Long Shank
SEME0110010150E	R1.0	10.0	10	22	150	Long Shank
★ SEME0111002E	R0.2	11.0	12	25	110	-
★ SEME0111003E	R0.3	11.0	12	25	110	-
SEME0111005E	R0.5	11.0	12	25	110	-
SEME0111010E	R1.0	11.0	12	25	110	-
SEME0111020E	R2.0	11.0	12	25	110	-
SEME0112003080E	R0.3	12.0	12	30	80	Short
SEME0112005080E	R0.5	12.0	12	30	80	Short
SEME0112010080E	R1.0	12.0	12	30	80	Short
SEME0112001E	R0.1	12.0	12	30	110	Regular
SEME0112002E	R0.2	12.0	12	30	110	Regular
SEME0112003E	R0.3	12.0	12	30	110	Regular
★ SEME0112005E	R0.5	12.0	12	30	110	Regular

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





PLAIN SHANK SEME01 SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)**

- VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
- Fraise carbure, 4 dents, torique, hélice multiple
- VMD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	R	D1	D2	L1	L2	
★ SEME0112010E	R1.0	12.0	12	30	110	Regular
★ SEME0112015E	R1.5	12.0	12	30	110	Regular
★ SEME0112020E	R2.0	12.0	12	30	110	Regular
SEME0112025E	R2.5	12.0	12	30	110	Regular
SEME0112030E	R3.0	12.0	12	30	110	Regular
SEME0112040E	R4.0	12.0	12	30	110	Regular
SEME0112050E	R5.0	12.0	12	30	110	Regular
SEME0112005130E	R0.5	12.0	12	30	130	Long Shank
SEME0112010130E	R1.0	12.0	12	30	130	Long Shank
SEME0112005150E	R0.5	12.0	12	30	130	Long Shank
SEME0112010150E	R1.0	12.0	12	30	130	Long Shank
SEME0114005E	R0.5	14.0	16	35	150	-
SEME0114010E	R1.0	14.0	16	35	150	-
SEME0114020E	R2.0	14.0	16	35	150	-
★ SEME0116005E	R0.5	16.0	16	32	150	-
★ SEME0116010E	R1.0	16.0	16	32	150	-
★ SEME0116015E	R1.5	16.0	16	32	150	-
★ SEME0116020E	R2.0	16.0	16	32	150	-
SEME0120005E	R0.5	20.0	20	38	150	-
★ SEME0120010E	R1.0	20.0	20	38	150	-
SEME0120015E	R1.5	20.0	20	38	150	-
★ SEME0120020E	R2.0	20.0	20	38	150	-

★ : Stock Item

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron	Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○



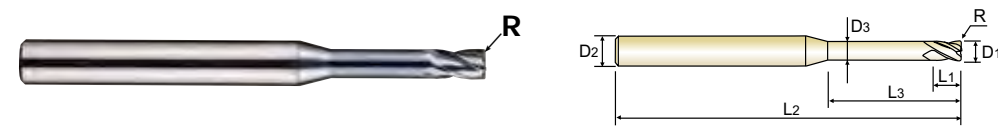
PLAIN SHANK SEME64 SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETEL
- Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
- MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME6401000503E	R0.05	1.0	4	1.5	3	50	0.95	-
SEME6401000504E	R0.05	1.0	4	1.5	4	50	0.95	-
SEME6401000506E	R0.05	1.0	4	1.5	6	50	0.95	-
SEME6401000508E	R0.05	1.0	4	1.5	8	50	0.95	-
SEME6401000510E	R0.05	1.0	4	1.5	10	50	0.95	-
SEME6401000512E	R0.05	1.0	4	1.5	12	50	0.95	-
SEME6401000514E	R0.05	1.0	4	1.5	14	50	0.95	-
SEME6401000516E	R0.05	1.0	4	1.5	16	50	0.95	-
SEME6401000520E	R0.05	1.0	4	1.5	20	50	0.95	-
SEME640100103E	R0.1	1.0	4	1.5	3	50	0.95	-
★ SEME640100104E	R0.1	1.0	4	1.5	4	50	0.95	-
★ SEME640100106E	R0.1	1.0	4	1.5	6	50	0.95	-
★ SEME640100108E	R0.1	1.0	4	1.5	8	50	0.95	-
SEME640100110E	R0.1	1.0	4	1.5	10	50	0.95	-
SEME640100112E	R0.1	1.0	4	1.5	12	50	0.95	-
SEME640100114E	R0.1	1.0	4	1.5	14	50	0.95	-
SEME640100116E	R0.1	1.0	4	1.5	16	50	0.95	-
SEME640100120E	R0.1	1.0	4	1.5	20	50	0.95	-
SEME640100203E	R0.2	1.0	4	1.5	3	50	0.95	-
★ SEME640100204E	R0.2	1.0	4	1.5	4	50	0.95	-
★ SEME640100206E	R0.2	1.0	4	1.5	6	50	0.95	-
★ SEME640100208E	R0.2	1.0	4	1.5	8	50	0.95	-
★ SEME640100210E	R0.2	1.0	4	1.5	10	50	0.95	-
SEME640100212E	R0.2	1.0	4	1.5	12	50	0.95	-

★ : Stock Item

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

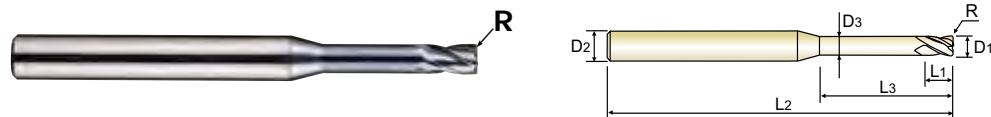
ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron	Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

● **VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL**  
 (●) **Fraise carbure, 4 dents, torique, hélice multiple, détalonnée**  
 (●) **MD, 4 TAGLIENTI, SCARICATA, TORICA**

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME640100214E	R0.2	1.0	4	1.5	14	50	0.95	-
SEME640100216E	R0.2	1.0	4	1.5	16	50	0.95	-
SEME640100220E	R0.2	1.0	4	1.5	20	50	0.95	-
SEME640100303E	R0.3	1.0	4	1.5	3	50	0.95	-
★ SEME640100304E	R0.3	1.0	4	1.5	4	50	0.95	-
★ SEME640100306E	R0.3	1.0	4	1.5	6	50	0.95	-
★ SEME640100308E	R0.3	1.0	4	1.5	8	50	0.95	-
SEME640100310E	R0.3	1.0	4	1.5	10	50	0.95	-
SEME640100312E	R0.3	1.0	4	1.5	12	50	0.95	-
SEME640100314E	R0.3	1.0	4	1.5	14	50	0.95	-
SEME640100316E	R0.3	1.0	4	1.5	16	50	0.95	-
SEME640100320E	R0.3	1.0	4	1.5	20	50	0.95	-
SEME6401200503E	R0.05	1.2	4	1.8	3	50	1.15	-
SEME6401200504E	R0.05	1.2	4	1.8	4	50	1.15	-
SEME6401200506E	R0.05	1.2	4	1.8	6	50	1.15	-
SEME6401200508E	R0.05	1.2	4	1.8	8	50	1.15	-
SEME6401200510E	R0.05	1.2	4	1.8	10	50	1.15	-
SEME6401200512E	R0.05	1.2	4	1.8	12	50	1.15	-
SEME6401200516E	R0.05	1.2	4	1.8	16	50	1.15	-
SEME6401200520E	R0.05	1.2	4	1.8	20	50	1.15	-
SEME640120103E	R0.1	1.2	4	1.8	3	50	1.15	-
★ SEME640120104E	R0.1	1.2	4	1.8	4	50	1.15	-
★ SEME640120106E	R0.1	1.2	4	1.8	6	50	1.15	-
★ SEME640120108E	R0.1	1.2	4	1.8	8	50	1.15	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○		

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	40	41			
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○		

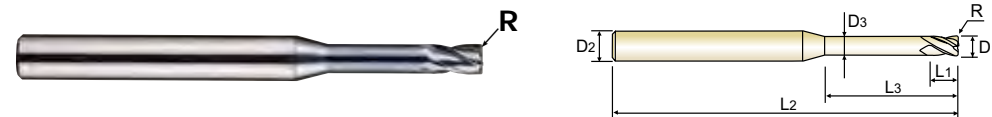


**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

● **VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL**  
 (●) **Fraise carbure, 4 dents, torique, hélice multiple, détalonnée**  
 (●) **MD, 4 TAGLIENTI, SCARICATA, TORICA**

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME640120110E	R0.1	1.2	4	1.8	10	50	1.15	-
SEME640120112E	R0.1	1.2	4	1.8	12	50	1.15	-
SEME640120116E	R0.1	1.2	4	1.8	16	50	1.15	-
SEME640120120E	R0.1	1.2	4	1.8	20	50	1.15	-
SEME640120203E	R0.2	1.2	4	1.8	3	50	1.15	-
★ SEME640120204E	R0.2	1.2	4	1.8	4	50	1.15	-
★ SEME640120206E	R0.2	1.2	4	1.8	6	50	1.15	-
★ SEME640120208E	R0.2	1.2	4	1.8	8	50	1.15	-
SEME640120210E	R0.2	1.2	4	1.8	10	50	1.15	-
SEME640120212E	R0.2	1.2	4	1.8	12	50	1.15	-
SEME640120216E	R0.2	1.2	4	1.8	16	50	1.15	-
SEME640120220E	R0.2	1.2	4	1.8	20	50	1.15	-
SEME640120303E	R0.3	1.2	4	1.8	3	50	1.15	-
★ SEME640120304E	R0.3	1.2	4	1.8	4	50	1.15	-
★ SEME640120306E	R0.3	1.2	4	1.8	6	50	1.15	-
★ SEME640120308E	R0.3	1.2	4	1.8	8	50	1.15	-
SEME640120310E	R0.3	1.2	4	1.8	10	50	1.15	-
SEME640120312E	R0.3	1.2	4	1.8	12	50	1.15	-
SEME640120316E	R0.3	1.2	4	1.8	16	50	1.15	-
SEME640120320E	R0.3	1.2	4	1.8	20	50	1.15	-
SEME6401500504E	R0.05	1.5	4	2.3	4	50	1.45	-
SEME6401500506E	R0.05	1.5	4	2.3	6	50	1.45	-
SEME6401500508E	R0.05	1.5	4	2.3	8	50	1.45	-
SEME6401500510E	R0.05	1.5	4	2.3	10	50	1.45	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○		

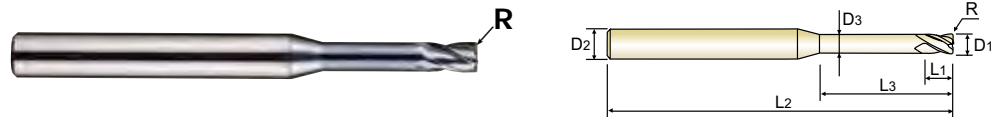
ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	60	42	55	40	41			
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○		

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

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- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE 4 27°/30° ±0.02 PLAIN Coating Y p.C286-289

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME6401500512E	R0.05	1.5	4	2.3	12	50	1.45	-
SEME6401500514E	R0.05	1.5	4	2.3	14	50	1.45	-
SEME6401500516E	R0.05	1.5	4	2.3	16	50	1.45	-
SEME6401500520E	R0.05	1.5	4	2.3	20	50	1.45	-
SEME6401500522E	R0.05	1.5	4	2.3	22	60	1.45	-
SEME6401500526E	R0.05	1.5	4	2.3	26	60	1.45	-
SEME640150104E	R0.1	1.5	4	2.3	4	50	1.45	-
★ SEME640150106E	R0.1	1.5	4	2.3	6	50	1.45	-
★ SEME640150108E	R0.1	1.5	4	2.3	8	50	1.45	-
★ SEME640150110E	R0.1	1.5	4	2.3	10	50	1.45	-
★ SEME640150112E	R0.1	1.5	4	2.3	12	50	1.45	-
SEME640150114E	R0.1	1.5	4	2.3	14	50	1.45	-
SEME640150116E	R0.1	1.5	4	2.3	16	50	1.45	-
SEME640150118E	R0.1	1.5	4	2.3	18	50	1.45	-
SEME640150120E	R0.1	1.5	4	2.3	20	50	1.45	-
SEME640150122E	R0.1	1.5	4	2.3	22	60	1.45	-
SEME640150126E	R0.1	1.5	4	2.3	26	60	1.45	-
SEME640150204E	R0.2	1.5	4	2.3	4	50	1.45	-
★ SEME640150206E	R0.2	1.5	4	2.3	6	50	1.45	-
★ SEME640150208E	R0.2	1.5	4	2.3	8	50	1.45	-
★ SEME640150210E	R0.2	1.5	4	2.3	10	50	1.45	-
★ SEME640150212E	R0.2	1.5	4	2.3	12	50	1.45	-
SEME640150214E	R0.2	1.5	4	2.3	14	50	1.45	-
SEME640150216E	R0.2	1.5	4	2.3	16	50	1.45	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
HB	60	100	75	90	130	110	90	100															
Recommend																				○	◎	○	

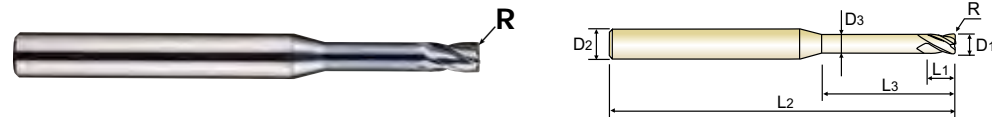


**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

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CARBIDE 4 27°/30° ±0.02 PLAIN Coating Y p.C286-289

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME640150220E	R0.2	1.5	4	2.3	20	50	1.45	-
SEME640150222E	R0.2	1.5	4	2.3	22	60	1.45	-
SEME640150226E	R0.2	1.5	4	2.3	26	60	1.45	-
SEME640150304E	R0.3	1.5	4	2.3	4	50	1.45	-
★ SEME640150306E	R0.3	1.5	4	2.3	6	50	1.45	-
★ SEME640150308E	R0.3	1.5	4	2.3	8	50	1.45	-
★ SEME640150310E	R0.3	1.5	4	2.3	10	50	1.45	-
★ SEME640150312E	R0.3	1.5	4	2.3	12	50	1.45	-
SEME640150314E	R0.3	1.5	4	2.3	14	50	1.45	-
SEME640150316E	R0.3	1.5	4	2.3	16	50	1.45	-
SEME640150320E	R0.3	1.5	4	2.3	20	50	1.45	-
SEME640150322E	R0.3	1.5	4	2.3	22	60	1.45	-
SEME640150326E	R0.3	1.5	4	2.3	26	60	1.45	-
SEME640150504E	R0.5	1.5	4	2.3	4	50	1.45	-
★ SEME640150506E	R0.5	1.5	4	2.3	6	50	1.45	-
★ SEME640150508E	R0.5	1.5	4	2.3	8	50	1.45	-
★ SEME640150510E	R0.5	1.5	4	2.3	10	50	1.45	-
★ SEME640150512E	R0.5	1.5	4	2.3	12	50	1.45	-
SEME640150514E	R0.5	1.5	4	2.3	14	50	1.45	-
SEME640150516E	R0.5	1.5	4	2.3	16	50	1.45	-
SEME640150520E	R0.5	1.5	4	2.3	20	50	1.45	-
SEME640150522E	R0.5	1.5	4	2.3	22	60	1.45	-
SEME640150526E	R0.5	1.5	4	2.3	26	60	1.45	-
★ SEME640200106E	R0.1	2.0	4	3	6	50	1.95	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
HB	60	100	75	90	130	110	90	100															
Recommend																				○	◎	○	





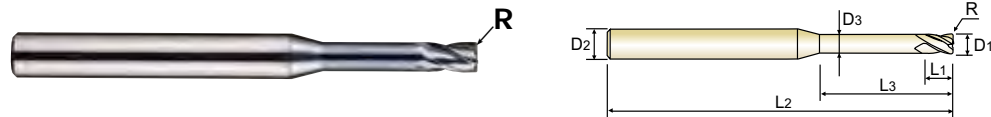
PLAIN SHANK SEME64 SERIES

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Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME640200108E	R0.1	2.0	4	3	8	50	1.95	-
★ SEME640200110E	R0.1	2.0	4	3	10	50	1.95	-
★ SEME640200112E	R0.1	2.0	4	3	12	50	1.95	-
SEME640200114E	R0.1	2.0	4	3	14	50	1.95	-
SEME640200116E	R0.1	2.0	4	3	16	50	1.95	-
SEME640200120E	R0.1	2.0	4	3	20	50	1.95	-
SEME640200122E	R0.1	2.0	4	3	22	60	1.95	-
SEME640200126E	R0.1	2.0	4	3	26	60	1.95	-
SEME640200130E	R0.1	2.0	4	3	30	70	1.95	-
★ SEME640200206E	R0.2	2.0	4	3	6	50	1.95	-
★ SEME640200208E	R0.2	2.0	4	3	8	50	1.95	-
★ SEME640200210E	R0.2	2.0	4	3	10	50	1.95	-
★ SEME640200212E	R0.2	2.0	4	3	12	50	1.95	-
SEME640200214E	R0.2	2.0	4	3	14	50	1.95	-
SEME640200216E	R0.2	2.0	4	3	16	50	1.95	-
SEME640200220E	R0.2	2.0	4	3	20	50	1.95	-
SEME640200222E	R0.2	2.0	4	3	22	60	1.95	-
SEME640200226E	R0.2	2.0	4	3	26	60	1.95	-
SEME640200230E	R0.2	2.0	4	3	30	70	1.95	-
★ SEME640200306E	R0.3	2.0	4	3	6	50	1.95	-
★ SEME640200308E	R0.3	2.0	4	3	8	50	1.95	-
★ SEME640200310E	R0.3	2.0	4	3	10	50	1.95	-
★ SEME640200312E	R0.3	2.0	4	3	12	50	1.95	-
SEME640200314E	R0.3	2.0	4	3	14	50	1.95	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	



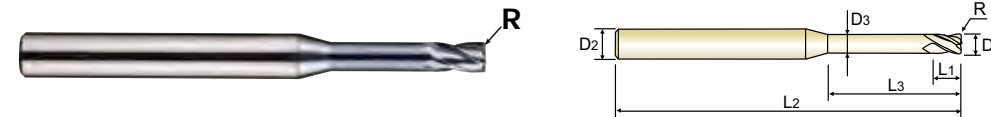
PLAIN SHANK SEME64 SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

● VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL  
 (●) Fraise carbure, 4 dents, torique, hélice multiple, détalonnée  
 (●) MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME640200316E	R0.3	2.0	4	3	16	50	1.95	-
SEME640200320E	R0.3	2.0	4	3	20	50	1.95	-
SEME640200322E	R0.3	2.0	4	3	22	60	1.95	-
SEME640200326E	R0.3	2.0	4	3	26	60	1.95	-
SEME640200330E	R0.3	2.0	4	3	30	70	1.95	-
★ SEME640200506E	R0.5	2.0	4	3	6	50	1.95	-
★ SEME640200508E	R0.5	2.0	4	3	8	50	1.95	-
★ SEME640200510E	R0.5	2.0	4	3	10	50	1.95	-
★ SEME640200512E	R0.5	2.0	4	3	12	50	1.95	-
★ SEME640200514E	R0.5	2.0	4	3	14	50	1.95	-
★ SEME640200516E	R0.5	2.0	4	3	16	50	1.95	-
★ SEME640200520E	R0.5	2.0	4	3	20	50	1.95	-
SEME640200522E	R0.5	2.0	4	3	22	60	1.95	-
SEME640200526E	R0.5	2.0	4	3	26	60	1.95	-
SEME640200530E	R0.5	2.0	4	3	30	70	1.95	-
SEME640250108E	R0.1	2.5	4	4	8	50	2.40	-
SEME640250110E	R0.1	2.5	4	4	10	50	2.40	-
SEME640250112E	R0.1	2.5	4	4	12	50	2.40	-
SEME640250114E	R0.1	2.5	4	4	14	50	2.40	-
SEME640250116E	R0.1	2.5	4	4	16	50	2.40	-
SEME640250120E	R0.1	2.5	4	4	20	50	2.40	-
SEME640250126E	R0.1	2.5	4	4	26	60	2.40	-
SEME640250130E	R0.1	2.5	4	4	30	70	2.40	-
SEME640250208E	R0.2	2.5	4	4	8	50	2.40	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

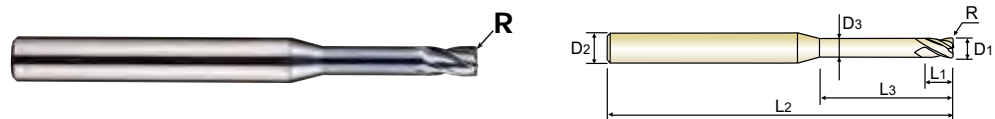


**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

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- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm Ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<Ø3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME640300316E	R0.3	3.0	6	4.5	16	60	2.85	-
★ SEME640300320E	R0.3	3.0	6	4.5	20	60	2.85	-
SEME640300326E	R0.3	3.0	6	4.5	26	65	2.85	-
SEME640300330E	R0.3	3.0	6	4.5	30	70	2.85	-
SEME640300335E	R0.3	3.0	6	4.5	35	70	2.85	-
SEME640300340E	R0.3	3.0	6	4.5	40	80	2.85	-
★ SEME640300508E	R0.5	3.0	6	4.5	8	50	2.85	-
★ SEME640300510E	R0.5	3.0	6	4.5	10	50	2.85	-
★ SEME640300512E	R0.5	3.0	6	4.5	12	50	2.85	-
SEME640300514E	R0.5	3.0	6	4.5	14	60	2.85	-
★ SEME640300516E	R0.5	3.0	6	4.5	16	60	2.85	-
★ SEME640300520E	R0.5	3.0	6	4.5	20	60	2.85	-
★ SEME640300526E	R0.5	3.0	6	4.5	26	65	2.85	-
★ SEME640300530E	R0.5	3.0	6	4.5	30	70	2.85	-
SEME640300535E	R0.5	3.0	6	4.5	35	70	2.85	-
SEME640300540E	R0.5	3.0	6	4.5	40	80	2.85	-
★ SEME640301008E	R1.0	3.0	6	4.5	8	50	2.85	-
★ SEME640301010E	R1.0	3.0	6	4.5	10	50	2.85	-
★ SEME640301012E	R1.0	3.0	6	4.5	12	50	2.85	-
SEME640301014E	R1.0	3.0	6	4.5	14	60	2.85	-
★ SEME640301016E	R1.0	3.0	6	4.5	16	60	2.85	-
★ SEME640301020E	R1.0	3.0	6	4.5	20	60	2.85	-
SEME640301026E	R1.0	3.0	6	4.5	26	65	2.85	-
★ SEME640301030E	R1.0	3.0	6	4.5	30	70	2.85	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	◎	○	○

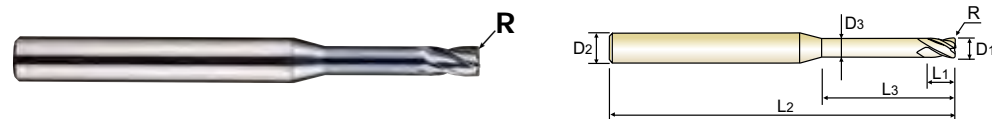


**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<Ø3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME640301035E	R1.0	3.0	6	4.5	35	70	2.85	-
SEME640301040E	R1.0	3.0	6	4.5	40	80	2.85	-
★ SEME640400110E	R0.1	4.0	6	6	10	50	3.85	-
★ SEME640400112E	R0.1	4.0	6	6	12	50	3.85	-
SEME640400114E	R0.1	4.0	6	6	14	60	3.85	-
★ SEME640400116E	R0.1	4.0	6	6	16	60	3.85	-
★ SEME640400120E	R0.1	4.0	6	6	20	60	3.85	-
SEME640400126E	R0.1	4.0	6	6	26	65	3.85	-
SEME640400130E	R0.1	4.0	6	6	30	70	3.85	-
SEME640400135E	R0.1	4.0	6	6	35	70	3.85	-
SEME640400140E	R0.1	4.0	6	6	40	80	3.85	-
SEME640400145E	R0.1	4.0	6	6	45	90	3.85	-
SEME640400150E	R0.1	4.0	6	6	50	100	3.85	-
★ SEME640400210E	R0.2	4.0	6	6	10	50	3.85	-
★ SEME640400212E	R0.2	4.0	6	6	12	50	3.85	-
SEME640400214E	R0.2	4.0	6	6	14	60	3.85	-
★ SEME640400216E	R0.2	4.0	6	6	16	60	3.85	-
★ SEME640400220E	R0.2	4.0	6	6	20	60	3.85	-
SEME640400224E	R0.2	4.0	6	6	24	65	3.85	-
★ SEME640400226E	R0.2	4.0	6	6	26	65	3.85	-
SEME640400230E	R0.2	4.0	6	6	30	70	3.85	-
SEME640400235E	R0.2	4.0	6	6	35	70	3.85	-
SEME640400240E	R0.2	4.0	6	6	40	80	3.85	-
SEME640400245E	R0.2	4.0	6	6	45	90	3.85	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	◎	○	○

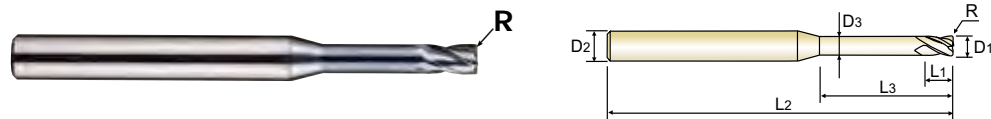


**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

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CARBIDE 4 27°/30° ±0.02 PLAIN Coating Y p.C286-289

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\varnothing</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME640400250E	R0.2	4.0	6	6	50	100	3.85	-
★ SEME640400310E	R0.3	4.0	6	6	10	50	3.85	-
★ SEME640400312E	R0.3	4.0	6	6	12	50	3.85	-
★ SEME640400314E	R0.3	4.0	6	6	14	60	3.85	-
★ SEME640400316E	R0.3	4.0	6	6	16	60	3.85	-
★ SEME640400320E	R0.3	4.0	6	6	20	60	3.85	-
★ SEME640400326E	R0.3	4.0	6	6	26	65	3.85	-
SEME640400330E	R0.3	4.0	6	6	30	70	3.85	-
SEME640400335E	R0.3	4.0	6	6	35	70	3.85	-
SEME640400340E	R0.3	4.0	6	6	40	80	3.85	-
SEME640400345E	R0.3	4.0	6	6	45	90	3.85	-
SEME640400350E	R0.3	4.0	6	6	50	100	3.85	-
★ SEME640400510E	R0.5	4.0	6	6	10	50	3.85	-
★ SEME640400512E	R0.5	4.0	6	6	12	50	3.85	-
★ SEME640400514E	R0.5	4.0	6	6	14	60	3.85	-
★ SEME640400516E	R0.5	4.0	6	6	16	60	3.85	-
★ SEME640400520E	R0.5	4.0	6	6	20	60	3.85	-
★ SEME640400526E	R0.5	4.0	6	6	26	65	3.85	-
★ SEME640400530E	R0.5	4.0	6	6	30	70	3.85	-
★ SEME640400535E	R0.5	4.0	6	6	35	70	3.85	-
★ SEME640400540E	R0.5	4.0	6	6	40	80	3.85	-
SEME640400545E	R0.5	4.0	6	6	45	90	3.85	-
SEME640400550E	R0.5	4.0	6	6	50	100	3.85	-
★ SEME640401010E	R1.0	4.0	6	6	10	50	3.85	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○	○	

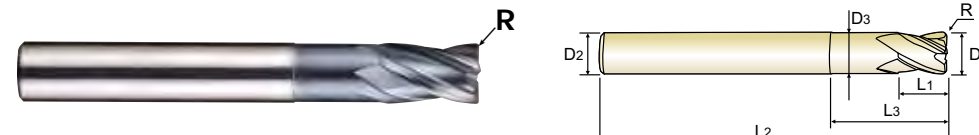


**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

● **VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL**  
 (●) **Fraise carbure, 4 dents, torique, hélice multiple, détalonnée**  
 (●) **MD, 4 TAGLIENTI, SCARICATA, TORICA**

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm}$   $\varnothing$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE 4 27°/30° ±0.02 PLAIN Coating Y p.C286-289

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\varnothing</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME640401012E	R1.0	4.0	6	6	12	50	3.85	-
SEME640401014E	R1.0	4.0	6	6	14	60	3.85	-
★ SEME640401016E	R1.0	4.0	6	6	16	60	3.85	-
★ SEME640401020E	R1.0	4.0	6	6	20	60	3.85	-
★ SEME640401026E	R1.0	4.0	6	6	26	65	3.85	-
★ SEME640401030E	R1.0	4.0	6	6	30	70	3.85	-
SEME640401035E	R1.0	4.0	6	6	35	70	3.85	-
SEME640401040E	R1.0	4.0	6	6	40	80	3.85	-
SEME640401045E	R1.0	4.0	6	6	45	90	3.85	-
SEME640401050E	R1.0	4.0	6	6	50	100	3.85	-
SEME6405001E	R0.1	5.0	6	8	15	60	4.85	-
SEME6405002E	R0.2	5.0	6	8	15	60	4.85	-
SEME6405003E	R0.3	5.0	6	8	15	60	4.85	-
SEME6405005E	R0.5	5.0	6	8	15	60	4.85	-
SEME6405010E	R1.0	5.0	6	8	15	60	4.85	-
SEME6405015E	R1.5	5.0	6	8	15	60	4.85	-
SEME6405020E	R2.0	5.0	6	8	15	60	4.85	-
SEME6406001E	R0.1	6.0	6	9	20	60	5.85	Regular
★ SEME6406002E	R0.2	6.0	6	9	20	60	5.85	Regular
★ SEME6406003E	R0.3	6.0	6	9	20	60	5.85	Regular
★ SEME6406005E	R0.5	6.0	6	9	20	60	5.85	Regular
★ SEME6406010E	R1.0	6.0	6	9	20	60	5.85	Regular
SEME6406015E	R1.5	6.0	6	9	20	60	5.85	Regular
SEME6406020E	R2.0	6.0	6	9	20	60	5.85	Regular

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	

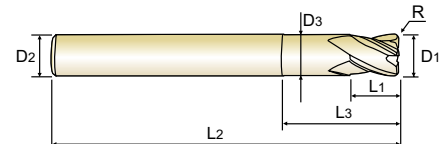
ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○	○	

**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

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- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern  $\geq 3,0\text{mm } \phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE 4 27°/30° ±0.02 PLAIN Coating Y p.C286-289

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
★ SEME6406003090E	R0.3	6.0	6	15	30	90	5.85	Long Shank
SE5E640600524LE	R0.5	6.0	6	9	24	90	5.85	-
★ SEME6406005090E	R0.5	6.0	6	15	30	90	5.85	Long Shank
★ SEME6406010090E	R1.0	6.0	6	15	30	90	5.85	Long Shank
SEME6408001E	R0.1	8.0	8	12	25	70	7.70	Regular
★ SEME6408002E	R0.2	8.0	8	12	25	70	7.70	Regular
★ SEME6408003E	R0.3	8.0	8	12	25	70	7.70	Regular
★ SEME6408005E	R0.5	8.0	8	12	25	70	7.70	Regular
★ SEME6408010E	R1.0	8.0	8	12	25	70	7.70	Regular
SEME6408015E	R1.5	8.0	8	12	25	70	7.70	Regular
SEME6408020E	R2.0	8.0	8	12	25	70	7.70	Regular
SEME6408003100E	R0.3	8.0	8	20	35	100	7.70	Long Shank
★ SEME6408005100E	R0.5	8.0	8	20	35	100	7.70	Long Shank
★ SEME6408010100E	R1.0	8.0	8	20	35	100	7.70	Long Shank
SEME6410001E	R0.1	10.0	10	15	30	75	9.70	Regular
SEME6410002E	R0.2	10.0	10	15	30	75	9.70	Regular
SEME6410003E	R0.3	10.0	10	15	30	75	9.70	Regular
★ SEME6410005E	R0.5	10.0	10	15	30	75	9.70	Regular
★ SEME6410010E	R1.0	10.0	10	15	30	75	9.70	Regular
★ SEME6410015E	R1.5	10.0	10	15	30	75	9.70	Regular
SEME6410020E	R2.0	10.0	10	15	30	75	9.70	Regular
SEME6410003100E	R0.3	10.0	10	25	40	100	9.70	Long Shank
★ SEME6410005100E	R0.5	10.0	10	25	40	100	9.70	Long Shank
★ SEME6410010100E	R1.0	10.0	10	25	40	100	9.70	Long Shank

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

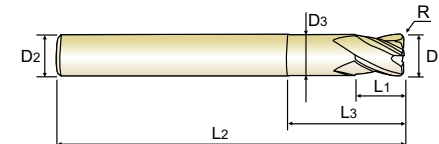


**CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK**

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CARBIDE 4 27°/30° ±0.02 PLAIN Coating Y p.C286-289

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Remark
	R	D1	D2	L1	L3	L2	D3	
SEME6412002E	R0.2	12.0	12	18	32	80	11.70	Regular
SEME6412003E	R0.3	12.0	12	18	32	80	11.70	Regular
★ SEME6412005E	R0.5	12.0	12	18	32	80	11.70	Regular
★ SEME6412010E	R1.0	12.0	12	18	32	80	11.70	Regular
★ SEME6412015E	R1.5	12.0	12	18	32	80	11.70	Regular
★ SEME6412020E	R2.0	12.0	12	18	32	80	11.70	Regular
SEME6412003110E	R0.3	12.0	12	30	50	110	11.70	Long Shank
★ SEME6412005110E	R0.5	12.0	12	30	50	110	11.70	Long Shank
★ SEME6412010110E	R1.0	12.0	12	30	50	110	11.70	Long Shank
★ SEME6416005E	R0.5	16.0	16	20	35	100	15.70	Regular
★ SEME6416010E	R1.0	16.0	16	20	35	100	15.70	Regular
SEME6416005150E	R0.5	16.0	16	35	50	150	15.70	Long Shank
SEME6416010150E	R1.0	16.0	16	35	50	150	15.70	Long Shank
★ SEME6420005E	R0.5	20.0	20	35	40	100	19.70	Regular
★ SEME6420010E	R1.0	20.0	20	35	40	100	19.70	Regular
SEME6420005150E	R0.5	20.0	20	35	55	150	19.70	Long Shank
SEME6420010150E	R1.0	20.0	20	35	55	150	19.70	Long Shank

★ : Stock Item

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○



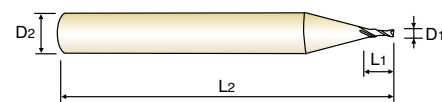
PLAIN SHANK SEME35 SERIES

CARBIDE, 2 FLUTE

- VOLLHARTMETALL, 2 SCHNEIDEN
- Fraise carbure, 2 dents
- MD, 2 TAGLIENTI, SPIGOLO VIVO

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
⊙	-	-	POWER MILLING CHUCK	D161-176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME35001E	0.1	4	0.2	40
★ SEME350015E	0.15	4	0.3	40
★ SEME35002E	0.2	4	0.4	40
SEMSE350025E	0.25	4	0.5	40
★ SEME35003E	0.3	4	0.6	40
SEMSE350035E	0.35	4	0.7	40
★ SEME35004E	0.4	4	0.8	40
SEMSE350045E	0.45	4	0.9	40
★ SEME35005E	0.5	4	1.0	40
SEMSE350055E	0.55	4	1.1	40
★ SEME35006E	0.6	4	1.2	40
SEMSE350065E	0.65	4	1.3	40
★ SEME35007E	0.7	4	1.4	40
SEMSE350075E	0.75	4	1.5	40
★ SEME35008E	0.8	4	1.6	40
SEMSE350085E	0.85	4	1.7	40
★ SEME35009E	0.9	4	1.8	40
SEMSE350095E	0.95	4	2	40
★ SEME35010E	1.0	6	2.5	50
★ SEME35012E	1.2	6	3	50
★ SEME35015E	1.5	6	4	50
★ SEME35020E	2.0	6	6	50
★ SEME35025E	2.5	6	7	50
★ SEME35030E	3.0	6	8	50

★ : Stock Item ▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~ -0.012	h5
over Ø6	0~ -0.015	

⊙ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	35	23	10	10	26	3	25	21	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	⊙	⊙	⊙	○	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



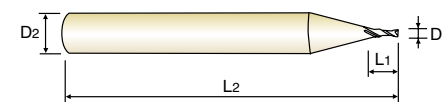
PLAIN SHANK SEME35 SERIES

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 ▶ From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
⊙	-	-	POWER MILLING CHUCK	D161-176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME35035E	3.5	6	10	50
★ SEME35040E	4.0	6	10	50
★ SEME35045E	4.5	6	14	50
★ SEME35050E	5.0	6	15	60
★ SEME35055E	5.5	6	15	60
★ SEME35060E	6.0	6	15	60
★ SEME35065E	6.5	8	18	60
★ SEME35070E	7.0	8	20	60
★ SEME35075E	7.5	8	20	60
★ SEME35080E	8.0	8	20	70
★ SEME35085E	8.5	10	22	70
★ SEME35090E	9.0	10	22	70
★ SEME35095E	9.5	10	24	70
★ SEME35100E	10.0	10	25	75
★ SEME35105E	10.5	12	26	75
★ SEME35110E	11.0	12	30	75
SEMSE35115E	11.5	12	30	80
★ SEME35120E	12.0	12	30	80
★ SEME35130E	13.0	12	35	100
SEMSE3514012SE	14.0	12	35	100
★ SEME3514014SE	14.0	14	35	100
★ SEME35140E	14.0	16	35	100
★ SEME35150E	15.0	16	38	100
★ SEME35160E	16.0	16	40	100

★ : Stock Item ▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~ -0.012	h5
over Ø6	0~ -0.015	

⊙ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	35	23	10	10	26	3	25	21	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	⊙	⊙	⊙	○	⊙	⊙	⊙	○	⊙	○	○	○	○	○	○	○	○	○

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





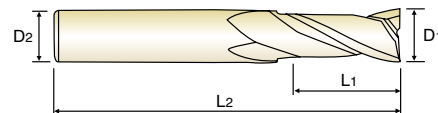
PLAIN SHANK SEME35 SERIES

CARBIDE, 2 FLUTE

- VOLLHARTMETALL, 2 SCHNEIDEN
- Fraise carbure, 2 dents
- MD, 2 TAGLIENTI, SPIGOLO VIVO

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



CARBIDE 2 30° PLAIN Coating p.C290-293

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
SEME35170E	17.0	16	42	100
★ SEME35180E	18.0	16	45	100
SEME3518018SE	18.0	18	45	100
SEME35190E	19.0	20	45	100
★ SEME35200E	20.0	20	45	100
SEME35210E	21.0	20	45	100
SEME35220E	22.0	20	45	100
SEME35230E	23.0	25	50	120
SEME35240E	24.0	25	50	120
SEME35250E	25.0	25	50	120

★ : Stock Item

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~ - 0.012	h5
over Ø6	0~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	35	38	40	42	45	48	50	52	54	56	58	60	62	64	66	68		
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230					
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○		

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend																		○	◎	◎	○	



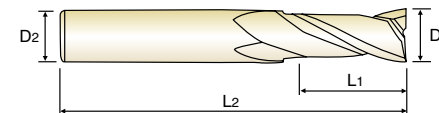
PLAIN SHANK SEME35 SERIES

CARBIDE, 2 FLUTE (0.1mm a Unit / 4mm Shank)

- VOLLHARTMETALL, 2 SCHNEIDEN
- Fraise carbure, 2 dents (par 0.1mm / Ø queue 4mm)
- MD, 2 TAGLIENTI, SPIGOLO VIVO (gambo 4 mm)

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



CARBIDE 2 30° PLAIN Coating p.C290-293

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME350104SE	1.0	4	2.5	50
★ SEME350114SE	1.1	4	3	50
★ SEME350124SE	1.2	4	3	50
★ SEME350134SE	1.3	4	3	50
★ SEME350144SE	1.4	4	4	50
★ SEME350154SE	1.5	4	4	50
★ SEME350164SE	1.6	4	4	50
★ SEME350174SE	1.7	4	4	50
★ SEME350184SE	1.8	4	5	50
★ SEME350194SE	1.9	4	5	50
★ SEME350204SE	2.0	4	6	50
SEME350214SE	2.1	4	6	50
★ SEME350224SE	2.2	4	6	50
★ SEME350234SE	2.3	4	6	50
★ SEME350244SE	2.4	4	6	50
★ SEME350254SE	2.5	4	8	50
★ SEME350264SE	2.6	4	8	50
★ SEME350274SE	2.7	4	8	50
★ SEME350284SE	2.8	4	8	50
SEME350294SE	2.9	4	8	50
★ SEME350304SE	3.0	4	8	50
SEME350354SE	3.5	4	10	50
★ SEME350404SE	4.0	4	10	50
★ SEME350404S080E	4.0	4	10	80

★ : Stock Item

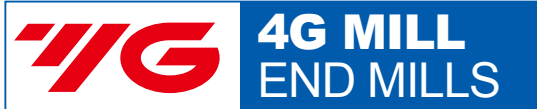
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0~ - 0.012	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	35	38	40	42	45	48	50	52	54	56	58	60	62	64	66	68		
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230					
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○		

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend																		○	◎	◎	○	



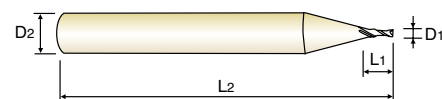
PLAIN SHANK SEME35 SERIES

**CARBIDE, 2 FLUTE (3mm Shank)**

- VOLLHARTMETALL, 2 SCHNEIDEN
- Fraise carbure, 2 dents (Ø queue 3 mm)
- MD, 2 TAGLIENTI, SPIGOLO VIVO (gambo 3mm)

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



CARBIDE 2 30° PLAIN Coating p.C290-293

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
⊙	-	-	POWER MILLING CHUCK	D161-176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
★ SEME350013SE	0.1	3	0.2	40
★ SEME350023SE	0.2	3	0.4	40
★ SEME350033SE	0.3	3	0.6	40
★ SEME350043SE	0.4	3	0.8	40
★ SEME350053SE	0.5	3	1.0	40
★ SEME350063SE	0.6	3	1.2	40
★ SEME350073SE	0.7	3	1.4	40
★ SEME350083SE	0.8	3	1.6	40
★ SEME350093SE	0.9	3	1.8	40
★ SEME350103SE	1.0	3	2.5	50
★ SEME350123SE	1.2	3	3	50
★ SEME350153SE	1.5	3	4	50
★ SEME350203SE	2.0	3	6	50
★ SEME350253SE	2.5	3	7	50
★ SEME350303SE	3.0	3	8	50

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0~ - 0.012	h5

⊙ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	19	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommend	○	○	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



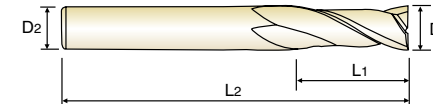
PLAIN SHANK SEME70 SERIES

**CARBIDE, 2 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ Available in various lengths of cut and also overall lengths.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Erhältlich in verschiedenen Schneiden- und Gesamtlängen.



CARBIDE 2 30° PLAIN Coating p.C294-299

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
⊙	-	-	POWER MILLING CHUCK	D161-176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
★ SEME7001003E	1.0	6	3	60
★ SEME7001004E	1.0	6	4	60
★ SEME7001005E	1.0	6	5	60
★ SEME7001006E	1.0	6	6	60
★ SEME7001007E	1.0	6	7	60
★ SEME7001008E	1.0	6	8	60
★ SEME7001010E	1.0	6	10	60
★ SEME7001012E	1.0	6	12	60
★ SEME7001204E	1.2	6	4	60
★ SEME7001206E	1.2	6	6	60
★ SEME7001208E	1.2	6	8	60
★ SEME7001210E	1.2	6	10	60
★ SEME7001212E	1.2	6	12	60
★ SEME7001506E	1.5	6	6	60
★ SEME7001508E	1.5	6	8	60
★ SEME7001510E	1.5	6	10	60
★ SEME7001512E	1.5	6	12	60
★ SEME7001514E	1.5	6	14	60
★ SEME7001516E	1.5	6	16	60
★ SEME7002008E	2.0	6	8	60
★ SEME7002010E	2.0	6	10	60
★ SEME7002012E	2.0	6	12	60
★ SEME7002014E	2.0	6	14	60
★ SEME7002016E	2.0	6	16	60

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

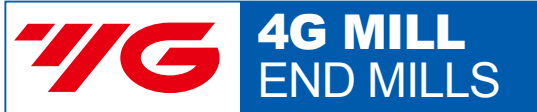
▶ NEXT PAGE

⊙ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	19	21
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230			
Recommend	○	○	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



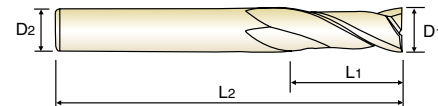
PLAIN SHANK SEME70 SERIES

CARBIDE, 2 FLUTE LONG LENGTH

● VOLLHARTMETALL, 2 SCHNEIDEN LANG  
 ( ) Fraise carbure, 2 dents, longue  
 ( ) MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ Available in various lengths of cut and also overall lengths.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7002510E	2.5	6	10	60
SEMSE7002512E	2.5	6	12	60
★ SEME7002516E	2.5	6	16	60
SEMSE7002520E	2.5	6	20	60
SEMSE7002526E	2.5	6	26	60
SEMSE70030163SE	3.0	3	16	100
★ SEME7003010E	3.0	6	10	70
★ SEME7003012E	3.0	6	12	70
★ SEME7003014E	3.0	6	14	70
★ SEME7003016E	3.0	6	16	70
★ SEME7003020E	3.0	6	20	70
★ SEME7003026E	3.0	6	26	70
SEMSE7003030E	3.0	6	30	70
SEMSE70040204SE	4.0	4	20	100
★ SEME7004012E	4.0	6	12	70
★ SEME7004016E	4.0	6	16	70
★ SEME7004020E	4.0	6	20	70
★ SEME7004026E	4.0	6	26	70
★ SEME7004030E	4.0	6	30	70
★ SEME7005020E	5.0	6	20	70
★ SEME7005025E	5.0	6	25	70
SEMSE7005025100E	5.0	6	25	100
★ SEME7005030E	5.0	6	30	80
SEMSE7005035E	5.0	6	35	90

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	◎	○	○



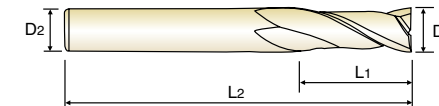
PLAIN SHANK SEME70 SERIES

CARBIDE, 2 FLUTE LONG LENGTH

● VOLLHARTMETALL, 2 SCHNEIDEN LANG  
 ( ) Fraise carbure, 2 dents, longue  
 ( ) MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ Available in various lengths of cut and also overall lengths.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7005040E	5.0	6	40	100
★ SEME7006015E	6.0	6	15	60
★ SEME7006015080E	6.0	6	15	80
★ SEME7006020E	6.0	6	20	70
★ SEME7006020090E	6.0	6	20	90
★ SEME7006025E	6.0	6	25	75
★ SEME7006030E	6.0	6	30	80
★ SEME7006030100E	6.0	6	30	100
★ SEME7006030150E	6.0	6	30	150
★ SEME7006035E	6.0	6	35	90
★ SEME7006040E	6.0	6	40	90
★ SEME7006040120E	6.0	6	40	120
★ SEME7006045E	6.0	6	45	150
★ SEME7008025E	8.0	8	25	80
★ SEME7008030E	8.0	8	30	80
★ SEME7008030100E	8.0	8	30	100
★ SEME7008035E	8.0	8	35	90
★ SEME7008040E	8.0	8	40	90
★ SEME7008040120E	8.0	8	40	120
SEMSE7008040150E	8.0	8	40	150
★ SEME7008045E	8.0	8	45	100
★ SEME7008050E	8.0	8	50	100
SEMSE7008050150E	8.0	8	50	150
★ SEME7010030E	10.0	10	30	80

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	◎	○	○





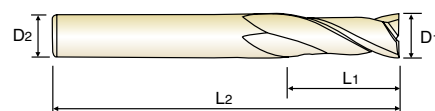
PLAIN SHANK SEME70 SERIES

CARBIDE, 2 FLUTE LONG LENGTH

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ Available in various lengths of cut and also overall lengths.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE 2 30° PLAIN Coating p.C294-299

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7010030100E	10.0	10	30	100
★ SEME7010035E	10.0	10	35	90
★ SEME7010040E	10.0	10	40	90
★ SEME7010040120E	10.0	10	40	120
★ SEME7010045E	10.0	10	45	100
★ SEME7010050E	10.0	10	50	100
★ SEME7010050150E	10.0	10	50	150
SEME7010050200E	10.0	10	50	200
★ SEME7010055E	10.0	10	55	150
★ SEME7010060E	10.0	10	60	110
SEME7010060200E	10.0	10	60	200
★ SEME7012035E	12.0	12	35	90
★ SEME7012040E	12.0	12	40	100
★ SEME7012040120E	12.0	12	40	120
★ SEME7012045E	12.0	12	45	130
★ SEME7012050E	12.0	12	50	100
★ SEME7012050150E	12.0	12	50	150
★ SEME7012055E	12.0	12	55	110
★ SEME7012060E	12.0	12	60	110
★ SEME7012060150E	12.0	12	60	150
SEME7012060200E	12.0	12	60	200
SEME7012065E	12.0	12	65	150
SEME7012070E	12.0	12	70	120
SEME7012070200E	12.0	12	70	200

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	



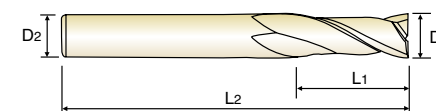
PLAIN SHANK SEME70 SERIES

CARBIDE, 2 FLUTE LONG LENGTH

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.  
 ▶ Available in various lengths of cut and also overall lengths.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE 2 30° PLAIN Coating p.C294-299

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
SEME7014050E	14.0	16	50	110
★ SEME7014060E	14.0	16	60	150
★ SEME7016040E	16.0	16	40	150
SEME7016050E	16.0	16	50	110
SEME7016050150E	16.0	16	50	150
SEME7016060E	16.0	16	60	120
SEME7016070E	16.0	16	70	130
★ SEME7016070150E	16.0	16	70	150
SEME7016070200E	16.0	16	70	200
SEME7016080E	16.0	16	80	150
SEME7016090E	16.0	16	90	150
SEME70160110E	16.0	16	110	200
SEME70160120E	16.0	16	120	250
SEME7018050E	18.0	20	50	120
SEME7018070E	18.0	20	70	130
SEME70180100E	18.0	20	100	200
SEME7020050E	20.0	20	50	110
SEME7020050150E	20.0	20	50	150
SEME7020060E	20.0	20	60	130
SEME7020070E	20.0	20	70	130
SEME7020080E	20.0	20	80	150
SEME7020090E	20.0	20	90	150
★ SEME7020090200E	20.0	20	90	200
★ SEME70200110E	20.0	20	110	200

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	



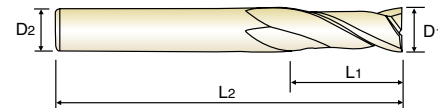
PLAIN SHANK SEME70 SERIES

CARBIDE, 2 FLUTE LONG LENGTH

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
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- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE 2 30° PLAIN Coating p.C294-299

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
SEME70200120E	20.0	20	120	250
SEME7022075E	22.0	20	75	150
SEME70220110E	22.0	20	110	200
SEME7025070E	25.0	25	70	150
SEME7025090E	25.0	25	90	150
SEME70250110E	25.0	25	110	200
SEME70250120E	25.0	25	120	250

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H												
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	42	55
Recommend																		○	◎	○	○	○	○



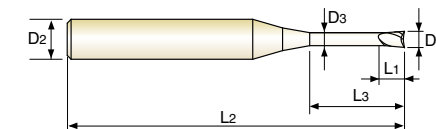
PLAIN SHANK SEM845 SERIES

CARBIDE, 2 FLUTE with EXTENDED NECK

- VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETEL
- Fraise carbure, 2 dents, détalonnée
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
- ▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Bei Fräsen mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
- ▶ Die Auswahl an verschiedenen Effektiv- und Gesamtlängen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE 2 30° PLAIN Coating p.C300-309

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SEM845001003E	0.1	4	0.15	0.3	40	0.085
★ SEM845001005E	0.1	4	0.15	0.5	40	0.085
SEM84500101E	0.1	4	0.15	1	40	0.085
SEM84500150035SE	0.15	4	0.2	0.35	40	0.13
★ SEM845002005E	0.2	4	0.3	0.5	40	0.17
★ SEM84500201E	0.2	4	0.3	1	40	0.17
★ SEM845002015E	0.2	4	0.3	1.5	40	0.17
★ SEM84500202E	0.2	4	0.3	2	40	0.17
★ SEM84500301E	0.3	4	0.5	1	40	0.27
★ SEM845003015E	0.3	4	0.5	1.5	40	0.27
★ SEM84500302E	0.3	4	0.5	2	40	0.27
SEM845003025E	0.3	4	0.5	2.5	40	0.27
★ SEM84500303E	0.3	4	0.5	3	40	0.27
★ SEM84500304E	0.3	4	0.5	4	40	0.27
SEM84500305E	0.3	4	0.5	5	40	0.27
★ SEM84500401E	0.4	4	0.6	1	40	0.37
★ SEM845004015E	0.4	4	0.6	1.5	40	0.37
★ SEM84500402E	0.4	4	0.6	2	40	0.37
★ SEM845004025E	0.4	4	0.6	2.5	40	0.37
★ SEM84500403E	0.4	4	0.6	3	40	0.37
★ SEM84500404E	0.4	4	0.6	4	40	0.37
★ SEM84500405E	0.4	4	0.6	5	40	0.37
SEM84500406E	0.4	4	0.6	6	40	0.37
SEM84500408E	0.4	4	0.6	8	40	0.37

★ : Stock Item

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H												
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	42	55
Recommend																		○	◎	○	○	○	○



PLAIN SHANK SEM845 SERIES

**CARBIDE, 2 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 2 dents, détalonnée
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.  
 ▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.  
 ▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.  
 ▶ Bei Fräsem mit einem  $\phi \leq 1,0\text{mm}$  gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.  
 ▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SEM84500410E	0.4	4	0.6	10	40	0.37
★ SEM84500501E	0.5	4	0.7	1	45	0.45
SEM845005015E	0.5	4	0.7	1.5	45	0.45
★ SEM84500502E	0.5	4	0.7	2	45	0.45
SEM845005025E	0.5	4	0.7	2.5	45	0.45
★ SEM84500503E	0.5	4	0.7	3	45	0.45
★ SEM84500504E	0.5	4	0.7	4	45	0.45
★ SEM84500505E	0.5	4	0.7	5	45	0.45
★ SEM84500506E	0.5	4	0.7	6	45	0.45
SEM84500508E	0.5	4	0.7	8	45	0.45
SEM84500510E	0.5	4	0.7	10	45	0.45
SEM84500512E	0.5	4	0.7	12	45	0.45
SEM84500514E	0.5	4	0.7	14	45	0.45
SEM84500516E	0.5	4	0.7	16	45	0.45
★ SEM84500602E	0.6	4	0.9	2	45	0.55
★ SEM84500603E	0.6	4	0.9	3	45	0.55
★ SEM84500604E	0.6	4	0.9	4	45	0.55
★ SEM84500605E	0.6	4	0.9	5	45	0.55
★ SEM84500606E	0.6	4	0.9	6	45	0.55
★ SEM84500608E	0.6	4	0.9	8	45	0.55
★ SEM84500610E	0.6	4	0.9	10	45	0.55
SEM84500612E	0.6	4	0.9	12	45	0.55
SEM84500614E	0.6	4	0.9	14	45	0.55
SEM84500616E	0.6	4	0.9	16	45	0.55

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK SEM845 SERIES

**CARBIDE, 2 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 2 dents, détalonnée
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

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END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
★ SEM84500702E	0.7	4	1.2	2	45	0.65
★ SEM84500704E	0.7	4	1.2	4	45	0.65
★ SEM84500706E	0.7	4	1.2	6	45	0.65
SEM84500708E	0.7	4	1.2	8	45	0.65
SEM84500710E	0.7	4	1.2	10	45	0.65
SEM84500712E	0.7	4	1.2	12	45	0.65
★ SEM84500802E	0.8	4	1.2	2	45	0.75
★ SEM84500803E	0.8	4	1.2	3	45	0.75
★ SEM84500804E	0.8	4	1.2	4	45	0.75
★ SEM84500805E	0.8	4	1.2	5	45	0.75
★ SEM84500806E	0.8	4	1.2	6	45	0.75
★ SEM84500808E	0.8	4	1.2	8	45	0.75
★ SEM84500810E	0.8	4	1.2	10	45	0.75
SEM84500812E	0.8	4	1.2	12	45	0.75
SEM84500814E	0.8	4	1.2	14	45	0.75
SEM84500816E	0.8	4	1.2	16	45	0.75
SEM84500820E	0.8	4	1.2	20	45	0.75
SEM84500906E	0.9	4	1.3	6	45	0.85
SEM84500908E	0.9	4	1.3	8	45	0.85
SEM84500910E	0.9	4	1.3	10	45	0.85
★ SEM84501002E	1.0	4	1.5	2	50	0.95
★ SEM84501003E	1.0	4	1.5	3	50	0.95
★ SEM84501004E	1.0	4	1.5	4	50	0.95
★ SEM84501005E	1.0	4	1.5	5	50	0.95

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	○	○



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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
★ SEM84501006E	1.0	4	1.5	6	50	0.95
SEM84501007E	1.0	4	1.5	7	50	0.95
★ SEM84501008E	1.0	4	1.5	8	50	0.95
★ SEM84501010E	1.0	4	1.5	10	50	0.95
★ SEM84501012E	1.0	4	1.5	12	50	0.95
★ SEM84501014E	1.0	4	1.5	14	50	0.95
★ SEM84501016E	1.0	4	1.5	16	50	0.95
SEM84501018E	1.0	4	1.5	18	50	0.95
★ SEM84501020E	1.0	4	1.5	20	50	0.95
SEM84501022E	1.0	4	1.5	22	60	0.95
SEM84501026E	1.0	4	1.5	26	60	0.95
SEM84501030E	1.0	4	1.5	30	70	0.95
SEM84501040E	1.0	4	1.5	40	80	0.95
SEM84501050E	1.0	4	1.5	50	100	0.95
SEM84501204E	1.2	4	1.8	4	50	1.15
★ SEM84501206E	1.2	4	1.8	6	50	1.15
★ SEM84501208E	1.2	4	1.8	8	50	1.15
★ SEM84501210E	1.2	4	1.8	10	50	1.15
★ SEM84501212E	1.2	4	1.8	12	50	1.15
SEM84501214E	1.2	4	1.8	14	50	1.15
SEM84501216E	1.2	4	1.8	16	50	1.15
SEM84501220E	1.2	4	1.8	20	50	1.15
SEM84501226E	1.2	4	1.8	26	60	1.15
SEM84501230E	1.2	4	1.8	30	70	1.15

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
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ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	◎	○	○



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END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
★ SEM84501406E	1.4	4	2.1	6	50	1.35
★ SEM84501408E	1.4	4	2.1	8	50	1.35
SEM84501410E	1.4	4	2.1	10	50	1.35
SEM84501414E	1.4	4	2.1	14	50	1.35
SEM84501416E	1.4	4	2.1	16	50	1.35
SEM84501420E	1.4	4	2.1	20	50	1.35
★ SEM84501504E	1.5	4	2.3	4	50	1.45
SEM84501505E	1.5	4	2.3	5	50	1.45
★ SEM84501506E	1.5	4	2.3	6	50	1.45
SEM84501507E	1.5	4	2.3	7	50	1.45
★ SEM84501508E	1.5	4	2.3	8	50	1.45
★ SEM84501510E	1.5	4	2.3	10	50	1.45
★ SEM84501512E	1.5	4	2.3	12	50	1.45
★ SEM84501514E	1.5	4	2.3	14	50	1.45
★ SEM84501516E	1.5	4	2.3	16	50	1.45
★ SEM84501518E	1.5	4	2.3	18	50	1.45
★ SEM84501520E	1.5	4	2.3	20	50	1.45
SEM84501522E	1.5	4	2.3	22	60	1.45
SEM84501526E	1.5	4	2.3	26	60	1.45
SEM84501530E	1.5	4	2.3	30	70	1.45
SEM84501608E	1.6	4	2.3	8	50	1.55
SEM84501610E	1.6	4	2.3	10	50	1.55
SEM84501612E	1.6	4	2.3	12	50	1.55
SEM84501616E	1.6	4	2.3	16	50	1.55

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
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ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	◎	○	○

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Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SEM84501620E	1.6	4	2.3	20	50	1.55
★ SEM84501808E	1.8	4	2.7	8	50	1.75
★ SEM84501810E	1.8	4	2.7	10	50	1.75
★ SEM84501812E	1.8	4	2.7	12	50	1.75
SEM84501816E	1.8	4	2.7	16	50	1.75
SEM84501820E	1.8	4	2.7	20	50	1.75
★ SEM84502006E	2.0	4	3	6	50	1.95
★ SEM84502008E	2.0	4	3	8	50	1.95
★ SEM84502010E	2.0	4	3	10	50	1.95
★ SEM84502012E	2.0	4	3	12	50	1.95
★ SEM84502014E	2.0	4	3	14	50	1.95
★ SEM84502016E	2.0	4	3	16	50	1.95
SEM84502018E	2.0	4	3	18	50	1.95
★ SEM84502020E	2.0	4	3	20	50	1.95
SEM84502022E	2.0	4	3	22	60	1.95
★ SEM84502026E	2.0	4	3	26	60	1.95
★ SEM84502030E	2.0	4	3	30	70	1.95
★ SEM84502035E	2.0	4	3	35	70	1.95
★ SEM84502040E	2.0	4	3	40	80	1.95
SEM84502045E	2.0	4	3	45	90	1.95
SEM84502050E	2.0	4	3	50	100	1.95
SEM84502060E	2.0	4	3	60	110	1.95
★ SEM8450208E	2.5	4	4	8	50	2.40
★ SEM84502510E	2.5	4	4	10	50	2.40

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 2 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 2 dents, détalonnée
- MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
- ▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergrütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Bei Fräsem mit einem  $\phi \leq 1,0\text{mm}$  gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
- ▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
★ SEM84502512E	2.5	4	4	12	50	2.40
SEM84502514E	2.5	4	4	14	50	2.40
★ SEM84502516E	2.5	4	4	16	50	2.40
SEM84502518E	2.5	4	4	18	50	2.40
★ SEM84502520E	2.5	4	4	20	50	2.40
SEM84502522E	2.5	4	4	22	60	2.40
★ SEM84502526E	2.5	4	4	26	60	2.40
SEM84502530E	2.5	4	4	30	70	2.40
SEM84502535E	2.5	4	4	35	70	2.40
SEM84502540E	2.5	4	4	40	80	2.40
SEM84502545E	2.5	4	4	45	90	2.40
SEM84502550E	2.5	4	4	50	100	2.40
★ SEM84503006E	3.0	6	4.5	6	50	2.85
★ SEM84503008E	3.0	6	4.5	8	50	2.85
★ SEM84503010E	3.0	6	4.5	10	50	2.85
★ SEM84503012E	3.0	6	4.5	12	50	2.85
★ SEM84503014E	3.0	6	4.5	14	60	2.85
★ SEM84503016E	3.0	6	4.5	16	60	2.85
★ SEM84503018E	3.0	6	4.5	18	60	2.85
★ SEM84503020E	3.0	6	4.5	20	60	2.85
SEM84503022E	3.0	6	4.5	22	65	2.85
★ SEM84503026E	3.0	6	4.5	26	65	2.85
★ SEM84503030E	3.0	6	4.5	30	70	2.85
★ SEM84503035E	3.0	6	4.5	35	70	2.85

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 2 FLUTE with EXTENDED NECK**

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CARBIDE 2 30° PLAIN Coating Y p.C300-309

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLUM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
★ SEM84503040E	3.0	6	4.5	40	80	2.85
SEM84503045E	3.0	6	4.5	45	90	2.85
SEM84503050E	3.0	6	4.5	50	100	2.85
SEM84503060E	3.0	6	4.5	60	100	2.85
SEM84504008E	4.0	6	6	8	50	3.85
★ SEM84504010E	4.0	6	6	10	50	3.85
★ SEM84504012E	4.0	6	6	12	50	3.85
SEM84504014E	4.0	6	6	14	60	3.85
★ SEM84504016E	4.0	6	6	16	60	3.85
★ SEM84504018E	4.0	6	6	18	60	3.85
★ SEM84504020E	4.0	6	6	20	60	3.85
SEM84504022E	4.0	6	6	22	65	3.85
★ SEM84504026E	4.0	6	6	26	65	3.85
★ SEM84504030E	4.0	6	6	30	70	3.85
★ SEM84504035E	4.0	6	6	35	70	3.85
★ SEM84504040E	4.0	6	6	40	80	3.85
★ SEM84504045E	4.0	6	6	45	90	3.85
SEM84504050E	4.0	6	6	50	100	3.85
SEM84504060E	4.0	6	6	60	100	3.85
SEM84505016E	5.0	6	8	16	60	4.85
★ SEM84505020E	5.0	6	8	20	60	4.85
SEM84505026E	5.0	6	8	26	65	4.85
★ SEM84505030E	5.0	6	8	30	70	4.85
★ SEM84505035E	5.0	6	8	35	75	4.85

★ : Stock Item

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○



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CARBIDE 2 30° PLAIN Coating Y p.C300-309

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLUM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
★ SEM84505040E	5.0	6	8	40	80	4.85
★ SEM84505050E	5.0	6	8	50	90	4.85
SEM84505060E	5.0	6	8	60	100	4.85
★ SEM84506015E	6.0	6	9	15	60	5.85
★ SEM84506020E	6.0	6	9	20	60	5.85
★ SEM84506030E	6.0	6	9	30	70	5.85
★ SEM84506032E	6.0	6	9	32	90	5.85
★ SEM84508025E	8.0	8	12	25	70	7.70
★ SEM84508030E	8.0	8	12	30	80	7.70
★ SEM84508042E	8.0	8	12	42	100	7.70
★ SEM84510030E	10.0	10	15	30	75	9.70
SEM84510035E	10.0	10	15	35	80	9.70
★ SEM84510045E	10.0	10	15	45	100	9.70
★ SEM84512035E	12.0	12	20	35	80	11.70
SEM84512040E	12.0	12	20	40	90	11.70
★ SEM84512050E	12.0	12	20	50	110	11.70

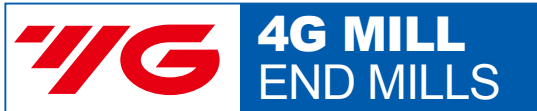
★ : Stock Item

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○





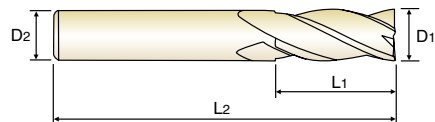
PLAIN SHANK SEME36 SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX

- VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL
- Fraise carbure, 4 dents, hélice multiple
- MD, 4 TAGLIENTI, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter end mills minimizing vibration and decreasing wear in cutting.

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- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRC55 und Maschinenbauteile.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schauffräsern  $\geq 3,0\text{mm}$   $\phi$  werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	D1	D2	L1	L2	
SEME36008E	0.8	4	1.6	40	4mm Shank
SEME36009E	0.9	4	1.8	40	4mm Shank
SEME360104SE	1.0	4	2.5	50	4mm Shank
★ SEME36010E	1.0	6	2.5	50	-
SEME360124SE	1.2	4	3	50	4mm Shank
SEME36012E	1.2	6	3	50	-
SEME360154SE	1.5	4	4	50	4mm Shank
★ SEME36015E	1.5	6	4	50	-
SEME360204SE	2.0	4	6	50	4mm Shank
★ SEME36020E	2.0	6	6	50	-
SEME360254SE	2.5	4	7	50	4mm Shank
★ SEME36025E	2.5	6	7	50	-
★ SEME36030E	3.0	6	8	50	-
★ SEME36035E	3.5	6	10	50	-
★ SEME36040E	4.0	6	10	50	-
★ SEME36045E	4.5	6	14	50	-
★ SEME36050E	5.0	6	15	60	-
★ SEME36055E	5.5	6	15	60	-
★ SEME36060E	6.0	6	15	60	-
★ SEME36065E	6.5	8	18	60	-
★ SEME36070E	7.0	8	20	60	-
★ SEME36075E	7.5	8	20	60	-
★ SEME36080E	8.0	8	20	70	-
★ SEME36085E	8.5	10	22	70	-

★ : Stock Item

▶ NEXT PAGE

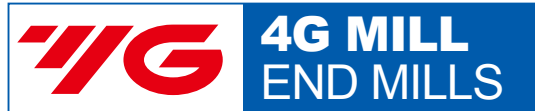
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



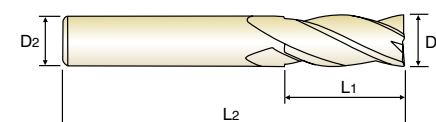
PLAIN SHANK SEME36 SERIES

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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

D<math>\phi</math>3, 30° HELIX

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	D1	D2	L1	L2	
★ SEME36090E	9.0	10	22	70	-
★ SEME36095E	9.5	10	24	70	-
★ SEME36100E	10.0	10	25	75	-
SEME36105E	10.5	12	26	75	-
★ SEME36110E	11.0	12	30	75	-
SEME36115E	11.5	12	30	80	-
★ SEME36120E	12.0	12	30	80	-
SEME36130E	13.0	12	35	100	-
SEME3614012SE	14.0	12	35	100	-
★ SEME3614014SE	14.0	14	35	100	-
★ SEME36140E	14.0	16	35	100	-
SEME36150E	15.0	16	38	100	-
★ SEME36160E	16.0	16	40	100	-
SEME36170E	17.0	16	42	100	-
★ SEME36180E	18.0	16	45	100	-
★ SEME3618018SE	18.0	18	45	100	-
SEME36190E	19.0	20	45	100	-
★ SEME36200E	20.0	20	45	100	-
SEME36210E	21.0	20	45	100	-
SEME36220E	22.0	20	45	100	-
SEME36230E	23.0	25	50	120	-
SEME36240E	24.0	25	50	120	-
SEME36250E	25.0	25	50	120	-

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

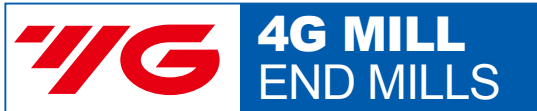
  

ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○









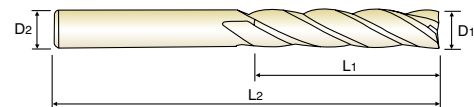
PLAIN SHANK SEME72 SERIES

CARBIDE, 4 FLUTE LONG LENGTH

- VOLLHARTMETALL, 4 SCHNEIDEN LANG
- (●) Fraise carbure, 4 dents, longue
- (●) MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE 4 30° PLAIN Coating p.C314-319

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7201003E	1.0	6	3	60
★ SEME7201004E	1.0	6	4	60
★ SEME7201005E	1.0	6	5	60
★ SEME7201006E	1.0	6	6	60
SEME7201007E	1.0	6	7	60
★ SEME7201008E	1.0	6	8	60
SEME7201010E	1.0	6	10	60
SEME7201012E	1.0	6	12	60
SEME7201204E	1.2	6	4	60
SEME7201206E	1.2	6	6	60
SEME7201208E	1.2	6	8	60
SEME7201210E	1.2	6	10	60
SEME7201212E	1.2	6	12	60
★ SEME7201506E	1.5	6	6	60
★ SEME7201508E	1.5	6	8	60
SEME7201510E	1.5	6	10	60
SEME7201512E	1.5	6	12	60
SEME7201514E	1.5	6	14	60
SEME7201516E	1.5	6	16	60
★ SEME7202008E	2.0	6	8	60
★ SEME7202010E	2.0	6	10	60
★ SEME7202012E	2.0	6	12	60
★ SEME7202014E	2.0	6	14	60
★ SEME7202016E	2.0	6	16	60

★ : Stock Item ▶ NEXT PAGE

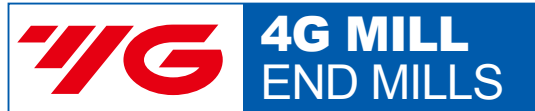
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron										
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	40	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



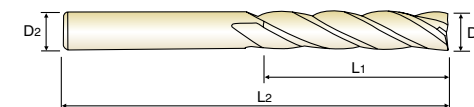
PLAIN SHANK SEME72 SERIES

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- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE 4 30° PLAIN Coating p.C314-319

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7202510E	2.5	6	10	60
★ SEME7202512E	2.5	6	12	60
SEME7202516E	2.5	6	16	60
SEME7202520E	2.5	6	20	60
SEME7202526E	2.5	6	26	60
SEME72030163SE	3.0	3	16	100
★ SEME7203010E	3.0	6	10	70
★ SEME7203012E	3.0	6	12	70
★ SEME7203014E	3.0	6	14	70
★ SEME7203016E	3.0	6	16	70
★ SEME7203020E	3.0	6	20	70
★ SEME7203026E	3.0	6	26	70
★ SEME7203030E	3.0	6	30	70
★ SEME72040204SE	4.0	4	20	100
★ SEME7204012E	4.0	6	12	70
★ SEME7204016E	4.0	6	16	70
★ SEME7204020E	4.0	6	20	70
★ SEME7204026E	4.0	6	26	70
★ SEME7204030E	4.0	6	30	70
★ SEME7205020E	5.0	6	20	70
★ SEME7205025E	5.0	6	25	70
★ SEME7205025100E	5.0	6	25	100
★ SEME7205030E	5.0	6	30	80
★ SEME7205035E	5.0	6	35	90

★ : Stock Item ▶ NEXT PAGE

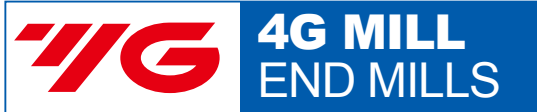
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron										
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	40	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



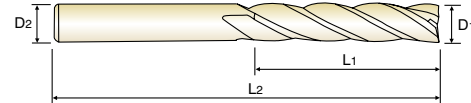
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CARBIDE 4 30° PLAIN Coating p.C314-319

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7205040E	5.0	6	40	100
★ SEME7206015E	6.0	6	15	60
★ SEME7206015080E	6.0	6	15	80
★ SEME7206020E	6.0	6	20	70
★ SEME7206020090E	6.0	6	20	90
★ SEME7206025E	6.0	6	25	75
★ SEME7206030E	6.0	6	30	80
★ SEME7206030100E	6.0	6	30	100
★ SEME7206030150E	6.0	6	30	150
★ SEME7206035E	6.0	6	35	90
★ SEME7206040E	6.0	6	40	90
★ SEME7206040120E	6.0	6	40	120
★ SEME7206045E	6.0	6	45	150
★ SEME7208025E	8.0	8	25	80
★ SEME7208030E	8.0	8	30	80
★ SEME7208030100E	8.0	8	30	100
★ SEME7208035E	8.0	8	35	90
★ SEME7208040E	8.0	8	40	90
★ SEME7208040120E	8.0	8	40	120
★ SEME7208040150E	8.0	8	40	150
★ SEME7208045E	8.0	8	45	100
★ SEME7208050E	8.0	8	50	100
★ SEME7208050150E	8.0	8	50	150
★ SEME7210030E	10.0	10	30	80

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P										M						K																																		
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																														
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41										
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41										
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	18	10	26	3	25	21	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230											
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎									



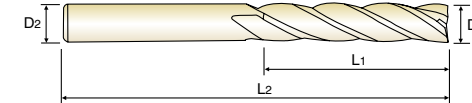
PLAIN SHANK SEME72 SERIES

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CARBIDE 4 30° PLAIN Coating p.C314-319

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

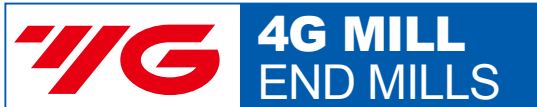
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7210030100E	10.0	10	30	100
★ SEME7210035E	10.0	10	35	90
★ SEME7210040E	10.0	10	40	90
★ SEME7210040120E	10.0	10	40	120
★ SEME7210045E	10.0	10	45	100
★ SEME7210050E	10.0	10	50	100
★ SEME7210050150E	10.0	10	50	150
★ SEME7210050200E	10.0	10	50	200
★ SEME7210055E	10.0	10	55	150
★ SEME7210060E	10.0	10	60	110
★ SEME7210060200E	10.0	10	60	200
★ SEME7212035E	12.0	12	35	90
★ SEME7212040E	12.0	12	40	100
★ SEME7212040120E	12.0	12	40	120
★ SEME7212045E	12.0	12	45	130
★ SEME7212050E	12.0	12	50	100
★ SEME7212050150E	12.0	12	50	150
★ SEME7212055E	12.0	12	55	110
★ SEME7212060E	12.0	12	60	110
★ SEME7212060150E	12.0	12	60	150
★ SEME7212060200E	12.0	12	60	200
★ SEME7212065E	12.0	12	65	150
★ SEME7212070E	12.0	12	70	120
★ SEME7212070200E	12.0	12	70	200

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P										M						K																																		
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																														
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41										
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41										
HRc	13	25	28	32	30	29	32	38	15	35	15	23	10	18	10	26	3	25	21	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230											
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎									



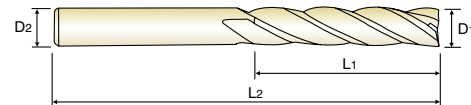
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CARBIDE 4 30° PLAIN Coating p.C314-319

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME7214050E	14.0	16	50	110
★ SEME7214060E	14.0	16	60	150
SEME7216040E	16.0	16	40	150
★ SEME7216050E	16.0	16	50	110
SEME7216050150E	16.0	16	50	150
★ SEME7216060E	16.0	16	60	120
★ SEME7216070E	16.0	16	70	130
★ SEME7216070150E	16.0	16	70	150
SEME7216070200E	16.0	16	70	200
SEME7216080E	16.0	16	80	150
SEME7216090E	16.0	16	90	150
SEME72160110E	16.0	16	110	200
SEME72160120E	16.0	16	120	250
SEME7218050E	18.0	20	50	120
SEME7218070E	18.0	20	70	130
SEME72180100E	18.0	20	100	200
★ SEME7220050E	20.0	20	50	110
SEME7220050150E	20.0	20	50	150
★ SEME7220060E	20.0	20	60	130
★ SEME7220070E	20.0	20	70	130
SEME7220080E	20.0	20	80	150
★ SEME7220090E	20.0	20	90	150
★ SEME7220090200E	20.0	20	90	200
SEME72200110E	20.0	20	110	200

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																											
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron																							
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	15	30	25	38	34						55	60	42	55										
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	180	260	160	250	130	230					400 Rm	1050 Rm	550	630	400	550								
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



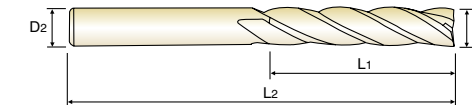
PLAIN SHANK SEME72 SERIES

CARBIDE, 4 FLUTE LONG LENGTH

- VOLLHARTMETALL, 4 SCHNEIDEN LANG
- (●) Fraise carbure, 4 dents, longue
- (●) MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE 4 30° PLAIN Coating p.C314-319

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
★ SEME72200120E	20.0	20	120	250
SEME7222075E	22.0	20	75	150
SEME72220110E	22.0	20	110	200
SEME7225070E	25.0	25	70	150
★ SEME7225090E	25.0	25	90	150
SEME72250110E	25.0	25	110	200
SEME72250120E	25.0	25	120	250

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron																						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	15	30	25	38	34						55	60	42	55									
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	180	260	160	250	130	230					400 Rm	1050 Rm	550	630	400	550							
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

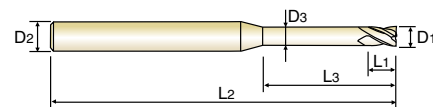


**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- (●) Fraise carbure, 4 dents, détalonnée
- (●) MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SEME7301002E	1.0	4	1.5	2	50	0.95
SEME7301003E	1.0	4	1.5	3	50	0.95
★ SEME7301004E	1.0	4	1.5	4	50	0.95
★ SEME7301005E	1.0	4	1.5	5	50	0.95
★ SEME7301006E	1.0	4	1.5	6	50	0.95
SEME7301007E	1.0	4	1.5	7	50	0.95
★ SEME7301008E	1.0	4	1.5	8	50	0.95
★ SEME7301010E	1.0	4	1.5	10	50	0.95
★ SEME7301012E	1.0	4	1.5	12	50	0.95
SEME7301014E	1.0	4	1.5	14	50	0.95
SEME7301016E	1.0	4	1.5	16	50	0.95
SEME7301018E	1.0	4	1.5	18	50	0.95
SEME7301020E	1.0	4	1.5	20	50	0.95
SEME7301022E	1.0	4	1.5	22	60	0.95
SEME7301026E	1.0	4	1.5	26	60	0.95
SEME7301030E	1.0	4	1.5	30	70	0.95
SEME7301040E	1.0	4	1.5	40	80	0.95
SEME7301050E	1.0	4	1.5	50	100	0.95
SEME7301204E	1.2	4	1.8	4	50	1.15
SEME7301206E	1.2	4	1.8	6	50	1.15
SEME7301208E	1.2	4	1.8	8	50	1.15
SEME7301210E	1.2	4	1.8	10	50	1.15
SEME7301212E	1.2	4	1.8	12	50	1.15
SEME7301214E	1.2	4	1.8	14	50	1.15

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	15	30	25	38	34	200	325	200	240	180	180	260	160	250	130	230					
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

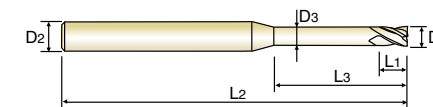


**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- (●) Fraise carbure, 4 dents, détalonnée
- (●) MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.
- ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SEME7301216E	1.2	4	1.8	16	50	1.15
SEME7301220E	1.2	4	1.8	20	50	1.15
SEME7301226E	1.2	4	1.8	26	60	1.15
SEME7301230E	1.2	4	1.8	30	70	1.15
SEME7301504E	1.5	4	2.3	4	50	1.45
SEME7301505E	1.5	4	2.3	5	50	1.45
★ SEME7301506E	1.5	4	2.3	6	50	1.45
SEME7301507E	1.5	4	2.3	7	50	1.45
★ SEME7301508E	1.5	4	2.3	8	50	1.45
★ SEME7301510E	1.5	4	2.3	10	50	1.45
★ SEME7301512E	1.5	4	2.3	12	50	1.45
SEME7301514E	1.5	4	2.3	14	50	1.45
★ SEME7301516E	1.5	4	2.3	16	50	1.45
SEME7301518E	1.5	4	2.3	18	50	1.45
SEME7301520E	1.5	4	2.3	20	50	1.45
SEME7301522E	1.5	4	2.3	22	60	1.45
SEME7301526E	1.5	4	2.3	26	60	1.45
SEME7301530E	1.5	4	2.3	30	70	1.45
★ SEME7302006E	2.0	4	3	6	50	1.95
★ SEME7302008E	2.0	4	3	8	50	1.95
★ SEME7302010E	2.0	4	3	10	50	1.95
★ SEME7302012E	2.0	4	3	12	50	1.95
★ SEME7302014E	2.0	4	3	14	50	1.95
★ SEME7302016E	2.0	4	3	16	50	1.95

★ : Stock Item ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

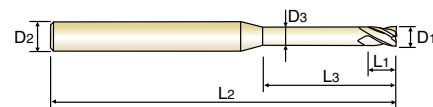
ISO Material Description	P										M						K																								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	15	30	25	38	34	200	325	200	240	180	180	260	160	250	130	230					
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 4 dents, détalonnée
- MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.  
 ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE 4 30° PLAIN Coating p.C320-325

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SEME7302018E	2.0	4	3	18	50	1.95
★ SEME7302020E	2.0	4	3	20	50	1.95
SEME7302022E	2.0	4	3	22	60	1.95
★ SEME7302026E	2.0	4	3	26	60	1.95
SEME7302030E	2.0	4	3	30	70	1.95
SEME7302035E	2.0	4	3	35	70	1.95
SEME7302040E	2.0	4	3	40	80	1.95
SEME7302045E	2.0	4	3	45	90	1.95
SEME7302050E	2.0	4	3	50	100	1.95
SEME7302060E	2.0	4	3	60	110	1.95
SEME7302508E	2.5	4	4	8	50	2.40
★ SEME7302510E	2.5	4	4	10	50	2.40
★ SEME7302512E	2.5	4	4	12	50	2.40
SEME7302514E	2.5	4	4	14	50	2.40
SEME7302516E	2.5	4	4	16	50	2.40
SEME7302518E	2.5	4	4	18	50	2.40
SEME7302520E	2.5	4	4	20	50	2.40
SEME7302522E	2.5	4	4	22	60	2.40
SEME7302526E	2.5	4	4	26	60	2.40
SEME7302530E	2.5	4	4	30	70	2.40
SEME7302535E	2.5	4	4	35	70	2.40
SEME7302540E	2.5	4	4	40	80	2.40
SEME7302545E	2.5	4	4	45	90	2.40
SEME7302550E	2.5	4	4	50	100	2.40
SEME7303006E	3.0	6	4.5	6	50	2.85
★ SEME7303008E	3.0	6	4.5	8	50	2.85

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K																								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	15	30	25	38	34	200	325	200	240	180	180	260	160	250	130	230					
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

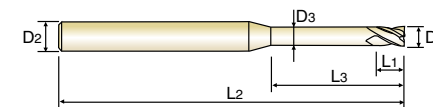


**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 4 dents, détalonnée
- MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.  
 ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRC55 and machine parts.  
 ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit  
 ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.  
 ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE 4 30° PLAIN Coating p.C320-325

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
★ SEME7303010E	3.0	6	4.5	10	50	2.85
SEME7303012E	3.0	6	4.5	12	50	2.85
★ SEME7303014E	3.0	6	4.5	14	60	2.85
SEME7303016E	3.0	6	4.5	16	60	2.85
★ SEME7303018E	3.0	6	4.5	18	60	2.85
SEME7303020E	3.0	6	4.5	20	60	2.85
★ SEME7303022E	3.0	6	4.5	22	65	2.85
★ SEME7303026E	3.0	6	4.5	26	65	2.85
SEME7303030E	3.0	6	4.5	30	70	2.85
SEME7303035E	3.0	6	4.5	35	70	2.85
SEME7303040E	3.0	6	4.5	40	80	2.85
SEME7303045E	3.0	6	4.5	45	90	2.85
SEME7303050E	3.0	6	4.5	50	100	2.85
SEME7303060E	3.0	6	4.5	60	100	2.85
SEME7304008E	4.0	6	6	8	50	3.85
★ SEME7304010E	4.0	6	6	10	50	3.85
SEME7304012E	4.0	6	6	12	50	3.85
★ SEME7304014E	4.0	6	6	14	60	3.85
SEME7304016E	4.0	6	6	16	60	3.85
★ SEME7304018E	4.0	6	6	18	60	3.85
SEME7304020E	4.0	6	6	20	60	3.85
★ SEME7304022E	4.0	6	6	22	65	3.85
SEME7304025E	4.0	6	6	25	65	3.85
★ SEME7304026E	4.0	6	6	26	65	3.85
SEME7304030E	4.0	6	6	30	70	3.85
★ SEME7304035E	4.0	6	6	35	70	3.85

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

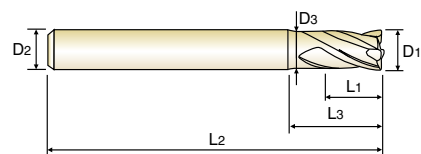
ISO Material Description	P										M						K																								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	15	30	25	38	34	200	325	200	240	180	180	260	160	250	130	230					
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 4 dents, détalonnée
- MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE 4 30° PLAIN Coating p.C320-325

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SEME7304040E	4.0	6	6	40	80	3.85
SEME7304045E	4.0	6	6	45	90	3.85
SEME7304050E	4.0	6	6	50	100	3.85
SEME7304060E	4.0	6	6	60	100	3.85
★ SEME7305016E	5.0	6	8	16	60	4.85
SEME7305020E	5.0	6	8	20	60	4.85
SEME7305026E	5.0	6	8	26	65	4.85
SEME7305030E	5.0	6	8	30	70	4.85
★ SEME7305035E	5.0	6	8	35	75	4.85
SEME7305040E	5.0	6	8	40	80	4.85
SEME7305050E	5.0	6	8	50	90	4.85
★ SEME7305060E	5.0	6	8	60	100	4.85
★ SEME7306015E	6.0	6	9	15	60	5.85
★ SEME7306020E	6.0	6	9	20	60	5.85
★ SEME7306030E	6.0	6	9	30	70	5.85
★ SEME7306032E	6.0	6	9	32	90	5.85
SEME7308025E	8.0	8	12	25	70	7.70
★ SEME7308030E	8.0	8	12	30	80	7.70
★ SEME7308042E	8.0	8	12	42	100	7.70
SEME7310030E	10.0	10	15	30	75	9.70
★ SEME7310035E	10.0	10	15	35	80	9.70
★ SEME7310045E	10.0	10	15	45	100	9.70
SEME7312035E	12.0	12	20	35	80	11.70
★ SEME7312040E	12.0	12	20	40	90	11.70
SEME7312050E	12.0	12	20	50	110	11.70

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○	○	



**CARBIDE, 6 FLUTE 45° HELIX (Regular, Long Shank)**

- VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE
- Fraise carbure, 6 dents, hélice 45°
- MD, 6 TAGLIENTI, ELICA 45°, SPIGOLO VIVO (Serie media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ From the 45 helix angle, better surface roughness can be achieved at side cutting.
- ▶ Available in several effective lengths of cut and also overall lengths

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der 45° Spirale werden bessere Oberflächengüten bei der Eckbearbeitung erreicht
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen.



CARBIDE 6 45° PLAIN Coating p.C326-327

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	D1	D2	L1	L2	
★ SEME75060E	6.0	6	15	60	Regular
SEME7506020E	6.0	6	20	70	Long
★ SEME7506030E	6.0	6	30	80	Long
SEME7506030110E	6.0	6	30	110	Long
★ SEME75080E	8.0	8	20	70	Regular
★ SEME7508030E	8.0	8	30	80	Long
SEME7508035E	8.0	8	35	90	Long
★ SEME7508040E	8.0	8	40	90	Long
SEME7508040130E	8.0	8	40	130	Long
★ SEME75100E	10.0	10	25	75	Regular
SEME7510030E	10.0	10	30	80	Long
★ SEME7510040E	10.0	10	40	90	Long
SEME7510050E	10.0	10	50	100	Long
SEME7510050150E	10.0	10	50	150	Long
★ SEME75120E	12.0	12	30	80	Regular
★ SEME7512040E	12.0	12	40	90	Long
★ SEME7512050E	12.0	12	50	100	Long
SEME7512060E	12.0	12	60	110	Long
SEME7512060150E	12.0	12	60	150	Long
★ SEME75160E	16.0	16	40	100	Regular
SEME7516050E	16.0	16	50	110	Long
★ SEME7516060E	16.0	16	60	120	Long
SEME7516090E	16.0	16	90	150	Long
SEME75160110E	16.0	16	110	200	Long

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M						K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○	○	

ISO Material Description	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommend											○	○	○	○	○	○	○	○	○	○	○	○	

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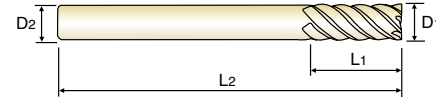
PLAIN SHANK **SEME75** SERIES

**CARBIDE, 6 FLUTE 45° HELIX** (Regular, Long Shank)

- VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE
- Fraise carbure, 6 dents, hélice 45°
- MD, 6 TAGLIENTI, ELICA 45°, SPIGOLO VIVO (Serie media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRC55 which are used for molds & dies.
- ▶ From the 45 helix angle, better surface roughness can be achieved at side cutting.
- ▶ Available in several effective lengths of cut and also overall lengths

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspaltung von vorvergüteten Stählen bis HRC55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der 45° Spirale werden bessere Oberflächengüten bei der Eckbearbeitung erreicht
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Remark
	D1	D2	L1	L2	
SEME75160110250E	16.0	16	110	250	Long
★ SEME75200E	20.0	20	45	100	Regular
★ SEME7520060E	20.0	20	60	120	Long
SEME7520070E	20.0	20	70	130	Long
SEME75200110E	20.0	20	110	200	Long
SEME75200110250E	20.0	20	110	250	Long
SEME75200110300E	20.0	20	110	300	Long

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	3	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



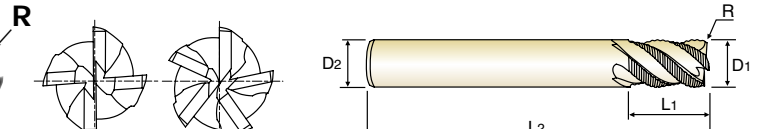
PLAIN SHANK **G9D75** SERIES  
FLAT SHANK **G9D67** SERIES

**CARBIDE, 4&5 FLUTE MULTIPLE HELIX CORNER RADIUS - SHORT LENGTH**

- VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser KURZ ECKENRADIUS
- Fraise carbure, 4&5 dents, torique, hélice multiple, courte
- MD, 4 & 5 TAGLIENTI, TORICA, SERIE CORTA

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

- ▶ einzigartige Nutengeometrie für hervorragenden Spänentransport und Vibrationsreduzierung
- ▶ neuartiges Schruppprofil zur Reduzierung der Schnittkräfte
- ▶ Spezielle Werkzeuggeometrie für Hochvorschub- und Schwerzerspannung geeignet
- ▶ speziell entwickelte Schneidengeometrie für Tauch- und Taschenfräsen
- ▶ YG-1 eigene Beschichtung um lange Lebensdauer und sehr guten Spänentransport zu gewährleisten



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	
							PLAIN
G9D75060	G9D67060	R0.5	6.0	6	9	57	4
G9D75080	G9D67080	R0.5	8.0	8	12	63	4
G9D75100	G9D67100	R0.5	10.0	10	15	72	4
G9D75120	G9D67120	R0.5	12.0	12	18	83	4
G9D75160	G9D67160	R1.0	16.0	16	24	92	5
G9D75200	G9D67200	R1.0	20.0	20	30	104	5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.05	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	3	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	◎	◎	◎	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



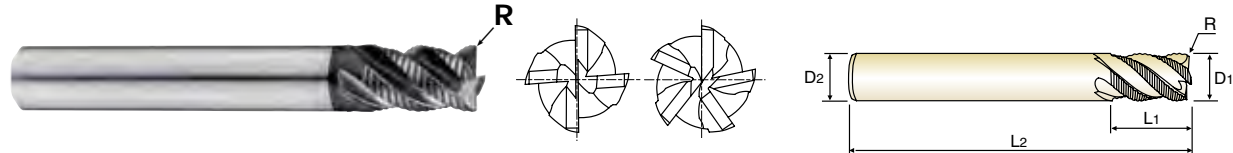
PLAIN SHANK **G9D76** SERIES  
FLAT SHANK **G9D68** SERIES

**CARBIDE, 4&5 FLUTE MULTIPLE HELIX CORNER RADIUS - LONG LENGTH**

**VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser KURZ ECKENRADIUS**  
 ( ) Fraise carbure, 4&5 dents, torique, hélice multiple, courte  
 ( ) MD, 4 & 5 TAGLIANTI, TORICA, SERIE CORTA

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

- ▶ einzigartige Nutengeometrie für hervorragenden Späntransport und Vibrationsreduzierung
- ▶ neuartiges Schruppprofil zur Reduzierung der Schnittkräfte
- ▶ Spezielle Werkzeuggeometrie für Hochvorschub- und Schwerzerspannung geeignet
- ▶ speziell entwickelte Schneidengeometrie für Tauch- und Taschenfräsen
- ▶ YG-1 eigene Beschichtung um lange Lebensdauer und sehr guten Späntransport zu gewährleisten



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	R	D1	D2	L1	L2	
G9D76060	G9D68060	R0.5	6.0	6	12	57	4
G9D76080	G9D68080	R0.5	8.0	8	16	63	4
G9D76100	G9D68100	R0.5	10.0	10	20	72	4
G9D76120	G9D68120	R0.5	12.0	12	24	83	4
G9D76160	G9D68160	R1.0	16.0	16	32	92	5
G9D76200	G9D68200	R1.0	20.0	20	40	104	5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.05	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													



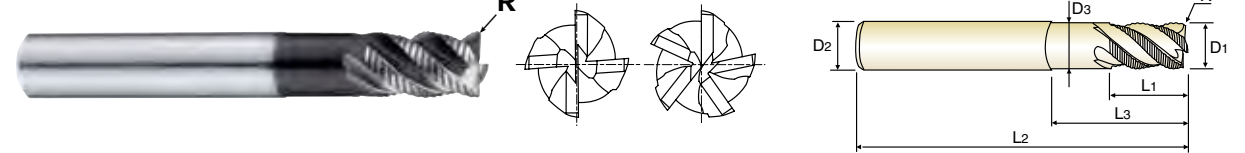
PLAIN SHANK **G9D77** SERIES  
FLAT SHANK **G9D69** SERIES

**CARBIDE, 4&5 FLUTE MULTIPLE HELIX LONG REACH CORNER RADIUS**

**VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser GROÙE REICHWEITE ECKENRADIUS**  
 ( ) Fraise carbure, 4&5 dents, torique longue portée, hélice multiple  
 ( ) MD, 4 & 5 TAGLIANTI, TORICA, SCARICATA, SERIE LUNGS

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

- ▶ einzigartige Nutengeometrie für hervorragenden Späntransport und Vibrationsreduzierung
- ▶ neuartiges Schruppprofil zur Reduzierung der Schnittkräfte
- ▶ Spezielle Werkzeuggeometrie für Hochvorschub- und Schwerzerspannung geeignet
- ▶ speziell entwickelte Schneidengeometrie für Tauch- und Taschenfräsen
- ▶ YG-1 eigene Beschichtung um lange Lebensdauer und sehr guten Späntransport zu gewährleisten



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
-	-	POWER MILLING CHUCK	D161-176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3	
G9D77060	G9D69060	R0.5	6.0	6	9	18	57	5.50	4
G9D77080	G9D69080	R0.5	8.0	8	12	24	63	7.50	4
G9D77100	G9D69100	R0.5	10.0	10	15	30	72	9.50	4
G9D77120	G9D69120	R0.5	12.0	12	18	36	83	11.50	4
G9D77160	G9D69160	R1.0	16.0	16	24	48	100	15.50	5
G9D77200	G9D69200	R1.0	20.0	20	30	60	110	19.20	5

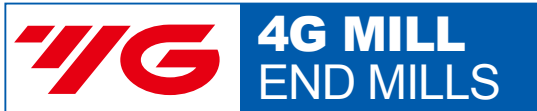
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.05	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													



RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER



RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEMD98 SERIES 2 FLUTE BALL NOSE

SEMD98 SERIES 2 FLUTE BALL NOSE

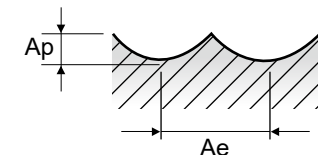
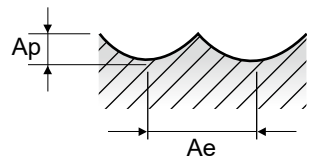
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

Table with columns for ISO, VDI 3323, Material Description, Ae, Ap, Parameter, and Diameter (Ø) from 0.1 to 2.5. Rows include P (1-5, 6-8, 9, 10-11.1, 11.2) and K (15-20) series.

Table with columns for VDI 3323, Parameter, and Diameter (Ø) from 3.0 to 25.0. Rows include 1-5, 6-8, 9, 10-11.1, 11.2, 15-20, 38.1-38.2, 40, and 41 series.

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### SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

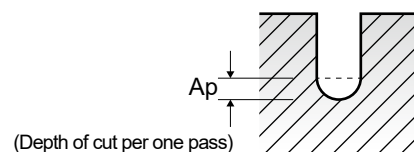
Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

### SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)															
				0.1		0.1		0.1		0.2		0.2		0.3		0.3		0.3	
				LBS	0.2	0.3	0.5	1	0.5	1	1.5	2	3	1	1.5	2	2.5	3	4
P	1-5	Non-alloy steel	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38	
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004	
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319	
			FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323	
			Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004	
			Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38	
	fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004			
	RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319			
	FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323			
	Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004			
	6-8	Low alloy steel	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38	
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004	
RPM			50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319		
FEED			204	204	204	178	296	296	267	267	267	499	499	357	357	357	323		
Ap			0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004		
Vc			16	16	16	14	31	31	28	28	28	47	47	42	42	42	38		
fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.003				
RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319				
FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	242				
Ap	0.007	0.007	0.005	0.002	0.014	0.01	0.006	0.004	0.003	0.015	0.015	0.008	0.005	0.005	0.003				
10-11.1	High alloyed steel, and tool steel	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38		
		fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004		
		RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319		
		FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323		
		Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004		
		Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38		
fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.003				
RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319				
FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	242				
Ap	0.007	0.007	0.005	0.002	0.014	0.01	0.006	0.004	0.003	0.015	0.015	0.008	0.005	0.005	0.003				
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	38		
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004	
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319	
			FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323	
			Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004	
			Vc	16	16	16	14	27	27	24	24	24	40	40	36	36	36	32	
fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003				
RPM	50930	50930	50930	44563	42972	42972	38197	38197	38197	42441	42441	38197	38197	38197	33953				
FEED	204	204	204	178	258	258	229	229	229	340	340	306	306	306	204				
Ap	0.005	0.005	0.004	0.001	0.01	0.007	0.004	0.003	0.002	0.011	0.011	0.006	0.004	0.004	0.002				
H	38.1 - 38.2	Hardened steel	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	38		
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003		
			RPM	50930	50930	50930	44563	42972	42972	38197	38197	38197	42441	42441	38197	38197	38197	33953	
			FEED	204	204	204	178	258	258	229	229	229	340	340	306	306	306	204	
			Ap	0.005	0.005	0.004	0.001	0.01	0.007	0.004	0.003	0.002	0.011	0.011	0.006	0.004	0.004	0.002	
			Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38	
fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003				
RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319				
FEED	204	204	204	178	296	296	267	267	267	399	399	357	357	357	242				
Ap	0.007	0.007	0.005	0.002	0.014	0.01	0.006	0.004	0.003	0.015	0.015	0.008	0.005	0.005	0.003				
H	40	Chilled Cast Iron	Vc	16	16	16	14	27	27	24	24	24	40	40	36	36	32		
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003		
			RPM	50930	50930	50930	44563	42972	42972	38197	38197	38197	42441	42441	38197	38197	38197	33953	
			FEED	204	204	204	178	258	258	229	229	229	340	340	306	306	306	204	
			Ap	0.005	0.005	0.004	0.001	0.01	0.007	0.004	0.003	0.002	0.011	0.011	0.006	0.004	0.004	0.002	
			Vc	16	16	16	14	27	27	24	24	24	40	40	36	36	36	32	
fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003				
RPM	50930	50930	50930	44563	42972	42972	38197	38197	38197	42441	42441	38197	38197	38197	33953				
FEED	204	204	204	178	258	258	229	229	229	340	340	306	306	306	204				
Ap	0.005	0.005	0.004	0.001	0.01	0.007	0.004	0.003	0.002	0.011	0.011	0.006	0.004	0.004	0.002				

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VDI 3323	Parameter	Diameter (Ø)																			
		0.3		0.4		0.4		0.4		0.4		0.4		0.4		0.4		0.5		0.5	
		LBS	5	1	1.5	2	2.5	3	4	5	6	8	10	1	1.5	2	2.5	3	4	5	6
1-5	Vc	28	52	52	52	46	46	46	41	41	31	15	54	54	54	54	48	48	48	43	32
	fz	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007
	RPM	29709	41380	41380	41380	36606	36606	36606	32627	32627	24669	11937	34377	34377	34377	34377	30558	30558	30558	27375	20372
	FEED	178	497	497	497	366	366	366	326	326	197	95	688	688	688	688	550	550	550	438	285
	Ap	0.003	0.036	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007
	Vc	28	52	52	52	46	46	46	41	41	31	15	54	54	54	54	48	48	48	43	32
fz	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007	
RPM	29709	41380	41380	41380	36606	36606	36606	32627	32627	24669	11937	34377	34377	34377	34377	30558	30558	30558	27375	20372	
FEED	178	497	497	497	366	366	366	326	326	197	95	688	688	688	688	550	550	550	438	285	
Ap	0.003	0.036	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032							

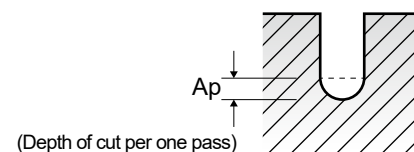


### SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																
			LBS																
			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
P	1-5	Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10
		fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012
		RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183
		FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76
		Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006
		Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10
	fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012	
	RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183	
	FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76	
	Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006	
	9	Vc	91	91	91	82	82	82	82	73	73	55	55	55	27	27	27	9	9
		fz	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.018	0.018	0.016	0.016	0.016	0.013	0.013	0.011	0.011	
RPM		28966	28966	28966	26101	26101	26101	26101	23237	23237	17507	17507	17507	8594	8594	8594	2865	2865	
FEED		1332	1332	1332	1044	1044	1044	1044	837	837	560	560	560	223	223	223	63	63	
Ap		0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007	0.007	0.007	0.007	0.005	
10-11.1		Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10
	fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012	
	RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183	
	FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76	
	Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006	
	11.2	Vc	91	91	91	82	82	82	82	73	73	55	55	55	27	27	27	9	9
fz		0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.018	0.018	0.016	0.016	0.016	0.013	0.013	0.011	0.011		
RPM		28966	28966	28966	26101	26101	26101	26101	23237	23237	17507	17507	17507	8594	8594	8594	2865	2865	
FEED		1332	1332	1332	1044	1044	1044	1044	837	837	560	560	560	223	223	223	63	63	
Ap		0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007	0.007	0.007	0.007	0.005	
K 15-20		Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10
	fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012	
	RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183	
	FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76	
	Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006	
	H	38.1 - 38.2	Vc	81	81	81	73	73	73	73	65	65	48	48	48	24	24	24	8
fz			0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013	0.013	0.011	0.011	
RPM			25783	25783	25783	23237	23237	23237	23237	20690	20690	15279	15279	15279	7639	7639	7639	2546	2546
FEED			1083	1083	1083	883	883	883	883	703	703	458	458	458	199	199	199	56	56
Ap			0.05	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.008	0.008	0.005	0.005	0.005	0.005	0.005	0.005	0.003
40			Vc	91	91	91	82	82	82	82	73	73	55	55	55	27	27	27	9
		fz	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.018	0.018	0.016	0.016	0.016	0.013	0.013	0.011	0.011	
		RPM	28966	28966	28966	26101	26101	26101	26101	23237	23237	17507	17507	17507	8594	8594	8594	2865	2865
		FEED	1332	1332	1332	1044	1044	1044	1044	837	837	560	560	560	223	223	223	63	63
		Ap	0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007	0.007	0.007	0.007	0.005
		41	Vc	81	81	81	73	73	73	73	65	65	48	48	48	24	24	24	8
fz			0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013	0.013	0.011	0.011	
RPM	25783		25783	25783	23237	23237	23237	23237	20690	20690	15279	15279	15279	7639	7639	7639	2546	2546	
FEED	1083		1083	1083	883	883	883	883	703	703	458	458	458	199	199	199	56	56	
Ap	0.05		0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.008	0.008	0.005	0.005	0.005	0.005	0.005	0.005	0.003	

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### SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																
		LBS																
		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5
1-5	Vc	99	99	89	89	89	79	59	30	95	85	85	76	113	113	113	101	101
	fz	0.026	0.026	0.024	0.024	0.024	0.021	0.018	0.016	0.03	0.027	0.027	0.024	0.033	0.033	0.033	0.03	0.03
	RPM	26261	26261	23608	23608	23608	20955	15650	7958	21600	19326	19326	17280	23979	23979	23979	21433	21433
	FEED	1366	1366	1133	1133	1133	880	563	255	1296	1044	1044	829	1583	1583	1583	1286	1286
	Ap	0.076	0.076	0.043	0.027	0.027	0.016	0.011	0.011	0.088	0.05	0.05	0.032	0.135	0.095	0.095	0.054	0.054
	6-8	Vc	99	99	89	89	89	79	59	30	95	85	85	76	113	113	113	101
fz		0.026	0.026	0.024	0.024	0.024	0.021	0.018	0.016	0.03	0.027	0.027	0.024	0.033	0.033	0.033	0.03	0.03
RPM		26261	26261	23608	23608	23608	20955	15650	7958	21600	19326	19326	17280	23979	23979	23979	21433	21433
FEED		1366	1366	1133	1133	1133	880	563	255	1296	1044	1044	829	1583	1583	1583	1286	1286
Ap		0.076	0.076	0.043	0.027	0.027	0.016	0.011	0.011	0.088	0.05	0.05	0.032	0.135	0.095	0.095	0.054	0.054
9		Vc	93	93	84	84	84	75	56	28	89	80	80	71	106	106	106	96
	fz	0.023	0.023	0.021	0.021	0.021	0.019	0.016	0.014	0.027	0.024	0.024	0.022	0.03	0.03	0.03	0.027	0.027
	RPM	24669	24669	22282	22282	22282	19894	14854	7427	20235	18189	18189	16143	22494	22494	22494	20372	20372
	FEED	1135	1135	936	936	936	756	475	208	1093	873	873	710	1350	1350	1350	1100	1100
	Ap	0.059	0.059	0.034	0.021	0.021	0.013	0.008	0.008	0.069	0.039	0.039	0.025	0.105	0.074	0.074	0.042	0.042
	10 - 11.1	Vc	99	99	89	89	89	79	59	30	95	85	85	76	113	113	113	101
fz		0.026	0.026	0.024	0.024	0.024	0.021	0.018	0.016	0.03	0.027	0.027	0.024	0.033	0.033	0.033	0.03	0.03
RPM		26261	26261	23608	23608	23608	20955	15650	7958	21600	19326	19326	17280	23979	23979	23979	21433	21433
FEED		1366	1366	1133	1133	1133	880	563	255	1296	1044	1044	829	1583	1583	1583	1286	1286
Ap		0.076	0.076	0.043	0.027	0.027	0.016	0.011	0.011	0.088	0.05	0.05	0.032	0.135	0.095	0.095	0.054	0.054
11.2		Vc	93	93	84	84	84	75	56	28	89	80	80	71	106	106	106	96
	fz	0.023	0.023	0.021	0.021	0.021	0.019	0.016	0.014									





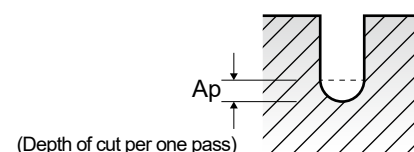
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

Table with columns for ISO, VDI 3323, Parameter, Diameter (Ø), and various cutting parameters (Vc, fz, RPM, FEED, Ap) for different materials and diameters.

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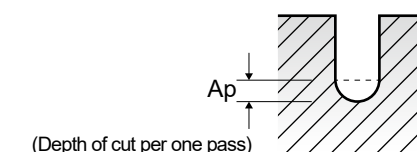
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

Table with columns for VDI 3323, Parameter, Diameter (Ø), and various cutting parameters (Vc, fz, RPM, FEED, Ap) for different materials and diameters.

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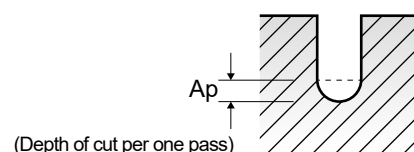


### SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																
			2.0		2.5		3.0		3.0		3.0		3.0		3.0		3.0		
			LBS	60	8	10	12	16	20	22	26	30	35	40	45	50	6	8	10
P	1-5	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129
		fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075
		RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687
		FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053
	Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189	
	6-8	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129
		fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075
		RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687
		FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053
	Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189	
	9	Vc	32	117	117	117	105	105	105	94	94	94	70	70	70	122	122	122	122
		fz	0.027	0.054	0.054	0.054	0.048	0.048	0.048	0.043	0.043	0.043	0.038	0.038	0.038	0.067	0.067	0.067	0.067
RPM		5093	14897	14897	14897	13369	13369	13369	11968	11968	11968	8913	8913	8913	12945	12945	12945	12945	
FEED		275	1609	1609	1609	1283	1283	1283	1029	1029	1029	677	677	677	1735	1735	1735	1735	
Ap	0.014	0.123	0.123	0.123	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147		
10-11.1	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129	
	fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075	
	RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687	
	FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053	
Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189		
11.2	Vc	32	117	117	117	105	105	105	94	94	94	70	70	70	122	122	122	122	
	fz	0.027	0.054	0.054	0.054	0.048	0.048	0.048	0.043	0.043	0.043	0.038	0.038	0.038	0.067	0.067	0.067	0.067	
	RPM	5093	14897	14897	14897	13369	13369	13369	11968	11968	11968	8913	8913	8913	12945	12945	12945	12945	
	FEED	275	1609	1609	1609	1283	1283	1283	1029	1029	1029	677	677	677	1735	1735	1735	1735	
Ap	0.014	0.123	0.123	0.123	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147		
K 15-20	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129	
	fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075	
	RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687	
	FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053	
Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189		
H 38.1-38.2	Vc	28	104	104	104	93	93	93	83	83	83	62	62	62	107	107	107	107	
	fz	0.026	0.049	0.049	0.049	0.044	0.044	0.044	0.04	0.04	0.04	0.035	0.035	0.035	0.063	0.063	0.063	0.063	
	RPM	4456	13242	13242	13242	11841	11841	11841	10568	10568	10568	7894	7894	7894	11353	11353	11353	11353	
	FEED	232	1298	1298	1298	1042	1042	1042	845	845	845	553	553	553	1430	1430	1430	1430	
Ap	0.01	0.088	0.088	0.088	0.05	0.05	0.031	0.031	0.031	0.019	0.019	0.013	0.013	0.15	0.15	0.105	0.105		
H 40	Vc	32	117	117	117	105	105	105	94	94	94	70	70	70	122	122	122	122	
	fz	0.027	0.054	0.054	0.054	0.048	0.048	0.048	0.043	0.043	0.043	0.038	0.038	0.038	0.067	0.067	0.067	0.067	
	RPM	5093	14897	14897	14897	13369	13369	13369	11968	11968	11968	8913	8913	8913	12945	12945	12945	12945	
	FEED	275	1609	1609	1609	1283	1283	1283	1029	1029	1029	677	677	677	1735	1735	1735	1735	
Ap	0.014	0.123	0.123	0.123	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147		
H 41	Vc	28	104	104	104	93	93	93	83	83	83	62	62	62	107	107	107	107	
	fz	0.026	0.049	0.049	0.049	0.044	0.044	0.044	0.04	0.04	0.04	0.035	0.035	0.035	0.063	0.063	0.063	0.063	
	RPM	4456	13242	13242	13242	11841	11841	11841	10568	10568	10568	7894	7894	7894	11353	11353	11353	11353	
	FEED	232	1298	1298	1298	1042	1042	1042	845	845	845	553	553	553	1430	1430	1430	1430	
Ap	0.01	0.088	0.088	0.088	0.05	0.05	0.031	0.031	0.031	0.019	0.019	0.013	0.013	0.15	0.15	0.105	0.105		

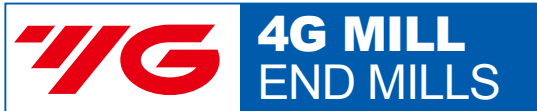
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### SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																				
		3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0						
		LBS	14	16	18	20	22	26	30	35	40	45	50	60	8	10	12	14	16	18	20	22
1-5	Vc	129	116	116	116	116	116	116	103	103	103	77	77	123	123	123	123	123	123	123	123	111
	fz	0.075	0.067	0.067	0.067	0.067	0.067	0.067	0.06	0.06	0.06	0.052	0.052	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09
	RPM	13687	12308	12308	12308	12308	12308	12308	10929	10929	10929	8170	8170	9788	9788	9788	9788	9788	9788	9788	9788	8833
	FEED	2053	1649	1649	1649	1649	1649	1649	1311	1311	1311	850	850	1958	1958	1958	1958	1958	1958	1958	1958	1590
6-8	Vc	129	116	116	116	116	116	116	103	103	103	77	77	123	123	123	123	123	123	123	123	111
	fz	0.075	0.067	0.067	0.067	0.067	0.067	0.067	0.06	0.06	0.06	0.052	0.052	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09
	RPM	13687	12308	12308	12308	12308	12308	12308	10929	10929	10929	8170	8170	9788	9788	9788	9788	9788	9788	9788	9788	8833
	FEED	2053	1649	1649	1649	1649	1649	1649	1311	1311	1311	850	850	1958	1958	1958	1958	1958	1958	1958	1958	1590
9	Vc	122	109	109	109	109	109	109	97	97	97	73	73	117	117	117	117	117	117	117	117	105
	fz	0.067	0.06	0.06	0.06	0.06	0.06	0.06	0.054	0.054	0.054	0.047	0.047	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.081
	RPM	12945	11565	11565	11565	11565	11565	11565	10292	10292	10292	7746	7746	9311	9311	9311	9311	9311	9311	9311	9311	8356
	FEED	1735	1388	1388	1388	1388	1388	1388	1112	1112	1112	728	728	1676	1676	1676	1676	1676	1676	1676	1676	1354
10-11.1	Vc	129	116	116	116	116	116	116	103	103	103	77	77	123	123	123	123	123	123	123	123	111
	fz	0.075	0.067	0.067	0.067	0.067	0.067	0.067	0.06	0.06	0.06	0.052	0.052	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09
	RPM	13687	12308	12308	12308	12308	12308	12308	10929	10929	10929	8170	8170	9788	9788	9788	9788	9788	9788	9788	9788	8833
	FEED	2053	1649	1649	1649	1649	1649	1649	1311	1311	1311	850	850	1958	1958	1958	1958					



**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**



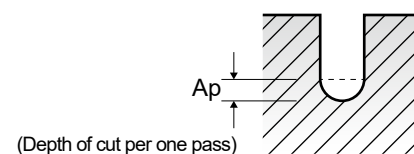
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																							
			4.0				5.0				5.0															
			LBS	26	30	35	40	45	50	60	15	20	26	30												
P	1-5	Vc	111	111	111	111	99	99	99	121	121	109	109	6-8	Vc	111	111	111	111	99	99	99	121	121	109	109
		fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108		fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108
		RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939		RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939
		FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499		FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499
	Ap	0.144	0.144	0.09	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18	Ap	0.144	0.144	0.09	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18		
	9	Vc	105	105	105	105	93	93	93	115	115	103	103	10-11.1	Vc	111	111	111	111	99	99	99	121	121	109	109
		fz	0.081	0.081	0.081	0.081	0.072	0.072	0.072	0.1	0.1	0.09	0.09		fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108
		RPM	8356	8356	8356	8356	7401	7401	7401	7321	7321	6557	6557		RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939
		FEED	1354	1354	1354	1354	1066	1066	1066	1464	1464	1180	1180		FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499
	Ap	0.112	0.112	0.07	0.07	0.07	0.07	0.042	0.245	0.245	0.14	0.14	Ap	0.144	0.144	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18			
	11.2	Vc	105	105	105	105	93	93	93	115	115	103	103	11.2	Vc	103	103	103	92	117	117	116	116	116	115	95
		fz	0.081	0.081	0.081	0.081	0.072	0.072	0.072	0.1	0.1	0.09	0.09		fz	0.09	0.09	0.09	0.09	0.08	0.129	0.129	0.163	0.163	0.19	0.119
RPM		8356	8356	8356	8356	7401	7401	7401	7321	7321	6557	6557	RPM		6557	6557	6557	5857	6207	6207	4615	4615	3692	3692	3050	2520
FEED		1354	1354	1354	1354	1066	1066	1066	1464	1464	1180	1180	FEED		1180	1180	1180	937	1601	1601	1505	1505	1403	1403	1300	600
Ap	0.112	0.112	0.07	0.07	0.07	0.07	0.042	0.245	0.245	0.14	0.14	Ap	0.14	0.14	0.088	0.088	0.294	0.294	0.392	0.392	0.7	0.49	0.84	0.588		
K 15-20	Vc	111	111	111	111	99	99	99	121	121	109	109	15-20	Vc	109	109	109	97	123	123	122	122	121	121	100	
	fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108		fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.151
	RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939		RPM	6939	6939	6939	6175	6525	6525	4854	4854	3852	3852	3210	2653
	FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499		FEED	1499	1499	1499	1186	1905	1905	1806	1806	1648	1648	1528	801
Ap	0.144	0.144	0.09	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18	Ap	0.18	0.18	0.113	0.113	0.378	0.378	0.504	0.504	0.9	0.63	1.08	0.756		
H 38.1-38.2	Vc	93	93	93	93	82	82	82	101	101	90	90	38.1-38.2	Vc	90	90	90	80	104	104	101	101	101	100	82	
	fz	0.077	0.077	0.077	0.077	0.068	0.068	0.068	0.1	0.1	0.09	0.09		fz	0.09	0.09	0.09	0.08	0.121	0.121	0.16	0.16	0.188	0.188	0.208	0.08
	RPM	7401	7401	7401	7401	6525	6525	6525	6430	6430	5730	5730		RPM	5730	5730	5730	5093	5517	5517	4019	4019	3215	3215	2653	2175
	FEED	1140	1140	1140	1140	887	887	887	1286	1286	1031	1031		FEED	1031	1031	1031	815	1335	1335	1286	1286	1209	1209	1103	348
Ap	0.08	0.08	0.05	0.05	0.05	0.05	0.03	0.175	0.175	0.1	0.1	Ap	0.1	0.1	0.063	0.063	0.21	0.21	0.28	0.28	0.5	0.35	0.6	0.42		
H 40	Vc	105	105	105	105	93	93	93	115	115	103	103	40	Vc	103	103	103	92	117	117	116	116	116	115	95	
	fz	0.081	0.081	0.081	0.081	0.072	0.072	0.072	0.1	0.1	0.09	0.09		fz	0.09	0.09	0.09	0.08	0.129	0.129	0.163	0.163	0.19	0.19	0.213	0.119
	RPM	8356	8356	8356	8356	7401	7401	7401	7321	7321	6557	6557		RPM	6557	6557	6557	5857	6207	6207	4615	4615	3692	3692	3050	2520
	FEED	1354	1354	1354	1354	1066	1066	1066	1464	1464	1180	1180		FEED	1180	1180	1180	937	1601	1601	1505	1505	1403	1403	1300	600
Ap	0.112	0.112	0.07	0.07	0.07	0.07	0.042	0.245	0.245	0.14	0.14	Ap	0.14	0.14	0.088	0.088	0.294	0.294	0.392	0.392	0.7	0.49	0.84	0.588		
H 41	Vc	93	93	93	93	82	82	82	101	101	90	90	41	Vc	90	90	90	80	104	104	101	101	101	100	82	
	fz	0.077	0.077	0.077	0.077	0.068	0.068	0.068	0.1	0.1	0.09	0.09		fz	0.09	0.09	0.09	0.08	0.121	0.121	0.16	0.16	0.188	0.188	0.208	0.08
	RPM	7401	7401	7401	7401	6525	6525	6525	6430	6430	5730	5730		RPM	5730	5730	5730	5093	5517	5517	4019	4019	3215	3215	2653	2175
	FEED	1140	1140	1140	1140	887	887	887	1286	1286	1031	1031		FEED	1031	1031	1031	815	1335	1335	1286	1286	1209	1209	1103	348
Ap	0.08	0.08	0.05	0.05	0.05	0.05	0.03	0.175	0.175	0.1	0.1	Ap	0.1	0.1	0.063	0.063	0.21	0.21	0.28	0.28	0.5	0.35	0.6	0.42		

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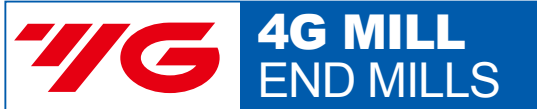


**SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																											
		5.0			6.0			8.0			10.0			12.0															
		LBS	35	40	50	60	20	30	25	30	30	40	32	45	50														
1-5	Vc	109	109	109	97	123	123	122	122	121	121	121	121	100	6-8	Vc	109	109	109	97	123	123	122	122	121	121	121	121	100
	fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.238	0.151		fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.238	0.151
	RPM	6939	6939	6939	6175	6525	6525	4854	4854	3852	3852	3210	3210	2653		RPM	6939	6939	6939	6175	6525	6525	4854	4854	3852	3852	3210	3210	2653
	FEED	1499	1499	1499	1186	1905	1905	1806	1806	1648	1648	1528	1528	801		FEED	1499	1499	1499	1186	1905	1905	1806	1806	1648	1648	1528	1528	801
Ap	0.18	0.18	0.113	0.113	0.378	0.378	0.504	0.504	0.9	0.63	1.08	0.756	0.756	Ap	0.18	0.18	0.113	0.113	0.378	0.378	0.504	0.504	0.9	0.63	1.08	0.756	0.756		
9	Vc	103	103	103	92	117	117	116	116	116	115	95	10-11.1	Vc	103	103	103	92	117	117	116	116	116	115	95				
	fz	0.09	0.09	0.09	0.08	0.129	0.129	0.163	0.163	0.19	0.19	0.213		0.119	fz	0.09	0.09	0.09	0.08	0.129	0.129	0.163	0.163	0.19	0.19	0.213	0.213	0.119	
	RPM	6557	6557	6557	5857	6207	6207	4615	4615	3692	3692	3050		2520	RPM	6557	6557	6557	5857	6207	6207	4615	4615	3692	3692	3050	3050	2520	
	FEED	1180	1180	1180	937	1601	1601	1505	1505	1403	1403	1300		600	FEED	1180	1180	1180	937	1601	1601	1505	1505	1403	1403	1300	1300	600	
Ap	0.14	0.14	0.088	0.088	0.294	0.294	0.392	0.392	0.7	0.49	0.84	0.588	Ap	0.14	0.14	0.088	0.088	0.294	0.294	0.392	0.392	0.7	0.49	0.84	0.588	0.588			
15-20	Vc	109	109	109	97	123	123	122	122	121	121	100	15-20	Vc	109	109	109	97	123	123	122	122	121	121	100				
	fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238		0.151	fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.238	0.151	
	RPM	6939	6939	6939	6175	6525	652																						





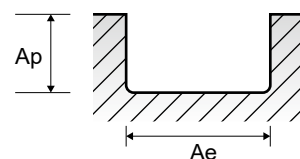
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEMD99 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5
P	1-5	Non-alloy steel	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.006
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
	6-8	Low alloy steel	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.006	
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
	9	High alloyed steel, and tool steel	1.0D	0.2D	Vc	18	25	34	37	37	44	50	53	59	64	
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	
					RPM	28648	26526	27056	23555	19629	20008	19894	18745	18144	15650	13581
	10-11.1	High alloyed steel, and tool steel	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.006	
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
11.2	High alloyed steel, and tool steel	1.0D	0.2D	Vc	18	25	34	37	37	44	50	53	59	64		
				fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004		
				RPM	28648	26526	27056	23555	19629	20008	19894	18745	18144	15650	13581	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.006	
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
H	38.1 - 38.2	Hardened steel	1.0D	0.2D	Vc	11	16	21	22	23	27	30	33	35	37	40
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	
					RPM	17507	16977	16711	14006	12202	12278	11937	11671	11141	9815	8488
	40	Chilled Cast Iron	1.0D	0.2D	Vc	18	25	34	37	37	44	50	53	59	64	
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	
					RPM	28648	26526	27056	23555	19629	20008	19894	18745	18144	15650	13581
	41	Hardened Cast Iron	1.0D	0.2D	Vc	11	16	21	22	23	27	30	33	35	37	40
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	
					RPM	17507	16977	16711	14006	12202	12278	11937	11671	11141	9815	8488

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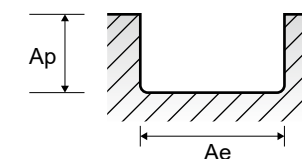


**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEMD99 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)																	
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0	10.0	11.0	12.0	14.0	16.0	20.0	
1-5	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158	
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056	
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515	
6-8	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158	
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056	
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515	
9	Vc	73	75	81	85	86	89	91	94	95	97	96	103	105	105	107	106	103	
	fz	0.005	0.007	0.008	0.01	0.012	0.015	0.017	0.021	0.025	0.028	0.033	0.038	0.04	0.041	0.041	0.04	0.037	
	RPM	11618	9549	8594	7730	6844	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639	
10 - 11.1	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158	
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056	
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515	
11.2	Vc	73	75	81	85	86	89	91	94	95	97	96	103	105	105	107	106	103	
	fz	0.005	0.007	0.008	0.01	0.012	0.015	0.017	0.021	0.025	0.028	0.033	0.038	0.04	0.041	0.041	0.04	0.037	
	RPM	11618	9549	8594	7730	6844	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639	
15 - 20	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158	
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056	
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515	
38.1 - 38.2	Vc	45	48	50	53	54	61	60	61	62	64	63	64	63	64	63	65	64	
	fz	0.005	0.006	0.007	0.008	0.009	0.01	0.013	0.016	0.018	0.021	0.024	0.03	0.03	0.03	0.03	0.031	0.03	
	RPM	7162	6112	5305	4820	4297	4315	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003	
40	Vc	73	75	81	85	86	89	91	94	95	97	96	103	105	105	107	106	103	
	fz	0.005	0.007	0.008	0.01	0.012	0.015	0.017	0.021	0.025	0.028	0.033	0.038	0.04	0.041	0.041	0.04	0.037	
	RPM	11618	9549	8594	7730	6844	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639	
41	Vc	45	48	50	53	54	61	60	61	62	64	63	64	63	64	63	65	64	
	fz	0.005	0.006	0.007	0.008	0.009	0.01	0.013	0.016	0.018	0.021	0.024	0.03	0.03	0.03	0.03	0.031	0.03	
	RPM	7162	6112	5305	4820	4297	4315	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003	

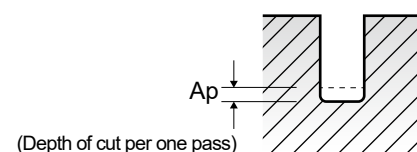


**SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)																																																																						
				0.2					0.3					0.4																																																												
				LBS	0.5	1	1.5	2	1	2	3	1	1.5	2	2.5	3																																																										
P	1-5	Non-alloy steel	Vc	31	31	28	28	47	42	42	63	63	63	57	57	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359	FEED	197	197	178	178	199	178	201	201	201	181	181	Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032	0.032								
			6-8	Low alloy steel	Vc	31	31	28	28	47	42	42	63	63	63	57	57	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359	FEED	197	197	178	178	199	178	201	201	201	181	181	Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032	0.032							
					9	High alloyed steel, and tool steel	Vc	22	22	20	20	30	27	27	40	40	40	36	36	fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	RPM	35014	35014	31831	31831	31831	28648	28648	31831	31831	31831	28648	28648	FEED	70	70	64	64	64	57	57	64	64	64	57	57	Ap	0.03	0.021	0.012	0.008	0.032	0.018	0.011	0.06	0.042	0.042	0.024	0.024				
							10-11.1	High alloyed steel, and tool steel	Vc	31	31	28	28	47	42	42	63	63	63	57	57	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359	FEED	197	197	178	178	199	178	201	201	201	181	181	Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032	0.032			
									11.2	High alloyed steel, and tool steel	Vc	22	22	20	20	30	27	27	40	40	40	36	36	fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	RPM	35014	35014	31831	31831	31831	28648	28648	31831	31831	31831	28648	28648	FEED	70	70	64	64	64	57	57	64	64	64	57	57	Ap	0.03	0.021	0.012	0.008	0.032	0.018	0.011	0.06	0.042	0.042	0.024	0.024
											K 15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	31	31	28	28	47	42	42	63	63	63	57	57	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359	FEED	197	197	178	178	199	178	201	201	201	181	181	Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032
	H 38.1 - 38.2	Hardened steel											Vc	13	13	12	12	19	17	17	25	25	25	23	23	fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	RPM	20690	20690	19099	19099	20160	18038	18038	19894	19894	19894	18303	18303	FEED	41	41	38	38	40	36	36	40	40	40	37	37	Ap	0.024	0.017	0.01	0.006	0.025	0.014	0.009	0.048	0.034	0.034
			H 40	Chilled Cast Iron									Vc	22	22	20	20	30	27	27	40	40	40	36	36	fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	RPM	35014	35014	31831	31831	31831	28648	28648	31831	31831	31831	28648	28648	FEED	70	70	64	64	64	57	57	64	64	64	57	57	Ap	0.03	0.021	0.012	0.008	0.032	0.018	0.011	0.06	0.042	0.042
					H 41	Hardened Cast Iron							Vc	13	13	12	12	19	17	17	25	25	25	23	23	fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	RPM	20690	20690	19099	19099	20160	18038	18038	19894	19894	19894	18303	18303	FEED	41	41	38	38	40	36	36	40	40	40	37	37	Ap	0.024	0.017	0.01	0.006	0.025	0.014	0.009	0.048	0.034	0.034

▶ NEXT PAGE



**SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																																																																																							
		0.4			0.5			0.5			0.5			0.5			0.6			0.7																																																																					
		LBS	4	1	1.5	2	2.5	3	4	5	6	2	3	4	6	8	10	2																																																																							
1-5	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	0.003	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012	0.14						
	6-8	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	0.003	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012	0.14					
		9	Vc	36	44	44	44	44	40	40	40	35	45	45	41	41	36	27	53	fz	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	RPM	28648	28011	28011	28011	28011	25465	25465	25465	22282	23873	23873	21751	21751	19099	14324	24101	FEED	57	112	112	112	112	51	51	51	45	95	95	87	87	76	57	96	Ap	0.015	0.075	0.075	0.053	0.053	0.03	0.03	0.019	0.019	0.063	0.063	0.036	0.023	0.014	0.009	0.105		
			10 - 11.1	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012	0.14	
				11.2	Vc	36	44	44	44	44	40	40	40	35	45	45	41	41	36	27	53	fz	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	RPM	28648	28011	28011	28011	28011	25465	25465	25465	22282	23873	23873	21751	21751	19099	14324	24101	FEED	57	112	112	112	112	51	51	51	45	95	95	87	87	76	57	96	Ap	0.015	0.075	0.075	0.053	0.053	0.03	0.03	0.019	0.019	0.063	0.063	0.036	0.023	0.014	0.009	0.105
					15 - 20	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012
38.1 - 38.2						Vc	23	27	27	27	27	24	24	24	21	27	27	25	25	22	16	32	fz	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.001	RPM	18303	17189	17189	17189	17189	15279	15279	15279	13369	14324	14324	13263	13263	11671	8488	14551	FEED	37	69	69	69	69	61	61	61	27	57	57	53	53	47	17	58	Ap	0.012	0.06	0.06	0.042	0.042	0.024	0.024	0.015	0.015	0.05	0.05	0.029	0.018	0.011	0.007
	40					Vc	36	44	44	44	44	40	40	40	35	45	45	41	41	36	27	53	fz	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	RPM	28648	28011	28011	28011	28011	25465	25465	25465	22282	23873	23873</																																						

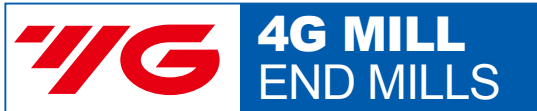
## RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

### SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																														
			0.7				0.8				1.0				1.5																		
			LBS	4	6	8	10	2	3	4	6	8	10	3	4	6	8	10															
P	1-5	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94
		fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	
		RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921
		FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239
	Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	
	6-8	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94
		fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	
		RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921
		FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239
	Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	
	9	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61
		fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	
RPM		21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	
FEED		87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	
Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038	Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038		
10-11.1	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	
	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004		
	RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	
	FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	
Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05		
11.2	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	
	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	0.002	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	0.002		
	RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	
	FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	
Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038	Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038		
K 15-20	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	
	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004		
	RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	
	FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	
Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05		
H 38.1-38.2	Vc	29	29	26	26	36	36	36	33	33	29	41	41	37	37	37	Vc	29	29	26	26	36	36	36	33	33	29	41	41	37	37	37	
	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002		
	RPM	13187	13187	11823	11823	14324	14324	14324	13130	13130	11539	13051	13051	11777	11777	11777	RPM	13187	13187	11823	11823	14324	14324	14324	13130	13130	11539	13051	13051	11777	11777	11777	
	FEED	53	53	47	47	57	57	57	53	53	46	78	78	47	47	47	FEED	53	53	47	47	57	57	57	53	53	46	78	78	47	47	47	
Ap	0.034	0.021	0.021	0.013	0.096	0.067	0.067	0.038	0.024	0.024	0.12	0.084	0.048	0.048	0.03	Ap	0.034	0.021	0.021	0.013	0.096	0.067	0.067	0.038	0.024	0.024	0.12	0.084	0.048	0.048	0.03		
H 40	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	
	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002		
	RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	
	FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	
Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038	Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038		
H 41	Vc	29	29	26	26	36	36	36	33	33	29	41	41	37	37	37	Vc	29	29	26	26	36	36	36	33	33	29	41	41	37	37	37	





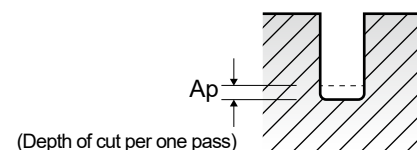
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

Table with columns for ISO, VDI 3323, Parameter, Diameter (Ø), and cutting parameters (Vc, fz, RPM, FEED, Ap) for various materials and diameters.

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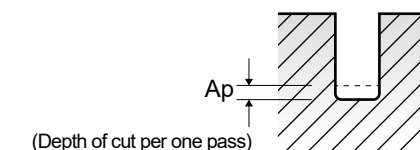
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

Table with columns for VDI 3323, Parameter, Diameter (Ø), and cutting parameters (Vc, fz, RPM, FEED, Ap) for various materials and diameters.

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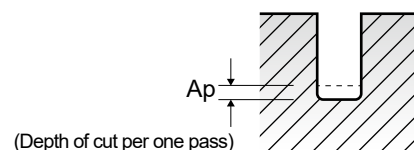


**SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)													
			3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
			LBS	30	35	40	10	12	14	16	20	26	30	35	40	45
P	1-5	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129	
		fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012	
		RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265	
		FEED	258	204	204	410	410	410	410	410	323	323	323	323	246	
	Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2		
	6-8	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129	
		fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012	
		RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265	
		FEED	258	204	204	410	410	410	410	410	323	323	323	323	246	
	Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2		
	9	Vc	87	78	78	103	103	103	103	103	93	93	93	93	82	
		fz	0.007	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.01	
RPM		9231	8276	8276	8196	8196	8196	8196	8196	7401	7401	7401	7401	6525		
FEED		129	99	99	197	197	197	197	197	163	163	163	163	131		
Ap	0.113	0.113	0.068	0.6	0.6	0.42	0.42	0.42	0.24	0.24	0.15	0.15	0.15			
10-11.1	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129		
	fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012		
	RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265		
	FEED	258	204	204	410	410	410	410	410	323	323	323	323	246		
Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2			
11.2	Vc	87	78	78	103	103	103	103	103	93	93	93	93	82		
	fz	0.007	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.01		
	RPM	9231	8276	8276	8196	8196	8196	8196	8196	7401	7401	7401	7401	6525		
	FEED	129	99	99	197	197	197	197	197	163	163	163	163	131		
Ap	0.113	0.113	0.068	0.6	0.6	0.42	0.42	0.42	0.24	0.24	0.15	0.15	0.15			
K 15-20	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129		
	fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012		
	RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265		
	FEED	258	204	204	410	410	410	410	410	323	323	323	323	246		
Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2			
H	38.1 - 38.2	Vc	53	48	48	65	65	65	65	65	58	58	58	58	52	
		fz	0.006	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007	
		RPM	5623	5093	5093	5173	5173	5173	5173	5173	4615	4615	4615	4615	4138	
		FEED	67	51	51	93	93	93	93	93	74	74	74	74	58	
	Ap	0.09	0.09	0.054	0.48	0.48	0.336	0.336	0.336	0.192	0.192	0.12	0.12	0.12		
	40	Vc	87	78	78	103	103	103	103	103	93	93	93	93	82	
		fz	0.007	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.01	
		RPM	9231	8276	8276	8196	8196	8196	8196	8196	7401	7401	7401	7401	6525	
		FEED	129	99	99	197	197	197	197	197	163	163	163	163	131	
	Ap	0.113	0.113	0.068	0.6	0.6	0.42	0.42	0.42	0.24	0.24	0.15	0.15	0.15		
	41	Vc	53	48	48	65	65	65	65	65	58	58	58	58	52	
		fz	0.006	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007	
RPM		5623	5093	5093	5173	5173	5173	5173	5173	4615	4615	4615	4615	4138		
FEED		67	51	51	93	93	93	93	93	74	74	74	74	58		
Ap	0.09	0.09	0.054	0.48	0.48	0.336	0.336	0.336	0.192	0.192	0.12	0.12	0.12			

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**SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ap = mm LBS = Length Below Shank

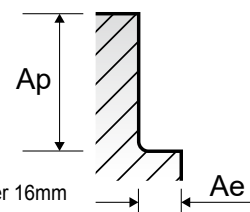
VDI 3323	Parameter	Diameter (Ø)															
		4.0	5.0	6.0	6.0	8.0	8.0	10.0	10.0	12.0	12.0	16.0	16.0	20.0	20.0		
		LBS	50	15	20	30	25	35	30	40	32	45	35	50	40	55	
1-5	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188		
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055		
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992		
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329		
Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4			
6-8	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188		
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055		
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992		
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329		
Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4			
9	Vc	82	110	113	113	114	114	126	126	126	126	127	127	123	123		
	fz	0.01	0.017	0.025	0.025	0.033	0.033	0.038	0.038	0.04	0.04	0.042	0.042	0.036	0.036		
	RPM	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958		
	FEED	131	238	300	300	299	299	305	305	267	267	212	212	141	141		
Ap	0.15	0.75	0.63	0.63	0.84	0.84	1.5	1.05	1.8	1.26	2.4	1.68	3	3			
10 - 11.1	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188		
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055		
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992		
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329		
Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4			
11.2	Vc	82	110	113	113	114	114	126	126	126	126	127	127	123	123		
	fz	0.01	0.017	0.025	0.025	0.033	0.033	0.038	0.038	0.04	0.04	0.042	0.042	0.036	0.036		
	RPM	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958		
	FEED	131	238	300	300	299	299	305	305	267	267	212	212	141	141		
Ap	0.15	0.75	0.63	0.63	0.84	0.84	1.5	1.05	1.8	1.26	2.4	1.68	3	3			
15 - 20	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188		
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055		
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992		
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329		
Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4			
38.1 - 38.2	Vc	52	72	74	74	76	76	76	76	75	75	77	77	75	75		
	fz	0.007	0.013	0.018	0.018	0.023	0.023	0.029	0.029	0.03	0.03	0.031	0.031	0.029	0.029		
	RPM	4138	4584	3926	3926	3024	3024	2419	2419	1989	1989	1532	1532	1194	1194		
	FEED	58	119	141	141	139	139	140	140	119	119	95	95	69	69		
Ap	0.12	0.6	0.504	0.504	0.672	0.672	1.2	0.84	1.44	1.008	1.92	1.344	2.4	2.4			
40	Vc	82	110	113	113	114	114	126	126	126	126	127	127	123	123		
	fz	0.01	0.017	0.025	0.025	0.033	0.033	0.038	0.038	0.04	0.04	0.042	0.042	0.036	0.036		
	RPM	6525	7003	5995	5995	4536	4536	4011	4011								

**SEME01 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0
P	1-5	Non-alloy steel	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
	6-8	Low alloy steel	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
	9	High alloyed steel, and tool steel	0.05D	2D	Vc	57	59	64	73	75	81	85	86
					fz	0.003	0.004	0.004	0.005	0.007	0.008	0.009	0.011
					RPM	18144	15650	13581	11618	9549	8594	7730	6844
	10-11.1	High alloyed steel, and tool steel	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
11.2	High alloyed steel, and tool steel	0.05D	2D	Vc	57	59	64	73	75	81	85	86	
				fz	0.003	0.004	0.004	0.005	0.007	0.008	0.009	0.011	
				RPM	18144	15650	13581	11618	9549	8594	7730	6844	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
H	38.1 - 38.2	Hardened steel	0.02D	2D	Vc	35	37	40	45	48	50	53	54
					fz	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.008
					RPM	11141	9815	8488	7162	6112	5305	4820	4297
	40	Chilled Cast Iron	0.05D	2D	Vc	57	59	64	73	75	81	85	86
					fz	0.003	0.004	0.004	0.005	0.007	0.008	0.009	0.011
					RPM	18144	15650	13581	11618	9549	8594	7730	6844
	41	Hardened Cast Iron	0.02D	2D	Vc	35	37	40	45	48	50	53	54
					fz	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.008
					RPM	11141	9815	8488	7162	6112	5305	4820	4297

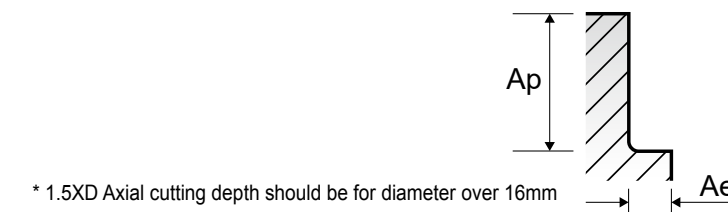
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**SEME01 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)											
		4.5	5.0	5.5	6.0	7.0	8.0	10.0	11.0	12.0	14.0	16.0	20.0
1-5	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
6-8	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
9	Vc	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.013	0.016	0.017	0.018	0.02	0.024	0.027	0.028	0.029	0.028	0.027	0.027
	RPM	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	327	371	370	363	353	367	354	340	323	272	228	177
10 - 11.1	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
11.2	Vc	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.013	0.016	0.017	0.018	0.02	0.024	0.027	0.028	0.029	0.028	0.027	0.027
	RPM	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	327	371	370	363	353	367	354	340	323	272	228	177
15 - 20	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
38.1 - 38.2	Vc	57	60	61	62	64	63	63	64	63	65	64	63
	fz	0.01	0.011	0.012	0.013	0.015	0.017	0.021	0.021	0.021	0.021	0.022	0.023
	RPM	4032	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003
	FEED	161	168	169	171	175	170	168	156	140	124	112	92
40	Vc	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.013	0.016	0.017	0.018	0.02	0.024	0.027	0.028	0.029	0.028	0.027	0.027
	RPM	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	327	371	370	363	353	367	354	340	323	272	228	177
41	Vc	57	60	61	62	64	63	63	64	63	65	64	63
	fz	0.01	0.011	0.012	0.013	0.015	0.017	0.021	0.021	0.021	0.021	0.022	0.023
	RPM	4032	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003
	FEED	161	168	169	171	175	170	168	156	140	124	112	92







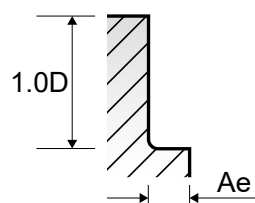
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME64 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

Table with columns for ISO, VDI 3323, Material Description, Parameter, and Diameter (Ø) ranging from 1.0 to 2.5. Rows include material types like Non-alloy steel, Low alloy steel, High alloyed steel, and Cast Iron.

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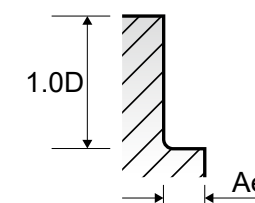
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME64 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

Table with columns for VDI 3323, Parameter, and Diameter (Ø) ranging from 1.2 to 2.5. Rows include material types like Non-alloy steel, Low alloy steel, High alloyed steel, and Cast Iron.

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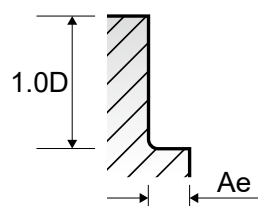
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME64 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

Table with columns for ISO, VDI 3323, Parameter, Diameter (Ø) (2.5 to 4.0), and rows for Vc, fz, RPM, FEED, Ae. Includes material groups P, K, and H.

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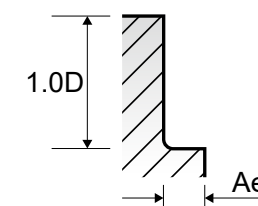


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME64 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

Table with columns for VDI 3323, Parameter, Diameter (Ø) (4.0 to 20.0), and rows for Vc, fz, RPM, FEED, Ae. Includes material groups P, K, and H.

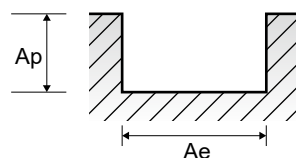


**SEME35 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
P	1-5	Non-alloy steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
	6-8	Low alloy steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
	9	High alloyed steel, and tool steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	8	16	22	29	34	36	37	38	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
					RPM	25465	25465	23343	23077	21645	19099	16825	15120	14147
	10-11.1	High alloyed steel, and tool steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
11.2	High alloyed steel, and tool steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	8	16	22	29	34	36	37	38	40	
				fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	
				RPM	25465	25465	23343	23077	21645	19099	16825	15120	14147	
M	14.1	Stainless steel	1.0D	0.5D (up to Ø1: 0.02D)	Vc	7	13	18	25	28	30	31	31	33
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
					RPM	22282	20690	19099	19894	17825	15915	14097	12335	11671
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
H	38.1-38.2	Hardened steel	1.0D	0.05D (up to Ø1: 0.02D)	Vc	5	11	15	20	23	24	25	25	27
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002
					RPM	15915	17507	15915	15915	14642	12732	11368	9947	9549
	40	Chilled Cast Iron	1.0D	0.05D (up to Ø1: 0.02D)	Vc	8	16	22	29	34	36	37	38	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
					RPM	25465	25465	23343	23077	21645	19099	16825	15120	14147
	41	Hardened Cast Iron	1.0D	0.05D (up to Ø1: 0.02D)	Vc	5	11	15	20	23	24	25	25	27
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002
					RPM	15915	17507	15915	15915	14642	12732	11368	9947	9549

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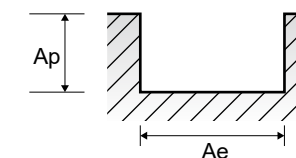


**SEME35 SERIES 2 FLUTE - SLOTTING**

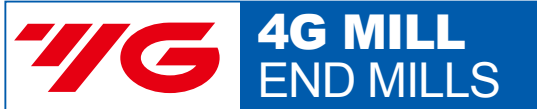
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)															
		1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0		
1-5	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107		
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039		
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866		
6-8	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107		
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039		
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866		
9	Vc	41	41	42	48	52	56	58	59	62	63	64	64	65			
	fz	0.004	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026	0.03	0.034	0.036	0.037		
	RPM	13051	10876	8913	7639	6621	5517	5093	4615	4173	3756	3588	3342	3134	2956		
10-11.1	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107		
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039		
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866		
11.2	Vc	41	41	42	48	52	56	58	59	62	63	64	64	65			
	fz	0.004	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026	0.03	0.034	0.036	0.037		
	RPM	13051	10876	8913	7639	6621	5517	5093	4615	4173	3756	3588	3342	3134	2956		
14.1	Vc	34	34	35	40	43	44	47	49	50	52	54	54	54			
	fz	0.004	0.005	0.006	0.008	0.01	0.014	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.038		
	RPM	10823	9019	7427	6366	5475	4669	4274	3899	3537	3183	3009	2865	2644	2456		
15-20	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107		
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039		
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866		
38.1-38.2	Vc	27	27	28	32	33	32	35	37	37	36	37	38	39	40		
	fz	0.002	0.002	0.003	0.004	0.005	0.006	0.007	0.007	0.009	0.011	0.013	0.015	0.016	0.018		
	RPM	8594	7162	5942	5093	4202	3395	3183	2944	2617	2292	2141	2016	1910	1819		
40	Vc	41	41	42	48	52	56	58	59	62	63	64	64	65			
	fz	0.004	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026	0.03	0.034	0.036	0.037		
	RPM	13051	10876	8913	7639	6621	5517	5093	4615	4173	3756	3588	3342	3134	2956		
41	Vc	27	27	28	32	33	32	35	37	37	36	37	38	39	40		
	fz	0.002	0.002	0.003	0.004	0.005	0.006	0.007	0.007	0.009	0.011	0.013	0.015	0.016	0.018		
	RPM	8594	7162	5942	5093	4202	3395	3183	2944	2617	2292	2141	2016	1910	1819		

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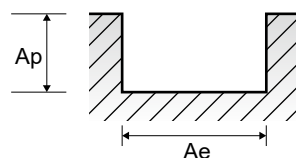
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEME35 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)									
					7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0
P	1-5	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
				RPM	4541	4218	3970	3714	3485	3247	3122	3009	2879	2732
				FEED	391	405	389	371	355	344	331	319	305	295
				Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
	6-8	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	64	63	64	64	64	63	63	64	64	63
				fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04
				RPM	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671
				FEED	212	211	201	190	180	172	160	152	142	134
				Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
9	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	64	63	64	64	64	63	63	64	64	63	
			fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04	
			RPM	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671	
			FEED	212	211	201	190	180	172	160	152	142	134	
			Vc	107	106	106	105	104	102	103	104	104	103	
			fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054	
10 - 11.1	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	64	63	64	64	64	63	63	64	64	63	
			fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04	
			RPM	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671	
			FEED	212	211	201	190	180	172	160	152	142	134	
			Vc	64	63	64	64	64	63	63	64	64	63	
			fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04	
11.2	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671	
			fz	212	211	201	190	180	172	160	152	142	134	
			Vc	54	53	53	53	53	53	53	53	52	51	
			fz	0.042	0.045	0.046	0.048	0.049	0.051	0.05	0.049	0.049	0.05	
			RPM	2292	2109	1985	1874	1776	1687	1607	1534	1439	1353	
			FEED	193	190	183	180	174	172	161	150	141	135	
M	14.1	1.0D	0.5D (up to Ø1: 0.02D)	Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
				RPM	4541	4218	3970	3714	3485	3247	3122	3009	2879	2732
				FEED	391	405	389	371	355	344	331	319	305	295
				Vc	41	42	43	43	43	43	43	44	44	44
				fz	0.021	0.024	0.023	0.022	0.022	0.023	0.023	0.023	0.024	0.025
K	15-20	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	1740	1671	1610	1521	1441	1369	1304	1273	1218	1167
				fz	73	80	74	67	63	63	60	59	58	58
				Vc	64	63	64	64	64	63	63	64	64	63
				fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04
				RPM	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671
				FEED	212	211	201	190	180	172	160	152	142	134
H	38.1 - 38.2	1.0D	0.05D (up to Ø1: 0.02D)	Vc	41	42	43	43	43	43	43	44	44	44
				fz	0.021	0.024	0.023	0.022	0.022	0.023	0.023	0.023	0.024	0.025
				RPM	1740	1671	1610	1521	1441	1369	1304	1273	1218	1167
				FEED	73	80	74	67	63	63	60	59	58	58
				Vc	64	63	64	64	64	63	63	64	64	63
				fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04
H	40	1.0D	0.05D (up to Ø1: 0.02D)	Vc	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671
				fz	212	211	201	190	180	172	160	152	142	134
				Vc	41	42	43	43	43	43	43	44	44	44
				fz	0.021	0.024	0.023	0.022	0.022	0.023	0.023	0.023	0.024	0.025
				RPM	1740	1671	1610	1521	1441	1369	1304	1273	1218	1167
				FEED	73	80	74	67	63	63	60	59	58	58
H	41	1.0D	0.05D (up to Ø1: 0.02D)	Vc	41	42	43	43	43	43	43	44	44	44
				fz	0.021	0.024	0.023	0.022	0.022	0.023	0.023	0.023	0.024	0.025
				RPM	1740	1671	1610	1521	1441	1369	1304	1273	1218	1167
				FEED	73	80	74	67	63	63	60	59	58	58

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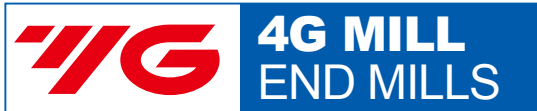


**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEME35 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)												
		13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0
1-5	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
6-8	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
9	Vc	65	67	68	68	69	68	68	67	67	67	67	67	66
	fz	0.041	0.041	0.042	0.042	0.041	0.041	0.041	0.04	0.04	0.04	0.041	0.042	0.043
	RPM	1592	1523	1443	1353	1292	1203	1139	1066	1016	969	927	889	840
	FEED	131	125	121	114	106	99	91	85	81	79	78	76	74
10 - 11.1	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
11.2	Vc	65	67	68	68	69	68	68	67	67	67	67	67	66
	fz	0.041	0.041	0.042	0.042	0.041	0.041	0.041	0.04	0.04	0.04	0.041	0.042	0.043
	RPM	1592	1523	1443	1353	1292	1203	1139	1066	1016	969	927	889	840
	FEED	131	125	121	114	106	99	91	85	81	79	78	76	74
14.1	Vc	52	53	53	53	54	54	53	53	53	54	54	54	53
	fz	0.051	0.052	0.053	0.054	0.052	0.053	0.05	0.05	0.05	0.049	0.048	0.047	0.046
	RPM	1273	1205	1125	1054	1011	955	888	844	803	781	747	716	675
	FEED	130	125	119	114	105	101	89	84	80	77	72	67	62
15 - 20	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
38.1 - 38.2	Vc	45	45	45	45	45	45	44	43	43	43	43	43	42
	fz	0.025	0.024	0.023	0.023	0.023	0.023	0.023	0.024	0.022	0.022	0.021	0.02	0.019
	RPM	1102	1023	955	895	843	796	737	684	652	622	595	570	535
	FEED	55	49	44	41	39	37	34	33	29	27	25	23	20
40	Vc	65	67	68	68	69	68	68	67	67	67	67	67	66
	fz	0.041	0.041	0.042	0.042	0.041	0.041	0.041	0.04	0.04	0.04	0.041	0.042	0.043
	RPM	1592	1523	1443	1353	1292	1203	1139	1066	1016	969	927	889	840
	FEED	131	125	121	114	106	99	91	85	81	79	78	76	74
41	Vc	45	45	45	45	45	45	44	43	43	43	43	43	42
	fz	0.025	0.024	0.023	0.023	0.023	0.023	0.023	0.024</					

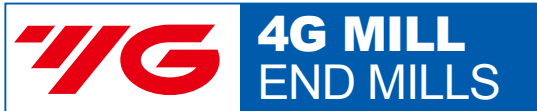


**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEME70 SERIES 2 FLUTE - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																																																		
						1.0		1.0		1.0		1.0		1.0		1.0		1.2		1.2		1.2																																		
						LOC	3	4	5	6	7	8	10	12	4	6	8	10	12	4	6	8	10																																	
P	1-5	Non-alloy steel	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	57	51	81	81	49	49
					Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	57	51	81	81	49	49		
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
	6-8	Low alloy steel	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
					Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
10-11.1	High alloyed steel, and tool steel	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49				
				Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39				
11.2	High alloyed steel, and tool steel	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49				
				Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39				
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
					Vc	50	50	50	45	45	45	45	40	51	51	46	46	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	RPM	15915	15915	15915	14324	14324	14324	12732	13528	13528	12202	12202	FEED	64	64	64	57	57	57	51	81	81	49	49			
H	38.1 - 38.2	Hardened steel	1.0D	0.05D	Vc	25	25	25	23	23	23	23	20	25	25	23	23	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002	RPM	7958	7958	7958	7321	7321	7321	7321	6366	6631	6631	6101	6101	FEED	32	32	32	29	29	29	27	27	27	24	24	
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	25	25	25	23	23	23	23	20	25	25	23	23	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002	RPM	7958	7958	7958	7321	7321	7321	7321	6366	6631	6101	6101	FEED	32	32	32	29	29	29	27	27	27	24	24		
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	25	25	25	23	23	23	23	20	25	25	23	23	fz	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002	RPM	7958	7958	7958	7321	7321	7321	7321	6366	6631	6101	6101	FEED	32	32	32	29	29	29	27	27	27	24	24		
					Vc	25	25	25	23	23	23	23	20	25	25	23	23	fz	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002	RPM	7958	7958	7958	7321	7321	7321	7321	6366	6631	6101	6101	FEED	32	32	32	29	29	29	27	27	27	24	24		
	40	Chilled Cast Iron	1.0D	0.3D (up to Ø3:0.4mm)	Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732	12732	11459	11459	11459	10186	10876	10876	9815	9815	FEED	51	51	51	46	46	46	41	65	65	59	39			
					Vc	40	40	40	36	36	36	36	32	41	41	37	37	fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002	RPM	12732	12732																								



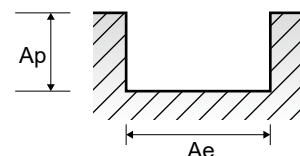
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**SEME70 SERIES 2 FLUTE - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)																
					3.0		3.0		4.0		4.0		5.0		5.0		5.0		6.0		
					LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15	
P	1-5	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	62	72		
				fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024		
				RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820		
				FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183		
				LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15		
	6-8	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	62	72		
				fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024		
				RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820		
				FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183		
				LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15		
	9	1.0D	0.3D (up to Ø3:0.4mm)	Vc	44	44	44	44	52	52	52	46	46	55	55	49	49	49	57		
				fz	0.008	0.008	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.018	0.018	0.016	0.016	0.014	0.025		
				RPM	4669	4669	4669	4669	4138	4138	4138	3661	3661	3501	3501	3119	3119	3119	3024		
				FEED	75	75	56	56	99	99	99	88	88	126	126	100	100	87	151		
				LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15		
10-11.1	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	62	72			
			fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024			
			RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820			
			FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183			
			LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15			
11.2	1.0D	0.3D (up to Ø3:0.4mm)	Vc	44	44	44	44	52	52	52	46	46	55	55	49	49	49	57			
			fz	0.008	0.008	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.018	0.018	0.016	0.016	0.014	0.025			
			RPM	4669	4669	4669	4669	4138	4138	4138	3661	3661	3501	3501	3119	3119	3119	3024			
			FEED	75	75	56	56	99	99	99	88	88	126	126	100	100	87	151			
			LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15			
K	15-20	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	72			
				fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024		
				RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820		
				FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183		
				LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15		
H	38.1 - 38.2	1.0D	0.05D	Vc	27	27	27	27	32	32	32	29	29	36	36	32	32	37			
				fz	0.007	0.006	0.005	0.005	0.01	0.01	0.01	0.009	0.009	0.012	0.012	0.011	0.011	0.01	0.018		
	40	1.0D	0.3D (up to Ø3:0.4mm)	Vc	44	44	44	44	52	52	52	46	46	55	55	49	49	57			
				fz	0.008	0.008	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.018	0.018	0.016	0.016	0.014	0.025		
	41	1.0D	0.05D	Vc	27	27	27	27	32	32	32	29	29	36	36	32	32	37			
				fz	0.007	0.006	0.005	0.005	0.01	0.01	0.01	0.009	0.009	0.012	0.012	0.011	0.011	0.01	0.018		
	40	1.0D	0.3D (up to Ø3:0.4mm)	RPM	4669	4669	4669	4669	4138	4138	4138	3661	3661	3501	3501	3119	3119	3024			
				FEED	75	75	56	56	99	99	99	88	88	126	126	100	100	87	151		
	41	1.0D	0.05D	RPM	2865	2865	2865	2865	2546	2546	2546	2308	2308	2292	2292	2037	2037	1963			
				FEED	40	34	29	29	51	51	51	42	42	55	55	45	45	41	71		

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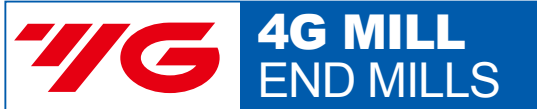
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**SEME70 SERIES 2 FLUTE - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																							
		6.0		6.0		6.0		6.0		8.0		8.0		8.0		8.0		10.0		10.0		10.0		12.0	
		LOC	20	25	30	35	40	45	25	30	35	40	45	50	30	35	40	45	50	55	60	35			
1-5	Vc	72	72	72	64	64	64	72	72	72	72	72	65	65	77	77	77	77	77	69	69	75			
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.033	0.029	0.038			
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2451	2196	2196	1989			
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	162	162	162	162	145	127	151			
6-8	Vc	72	72	72	64	64	64	72	72	72	72	72	65	65	77	77	77	77	77	69	69	75			
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.033	0.029	0.038			
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2451	2196	2196	1989			
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	162	162	162	162	145	127	151			
9	Vc	57	57	57	52	52	52	57	57	57	57	57	52	52	63	63	63	63	63	57	57	63			
	fz	0.025	0.025	0.021	0.021	0.018	0.018	0.033	0.033	0.033	0.027	0.028	0.024	0.038	0.038	0.038	0.031	0.031	0.032	0.028	0.04				
	RPM	3024	3024	3024	2759	2759	2759	2268	2268	2268	2268	2069	2069	2005	2005	2005	2005	2005	2005	1814	1814	1671			
	FEED	151	151	127	116	99	99	150	150	150	122	116	99	152	152	124	124	116	102	134					
10 - 11.1	Vc	72	72	72	64	64	64	72	72	72	72	72	65	65	77	77	77	77	77	69	69	75			
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.029	0.038				
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2451	2196	2196	1989			
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	162	162	162	162	145	127	151			
11.2	Vc	57	57	57	52	52	52	57	57	57	57	57	52	52	63	63	63	63	63	57	57	63			
	fz	0.025	0.025	0.021	0.021	0.018	0.018	0.033	0.033	0.033	0.027	0.028	0.024	0.038	0.038	0.038	0.031	0.031	0.032	0.028	0.04				
	RPM	3024	3024	3024	2759	2759	2759	2268	2268	2268	2268	2069	2069	2005	2005	2005	2005	2005	2005	1814	1814	1671			
	FEED	151	151	127	116	99	99	150	150	150	122	116	99	152	152	124	124	116	102	134					
15 - 20	Vc	72	72	72	64	64	64	72	72	72	72	72	65	65	77	77	77	77	77	69	69	75			
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.029	0.038				
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2451	2196	2196	1989			
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	162	162	162	162	145	127	151			
38.1 - 38.2	Vc	37	37	37	33	33	33	38	38	38	38	38	34	34	38	38	38	38	38	34	34	38			
	fz	0.018	0.018	0.015	0.016	0.014	0.014	0.023	0.023	0.023	0.02	0.02	0.018	0.029											





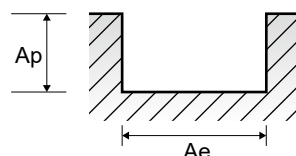
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEME70 SERIES 2 FLUTE - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)															
					LOC															
					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	14.0	14.0	16.0	16.0	16.0	16.0	16.0	16.0
P	1-5	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85	85		
				fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031		
	RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691					
	FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105					
	6-8	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85			
				fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031		
	RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691					
	FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105					
	9	1.0D	0.3D (up to Ø3:0.4mm)	Vc	63	63	63	63	63	57	57	65	65	64	64	64	64			
				fz	0.04	0.034	0.034	0.034	0.03	0.03	0.03	0.034	0.034	0.041	0.041	0.035	0.035	0.031		
RPM	1671	1671	1671	1671	1671	1512	1512	1478	1478	1273	1273	1273	1273	1273						
FEED	134	114	114	114	100	91	91	100	100	104	104	89	89	79						
10-11.1	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85				
			fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031			
RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691						
FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105						
11.2	1.0D	0.3D (up to Ø3:0.4mm)	Vc	63	63	63	63	63	57	57	65	65	64	64	64	64				
			fz	0.04	0.034	0.034	0.034	0.03	0.03	0.03	0.034	0.034	0.041	0.041	0.035	0.035	0.031			
RPM	1671	1671	1671	1671	1671	1512	1512	1478	1478	1273	1273	1273	1273	1273						
FEED	134	114	114	114	100	91	91	100	100	104	104	89	89	79						
K	15-20	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85			
				fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031		
RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691						
FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105						
H	38.1 - 38.2	1.0D	0.05D	Vc	38	38	38	38	38	34	34	40	40	40	40	40	40			
				fz	0.027	0.022	0.022	0.022	0.02	0.019	0.019	0.025	0.025	0.031	0.031	0.025	0.025	0.022		
	RPM	1008	1008	1008	1008	1008	902	902	909	909	796	796	796	796	796					
	FEED	54	44	44	44	40	34	34	45	45	49	49	40	40	35					
	40	1.0D	0.3D (up to Ø3:0.4mm)	Vc	63	63	63	63	63	57	57	65	65	64	64	64	64			
				fz	0.04	0.034	0.034	0.034	0.03	0.03	0.03	0.034	0.034	0.041	0.041	0.035	0.035	0.031		
RPM	1671	1671	1671	1671	1671	1512	1512	1478	1478	1273	1273	1273	1273	1273						
FEED	134	114	114	114	100	91	91	100	100	104	104	89	89	79						
41	1.0D	0.05D	Vc	38	38	38	38	38	34	34	40	40	40	40	40	40				
			fz	0.027	0.022	0.022	0.022	0.02	0.019	0.019	0.025	0.025	0.031	0.031	0.025	0.025	0.022			
RPM	1008	1008	1008	1008	1008	902	902	909	909	796	796	796	796	796						
FEED	54	44	44	44	40	34	34	45	45	49	49	40	40	35						

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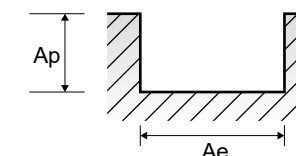


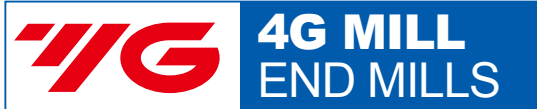
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**SEME70 SERIES 2 FLUTE - SLOTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																			
		LOC																			
		16.0	16.0	16.0	18.0	18.0	18.0	20.0	20.0	20.0	20.0	20.0	20.0	22.0	22.0	25.0	25.0	25.0	25.0		
1-5	Vc	77	77	77	82	82	74	77	77	77	77	69	69	76	76	77	77	77	77		
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036		
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71		
6-8	Vc	77	77	77	82	82	74	77	77	77	77	69	69	76	76	77	77	77	77		
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036		
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71		
9	Vc	58	58	58	63	63	57	60	60	60	60	54	54	58	58	59	59	59	59		
	fz	0.03	0.03	0.03	0.04	0.033	0.03	0.039	0.039	0.034	0.034	0.029	0.029	0.029	0.033	0.03	0.04	0.033	0.033		
	FEED	69	69	69	89	74	60	74	74	65	65	55	50	50	55	50	60	50	45		
10 - 11.1	Vc	77	77	77	82	82	74	77	77	77	77	69	69	76	76	77	77	77	77		
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036		
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71		
11.2	Vc	58	58	58	63	63	57	60	60	60	60	54	54	58	58	59	59	59	59		
	fz	0.03	0.03	0.03	0.04	0.033	0.03	0.039	0.039	0.034	0.034	0.029	0.029	0.029	0.033	0.03	0.04	0.033	0.033		
	FEED	69	69	69	89	74	60	74	74	65	65	55	50	50	55	50	60	50	45		
15 - 20	Vc	77	77	77	82	82	74	77	77	77	77	69	69	76	76	77	77	77	77		
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036		
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71		
38.1 - 38.2	Vc	36	36	36	40	40	36	38	38	38	38	34	34	38	38	38	38	38	38		
	fz	0.021	0.021	0.021	0.029	0.025	0.024	0.029	0.029	0.025	0.025	0.021	0.023	0.023	0.027	0.023	0.031	0.026	0.026		
	FEED	30	30	30	41	35	31	35	35	30	30	25	25	25	30	25	30	25	25		
40	Vc	58	58	58	63	63	57	60	60	60	60	54	54	58	58	59	59	59	59		
	fz	0.03	0.03	0.03	0.04	0.033	0.03	0.039	0.039	0.034	0.034	0.029	0.029	0.029	0.033	0.03	0.04	0.033	0.033		
	FEED	69	69	69	89	74	60	74	74	65	65	55	50	50	55	50	60	50	45		
41	Vc	36	36	36	40	40	36	38	38	38	38	34	34	38	38	38	38	38	38		
	fz	0.021	0.021	0.021	0.029	0.025	0.024	0.029	0.029	0.025	0.025	0.021	0.023	0.023	0.027	0.023	0.031	0.026	0.026		
	FEED	30	30	30	41	35	31	35	35	30	30	25	25	25	30	25	30	25	25		





RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER



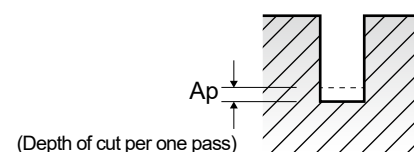
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

Table with columns for ISO, VDI 3323, Material Description, Parameter (LBS), and Diameter (Ø) with various cutting parameters (Vc, fz, RPM, FEED, Ap) for different materials and diameters.

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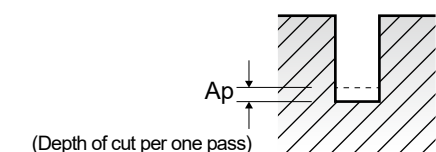


SEM845 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

Table with columns for VDI 3323, Parameter (LBS), and Diameter (Ø) with various cutting parameters (Vc, fz, RPM, FEED, Ap) for different materials and diameters.

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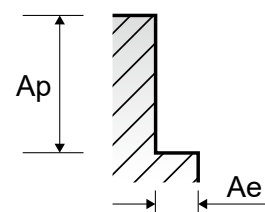


**SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
P	1-5	Non-alloy steel	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
	6-8	Low alloy steel	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
	9	Low alloy steel	0.05D	1.0D	Vc	47	50	51	51	53	59	64	66
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	18701	17684	16234	13528	11247	9390	8149	7003
	10-11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
11.2	High alloyed steel, and tool steel	0.05D	1.0D	Vc	47	50	51	51	53	59	64	66	
				fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008	
				RPM	18701	17684	16234	13528	11247	9390	8149	7003	
M	14.1	Stainless steel	0.05D	1.0D	Vc	39	41	42	42	44	50	54	54
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	15518	14501	13369	11141	9337	7958	6875	5730
					FEED	124	116	107	134	149	159	165	183
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
					FEED	251	235	214	271	299	290	309	357
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	31	33	34	34	35	40	41	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.004
	40	Chilled Cast Iron	0.05D	1.0D	Vc	47	50	51	51	53	59	64	66
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
41	Hardened Cast Iron	0.05D	1.0D	Vc	31	33	34	34	35	40	41	40	
				fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.004	

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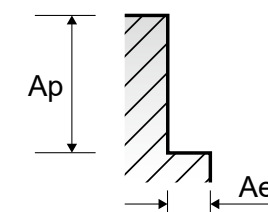


**SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)											
		3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0
1-5	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
6-8	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
9	Vc	70	73	74	74	77	79	80	81	80	79	80	80
	fz	0.011	0.016	0.018	0.02	0.023	0.026	0.027	0.028	0.03	0.032	0.032	0.031
	RPM	6366	5809	5234	4711	4456	4191	3918	3683	3395	3143	2996	2829
	FEED	280	372	377	377	410	436	423	413	407	402	383	351
10 - 11.1	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
11.2	Vc	70	73	74	74	77	79	80	81	80	79	80	80
	fz	0.011	0.016	0.018	0.02	0.023	0.026	0.027	0.028	0.03	0.032	0.032	0.031
	RPM	6366	5809	5234	4711	4456	4191	3918	3683	3395	3143	2996	2829
	FEED	280	372	377	377	410	436	423	413	407	402	383	351
14.1	Vc	58	61	62	62	65	67	68	68	67	66	66	67
	fz	0.011	0.015	0.017	0.02	0.022	0.024	0.026	0.029	0.031	0.035	0.036	0.036
	RPM	5275	4854	4386	3947	3762	3554	3330	3092	2844	2626	2472	2370
	FEED	232	291	298	316	331	341	346	359	353	368	356	341
15 - 20	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
38.1 - 38.2	Vc	43	46	47	46	47	47	49	51	52	53	53	54
	fz	0.004	0.004	0.005	0.006	0.007	0.009	0.01	0.011	0.013	0.014	0.014	0.014
	RPM	3911	3661	3325	2928	2720	2493	2400	2319	2207	2109	1985	1910
	FEED	63	59	66	70	76	90	96	102	115	118	111	107
40	Vc	70	73	74	74	77	79	80	81	80	79	80	80
	fz	0.011	0.016	0.018	0.02	0.023	0.026	0.027	0.028	0.03	0.032	0.032	0.031
	RPM	6366	5809	5234	4711	4456	4191	3918	3683	3395	3143	2996	2829
	FEED	280	372	377	377	410	436	423	413	407	402	383	351
41	Vc	43	46	47	46	47	47	49	51	52	53	53	54
	fz	0.004	0.004	0.005	0.006	0.007	0.009	0.01	0.011	0.013	0.014	0.014	0.014
	RPM	3911	3661	3325	2928	2720	2493	2400	2319	2207	2109	1985	1910
	FEED	63	59	66	70	76	90	96	102	115	118	111	107

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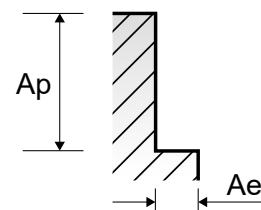


**SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)							
					9.5	10.0	10.5	11.0	11.5	12.0	13.0	14.0
P	1-5	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
	6-8	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
	9	0.05D	1.0D	Vc	79	79	79	79	79	79	82	84
				fz	0.031	0.032	0.032	0.032	0.032	0.032	0.031	0.031
				RPM	2647	2515	2395	2286	2187	2096	2008	1910
	10-11.1	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
11.2	0.05D	1.0D	Vc	79	79	79	79	79	79	82	84	
			fz	0.031	0.032	0.032	0.032	0.032	0.032	0.031	0.031	
			RPM	2647	2515	2395	2286	2187	2096	2008	1910	
M	14.1	0.05D	1.0D	Vc	67	66	66	66	65	64	66	68
				fz	0.037	0.038	0.038	0.038	0.038	0.037	0.037	
				RPM	2245	2101	2001	1910	1799	1698	1616	1546
K	15-20	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
H	38.1 - 38.2	0.05D	1.0D	Vc	54	53	54	55	55	55	56	57
				fz	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.015
				RPM	1809	1687	1637	1592	1522	1459	1371	1296
	40	0.05D	1.0D	Vc	79	79	79	79	79	79	82	84
				fz	0.031	0.032	0.032	0.032	0.032	0.032	0.031	0.031
				RPM	2647	2515	2395	2286	2187	2096	2008	1910
	41	0.05D	1.0D	Vc	54	53	54	55	55	55	56	57
				fz	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.015
				RPM	1809	1687	1637	1592	1522	1459	1371	1296

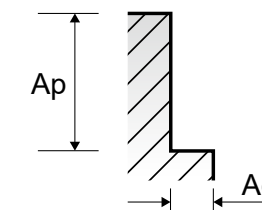
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**SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)											
		15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	
1-5	Vc	138	138	138	137	135	132	133	134	134	134	134	
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039	
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706	
	FEED	457	439	413	388	362	336	323	310	297	277	266	
6-8	Vc	138	138	138	137	135	132	133	134	134	134	134	
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039	
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706	
	FEED	457	439	413	388	362	336	323	310	297	277	266	
9	Vc	85	85	86	85	85	84	84	84	84	84	82	
	fz	0.031	0.032	0.031	0.031	0.032	0.032	0.032	0.033	0.033	0.031	0.032	
	RPM	1804	1691	1610	1503	1424	1337	1273	1215	1163	1114	1044	
	FEED	224	216	200	186	182	171	163	160	144	143	134	
10 - 11.1	Vc	138	138	138	137	135	132	133	134	134	134	134	
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039	
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706	
	FEED	457	439	413	388	362	336	323	310	297	277	266	
11.2	Vc	85	85	86	85	85	84	84	84	84	84	82	
	fz	0.031	0.032	0.031	0.031	0.032	0.032	0.032	0.033	0.033	0.031	0.032	
	RPM	1804	1691	1610	1503	1424	1337	1273	1215	1163	1114	1044	
	FEED	224	216	200	186	182	171	163	160	144	143	134	
14.1	Vc	69	69	69	68	67	66	67	67	67	67	67	
	fz	0.038	0.038	0.039	0.038	0.039	0.038	0.037	0.037	0.038	0.037	0.037	
	RPM	1464	1373	1292	1203	1122	1050	1016	969	927	889	853	
	FEED	223	209	202	183	175	160	150	143	141	132	126	
15 - 20	Vc	138	138	138	137	135	132	133	134	134	134	134	
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039	
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706	
	FEED	457	439	413	388	362	336	323	310	297	277	266	
38.1 - 38.2	Vc	57	57	57	56	55	53	54	54	54	54	53	
	fz	0.014	0.014	0.014	0.014	0.013	0.012	0.013	0.013	0.013	0.012	0.011	
	RPM	1210	1134	1067	990	921	844	819	781	747	716	675	
	FEED	68	64	60	55	48	40	43	41	36	32	32	
40	Vc	85	85	86	85	85	84	84	84	84	84	82	
	fz	0.031	0.032	0.031	0.031	0.032	0.032	0.032	0.033	0.033	0.031	0.032	
	RPM	1804	1691	1610	1503	1424	1337	1273	1215	1163	1114	1044	
	FEED	224	216	200	186	182	171	163	160	144	143	134	
41	Vc	57	57	57	56	55	53	54	54	54	54	53	
	fz	0.014	0.014	0.014	0.014	0.013	0.012	0.013	0.013	0.013	0.012	0.011	
	RPM	1210	1134	1067	990	921	844	819	781	747	716	675	
	FEED	68	64	60	55	48	40	43	41	36	32	32	

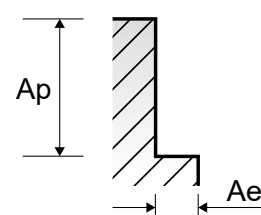


**SEME72 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																	
						1.0		1.0		1.0		1.0		1.0		1.0		1.2		1.2		1.2	
						LOC	3	4	5	6	7	8	10	12	4	6	8	10	12	14	16	18	
P	1-5	Non-alloy steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55						
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002						
					RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589						
					FEED	153	153	153	138	138	138	138	122	194	194	175	117						
					Vc	60	60	60	54	54	54	54	48	61	61	55	55						
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002						
	6-8	Low alloy steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55						
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002						
					RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589						
					FEED	153	153	153	138	138	138	138	122	194	194	175	117						
					Vc	34	34	34	31	31	31	31	28	35	35	31	31						
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002					
9	High alloyed steel, and tool steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55							
				fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002						
				RPM	10823	10823	10823	9868	9868	9868	9868	8913	9284	9284	8223	8223							
				FEED	87	87	87	79	79	79	39	39	36	74	74	66	66						
				Vc	60	60	60	54	54	54	54	48	61	61	55	55							
				fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002						
10-11.1	High alloyed steel, and tool steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55							
				fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002						
				RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589							
				FEED	153	153	153	138	138	138	138	122	194	194	175	117							
				Vc	34	34	34	31	31	31	31	28	35	35	31	31							
				fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002						
11.2	High alloyed steel, and tool steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55							
				fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002						
				RPM	10823	10823	10823	9868	9868	9868	9868	8913	9284	9284	8223	8223							
				FEED	87	87	87	79	79	79	39	39	36	74	74	66	66						
				Vc	60	60	60	54	54	54	54	48	61	61	55	55							
				fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002						
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55						
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002						
					RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589						
H	38.1 - 38.2	Hardened steel	0.02D	2.0D	Vc	21	21	21	19	19	19	19	17	21	21	19	19						
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001						
					RPM	6685	6685	6685	6048	6048	6048	6048	5411	5570	5570	5040	5040						
					FEED	27	27	27	24	24	24	24	22	45	45	40	20						
					Vc	34	34	34	31	31	31	31	28	35	35	31	31						
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002					
	40	Chilled Cast Iron	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55						
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002					
					RPM	10823	10823	10823	9868	9868	9868	9868	8913	9284	9284	8223	8223						
					FEED	87	87	87	79	79	79	39	39	36	74	74	66	66					
					Vc	21	21	21	19	19	19	19	17	21	21	19	19						
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001						
41	Hardened Cast Iron	0.02D	2.0D	Vc	60	60	60	54	54	54	54	48	61	61	55	55							
				fz	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002						
				RPM	6685	6685	6685	6048	6048	6048	6048	5411	5570	5570	5040	5040							
				FEED	27	27	27	24	24	24	24	22	45	45	40	20							
				Vc	21	21	21	19	19	19	19	17	21	21	19	19							
				fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001							

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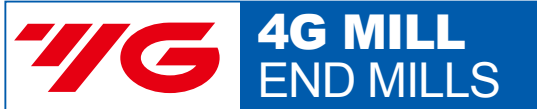


**SEME72 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																													
		1.2		1.5		1.5		1.5		1.5		1.5		2.0		2.0		2.0		2.5		2.5		2.5		2.5		3.0		3.0	
		LOC	12	6	8	10	12	14	16	8	10	12	14	16	10	12	14	16	10	12	16	20	26	10	12	12	12	12	12	12	12
1-5	Vc	55	65	59	59	59	59	52	66	66	60	60	60	71	71	64	64	57	70	70											
	fz	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.006	0.006	0.005	0.005	0.005	0.007	0.007	0.006	0.006	0.005	0.009	0.009											
	RPM	14589	13793	12520	12520	12520	12520	11035	10504	10504	9549	9549	9549	9040	9040	8149	8149	7257	7427	7427											
	FEED	117	221	200	200	150	150	132	252	252	191	191	191	253	253	196	196	145	267	267											
6-8	Vc	55	65	59	59	59	59	52	66	66	60	60	60	71	71	64	64	57	70	70											
	fz	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.006	0.006	0.005	0.005	0.005	0.007	0.007	0.006	0.006	0.005	0.009	0.009											
	RPM	14589	13793	12520	12520	12520	12520	11035	10504	10504	9549	9549	9549	9040	9040	8149	8149	7257	7427	7427											
	FEED	117	221	200	200	150	150	132	252	252	191	191	191	253	253	196	196	145	267	267											
9	Vc	31	37	33	33	33	33	30	38	38	34	34	34	41	41	37	37	32	40	40											
	fz	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.003	0.005	0.005	0.005	0.004	0.004	0.007											
	RPM	8223	7852	7003	7003	7003	7003	7003	6366	6048	6048	5411	5411	5411	5220	5220	4711	4711	4074	4244											
	FEED	66	94	84	56	56	56	51	97	97	87	87	65	104	104	94	75	65	119	119											
10 - 11.1	Vc	55	65	59	59	59	59	52	66	66	60	60	60	71	71	64	64	57	70	70											
	fz	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.006	0.006	0.005	0.005	0.005	0.007	0.007	0.006	0.006	0.005	0.009	0.009											
	RPM	14589	13793	12520	12520	12520	12520	11035	10504	10504	9549	9549	9549	9040	9040	8149	8149	7257	7427	7427											
	FEED	117	221	200	200	150	150	132	252	252	191	191	191	253	253	196	196	145	267	267											
11.2	Vc	31																													





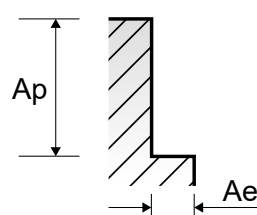
RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

SEME72 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

Table with columns for ISO, VDI 3323, Ae, Ap, Parameter, and Diameter (Ø) with sub-columns for various diameters (3.0 to 5.0). Rows include parameters Vc, fz, RPM, and FEED for different ISO grades (P, K, H) and diameters (1-5, 6-8, 9, 10-11.1, 11.2, 15-20, 38.1-38.2, 40, 41).

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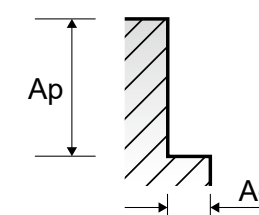
RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

SEME72 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
LOC = Length of Cut

Table with columns for VDI 3323, Parameter, and Diameter (Ø) with sub-columns for various diameters (6.0 to 10.0). Rows include parameters Vc, fz, RPM, and FEED for different ISO grades (P, K, H) and diameters (1-5, 6-8, 9, 10-11.1, 11.2, 15-20, 38.1-38.2, 40, 41).

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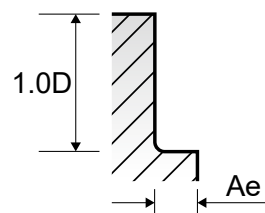


### SEME73 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ae = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)																
				1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		
				LBS	2	3	4	5	6	7	8	10	12	14	16	18	20	22	26	30
P	1-5	Non-alloy steel	Vc	69	69	69	69	62	62	62	62	55	55	41	41	41	21	21	21	7
			fz	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	21963	21963	21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228
			FEED	351	351	351	351	237	237	237	237	210	210	104	104	104	53	53	53	18
			Ae	0.021	0.021	0.015	0.015	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
			6-8	Low alloy steel	Vc	69	69	69	69	62	62	62	55	55	41	41	41	21	21	21
	fz	0.004	0.004		0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
	RPM	21963	21963		21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228	
	FEED	351	351		351	351	237	237	237	237	210	210	104	104	104	53	53	53	18	
	Ae	0.021	0.021		0.015	0.015	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	
	9	High alloyed steel, and tool steel	Vc		42	42	42	42	38	38	38	34	34	25	25	13	13	13	4	4
	fz		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
RPM	13369		13369	13369	13369	12096	12096	12096	12096	10823	10823	7958	7958	7958	4138	4138	4138	1273		
FEED	160		160	160	160	145	145	145	145	130	130	64	64	64	33	33	33	10		
Ae	0.016		0.016	0.011	0.011	0.006	0.006	0.006	0.004	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		
10-11.1	High alloyed steel, and tool steel		Vc	69	69	69	69	62	62	62	55	55	41	41	41	21	21	21	7	
fz		0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002		
RPM		21963	21963	21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228		
FEED		351	351	351	351	237	237	237	237	210	210	104	104	104	53	53	53	18		
Ae		0.021	0.021	0.015	0.015	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002		
11.2		High alloyed steel, and tool steel	Vc	42	42	42	42	38	38	38	34	34	25	25	13	13	13	4	4	
fz	0.003		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002		
RPM	13369		13369	13369	13369	12096	12096	12096	12096	10823	10823	7958	7958	7958	4138	4138	4138	1273		
FEED	160		160	160	160	145	145	145	145	130	130	64	64	64	33	33	33	10		
Ae	0.016		0.016	0.011	0.011	0.006	0.006	0.006	0.004	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		
K	15-20		Grey cast iron Nodular cast iron Malleable cast iron	Vc	69	69	69	69	62	62	62	55	55	41	41	41	21	21	21	7
		fz		0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	
		RPM		21963	21963	21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228
		FEED		351	351	351	351	237	237	237	237	210	210	104	104	104	53	53	53	18
H	38.1 - 38.2	Hardened steel	Vc	27	27	27	27	24	24	24	24	21	21	16	16	16	8	8	3	
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
			RPM	8594	8594	8594	8594	7639	7639	7639	7639	6685	6685	5093	5093	5093	2546	2546	2546	955
			FEED	34	34	34	34	31	31	31	31	27	27	20	20	20	10	10	10	4
			Ae	0.013	0.013	0.009	0.009	0.005	0.005	0.005	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
			40	Chilled Cast Iron	Vc	42	42	42	42	38	38	38	34	34	25	25	13	13	13	4
	fz	0.003	0.003		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
	RPM	13369	13369		13369	13369	12096	12096	12096	12096	10823	10823	7958	7958	7958	4138	4138	4138	1273	
	FEED	160	160		160	160	145	145	145	145	130	130	64	64	64	33	33	33	10	
	Ae	0.016	0.016		0.011	0.011	0.006	0.006	0.006	0.004	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
	41	Hardened Cast Iron	Vc		27	27	27	27	24	24	24	24	21	21	16	16	16	8	8	3
	fz		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
RPM	8594		8594	8594	8594	7639	7639	7639	7639	6685	6685	5093	5093	5093	2546	2546	2546	955		
FEED	34		34	34	34	31	31	31	31	27	27	20	20	20	10	10	10	4		
Ae	0.013		0.013	0.009	0.009	0.005	0.005	0.005	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001		

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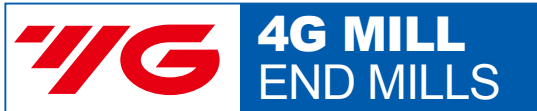


### SEME73 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ae = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																					
		1.0		1.2		1.2		1.2		1.2		1.2		1.2		1.5		1.5		1.5		1.5	
		LBS	50	4	6	8	10	12	14	16	20	26	30	4	5	6	7	8	10	12	14	16	18
1-5	Vc	7	74	74	66	66	66	59	59	44	22	22	80	80	80	80	72	72	72	64	64	64	64
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	2228	19629	19629	17507	17507	17507	15650	15650	11671	5836	5836	16977	16977	16977	16977	16977	15279	15279	15279	15279	13581	13581
	FEED	18	314	314	280	280	280	188	188	140	47	47	340	340	340	340	244	244	244	244	217	217	217
6-8	Vc	7	74	74	66	66	66	59	59	44	22	22	80	80	80	80	72	72	72	64	64	64	64
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	2228	19629	19629	17507	17507	17507	15650	15650	11671	5836	5836	16977	16977	16977	16977	16977	15279	15279	15279	15279	13581	13581
	FEED	18	314	314	280	280	280	188	188	140	47	47	340	340	340	340	244	244	244	244	217	217	217
9	Vc	4	46	46	41	41	41	36	36	27	14	14	50	50	50	50	45	45	45	40	40	40	40
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	1273	12202	12202	10876	10876	10876	9549	9549	7162	3714	3714	10610	10610	10610	10610	9549	9549	9549	9549	8488	8488	8488
	FEED	10	195	195	131	131	131	115	115	86	30	30	170	170	170	170	153	153	153	153	136	136	136
10-11.1	Vc	7	74	74	66	66	66	59	59	44	22	22	80	80	80	80	72	72	72	64	64	64	64
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	2228	19629	19629	17507	17507	17507	15650	15650	11671	5836	5836	16977	16977	16977	16977	16977	15279	15279	15279	15279	13581	13581
	FEED	18	314	314	280	280	280	188	188	140	47	47	340	340	340	340	244	244	244	244	217		





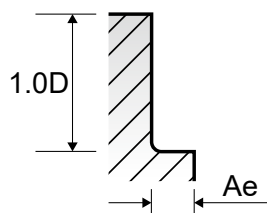
RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

SEME73 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ae = mm LBS = Length Below Shank

Table with columns for ISO, VDI 3323, Parameter, Diameter (Ø), and various cutting parameters (Vc, fz, RPM, FEED, Ae) for different materials and diameters.

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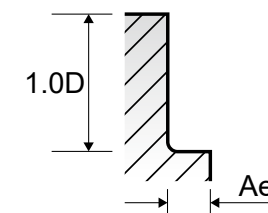
RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

SEME73 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ae = mm LBS = Length Below Shank

Table with columns for VDI 3323, Parameter, Diameter (Ø), and various cutting parameters (Vc, fz, RPM, FEED, Ae) for different materials and diameters.

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MILLING CUTTERS

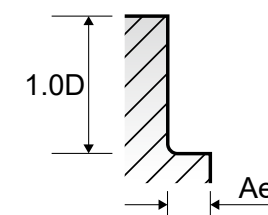
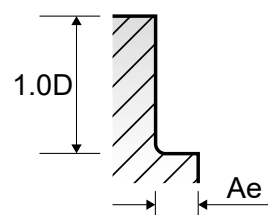
TECHNICAL DATA

### SEME73 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ae = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																			
			3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
			LBS	30	35	40	45	50	60	8	10	12	14	16	18	20	22	26	30	35	40	45
P	1-5	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242
		FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434
	Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021
	6-8	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242
		FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434
	Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021
	9	Vc	57	50	50	50	38	38	70	70	70	70	70	70	70	63	63	63	63	63	56	56
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
RPM		6048	5305	5305	5305	4032	4032	5570	5570	5570	5570	5570	5570	5570	5013	5013	5013	5013	5013	4456	4456	
FEED		194	149	149	149	97	97	423	423	423	423	423	423	423	341	341	341	341	341	267	267	
Ae	0.012	0.012	0.007	0.007	0.005	0.005	0.063	0.063	0.063	0.044	0.044	0.044	0.044	0.025	0.025	0.016	0.016	0.016	0.016	0.016	0.016	
10-11.1	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91	
	fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015	
	RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242	
	FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434	
Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021		
11.2	Vc	57	50	50	50	38	38	70	70	70	70	70	70	70	63	63	63	63	63	56	56	
	fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015	
	RPM	6048	5305	5305	5305	4032	4032	5570	5570	5570	5570	5570	5570	5570	5013	5013	5013	5013	5013	4456	4456	
	FEED	194	149	149	149	97	97	423	423	423	423	423	423	423	341	341	341	341	341	267	267	
Ae	0.012	0.012	0.007	0.007	0.005	0.005	0.063	0.063	0.063	0.044	0.044	0.044	0.044	0.025	0.025	0.016	0.016	0.016	0.016	0.016	0.016	
K 15-20	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91	
	fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015	
	RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242	
	FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434	
Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021		
H	38.1 - 38.2	Vc	34	30	30	30	23	23	44	44	44	44	44	44	44	40	40	40	40	40	35	35
		fz	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
		RPM	3608	3183	3183	3183	2440	2440	3501	3501	3501	3501	3501	3501	3501	3183	3183	3183	3183	2785	2785	2785
		FEED	58	38	38	38	29	29	70	70	70	70	70	70	70	51	51	51	51	51	45	45
	Ae	0.009	0.009	0.006	0.006	0.004	0.004	0.05	0.05	0.05	0.05	0.035	0.035	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.013	0.013
	40	Vc	57	50	50	50	38	38	70	70	70	70	70	70	70	63	63	63	63	63	56	56
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	6048	5305	5305	5305	4032	4032	5570	5570	5570	5570	5570	5570	5570	5013	5013	5013	5013	5013	4456	4456
		FEED	194	149	149	149	97	97	423	423	423	423	423	423	423	341	341	341	341	341	267	267
	Ae	0.012	0.012	0.007	0.007	0.005	0.005	0.063	0.063	0.063	0.044	0.044	0.044	0.044	0.025	0.025	0.025	0.016	0.016	0.016	0.016	
	41	Vc	34	30	30	30	23	23	44	44	44	44	44	44	44	40	40	40	40	40	35	35
		fz	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
RPM		3608	3183	3183	3183	2440	2440	3501	3501	3501	3501	3501	3501	3501	3183	3183	3183	3183	2785	2785	2785	
FEED		58	38	38	38	29	29	70	70	70	70	70	70	70	51	51	51	51	51	45	45	
Ae	0.009	0.009	0.006	0.006	0.004	0.004	0.05	0.05	0.05	0.05	0.035	0.035	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.013	0.013	

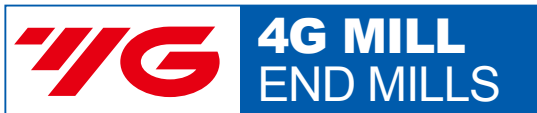
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### SEME73 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth  
RPM = rev./min. FEED = mm/min.  
Ae = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																					
		4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
		LBS	60	16	20	26	30	35	40	50	60	15	20	30	32	25	30	42	30	35	45	35	40
1-5	Vc	91	119	119	107	107	107	107	107	95	126	126	126	113	127	127	114	123	123	123	124	124	124
	fz	0.015	0.024	0.024	0.022	0.022	0.022	0.022	0.022	0.019	0.03	0.03	0.03	0.027	0.042	0.042	0.038	0.047	0.047	0.047	0.047	0.047	0.047
	RPM	7242	7576	7576	6812	6812	6812	6812	6812	6048	6685	6685	6685	5995	5053	5053	4536	3915	3915	3915	3289	3289	3289
	FEED	434	727	727	599	599	599	599	599	460	802	802	802	647	849	849	689	736	736	736	618	618	618
Ae	0.013	0.074	0.074	0.042	0.042	0.042	0.042	0.042	0.026	0.026	0.126	0.088	0.088	0.05	0.118	0.118	0.067	0.21	0.147	0.147	0.252	0.176	0.176
6-8	Vc	91	119	119	107	107	107	107	107	95	126	126	126	113	127	127	114	123	123	123	124	124	124
	fz	0.015	0.024	0.024	0.022	0.022	0.022	0.022	0.022	0.019	0.03	0.03	0.03	0.027	0.042	0.042	0.038	0.047	0.047	0.047	0.047	0.047	0.047
	RPM	7242	7576	7576	6812	6812	6812	6812	6812	6048	6685	6685	6685	5995	5053	5053	4536	3915	3915	3915	3289	3289	3289
	FEED																						



RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

SEME75 SERIES 6 FLUTE - SIDE CUTTING

NORMAL SPEED

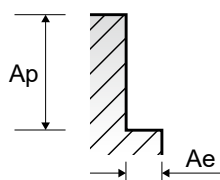
Table with columns for ISO, VDI 3323, Material Description, Ae, Ap, Parameter, and Diameter (Ø) with sub-columns for various diameters (6.0, 8.0, 10.0, 15.0, 20.0, 30.0, 40.0). Rows include materials like Non-alloy steel, Low alloy steel, High alloyed steel, and Grey cast iron.

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

HIGH SPEED

Table with columns for ISO, VDI 3323, Material Description, Ae, Ap, Parameter, and Diameter (Ø) with sub-columns for various diameters (6.0, 8.0, 10.0, 15.0, 20.0, 30.0, 40.0). Rows include materials like High alloyed steel and Hardened steel.

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RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

SEME75 SERIES 6 FLUTE - SIDE CUTTING

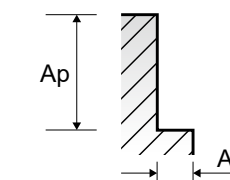
NORMAL SPEED

Table with columns for VDI 3323, Parameter, and Diameter (Ø) with sub-columns for various diameters (10.0, 12.0, 16.0, 20.0, 25.0, 30.0, 40.0). Rows include materials like Non-alloy steel, Low alloy steel, High alloyed steel, and Grey cast iron.

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

HIGH SPEED

Table with columns for VDI 3323, Parameter, and Diameter (Ø) with sub-columns for various diameters (10.0, 12.0, 16.0, 20.0, 25.0, 30.0, 40.0). Rows include materials like High alloyed steel and Hardened steel.





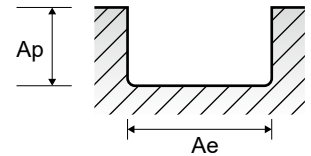
**G9D75 G9D67** **G9D76 G9D68** **G9D77 G9D69**

**4&5 FLUTE CORNER RADIUS ROUGHING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

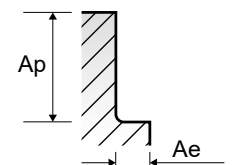
**SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
P	1-3	Non-alloy steel	1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
	RPM				11937	8952	7162	5968	4476	3581	
	FEED				1528	1647	1633	1528	1500	1325	
	Vc				200	205	200	205	205	200	
	fz				0.026	0.036	0.046	0.053	0.051	0.056	
	4-5	Low alloy steel	1.0D	0.8D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
	RPM				11937	8952	7162	5968	4476	3581	
	FEED				1528	1647	1633	1528	1500	1325	
	Vc				200	205	200	205	205	200	
	fz				0.026	0.036	0.046	0.053	0.051	0.056	
6	High alloyed steel, and tool steel	1.0D	1.0D	Vc	225	225	225	225	225	225	
				fz	0.032	0.046	0.057	0.064	0.067	0.074	
RPM				11937	8952	7162	5968	4476	3581		
FEED				1528	1647	1633	1528	1500	1325		
Vc				200	205	200	205	205	200		
fz				0.026	0.036	0.046	0.053	0.051	0.056		
7-9	Grey cast iron	1.0D	0.8D	Vc	225	225	225	225	225	225	
				fz	0.032	0.046	0.057	0.064	0.067	0.074	
RPM				11937	8952	7162	5968	4476	3581		
FEED				1528	1647	1633	1528	1500	1325		
Vc				200	205	200	205	205	200		
fz				0.026	0.036	0.046	0.053	0.051	0.056		
10	Nodular cast iron	1.0D	1.0D	Vc	225	225	225	225	225	225	
				fz	0.032	0.046	0.057	0.064	0.067	0.074	
RPM				11937	8952	7162	5968	4476	3581		
FEED				1528	1647	1633	1528	1500	1325		
Vc				200	205	200	205	205	200		
fz				0.026	0.036	0.046	0.053	0.051	0.056		
11.1	Malleable cast iron	1.0D	0.8D	Vc	225	225	225	225	225	225	
				fz	0.032	0.046	0.057	0.064	0.067	0.074	
RPM				11937	8952	7162	5968	4476	3581		
FEED				1528	1647	1633	1528	1500	1325		
Vc				200	205	200	205	205	200		
fz				0.026	0.036	0.046	0.053	0.051	0.056		
K	15-20		1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
					RPM	11937	8952	7162	5968	4476	3581
					FEED	1528	1647	1633	1528	1500	1325



**SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
P	1-3	Non-alloy steel	0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
	RPM				15915	11937	9549	7958	5968	4775	
	FEED				2610	2722	2712	2546	2447	2125	
	Vc				270	270	265	270	270	270	
	fz				0.032	0.046	0.057	0.065	0.065	0.07	
	4-5	Low alloy steel	0.35D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
	RPM				15915	11937	9549	7958	5968	4775	
	FEED				2610	2722	2712	2546	2447	2125	
	Vc				270	270	265	270	270	270	
	fz				0.032	0.046	0.057	0.065	0.065	0.07	
6	High alloyed steel, and tool steel	0.5D	1.0D	Vc	300	300	300	300	300	300	
				fz	0.041	0.057	0.071	0.08	0.082	0.089	
RPM				15915	11937	9549	7958	5968	4775		
FEED				2610	2722	2712	2546	2447	2125		
Vc				270	270	265	270	270	270		
fz				0.032	0.046	0.057	0.065	0.065	0.07		
7-9	Grey cast iron	0.35D	1.0D	Vc	300	300	300	300	300	300	
				fz	0.041	0.057	0.071	0.08	0.082	0.089	
RPM				15915	11937	9549	7958	5968	4775		
FEED				2610	2722	2712	2546	2447	2125		
Vc				270	270	265	270	270	270		
fz				0.032	0.046	0.057	0.065	0.065	0.07		
10	Nodular cast iron	0.5D	1.0D	Vc	300	300	300	300	300	300	
				fz	0.041	0.057	0.071	0.08	0.082	0.089	
RPM				15915	11937	9549	7958	5968	4775		
FEED				2610	2722	2712	2546	2447	2125		
Vc				270	270	265	270	270	270		
fz				0.032	0.046	0.057	0.065	0.065	0.07		
11.1	Malleable cast iron	0.35D	1.0D	Vc	300	300	300	300	300	300	
				fz	0.041	0.057	0.071	0.08	0.082	0.089	
RPM				15915	11937	9549	7958	5968	4775		
FEED				2610	2722	2712	2546	2447	2125		
Vc				270	270	265	270	270	270		
fz				0.032	0.046	0.057	0.065	0.065	0.07		
K	15-20		0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
					RPM	15915	11937	9549	7958	5968	4775
					FEED	2610	2722	2712	2546	2447	2125





Leading Through Innovation



**SOLID CARBIDE**

# **X-POWER PRO END MILLS**

## **X-POWER PRO VHM - FRÄSER**

- For Pre-Hardened Steels up to HRc55
- Für vorgehärtete Stähle bis HRc55



SELECTION GUIDE



**SOLID CARBIDE**  
**X-POWER PRO**  
**END MILLS**

for Pre-Hardened Steels up to HRC55,  
Mold & Die, Dry & Wet Cutting

Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C354

SERIES	GM876	GM813	GM886	GM902
FLUTE	2	2	2	2
HELIX ANGLE	30°	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R0.5	R0.5	R0.25	R0.5
SIZE MAX	R8.0	R10.0	R3.0	R4.0
PAGE	C332	C333	C334	C336

SHORT LENGTH	LONG LENGTH	RIB PROCESSING	TAPER NECK
Y-Coating	Y-Coating	Y-Coating	Y-Coating



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	GM876	GM813	GM886	GM902
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○	○
	2		About 0.45% C Annealed	190	13	○	○	○	○
	3		About 0.45% C Quenched & Tempered	250	25	○	○	○	○
	4		About 0.75% C Annealed	270	28	◎	◎	◎	○
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	○
	6	Low alloy steel	Annealed	180	10	○	○	○	○
	7		Quenched & Tempered	275	29	◎	◎	◎	○
	8		Quenched & Tempered	300	32	◎	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎	◎
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○	○
	11	Quenched & Tempered		325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				
	13		Martensitic Quenched & Tempered	240	23				
	14		Austenitic	180	10				
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○
	18		Pearlitic	250	25	○	○	○	○
	19		Ferritic	130		○	○	○	○
20	Malleable cast iron	Pearlitic	230	21	○	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable	60					
	22		Curable Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75					
	24		≤ 12% Si, Curable Hardened	90					
	25		> 12% Si, Not Curable	130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110					
	27		CuZn, CuSnZn (Brass)	90					
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100					
	29		Duroplastic, Fiber Reinforced Plastic						
	30	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm					
37	Alpha + Beta Alloys		Hardened	1050 Rm					
H	38	Hardened steel	Hardened	550	55	○	○	○	○
	39			630	60	○	○	○	○
	40	Chilled Cast Iron	Cast	400	42	◎	◎	◎	◎
	41			Hardened Cast Iron	Hardened	550	55	○	○

GM815	GM818	GM8A1	GM839	GM819	GM810	GM883	GM895	GM811	GM817	GM812	GM834	GM814
4	2	2	4	4	2	2	3	4	4	6&8	6	3&4
30°	30°	30°	30°	30°	30°	30°	38°	30°	30°	45°	45°	20°
BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING
R1.0	D4.0	D1.0	D2.0	D3.0	D0.4	D0.4	D1.0	D2.0	D2.0	D6.0	D6.0	D6.0
R8.0	D12.0	D6.0	D12.0	D20.0	D20.0	D6.0	D16.0	D25.0	D20.0	D20.0	D25.0	D20.0
C337	C338	C339	C341	C342	C343	C345	C348	C349	C350	C351	C352	C353

LONG LENGTH	LONG LENGTH	RIB PROCESSING	STUB LENGTH	LONG LENGTH	SHORT LENGTH	RIB PROCESSING	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH
Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



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HSS

CBN

i-Xmill

i-SMART

X5070

4G MILL

X-POWER PRO

TitaNox-POWER

JET-POWER

V7 PLUS

ALU-POWER HPC

ALU-POWER

D-POWER GRAPHITE

CRX S

K-2

ONLY ONE COATED PM60

TANK-POWER

GENERAL HSS

MILLING CUTTERS

TECHNICAL DATA







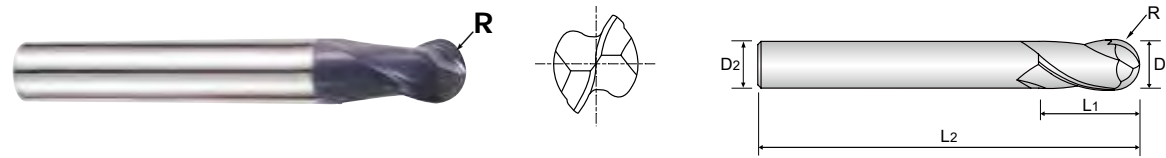
PLAIN SHANK **GM876** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ KUGELSTIRN
- ① Fraise carbure, 2 dents, hémisphérique, courte
- ② TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Economic type with short overall length.
- ▶ Radius tolerance ±0.02mm & short length of cut.

- ▶ Günstige Variante, kurze Gesamlänge.
- ▶ Radius Toleranz ±0.02mm und kurze Schneidenlänge.



CARBIDE 2 30° ±0.02 PLAIN Coating Y p.C354-355

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R(±0.02)	D1	D2	L1	L2
GM876010	R0.5	1.0	3	3	38
GM876020	R1.0	2.0	6	3	50
GM876030	R1.5	3.0	6	4	50
GM876040	R2.0	4.0	6	5	54
GM876060	R3.0	6.0	6	7	54
GM876080	R4.0	8.0	8	9	58
GM876100	R5.0	10.0	10	11	66
GM876120	R6.0	12.0	12	12	73
GM876160	R8.0	16.0	16	16	82

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N						S				H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																				◎	○

C332 phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

YG-1 CO., LTD.



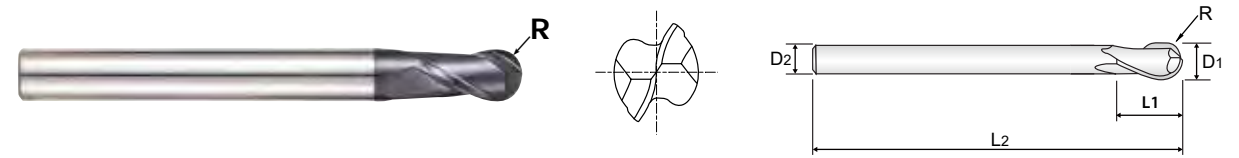
PLAIN SHANK **GM813** SERIES

**CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG KUGELSTIRN
- ① Fraise carbure, 2 dents, hémisphérique, longue
- ② TAGLIENTI, SEMISFERICA, SERIE LUNGA

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ For copy - milling machines.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Für Kopierfräsmaschinen.



CARBIDE 2 30° ±0.02 PLAIN Coating Y p.C354-355

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R(±0.02)	D1	D2	L1	L2
GM813010	R0.5	1.0	4	2.5	50
GM813020	R1.0	2.0	6	5	50
GM813030	R1.5	3.0	6	8	60
GM813040	R2.0	4.0	6	8	70
GM813050	R2.5	5.0	6	10	80
GM813060	R3.0	6.0	6	12	90
GM813080	R4.0	8.0	8	14	100
GM813100	R5.0	10.0	10	18	100
GM813120	R6.0	12.0	12	22	110
GM813160	R8.0	16.0	16	30	140
GM813200	R10.0	20.0	20	38	160

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

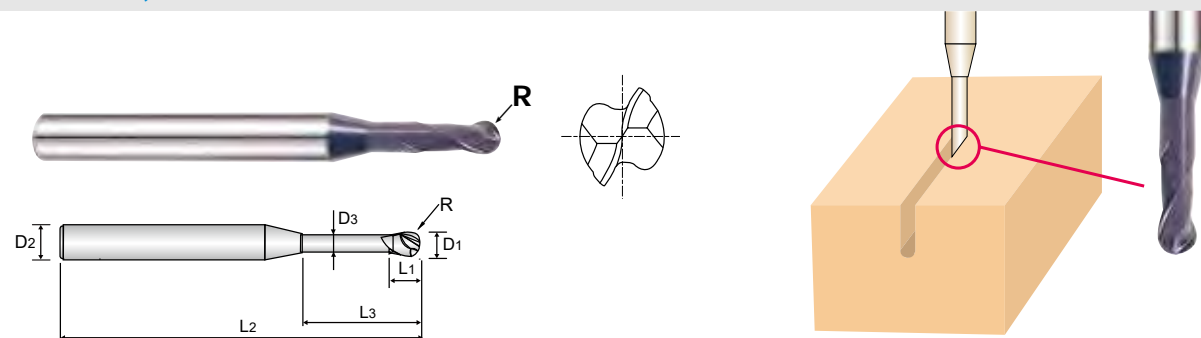
  

ISO Material Description	N						S				H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																				◎	○

YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr C333

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

● VOLLHARTMETALL, 2 SCHNEIDEN KUGELSTIRN für SCHMALE RIPPEN  
 (●) Fraise carbure, 2 dents, hémisphérique pour usinage de rainure  
 (●) 2 TAGLIENTI, SEMISFERICA PER NERVATURE



CARBIDE 2 30° ±0.01 PLAIN Coating Y p.C356-357

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)						
GM886005	R0.25	0.5	4	0.7	2	45	0.45
GM886962	R0.25	0.5	4	0.7	4	45	0.45
GM886957	R0.3	0.6	4	0.9	2	45	0.55
GM886915	R0.3	0.6	4	0.9	4	45	0.55
GM886916	R0.3	0.6	4	0.9	6	45	0.55
GM886919	R0.4	0.8	4	1.2	4	45	0.75
GM886008	R0.4	0.8	4	1.2	6	45	0.75
GM886921	R0.5	1.0	4	1.5	4	45	0.95
GM886923	R0.5	1.0	4	1.5	5	45	0.95
GM886010	R0.5	1.0	4	1.5	6	45	0.95
GM886902	R0.5	1.0	4	1.5	8	45	0.95
GM886903	R0.5	1.0	4	1.5	10	45	0.95
GM886904	R0.5	1.0	4	1.5	12	45	0.95
GM886927	R0.5	1.0	4	1.5	16	50	0.95
GM886012	R0.6	1.2	4	1.8	8	45	1.15
GM886930	R0.75	1.5	4	2.3	6	45	1.45
GM886015	R0.75	1.5	4	2.3	8	45	1.45
GM886931	R0.75	1.5	4	2.3	10	45	1.45
GM886906	R0.75	1.5	4	2.3	12	45	1.45
GM886940	R1.0	2.0	4	3	6	45	1.95
GM886020	R1.0	2.0	4	3	8	45	1.95
GM886941	R1.0	2.0	4	3	10	45	1.95
GM886942	R1.0	2.0	4	3	12	50	1.95
GM886909	R1.0	2.0	4	3	16	50	1.95

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

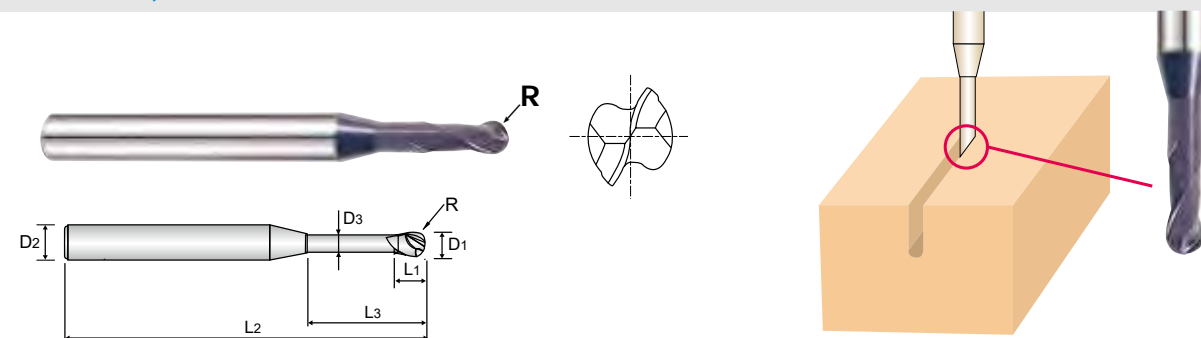
  

ISO	N										S				H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

● VOLLHARTMETALL, 2 SCHNEIDEN KUGELSTIRN für SCHMALE RIPPEN  
 (●) Fraise carbure, 2 dents, hémisphérique pour usinage de rainure  
 (●) 2 TAGLIENTI, SEMISFERICA PER NERVATURE



CARBIDE 2 30° ±0.01 PLAIN Coating Y p.C356-357

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)						
GM886910	R1.0	2.0	4	3	20	55	1.95
GM886945	R1.0	2.0	4	3	25	60	1.95
GM886967	R1.0	2.0	4	3	30	70	1.95
GM886947	R1.5	3.0	6	4.5	10	50	2.85
GM886948	R1.5	3.0	6	4.5	12	50	2.85
GM886030	R1.5	3.0	6	4.5	16	55	2.85
GM886911	R1.5	3.0	6	4.5	20	60	2.85
GM886968	R1.5	3.0	6	4.5	25	65	2.85
GM886040	R2.0	4.0	6	6	16	60	3.85
GM886912	R2.0	4.0	6	6	20	65	3.85
GM886913	R2.0	4.0	6	6	25	70	3.85
GM886971	R2.0	4.0	6	6	30	70	3.85
GM886972	R2.0	4.0	6	6	35	80	3.85
GM886050	R2.5	5.0	6	7.5	16	60	4.85
GM886060	R3.0	6.0	6	9	20	80	5.85
GM886954	R3.0	6.0	6	9	30	90	5.85

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

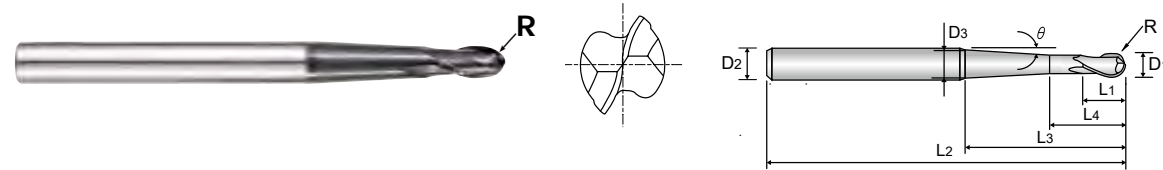
  

ISO	N										S				H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN KUGELSTIRN mit KONISCH ABGESETZTEM SCHAFTTEIL**  
 (●) **Fraise carbure, 2 dents, hémisphérique avec entrée conique**  
 (●) **2 TAGLIENTI, SEMISFERICA, SCARICO CONICO**

▶ High efficiency milling in deep slotting due to long projection of the end mills. ▶ Effizientes Tiefnutenfräsen von tiefliegenden Bereichen möglich.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose R(±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Under Neck Parallel Length L4	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Taper Neck Angle θ
GM902010	R0.5	1.0	6	2	4	23	60	2	1° 30'
GM902901	R0.5	1.0	6	2	4	23	60	4.3	5°
GM902902	R0.5	1.0	6	2	4	42	80	5	3°
GM902020	R1.0	2.0	6	4	6	23	60	2.9	1° 30'
GM902903	R1.0	2.0	6	4	6	23	60	5	5°
GM902904	R1.0	2.0	6	4	6	41	80	5.7	3°
GM902030	R1.5	3.0	6	6	8	32	70	5.6	3°
GM902905	R1.5	3.0	6	6	8	52	90	5.3	1° 30'
GM902040	R2.0	4.0	6	8	10	28	70	5.9	3°
GM902906	R2.0	4.0	6	8	10	49	90	6	1° 30'
GM902060	R3.0	6.0	8	12	15	34	90	8	3°
GM902908	R3.0	6.0	8	12	15	53	110	8	1° 30'
GM902080	R4.0	8.0	10	14	17	36	100	10	3°
GM902909	R4.0	8.0	10	14	17	55	120	10	1° 30'

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

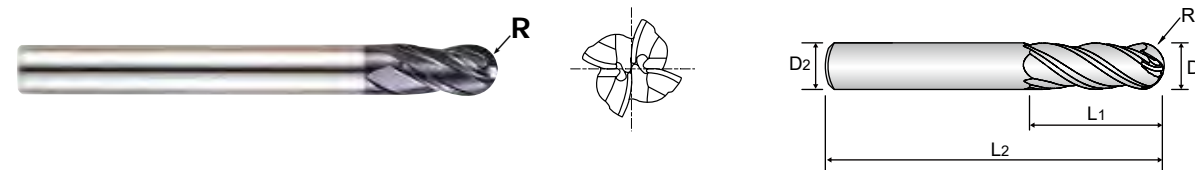
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE**

● **VOLLHARTMETALL, 4 SCHNEIDEN LANG KUGELSTIRN**  
 (●) **Fraise carbure, 4 dents, hémisphérique, longue**  
 (●) **4 TAGLIENTI, SEMISFERICA, SERIE LUNGA**

▶ Designed to machine tool steels, alloy steels, mold steels and other high hardened materials. ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.  
 ▶ For copy - milling machines. ▶ Für Kopierfräsmaschinen.  
 ▶ 4 Flute design - higher feed than GM813 series. ▶ 4 Schneiden - Höherer Vorschub als bei GM813 series.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose R(±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GM815020	R1.0	2.0	6	5	50
GM815030	R1.5	3.0	6	8	60
GM815040	R2.0	4.0	6	8	70
GM815050	R2.5	5.0	6	10	80
GM815060	R3.0	6.0	6	12	90
GM815080	R4.0	8.0	8	14	100
GM815100	R5.0	10.0	10	18	100
GM815120	R6.0	12.0	12	22	110
GM815160	R8.0	16.0	16	30	140

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





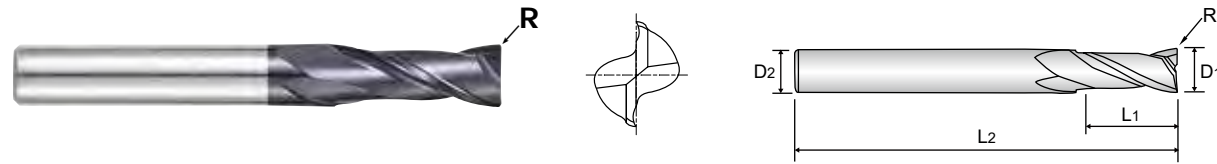
PLAIN SHANK **GM818** SERIES

**CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS
- ① Fraise carbure, 2 dents, torique, longue
- ② 2 TAGLIENTI, TORICA, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschubwerte.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
GM818911	R0.5	4.0	6	15	50
GM818060	R0.5	6.0	6	20	60
GM818901	R1.0	6.0	6	20	60
GM818080	R0.5	8.0	8	25	70
GM818902	R1.0	8.0	8	25	70
GM818100	R0.5	10.0	10	30	90
GM818905	R1.0	10.0	10	30	90
GM818908	R1.0	12.0	12	30	90

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

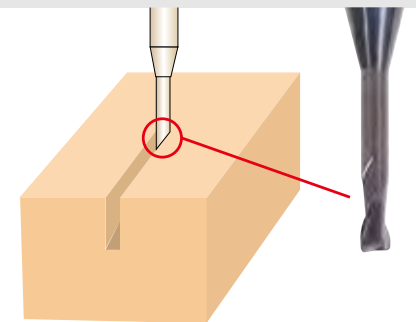
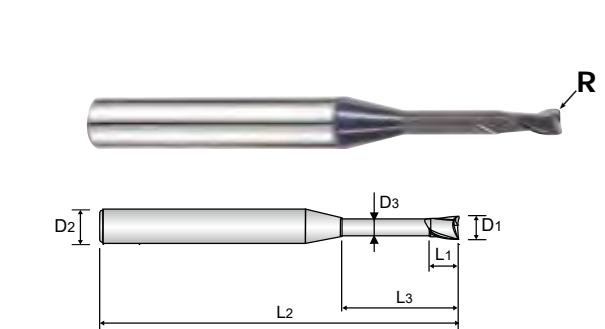
ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **GM8A1** SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents, torique pour usinage de rainure
- ② 2 TAGLIENTI, TORICA PER NERVATURE



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
GM8A1010	R0.1	1.0	4	1.5	6	45	0.95
GM8A1920	R0.1	1.0	4	1.5	8	45	0.95
GM8A1921	R0.1	1.0	4	1.5	10	45	0.95
GM8A1012	R0.2	1.2	4	1.8	6	45	1.15
GM8A1015	R0.2	1.5	4	2.3	6	45	1.45
GM8A1937	R0.2	1.5	4	2.3	8	45	1.45
GM8A1938	R0.2	1.5	4	2.3	10	45	1.45
GM8A1939	R0.2	1.5	4	2.3	12	45	1.45
GM8A1941	R0.2	1.5	4	2.3	16	50	1.45
GM8A1018	R0.2	1.8	4	2.7	6	45	1.75
GM8A1960	R0.2	2.0	4	3	6	45	1.95
GM8A1020	R0.2	2.0	4	3	8	45	1.95
GM8A1962	R0.2	2.0	4	3	12	45	1.95
GM8A1961	R0.2	2.0	4	3	10	45	1.95
GM8A1964	R0.2	2.0	4	3	16	50	1.95
GM8A1966	R0.2	2.0	4	3	20	55	1.95
GM8A1967	R0.2	2.0	4	3	25	60	1.95
GM8A1969	R0.2	2.5	4	3.7	12	45	2.40

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

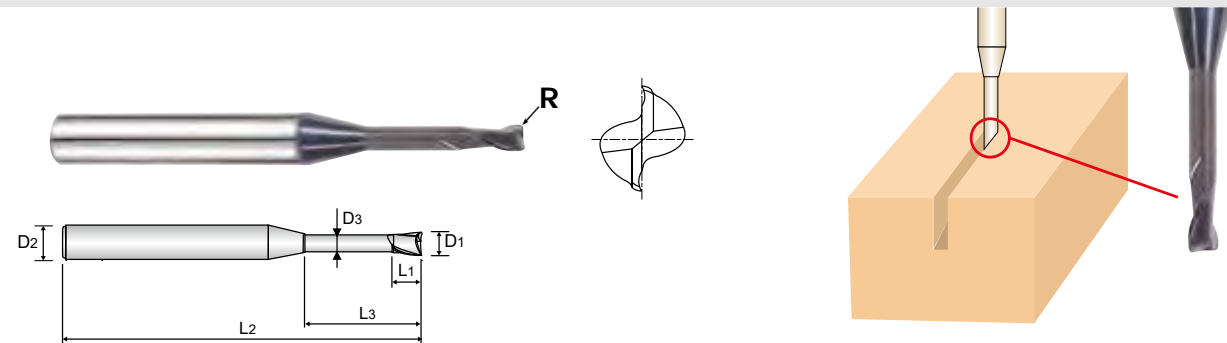
ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
- Fraise carbure, 2 dents, torique pour usinage de rainure
- 2 TAGLIENTI, TORICA PER NERVATURE



CARBIDE 2 30° PLAIN Coating Y p.C363-364

Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
GM8A1981	R0.3	3.0	6	4.5	16	55	2.85
GM8A1983	R0.3	3.0	6	4.5	20	60	2.85
GM8A1984	R0.3	3.0	6	4.5	25	65	2.85
GM8A1976	R0.3	3.0	6	4.5	30	70	2.85
GM8A1985	R0.3	3.0	6	4.5	40	90	2.85
GM8A1040	R0.3	4.0	6	6	12	50	3.85
GM8A1986	R0.3	4.0	6	6	16	60	3.85
GM8A1987	R0.3	4.0	6	6	20	60	3.85
GM8A1060	R0.5	6.0	6	9	20	80	5.85
GM8A1802	R0.5	6.0	6	9	40	100	5.85

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

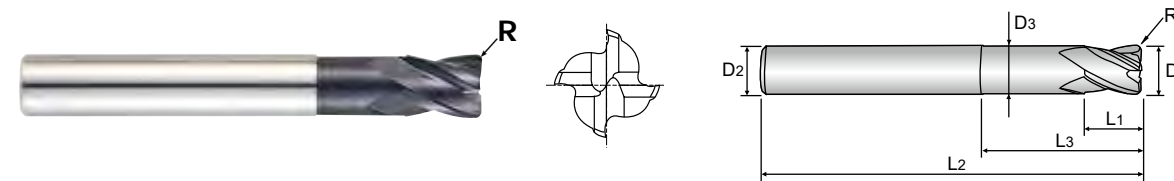


**CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS**

- VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS
- Fraise carbure, 4 dents, torique, extra-courte
- 4 TAGLIENTI, TORICA, TAGLIENTE CORTO, SCARICATA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschubwerte.



CARBIDE 4 30° PLAIN Coating Y p.C365

Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
GM839020	R0.2	2.0	6	2.5	5	50	1.9
GM839030	R0.3	3.0	6	4	7	50	2.8
GM839040	R0.4	4.0	6	5	9	50	3.7
GM839060	R0.6	6.0	6	7	14	55	5.6
GM839080	R0.8	8.0	8	10	18	60	7.4
GM839100	R1.0	10.0	10	12	25	70	9.4
GM839120	R1.2	12.0	12	15	30	80	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



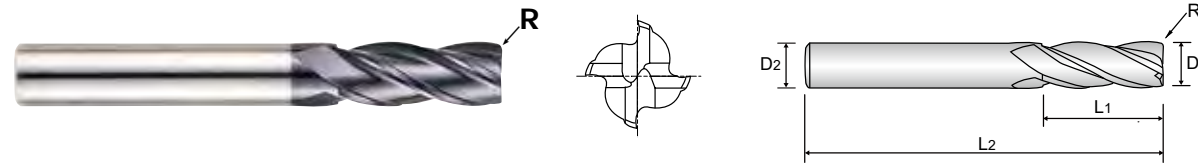
PLAIN SHANK **GM819** SERIES

**CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS**

- VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS
- ① Fraise carbure, 4 dents, torique, longue
- ② 4 TAGLIENTI, TORICA, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden für bessere Oberflächengüte des Werkstücks.
- ▶ Gesteigerte Produktivität.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
GM819030	R0.3	3.0	6	12	50
GM819040	R0.3	4.0	6	15	50
GM819911	R0.5	4.0	6	15	50
GM819912	R0.5	5.0	6	20	60
GM819060	R0.5	6.0	6	20	60
GM819901	R1.0	6.0	6	20	60
GM819080	R0.5	8.0	8	25	70
GM819902	R1.0	8.0	8	25	70
GM819904	R2.0	8.0	8	25	70
GM819100	R0.5	10.0	10	30	90
GM819905	R1.0	10.0	10	30	90
GM819906	R1.5	10.0	10	30	90
GM819907	R2.0	10.0	10	30	90
GM819120	R0.5	12.0	12	30	90
GM819908	R1.0	12.0	12	30	90
GM819909	R1.5	12.0	12	30	90
GM819910	R2.0	12.0	12	30	90
GM819160	R0.5	16.0	16	50	110
GM819916	R1.0	16.0	16	50	110
GM819918	R2.0	16.0	16	50	110
GM819921	R2.0	20.0	20	55	110

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	◎	○	○



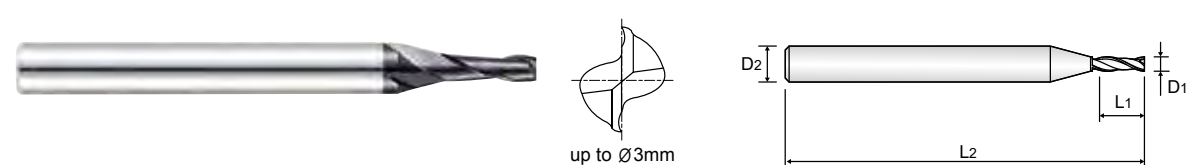
PLAIN SHANK **GM810** SERIES

**CARBIDE, 2 FLUTE MINIATURE**

- VOLLHARTMETALL, 2 SCHNEIDEN MINI
- ① Fraise carbure, 2 dents, micro-fraise
- ② 2 TAGLIENTI, MINI

- ▶ High precision milling in medical, optical, electronics and aerospace industries.
- ▶ Excellent performance on hardened steel

- ▶ Hochpräzises Fräsen für Medizintechnik, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GM810004	0.4	3	0.8	40
GM810005	0.5	3	1	40
GM810006	0.6	3	1.2	40
GM810007	0.7	3	1.4	40
GM810008	0.8	3	1.6	40
GM810009	0.9	3	2	40
GM810010	1.0	4	2.5	40
GM810901	1.0	6	2.5	40
GM810012	1.2	4	4	40
GM810014	1.4	4	4	40
GM810015	1.5	4	4	40
GM810902	1.5	6	4	40
GM810020	2.0	4	6	40
GM810903	2.0	6	6	40
GM810025	2.5	4	8	40
GM810030	3.0	6	8	45

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○	○	◎	○	○





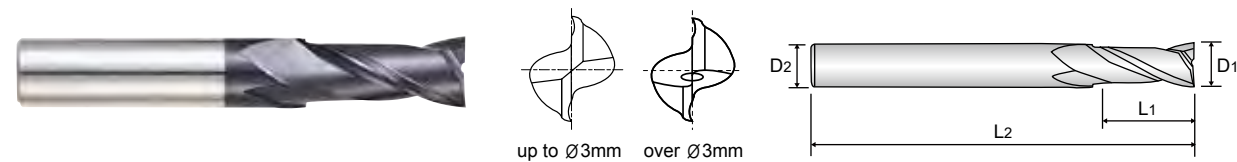
PLAIN SHANK **GM810** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ
- ① Fraise carbure, 2 dents, courte
- ② 2 TAGLIENTI, SERIE CORTA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschübe.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GM810035	3.5	6	10	45
GM810040	4.0	6	11	45
GM810050	5.0	6	13	50
GM810060	6.0	6	13	50
GM810070	7.0	8	16	60
GM810080	8.0	8	19	60
GM810090	9.0	10	19	70
GM810100	10.0	10	22	70
GM810110	11.0	12	22	75
GM810120	12.0	12	26	75
GM810140	14.0	14	26	85
GM810160	16.0	16	32	100
GM810180	18.0	18	32	100
GM810200	20.0	20	38	105

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	◎	○	○



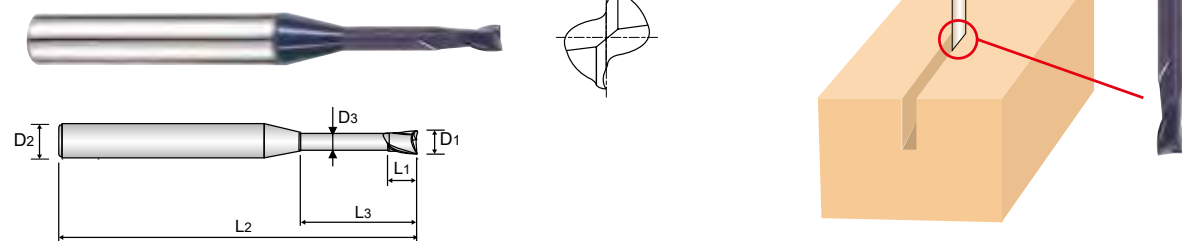
PLAIN SHANK **GM883** SERIES

**CARBIDE, 2 FLUTE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents pour usinage de rainure
- ② 2 TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschübe.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
⊙	ER COLLET CHUCK	D73-116
⊙	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
GM883004	0.4	4	0.6	2	45	0.37
GM883005	0.5	4	0.7	2	45	0.45
GM883988	0.5	4	0.7	4	45	0.45
GM883820	0.7	4	1	3	45	0.65
GM883008	0.8	4	1.2	4	45	0.75
GM883908	0.8	4	1.2	6	45	0.75
GM883996	1.0	4	1.5	4	45	0.95
GM883010	1.0	4	1.5	6	45	0.95
GM883912	1.0	4	1.5	8	45	0.95
GM883913	1.0	4	1.5	10	45	0.95
GM883914	1.0	4	1.5	12	45	0.95
GM883997	1.0	4	1.5	16	50	0.95
GM883998	1.0	4	1.5	20	55	0.95
GM883012	1.2	4	1.8	6	45	1.15
GM883015	1.5	4	2.3	6	45	1.45
GM883923	1.5	4	2.3	8	45	1.45
GM883924	1.5	4	2.3	10	45	1.45
GM883925	1.5	4	2.3	12	45	1.45
GM883927	1.5	4	2.3	16	50	1.45
GM883810	1.5	4	2.3	20	55	1.45

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

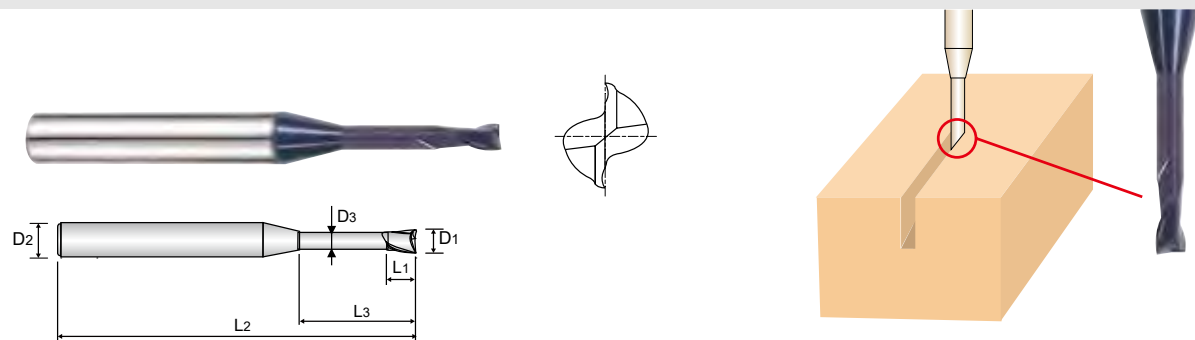
ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	◎	○	○

**CARBIDE, 2 FLUTE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- Fraise carbure, 2 dents pour usinage de rainure
- 2 TAGLIENTI, SCARICATA PER NERVATURE



CARBIDE 2 30° PLAIN Coating Y p.C368-369

Recommended ToolHolder	Plain Shank	Page
⊗	HYDRAULIC CHUCK	D15-46
⊗	SHRINK FIT HOLDER	D47-72
⊗	POWER MILLING CHUCK	D161-176
⊗	ER COLLET CHUCK	D73-116
⊗	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
GM883946	1.8	4	2.7	12	45	1.75
GM883958	2.0	4	3	6	45	1.95
GM883020	2.0	4	3	8	45	1.95
GM883959	2.0	4	3	10	45	1.95
GM883960	2.0	4	3	12	45	1.95
GM883961	2.0	4	3	14	50	1.95
GM883962	2.0	4	3	16	50	1.95
GM883964	2.0	4	3	20	55	1.95
GM883966	2.0	4	3	25	60	1.95
GM883814	2.0	4	3	30	70	1.95
GM883970	2.5	4	3.7	16	55	2.40
GM883975	3.0	6	4.5	10	45	2.85
GM883976	3.0	6	4.5	12	45	2.85
GM883978	3.0	6	4.5	16	55	2.85
GM883979	3.0	6	4.5	18	55	2.85
GM883980	3.0	6	4.5	20	60	2.85
GM883981	3.0	6	4.5	25	65	2.85
GM883832	3.0	6	4.5	30	70	2.85
GM883983	3.0	6	4.5	40	90	2.85

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

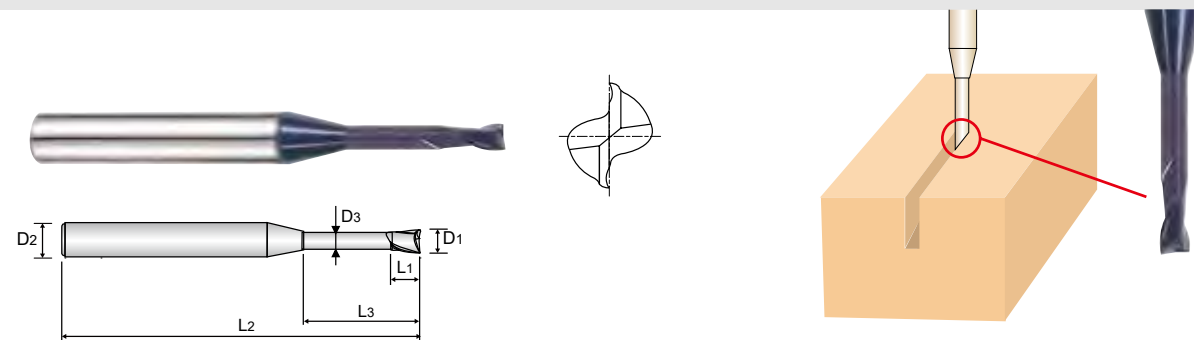
  

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	◎	◎	○



**CARBIDE, 2 FLUTE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- Fraise carbure, 2 dents pour usinage de rainure
- 2 TAGLIENTI, SCARICATA PER NERVATURE



CARBIDE 2 30° PLAIN Coating Y p.C368-369

Recommended ToolHolder	Plain Shank	Page
⊗	HYDRAULIC CHUCK	D15-46
⊗	SHRINK FIT HOLDER	D47-72
⊗	POWER MILLING CHUCK	D161-176
⊗	ER COLLET CHUCK	D73-116
⊗	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
GM883801	4.0	6	6	16	60	3.85
GM883802	4.0	6	6	20	60	3.85
GM883803	4.0	6	6	25	70	3.85
GM883834	4.0	6	6	30	70	3.85
GM883836	4.0	6	6	40	90	3.85
GM883838	4.0	6	6	50	100	3.85
GM883807	6.0	6	9	30	90	5.85
GM883809	6.0	6	9	50	110	5.85

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

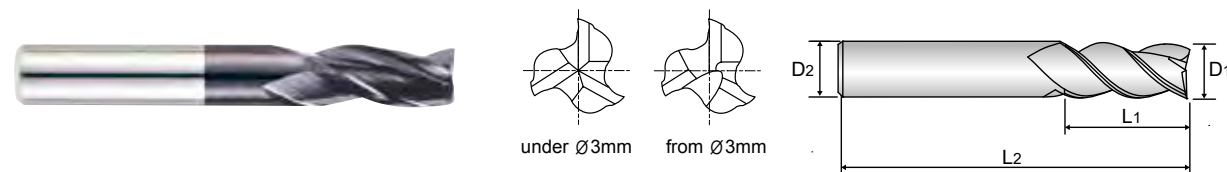
ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	◎	◎	○

**CARBIDE, 3 FLUTE 38° HELIX SHORT LENGTH**

● **VOLLHARTMETALL, 3 SCHNEIDEN 38° RECHTSSPIRALE KURZ**  
 (●) **Fraise carbure, 3 dents, hélice 38°, courte**  
 (●) **3 TAGLIENTI, ELICA 38°, SERIE CORTA**

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Possesses the advantage of 2 flute and 4 flute end mill.
- ▶ Superior workpiece finishes.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Besitzt die Vorteile von 2 und 4 Schneiden Fräsern
- ▶ Bessere Werkstückoberflächen



CARBIDE 3 38° PLAIN Coating Y p.C370-371

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GM895010	1.0	3	2.5	38
GM895015	1.5	4	5	50
GM895025	2.5	3	7	38
GM895030	3.0	3	10	38
GM895901	3.0	6	10	50
GM895040	4.0	4	12	50
GM895903	4.0	6	12	50
GM895050	5.0	5	14	50
GM895904	5.0	6	14	57
GM895060	6.0	6	16	57
GM895080	8.0	8	20	63
GM895100	10.0	10	22	72
GM895120	12.0	12	25	73
GM895160	16.0	16	32	82

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

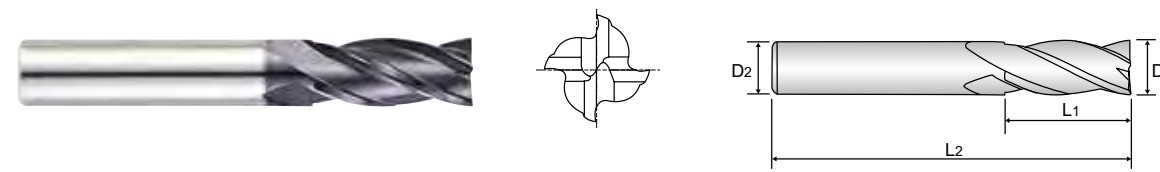


**CARBIDE, 4 FLUTE SHORT LENGTH**

● **VOLLHARTMETALL, 4 SCHNEIDEN KURZ**  
 (●) **Fraise carbure, 4 dents, courte**  
 (●) **4 TAGLIENTI, SERIE CORTA**

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased Productivity.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.



CARBIDE 4 30° PLAIN Coating Y p.C372

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GM811020	2.0	4	6	40
GM811901	2.0	6	6	40
GM811025	2.5	4	8	40
GM811902	2.5	6	8	40
GM811030	3.0	6	8	45
GM811035	3.5	6	10	45
GM811040	4.0	6	11	45
GM811045	4.5	6	11	45
GM811050	5.0	6	13	50
GM811060	6.0	6	13	50
GM811080	8.0	8	19	60
GM811100	10.0	10	22	70
GM811120	12.0	12	26	75
GM811140	14.0	14	26	85
GM811160	16.0	16	32	100
GM811200	20.0	20	38	105
GM811250	25.0	25	45	120

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





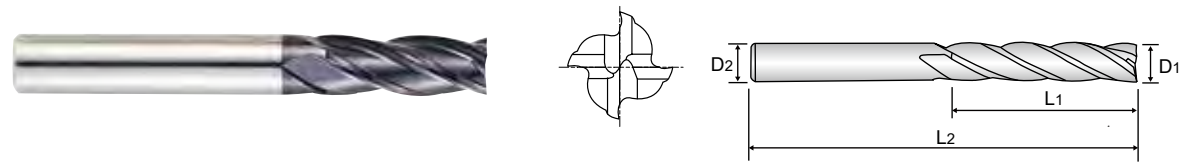
PLAIN SHANK **GM817** SERIES

**CARBIDE, 4 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN LANG
- Fraise carbure, 4 dents, longue
- 4 TAGLIENTI, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased Productivity.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.



Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
○	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GM817020	2.0	4	8	40
GM817030	3.0	6	12	50
GM817040	4.0	6	15	50
GM817050	5.0	6	20	60
GM817060	6.0	6	20	60
GM817080	8.0	8	25	70
GM817100	10.0	10	30	90
GM817120	12.0	12	30	90
GM817140	14.0	16	40	110
GM817160	16.0	16	50	110
GM817200	20.0	20	55	110

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

C350 phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

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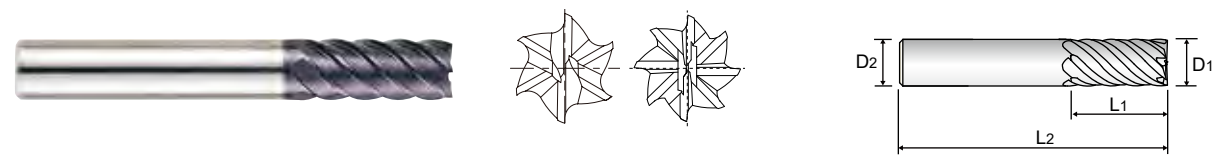
PLAIN SHANK **GM812** SERIES

**CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH**

- VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
- Fraise carbure, 6&8 dents, hélice 45°, longue
- 6&8 TAGLIENTI, ELICA 45°, SERIE

- ▶ Designed to machine hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistance.
- ▶ Suitable for dry milling.

- ▶ Geeignet zum Fräsen von gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.

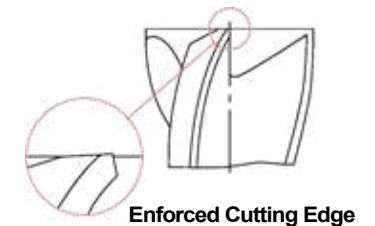


Recommended ToolHolder	Plain Shank	Page
⊙	HYDRAULIC CHUCK	D15-46
⊙	SHRINK FIT HOLDER	D47-72
⊙	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
○	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D1	D2	L1	L2	
GM812060	6.0	6	13	57	6
GM812080	8.0	8	19	63	6
GM812100	10.0	10	22	72	6
GM812120	12.0	12	26	83	6
GM812160	16.0	16	32	92	6
GM812200	20.0	20	38	104	8

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

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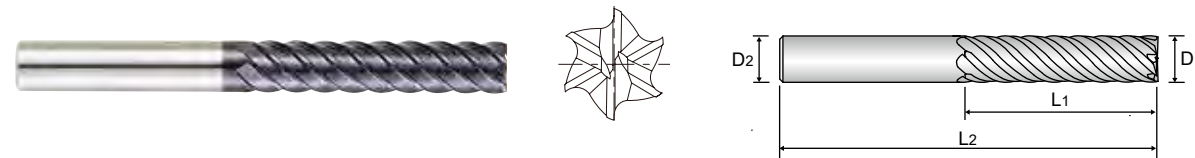
PLAIN SHANK **GM834** SERIES

**CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG LENGTH**

- VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG
- Fraise carbure, 6 dents, hélice 45°, extra-longue
- 6 TAGLIANTI, ELICA 45°, SERIE EXTRA LUNGA

- ▶ Designed to machine hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistance.
- ▶ Suitable for dry milling.

- ▶ Geeignet zum Fräsen von gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.

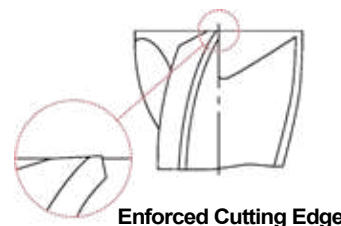


Recommended ToolHolder	Plain Shank	Page
⊗	HYDRAULIC CHUCK	D15-46
⊗	SHRINK FIT HOLDER	D47-72
⊗	POWER MILLING CHUCK	D161-176
⊗	ER COLLET CHUCK	D73-116
⊗	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GM834060	6.0	6	26	70
GM834080	8.0	8	36	90
GM834100	10.0	10	46	100
GM834120	12.0	12	56	110
GM834160	16.0	16	66	130
GM834200	20.0	20	76	140
GM834250	25.0	25	92	180

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



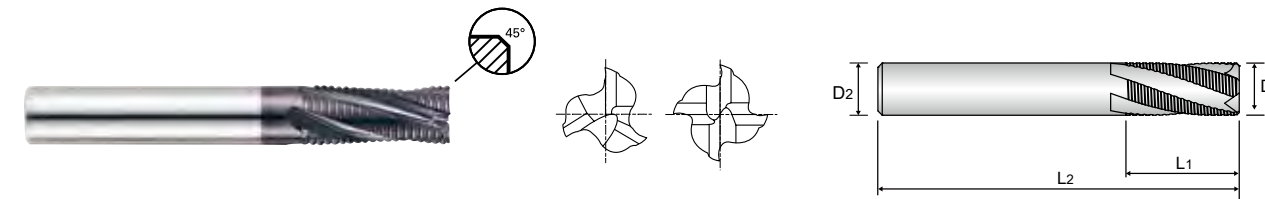
PLAIN SHANK **GM814** SERIES

**CARBIDE, 3&4 FLUTE 20° HELIX LONG LENGTH ROUGHING - FINE**

- VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN
- Fraise carbure, 3&4-dents ébauche, hélice 20°, pas fin, longue
- 3 - 4 TAGLIANTI, BOMBATO FINE PER SGROSSATURA, ELICA 20° SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ High velocity milling of hardened steels.
- ▶ For dry and wet milling.
- ▶ Fast chip ejection.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- ▶ Für Trocken- und Nassfräsen.
- ▶ Schnelle Spanabfuhr.



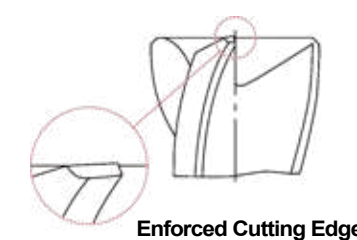
Recommended ToolHolder	Plain Shank	Page
⊗	HYDRAULIC CHUCK	D15-46
⊗	SHRINK FIT HOLDER	D47-72
⊗	POWER MILLING CHUCK	D161-176
⊗	ER COLLET CHUCK	D73-116
⊗	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D1	D2	L1	L2		
GM814060	6.0	6	16	57	3	0.38
GM814080	8.0	8	16	63	3	0.38
GM814100	10.0	10	22	72	4	0.60
GM814120	12.0	12	26	83	4	0.60
GM814160	16.0	16	32	92	4	0.60
GM814200	20.0	20	38	104	4	0.60

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in μm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
<b>h10</b>	0	0	0	0	0
	- 40	- 48	- 58	- 70	- 84
<b>h5</b>	0	0	0	0	0
	- 4	- 5	- 6	- 8	- 9



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

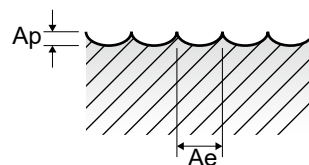
**GM876, GM813 SERIES 2 FLUTE BALL NOSE**

**NORMAL SPEED**

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø)															
					1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0			
P	1-4	Non-alloy steel	0.2D	Vc	55	85	100	125	140	150	160	180	200	225	245	270	290			
				fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.18	0.2			
				RPM	17507	18038	15915	15915	14854	11937	10186	9549	7958	7162	6499	5371	4615			
				FEED	280	397	828	828	772	836	917	1146	1432	1719	1950	1934	1846			
	5	Non-alloy steel	0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230			
				fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160			
				RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661			
				FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171			
	6-7	Low alloy steel	0.2D	Vc	55	85	100	125	140	150	160	180	200	225	245	270	290			
				fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.18	0.2			
				RPM	17507	18038	15915	15915	14854	11937	10186	9549	7958	7162	6499	5371	4615			
				FEED	280	397	828	828	772	836	917	1146	1432	1719	1950	1934	1846			
8-9	Low alloy steel	0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230				
			fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160				
			RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661				
			FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171				
10	High alloyed steel, and tool steel	0.2D	Vc	55	85	100	125	140	150	160	180	200	225	245	270	290				
			fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.18	0.2				
			RPM	17507	18038	15915	15915	14854	11937	10186	9549	7958	7162	6499	5371	4615				
			FEED	280	397	828	828	772	836	917	1146	1432	1719	1950	1934	1846				
11.1 - 11.2	High alloyed steel, and tool steel	0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230				
			fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160				
			RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661				
			FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171				
K 15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.2D	Vc	55	80	100	125	135	145	160	180	200	220	245	265	290				
			fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.181	0.201				
			RPM	17507	16977	15915	15915	14324	11539	10186	9549	7958	7003	6499	5272	4615				
			FEED	280	373	828	828	745	808	917	1146	1432	1681	1950	1908	1855				
H	38.1 - 38.2	Hardened steel	0.1D	Vc	20	30	35	40	50	60	65	65	70	70	75	80				
				fz	0.008	0.011	0.016	0.016	0.017	0.021	0.024	0.030	0.044	0.055	0.070	0.091	0.113			
				RPM	6366	6366	5570	5093	5305	4775	4138	3448	2785	2228	1989	1492	1273			
				FEED	102	140	178	163	180	201	199	207	245	245	279	272	288			
	40	Chilled Cast Iron	0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230			
				fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160			
				RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661			
				FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171			
	41	Hardened Cast Iron	0.1D	Vc	20	30	35	40	50	60	65	65	70	70	75	80				
				fz	0.008	0.011	0.016	0.016	0.017	0.021	0.024	0.030	0.044	0.055	0.070	0.091	0.113			
				RPM	6366	6366	5570	5093	5305	4775	4138	3448	2785	2228	1989	1492	1273			
				FEED	102	140	178	163	180	201	199	207	245	245	279	272	288			

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

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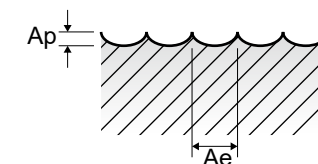


**GM876, GM813 SERIES 2 FLUTE BALL NOSE**

**HIGH SPEED**

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø)															
					1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0			
P	1-5	Non-alloy steel	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560			
				fz	0.026	0.03	0.035	0.042	0.048	0.07	0.086	0.095	0.12	0.139	0.16	0.181	0.2			
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913			
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565			
	6-9	Low alloy steel	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560			
				fz	0.026	0.030	0.035	0.042	0.048	0.070	0.086	0.095	0.120	0.139	0.160	0.181	0.200			
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913			
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565			
	10 - 11.2	High alloyed steel, and tool steel	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560			
				fz	0.026	0.03	0.035	0.042	0.048	0.07	0.086	0.095	0.12	0.139	0.16	0.181	0.2			
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913			
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565			
K 15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560				
			fz	0.026	0.03	0.035	0.042	0.048	0.07	0.086	0.095	0.12	0.139	0.16	0.181	0.2				
			RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913				
			FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565				
H	38.1 - 38.2	Hardened steel	0.05D	Vc	90	120	150	165	180	190	210	220	235	245	255	270	280			
				fz	0.016	0.019	0.022	0.026	0.031	0.042	0.050	0.060	0.075	0.086	0.095	0.105	0.115			
				RPM	28648	25465	23873	21008	19099	15120	13369	11671	9350	7799	6764	5371	4456			
				FEED	917	968	1050	1092	1184	1270	1337	1401	1403	1341	1285	1128	1025			
	40	Chilled Cast Iron	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560			
				fz	0.026	0.030	0.035	0.042	0.048	0.070	0.086	0.095	0.120	0.139	0.160	0.181	0.200			
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913			
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565			
	41	Hardened Cast Iron	0.05D	Vc	90	120	150	165	180	190	210	220	235	245	255	270	280			
				fz	0.016	0.019	0.022	0.026	0.031	0.042	0.050	0.060	0.075	0.086	0.095	0.105	0.115			
				RPM	28648	25465	23873	21008	19099	15120	13369	11671	9350	7799	6764	5371	4456			
				FEED	917	968	1050	1092	1184	1270	1337	1401	1403	1341	1285	1128	1025			

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm







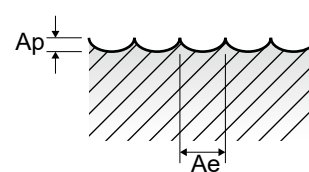
**GM902 SERIES 2 FLUTE BALL NOSE with TAPER NECK**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

**NORMAL SPEED**

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø)						
					1.0	2.0	3.0	4.0	5.0	6.0	8.0
H	5	Non-alloy steel	0.2D	Vc	35	60	80	90	95	110	120
				fz	0.008	0.014	0.023	0.031	0.040	0.060	0.080
				RPM	11141	9549	8488	7162	6048	5836	4775
				FEED	178	267	390	444	484	700	764
	Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3			
	8-9	Low alloy steel	0.2D	Vc	35	60	80	90	95	110	120
				fz	0.008	0.014	0.023	0.031	0.040	0.060	0.080
				RPM	11141	9549	8488	7162	6048	5836	4775
				FEED	178	267	390	444	484	700	764
	Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3			
	11.1	High alloyed steel, and tool steel	0.2D	Vc	35	60	80	90	95	110	120
				fz	0.008	0.014	0.023	0.031	0.040	0.060	0.080
RPM				11141	9549	8488	7162	6048	5836	4775	
FEED				178	267	390	444	484	700	764	
Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3				
11.2	High alloyed steel, and tool steel	0.1D	Vc	55	75	100	110	125	135	150	
			fz	0.012	0.028	0.043	0.052	0.059	0.067	0.075	
			RPM	17507	11937	10610	8754	7958	7162	5968	
			FEED	420	668	912	910	939	960	895	
Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25				
H	38.1	Hardened steel	0.1D	Vc	55	75	100	110	125	135	150
				fz	0.012	0.028	0.043	0.052	0.059	0.067	0.075
				RPM	17507	11937	10610	8754	7958	7162	5968
				FEED	420	668	912	910	939	960	895
	Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25			
	38.2	Hardened steel	0.1D	Vc	55	75	95	110	125	130	140
				fz	0.012	0.026	0.043	0.052	0.059	0.068	0.075
				RPM	17507	11937	10080	8754	7958	6897	5570
				FEED	420	621	867	910	939	938	836
	Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25			
	40	Chilled Cast Iron	0.1D	Vc	55	75	100	110	125	135	150
				fz	0.012	0.028	0.043	0.052	0.059	0.067	0.075
RPM				17507	11937	10610	8754	7958	7162	5968	
FEED				420	668	912	910	939	960	895	
Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25				
41	Hardened Cast Iron	0.1D	Vc	55	75	95	110	125	130	140	
			fz	0.012	0.026	0.043	0.052	0.059	0.068	0.075	
			RPM	17507	11937	10080	8754	7958	6897	5570	
			FEED	420	621	867	910	939	938	836	
Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25				

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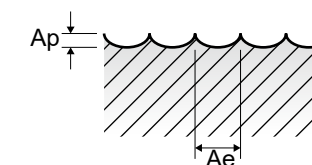


**GM902 SERIES 2 FLUTE BALL NOSE with TAPER NECK**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

**HIGH SPEED**

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø)						
					1.0	2.0	3.0	4.0	5.0	6.0	8.0
P	1-5	Non-alloy steel	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
	Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3			
	6-9	Low alloy steel	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.070	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
	Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3			
	10-11.2	High alloyed steel, and tool steel	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
RPM				20690	17507	17507	17507	17507	17772	14125	
FEED				1076	1261	1681	2451	3011	3377	3362	
Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3				
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3				
H	38	Hardened steel	0.05D	Vc	55	75	100	110	125	135	150
				fz	0.019	0.037	0.069	0.080	0.088	0.101	0.112
				RPM	17507	11937	10610	8754	7958	7162	5968
				FEED	665	883	1464	1401	1401	1447	1337
	Ap	0.05	0.10	0.15	0.2	0.25	0.25	0.25			
	38.2	Hardened steel	0.05D	Vc	55	75	95	110	120	130	140
				fz	0.017	0.043	0.066	0.079	0.087	0.102	0.109
				RPM	17507	11937	10080	8754	7639	6897	5570
				FEED	595	1027	1331	1383	1329	1407	1214
	Ap	0.05	0.10	0.15	0.2	0.25	0.25	0.25			
	40	Chilled Cast Iron	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
RPM				20690	17507	17507	17507	17507	17772	14125	
FEED				1076	1261	1681	2451	3011	3377	3362	
Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3				
41	Hardened Cast Iron	0.05D	Vc	55	75	95	110	120	130	140	
			fz	0.017	0.043	0.066	0.079	0.087	0.102	0.109	
			RPM	17507	11937	10080	8754	7639	6897	5570	
			FEED	595	1027	1331	1383	1329	1407	1214	
Ap	0.05	0.10	0.15	0.2	0.25	0.25	0.25				



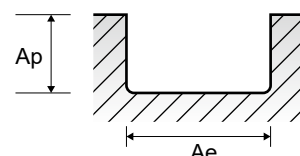




**GM818 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						4.0	5.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	1.0D	0.3D	Vc	75	80	80	85	85	85
					fz	0.016	0.023	0.032	0.045	0.053	0.051
					RPM	5968	5093	4244	3382	2706	2255
					FEED	191	234	272	304	287	230
					Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
	5	Non-alloy steel	1.0D	0.3D	Vc	75	80	80	85	85	85
					fz	0.016	0.023	0.032	0.045	0.053	0.051
					RPM	5968	5093	4244	3382	2706	2255
					FEED	191	234	272	304	287	230
					Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
6-7	Low alloy steel	1.0D	0.3D	Vc	45	50	50	55	55	60	
				fz	0.013	0.017	0.025	0.033	0.039	0.041	
				RPM	3581	3183	2653	2188	1751	1592	
				FEED	93	108	133	144	137	131	
				Vc	75	80	80	85	85	85	
				fz	0.016	0.023	0.032	0.045	0.053	0.051	
8-9	Low alloy steel	1.0D	0.3D	Vc	45	50	50	55	55	60	
				fz	0.013	0.017	0.025	0.033	0.039	0.041	
				RPM	3581	3183	2653	2188	1751	1592	
				FEED	93	108	133	144	137	131	
				Vc	75	80	80	85	85	85	
				fz	0.016	0.023	0.032	0.045	0.053	0.051	
10	High alloyed steel, and tool steel	1.0D	0.3D	Vc	45	50	50	55	55	60	
				fz	0.013	0.017	0.025	0.033	0.039	0.041	
				RPM	3581	3183	2653	2188	1751	1592	
				FEED	93	108	133	144	137	131	
				Vc	75	80	80	85	85	85	
				fz	0.016	0.023	0.032	0.045	0.053	0.051	
11.1 11.2	High alloyed steel, and tool steel	1.0D	0.3D	Vc	45	50	50	55	55	60	
				fz	0.013	0.017	0.025	0.033	0.039	0.041	
				RPM	3581	3183	2653	2188	1751	1592	
				FEED	93	108	133	144	137	131	
				Vc	75	80	80	85	85	85	
				fz	0.016	0.023	0.032	0.045	0.053	0.051	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.3D	Vc	30	35	35	35	35	35
					fz	0.006	0.008	0.010	0.013	0.016	0.019
					RPM	2387	2228	1857	1393	1114	928
					FEED	29	36	37	36	36	35
					Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
H	40	Chilled Cast Iron	1.0D	0.3D	Vc	30	35	35	35	35	35
					fz	0.006	0.008	0.010	0.013	0.016	0.019
					RPM	2387	2228	1857	1393	1114	928
					FEED	29	36	37	36	36	35
					Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
H	41	Hardened Cast Iron	1.0D	0.3D	Vc	30	35	35	35	35	35
					fz	0.006	0.008	0.010	0.013	0.016	0.019
					RPM	2387	2228	1857	1393	1114	928
					FEED	29	36	37	36	36	35
					Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041

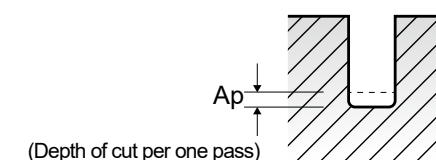


**GM8A1 SERIES 2 FLUTE CORNER RADIUS RIB PROCESSING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)					
				1.0	1.2	1.4	1.5	1.6	1.8
P	1-4	Non-alloy steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93
			fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027
			RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330
			FEED	295~850	295~945	295~945	295~945	295~945	295~945
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
			Vc	49~63	49~62	51~62	49~64	51~64	52~65
	5	Non-alloy steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93
			fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026
			RPM	16490~21000	13650~17330	12080~14700	11030~14180	10710~13440	9660~12080
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
			Vc	49~63	49~62	51~62	49~64	51~64	52~65
6-7	Low alloy steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93	
		fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	
		RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330	
		FEED	295~850	295~945	295~945	295~945	295~945	295~945	
		Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	
		Vc	49~63	49~62	51~62	49~64	51~64	52~65	
8-9	Low alloy steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93	
		fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	
		RPM	16490~21000	13650~17330	12080~14700	11030~14180	10710~13440	9660~12080	
		FEED	200~630	200~630	200~630	200~630	200~630	200~630	
		Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	
		Vc	49~63	49~62	51~62	49~64	51~64	52~65	
10	High alloyed steel, and tool steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93	
		fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	
		RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330	
		FEED	295~850	295~945	295~945	295~945	295~945	295~945	
		Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	
		Vc	49~63	49~62	51~62	49~64	51~64	52~65	
11.1 11.2	High alloyed steel, and tool steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93	
		fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	
		RPM	16490~21000	13650~17330	12080~14700	11030~14180	10710~13440	9660~12080	
		FEED	200~630	200~630	200~630	200~630	200~630	200~630	
		Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	
		Vc	49~63	49~62	51~62	49~64	51~64	52~65	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	71~88	70~85	70~88	68~87	70~90	74~93
			fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027
			RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330
			FEED	295~850	295~945	295~945	295~945	295~945	295~945
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
			Vc	31~39	31~40	32~40	32~39	32~40	32~41
H	38.1 38.2	Hardened steel	Vc	10500~13130	8720~11030	7560~9450	7040~8610	6720~8400	5990~7560
			fz	0.003~0.005	0.004~0.006	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009
			RPM	70~135	70~135	70~135	70~135	70~135	70~135
			FEED	0.009~0.018	0.010~0.022	0.012~0.025	0.014~0.028	0.015~0.030	0.016~0.032
			Vc	49~63	49~62	51~62	49~64	51~64	52~65
			fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026
H	40	Chilled Cast Iron	Vc	10500~13130	8720~11030	7560~9450	7040~8610	6720~8400	5990~7560
			fz	0.003~0.005	0.004~0.006	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009
			RPM	70~135	70~135	70~135	70~135	70~135	70~135
			FEED	0.009~0.018	0.010~0.022	0.012~0.025	0.014~0.028	0.015~0.030	0.016~0.032
			Vc	49~63	49~62	51~62	49~64	51~64	52~65
			fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026
H	41	Hardened Cast Iron	Vc	10500~13130	8720~11030	7560~9450	7040~8610	6720~8400	5990~7560
			fz	0.003~0.005	0.004~0.006	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009
			RPM	70~135	70~135	70~135	70~135	70~135	70~135
			FEED	0.009~0.018	0.010~0.022	0.012~0.025	0.014~0.028	0.015~0.030	0.016~0.032
			Vc	31~39	31~40	32~40	32~39	32~40	32~41
			fz	0.003~0.005	0.004~0.006	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009

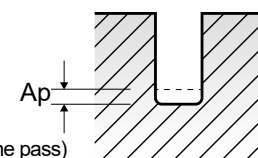
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**GM8A1 SERIES 2 FLUTE CORNER RADIUS RIB PROCESSING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)					
				2.0	2.5	3.0	4.0	5.0	6.0
P	1-4	Non-alloy steel	Vc	75~91	75~94	75~94	75~94	75~94	75~94
			fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
			RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
			FEED	295~945	295~945	295~945	295~945	295~945	295~945
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
	5	Non-alloy steel	Vc	52~66	53~67	52~66	52~67	52~66	53~66
			fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
			RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
6-7	Low alloy steel	Vc	75~91	75~94	75~94	75~94	75~94	75~94	
		fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090	
		RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250	
		FEED	295~945	295~945	295~945	295~945	295~945	295~945	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
8-9	Low alloy steel	Vc	52~66	53~67	52~66	52~67	52~66	53~66	
		fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086	
		RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680	
		FEED	200~630	200~630	200~630	200~630	200~630	200~630	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
10	High alloyed steel, and tool steel	Vc	75~91	75~94	75~94	75~94	75~94	75~94	
		fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090	
		RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250	
		FEED	295~945	295~945	295~945	295~945	295~945	295~945	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
11.1 11.2	High alloyed steel, and tool steel	Vc	52~66	53~67	52~66	52~67	52~66	53~66	
		fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086	
		RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680	
		FEED	200~630	200~630	200~630	200~630	200~630	200~630	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
K 15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	75~91	75~94	75~94	75~94	75~94	75~94	
		fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090	
		RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250	
		FEED	295~945	295~945	295~945	295~945	295~945	295~945	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
		Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540	
H	38.1 - 38.2	Hardened steel	Vc	33~41	34~42	33~41	33~41	33~41	33~49
			fz	0.006~0.010	0.008~0.012	0.009~0.015	0.013~0.020	0.015~0.025	0.019~0.025
			RPM	5570~6930	4520~5570	3680~4620	2730~3470	2210~2730	1840~2730
			FEED	70~135	70~135	70~135	70~135	70~135	70~135
			Ap	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108
			Ap	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108
	40	Chilled Cast Iron	Vc	52~66	53~67	52~66	52~67	52~66	53~66
			fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
			RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
41	Hardened Cast Iron	Vc	33~41	34~42	33~41	33~41	33~41	33~49	
		fz	0.006~0.010	0.008~0.012	0.009~0.015	0.013~0.020	0.015~0.025	0.019~0.025	
		RPM	5570~6930	4520~5570	3680~4620	2730~3470	2210~2730	1840~2730	
		FEED	70~135	70~135	70~135	70~135	70~135	70~135	
		Ap	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108	
		Ap	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108	



**GM839 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING**

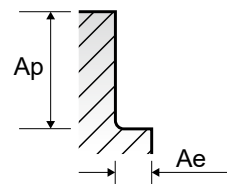
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						2.0	3.0	4.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135
					fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048
					RPM	15120	11671	9947	7427	5570	4297	3581
					FEED	363	420	756	891	936	808	688
					Vc	65	70	75	85	85	85	85
					fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037
	5	Non-alloy steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135
					fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048
					RPM	15120	11671	9947	7427	5570	4297	3581
					FEED	363	420	756	891	936	808	688
					Vc	65	70	75	85	85	85	85
					fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037
6-7	Low alloy steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135	
				fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048	
				RPM	15120	11671	9947	7427	5570	4297	3581	
				FEED	363	420	756	891	936	808	688	
				Vc	65	70	75	85	85	85	85	
				fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037	
8-9	Low alloy steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135	
				fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048	
				RPM	15120	11671	9947	7427	5570	4297	3581	
				FEED	363	420	756	891	936	808	688	
				Vc	65	70	75	85	85	85	85	
				fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037	
10	High alloyed steel, and tool steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135	
				fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048	
				RPM	15120	11671	9947	7427	5570	4297	3581	
				FEED	363	420	756	891	936	808	688	
				Vc	65	70	75	85	85	85	85	
				fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037	
11.1 11.2	High alloyed steel, and tool steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135	
				fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048	
				RPM	15120	11671	9947	7427	5570	4297	3581	
				FEED	363	420	756	891	936	808	688	
				Vc	65	70	75	85	85	85	85	
				fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037	
K 15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	95	110	125	140	140	135	135	
				fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048	
				RPM	15120	11671	9947	7427	5570	4297	3581	
				FEED	363	420	756	891	936	808	688	
				Vc	40	40	50	50	55	55	60	
				fz	0.002	0.004	0.005	0.010	0.016	0.017	0.017	
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	6366	4244	3979	2653	2188	1751	1592
					fz	51	68	80	106	140	119	108
					RPM	51	68	80	106	140	119	108
					FEED	51	68	80	106	140	119	108
					Vc	65	70	75	85	85	85	85
					fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037
40	Chilled Cast Iron	0.05D	1.0D	Vc	6366	4244	3979	2653	2188	1751	1592	
				fz	51	68	80	106	140	119	108	
				RPM	51	68	80	106	140	119	108	
				FEED	51	68	80	106	140	119	108	

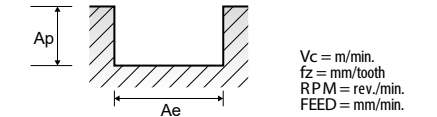
**GM819 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	1-4	Non-alloy steel	0.05D	2.5D	Vc	70	75	80	80	85	85	85	95	85	
					fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022	
					RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353	
					FEED	178	239	244	238	257	249	198	174	119	
					Vc	45	45	50	50	55	55	60	60	55	
					fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028	
	5	Non-alloy steel	0.05D	2.5D	RPM	4775	3581	3183	2653	2188	1751	1592	1194	875	
					FEED	153	158	204	191	210	196	185	143	98	
					Vc	70	75	80	80	85	85	95	95	85	
					fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022	
					RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353	
					FEED	178	239	244	238	257	249	198	174	119	
6-7	Low alloy steel	0.05D	2.5D	Vc	45	45	50	50	55	55	60	60	55		
				fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028		
				RPM	4775	3581	3183	2653	2188	1751	1592	1194	875		
				FEED	153	158	204	191	210	196	185	143	98		
				Vc	70	75	80	80	85	85	95	95	85		
				fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022		
8-9	Low alloy steel	0.05D	2.5D	RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353		
				FEED	178	239	244	238	257	249	198	174	119		
				Vc	45	45	50	50	55	55	60	60	55		
				fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028		
				RPM	4775	3581	3183	2653	2188	1751	1592	1194	875		
				FEED	153	158	204	191	210	196	185	143	98		
10	High alloyed steel, and tool steel	0.05D	2.5D	Vc	70	75	80	80	85	85	95	95	85		
				fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022		
				RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353		
				FEED	178	239	244	238	257	249	198	174	119		
				Vc	45	45	50	50	55	55	60	60	55		
				fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028		
11.1 11.2	High alloyed steel, and tool steel	0.05D	2.5D	RPM	4775	3581	3183	2653	2188	1751	1592	1194	875		
				FEED	153	158	204	191	210	196	185	143	98		
				Vc	70	75	80	80	85	85	95	95	85		
				fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022		
				RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353		
				FEED	178	239	244	238	257	249	198	174	119		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2.5D	Vc	70	75	80	80	85	85	95	95	85	
					fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022	
					RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353	
					FEED	178	239	244	238	257	249	198	174	119	
					Vc	25	30	35	35	35	35	35	35	35	
					fz	0.006	0.008	0.011	0.013	0.017	0.021	0.020	0.022	0.023	
H	38.1 - 38.2	Hardened steel	0.02D	2.0D	RPM	2653	2387	2228	1857	1393	1114	928	696	557	
					FEED	64	76	98	97	95	94	74	61	51	
					Vc	45	45	50	50	55	55	60	60	55	
					fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028	
					RPM	4775	3581	3183	2653	2188	1751	1592	1194	875	
					FEED	153	158	204	191	210	196	185	143	98	
	40	Chilled Cast Iron	0.05D	2.5D	Vc	25	30	35	35	35	35	35	35	35	
					fz	0.006	0.008	0.011	0.013	0.017	0.021	0.020	0.022	0.023	
					RPM	2653	2387	2228	1857	1393	1114	928	696	557	
					FEED	64	76	98	97	95	94	74	61	51	
					Vc	45	45	50	50	55	55	60	60	55	
					fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028	
41	Hardened Cast Iron	0.02D	2.0D	RPM	4775	3581	3183	2653	2188	1751	1592	1194	875		
				FEED	153	158	204	191	210	196	185	143	98		
				Vc	25	30	35	35	35	35	35	35	35		
				fz	0.006	0.008	0.011	0.013	0.017	0.021	0.020	0.022	0.023		
				RPM	2653	2387	2228	1857	1393	1114	928	696	557		
				FEED	64	76	98	97	95	94	74	61	51		



**GM810 SERIES 2 FLUTE - SLOTTING**



ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)				
						0.4	0.8	1.0	1.2	1.5
P	5	Non-alloy steel	1.0D	D<1:0.15D D≥1:0.25D	Vc	40	65	70	65	60
					fz	0.002	0.003	0.004	0.005	0.006
					RPM	31831	25863	22282	17242	12732
					FEED	127	155	178	172	153
					Vc	40	65	70	65	60
					fz	0.002	0.003	0.004	0.005	0.006
8-9	Low alloy steel	1.0D	D<1:0.15D D≥1:0.25D	RPM	31831	25863	22282	17242	12732	
				FEED	127	155	178	172	153	
				Vc	40	65	70	65	60	
				fz	0.002	0.003	0.004	0.005	0.006	
				RPM	31831	25863	22282	17242	12732	
				FEED	127	155	178	172	153	
11.1 11.2	High alloyed steel, and tool steel	1.0D	D<1:0.15D D≥1:0.25D	Vc	40	65	70	65	60	
				fz	0.002	0.003	0.004	0.005	0.006	
				RPM	31831	25863	22282	17242	12732	
				FEED	127	155	178	172	153	
				Vc	30	50	50	50	45	
				fz	0.001	0.002	0.003	0.003	0.004	
H	38.1 - 38.2	Hardened steel	1.0D	D<1:0.02D D≥1:0.05D	RPM	23873	19894	15915	13263	9549
					FEED	48	80	95	80	76
					Vc	40	65	70	65	60
					fz	0.002	0.003	0.004	0.005	0.006
					RPM	31831	25863	22282	17242	12732
					FEED	127	155	178	172	153
40	Chilled Cast Iron	1.0D	D<1:0.15D D≥1:0.25D	Vc	40	65	70	65	60	
				fz	0.002	0.003	0.004	0.005	0.006	
				RPM	31831	25863	22282	17242	12732	
				FEED	127	155	178	172	153	
				Vc	30	50	50	50	45	
				fz	0.001	0.002	0.003	0.003	0.004	
41	Hardened Cast Iron	1.0D	D<1:0.02D D≥1:0.05D	RPM	23873	19894	15915	13263	9549	
				FEED	48	80	95	80	76	
				Vc	30	50	50	50	45	
				fz	0.001	0.002	0.003	0.003	0.004	
				RPM	23873	19894	15915	13263	9549	
				FEED	48	80	95	80	76	

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	65	75	85	90	95	95	90	95	100	95
					fz	0.01	0.015	0.025	0.032	0.039	0.057	0.064	0.064	0.062	0.063
					RPM	10345	7958	6764	5730	5040	3780	2865	2520	1989	1512
					FEED	207	239	338	367	393	431	367	323	247	191
					Vc	45	45	50	55	55	55	55	55	60	60
					fz	0.010	0.016	0.024	0.032	0.041	0.050	0.050	0.048	0.051	0.047
	5	Non-alloy steel	1.0D	D≤3:0.2D D>3:0.5D	RPM	7162	4775	3979	3501	2918	2188	1751	1459	1194	955
					FEED	143	153	191	224	239	219	175	140	122	90
					Vc	65	75	85	90	95	95	90	95	100	95
					fz	0.01	0.015	0.025	0.032	0.039	0.057	0.064	0.064	0.062	0.063
					RPM	10345	7958	6764	5730	5040	3780	2865	2520	1989	1512
					FEED	207	239	338	367	393	431	367	323	247	191
6-7	Low alloy steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	45	45	50	55	55	55	55	55	60	60	
				fz	0.010	0.016	0.024	0.032	0.041	0.050	0.050	0.048	0.051	0.047	
				RPM	7162	4775	3979	3501	2918	2188	1751	1459	1194	955	
				FEED	143	153	191	224	239	219	175	140	122	90	
				Vc	65	75	85	90	95	95	90	95	100	95	
				fz	0.01	0.015	0.025	0.032	0.039	0.057	0.064	0.064	0.062	0.063	
8-9	Low alloy steel	1.0D	D≤3:0.2D D>3:0.5D	RPM	10345	7958	6764	5730	5040	3780	2865	2520	1989	1512	
				FEED	207	239	338	367	393	431	367	323	247	191	
				Vc	45	45	50	55	55	55	55	55	60	60	
				fz	0.010	0.016	0.024	0.032	0.041	0.050	0.050	0.048	0.051	0.047	
				RPM	7162	4775	3979	3501	2918	2188	1751	145			

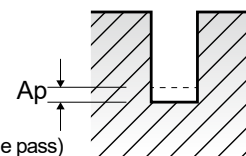


**GM883 SERIES 2 FLUTE RIB PROCESSING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2
P	1-4	Non-alloy steel	Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85
			fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020
			RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630
			FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
			Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62
	5	Non-alloy steel	Vc	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330
			FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
			Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85
6-7	Low alloy steel	Vc	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020	
		fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020	
		RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630	
		FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100	
		Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62	
8-9	Low alloy steel	Vc	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018	
		fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018	
		RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330	
		FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100	
		Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85	
10	High alloyed steel, and tool steel	Vc	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020	
		fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020	
		RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630	
		FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100	
		Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62	
11.1 11.2	High alloyed steel, and tool steel	Vc	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018	
		fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018	
		RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330	
		FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100	
		Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020
			fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020
			RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630
			FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
			Vc	18~21	22~27	27~32	31~37	31~37	31~35	31~39	31~40
H	38.1 - 38.2	Hardened steel	Vc	0.001~0.003	0.001~0.003	0.001~0.003	0.001~0.003	0.002~0.004	0.003~0.005	0.003~0.005	0.004~0.006
			fz	0.001~0.003	0.001~0.003	0.001~0.003	0.001~0.003	0.002~0.004	0.003~0.005	0.003~0.005	0.004~0.006
			RPM	15020~17850	15020~17850	15020~17850	15020~17850	13130~15540	11550~13130	10500~13130	8720~11030
			FEED	30~95	30~95	40~115	40~115	45~130	60~135	70~135	70~135
			Ap	0.004~0.008	0.004~0.009	0.005~0.011	0.006~0.013	0.007~0.015	0.008~0.016	0.009~0.018	0.010~0.022
			Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62
	40	Chilled Cast Iron	Vc	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330
			FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
			Vc	18~21	22~27	27~32	31~37	31~37	31~35	31~39	31~40
41	Hardened Cast Iron	Vc	0.001~0.003	0.001~0.003	0.001~0.003	0.001~0.003	0.002~0.004	0.003~0.005	0.003~0.005	0.004~0.006	
		fz	0.001~0.003	0.001~0.003	0.001~0.003	0.001~0.003	0.002~0.004	0.003~0.005	0.003~0.005	0.004~0.006	
		RPM	15020~17850	15020~17850	15020~17850	15020~17850	13130~15540	11550~13130	10500~13130	8720~11030	
		FEED	30~95	30~95	40~115	40~115	45~130	60~135	70~135	70~135	
		Ap	0.004~0.008	0.004~0.009	0.005~0.011	0.006~0.013	0.007~0.015	0.008~0.016	0.009~0.018	0.010~0.022	
		Vc	18~21	22~27	27~32	31~37	31~37	31~35	31~39	31~40	

▶ NEXT PAGE



**GM883 SERIES 2 FLUTE RIB PROCESSING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

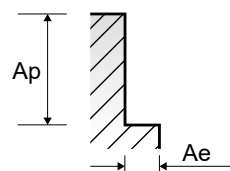
VDI 3323	Parameter	Diameter (Ø)												
		1.4	1.5	1.6	1.8	2.0	2.5	3.0	4.0	5.0	6.0			
1-4	Non-alloy steel	Vc	70~88	68~87	70~90	74~93	75~91	75~94	75~94	75~94	75~94	75~94		
		fz	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090		
		RPM	16800~21000	15230~19430	14700~18900	13650~17330	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250		
		FEED	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945		
		Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540		
		Vc	51~62	49~64	51~64	52~65	52~66	53~67	52~66	52~67	52~66	53~66		
		5	Non-alloy steel	Vc	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
				fz	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
				RPM	12080~14700	11030~14180	10710~13440	9660~12080	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
				FEED	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630
				Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
				Vc	70~88	68~87	70~90	74~93	75~91	75~94	75~94	75~94	75~94	75~94
6-7	Low alloy steel	Vc	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090		
		fz	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090		
		RPM	16800~21000	15230~19430	14700~18900	13650~17330	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250		
		FEED	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945		
		Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.27					



**GM811 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0		
P	1-4	Non-alloy steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120		
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046		
					RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528		
					FEED	306	363	635	672	732	802	688	573	468	367	281		
					Vc	55	60	65	65	70	70	70	75	75	75	75		
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039		
	5	Non-alloy steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120		
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046		
					RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528		
					FEED	306	363	635	672	732	802	688	573	468	367	281		
					Vc	55	60	65	65	70	70	70	75	75	75	75		
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039		
6-7	Low alloy steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120			
				fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046			
				RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528			
				FEED	306	363	635	672	732	802	688	573	468	367	281			
				Vc	55	60	65	65	70	70	70	75	75	75	75			
				fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039			
8-9	Low alloy steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120			
				fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046			
				RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528			
				FEED	306	363	635	672	732	802	688	573	468	367	281			
				Vc	55	60	65	65	70	70	70	75	75	75	75			
				fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039			
10	High alloyed steel, and tool steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120			
				fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046			
				RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528			
				FEED	306	363	635	672	732	802	688	573	468	367	281			
				Vc	55	60	65	65	70	70	70	75	75	75	75			
				fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039			
11.1 - 11.2	High alloyed steel, and tool steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120			
				fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046			
				RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528			
				FEED	306	363	635	672	732	802	688	573	468	367	281			
				Vc	55	60	65	65	70	70	70	75	75	75	75			
				fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039			
M	14.1	Stainless steel	0.05D	1.0D	Vc	45	50	55	55	60	60	60	55	60	60	60		
					fz	0.005	0.009	0.018	0.024	0.029	0.041	0.045	0.044	0.046	0.045	0.044		
					RPM	7162	5305	4377	3501	3183	2387	1910	1459	1194	955	764		
					FEED	143	191	315	336	369	392	344	257	220	172	134		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120		
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046		
					RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528		
					FEED	306	363	635	672	732	802	688	573	468	367	281		
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	35	35	40	40	40	45	50	50	50	45			
					fz	0.002	0.004	0.005	0.008	0.010	0.017	0.016	0.017	0.016	0.015	0.015		
					RPM	5570	3714	3183	2546	2122	1790	1592	1326	995	796	573		
	40	Chilled Cast Iron	0.05D	1.0D	Vc	55	60	65	65	70	70	70	75	75	75			
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039		
					RPM	8754	6366	5173	4138	3714	2785	2228	1857	1492	1194	955		
	41	Hardened Cast Iron	0.05D	1.0D	Vc	35	35	40	40	40	45	50	50	50	45			
					fz	0.002	0.004	0.005	0.008	0.010	0.017	0.016	0.017	0.016	0.015	0.015		
					RPM	5570	3714	3183	2546	2122	1790	1592	1326	995	796	573		
	41	Hardened Cast Iron	0.05D	1.0D	Vc	45	50	55	55	60	60	60	55	60	60	60		
					fz	0.005	0.009	0.018	0.024	0.029	0.041	0.045	0.044	0.046	0.045	0.044		
					RPM	7162	5305	4377	3501	3183	2387	1910	1459	1194	955	764		

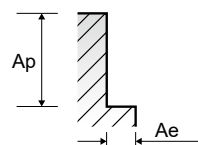


**GM817 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0			
P	1-4	Non-alloy steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85			
					fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049			
					RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353			
					FEED	229	248	312	401	492	522	530	399	358	265			
					Vc	35	40	40	45	45	45	50	50	50	50			
					fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033			
	5	Non-alloy steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85			
					fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049			
					RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353			
					FEED	229	248	312	401	492	522	530	399	358	265			
					Vc	35	40	40	45	45	45	50	50	50	50			
					fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033			
6-7	Low alloy steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85				
				fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049				
				RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353				
				FEED	229	248	312	401	492	522	530	399	358	265				
				Vc	35	40	40	45	45	45	50	50	50	50				
				fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033				
8-9	Low alloy steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85				
				fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049				
				RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353				
				FEED	229	248	312	401	492	522	530	399	358	265				
				Vc	35	40	40	45	45	45	50	50	50	50				
				fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033				
10	High alloyed steel, and tool steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85				
				fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049				
				RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353				
				FEED	229	248	312	401	492	522	530	399	358	265				
				Vc	35	40	40	45	45	45	50	50	50	50				
				fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033				
11.1 - 11.2	High alloyed steel, and tool steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85				
				fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049				
				RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353				
				FEED	229	248	312	401	492	522	530	399	358	265				
				Vc	35	40	40	45	45	45	50	50	50	50				
				fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033				
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85			
					fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049			
					RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353			
					FEED	229	248	312	401	492	522	530	399	358	265			
H	38.1 - 38.2	Hardened steel	0.02D	2.0D</														





Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

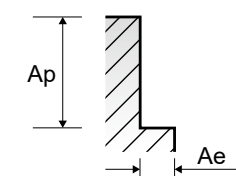
**GM812 SERIES 6&8 FLUTE - SIDE CUTTING**

**NORMAL SPEED**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.1D	1.5D	Vc	105	110	110	110	110	105
					fz	0.06	0.079	0.099	0.099	0.1	0.075
					RPM	5570	4377	3501	2918	2188	1671
					FEED	2005	2075	2080	1733	1313	1003
					Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
	5	Non-alloy steel	0.05D	1.5D	Vc	3979	2984	2387	1989	1492	1194
					RPM	1409	1397	1404	1158	886	716
					Vc	105	110	110	110	110	105
					fz	0.06	0.079	0.099	0.099	0.1	0.075
					RPM	5570	4377	3501	2918	2188	1671
					FEED	2005	2075	2080	1733	1313	1003
6-7	Low alloy steel	0.1D	1.5D	Vc	75	75	75	75	75	75	
				fz	0.059	0.078	0.098	0.097	0.099	0.075	
				RPM	3979	2984	2387	1989	1492	1194	
				FEED	1409	1397	1404	1158	886	716	
				Vc	105	110	110	110	110	105	
				fz	0.06	0.079	0.099	0.099	0.1	0.075	
8-9	Low alloy steel	0.05D	1.5D	Vc	5570	4377	3501	2918	2188	1671	
				RPM	2005	2075	2080	1733	1313	1003	
				Vc	75	75	75	75	75	75	
				fz	0.059	0.078	0.098	0.097	0.099	0.075	
				RPM	3979	2984	2387	1989	1492	1194	
				FEED	1409	1397	1404	1158	886	716	
10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	105	110	110	110	110	105	
				fz	0.06	0.079	0.099	0.099	0.1	0.075	
				RPM	5570	4377	3501	2918	2188	1671	
				FEED	2005	2075	2080	1733	1313	1003	
				Vc	75	75	75	75	75	75	
				fz	0.059	0.078	0.098	0.097	0.099	0.075	
11.1 - 11.2	High alloyed steel, and tool steel	0.05D	1.5D	Vc	3979	2984	2387	1989	1492	1194	
				RPM	1409	1397	1404	1158	886	716	
				Vc	75	75	75	75	75	75	
				fz	0.059	0.078	0.098	0.097	0.099	0.075	
				RPM	3979	2984	2387	1989	1492	1194	
				FEED	1409	1397	1404	1158	886	716	
H	38.1	Hardened steel	0.05D	1.5D	Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
					RPM	3979	2984	2387	1989	1492	1194
					FEED	1409	1397	1404	1158	886	716
					Vc	30	30	30	30	35	30
					fz	0.022	0.030	0.035	0.036	0.035	0.027
	38.2	Hardened steel	0.05D	1.0D	Vc	1592	1194	955	796	696	477
					RPM	210	215	201	172	146	103
					Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
					RPM	3979	2984	2387	1989	1492	1194
					FEED	1409	1397	1404	1158	886	716
40	Chilled Cast Iron	0.05D	1.5D	Vc	30	30	30	30	35	30	
				fz	0.022	0.030	0.035	0.036	0.035	0.027	
				RPM	1592	1194	955	796	696	477	
				FEED	210	215	201	172	146	103	
				Vc	75	75	75	75	75	75	
				fz	0.059	0.078	0.098	0.097	0.099	0.075	
41	Hardened Cast Iron	0.05D	1.0D	Vc	3979	2984	2387	1989	1492	1194	
				RPM	1409	1397	1404	1158	886	716	
				Vc	30	30	30	30	35	30	
				fz	0.022	0.030	0.035	0.036	0.035	0.027	
				RPM	1592	1194	955	796	696	477	
				FEED	210	215	201	172	146	103	

**HIGH SPEED**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
P	1-5	Non-alloy steel	0.05D	1.5D	Vc	325	325	320	325	325	325
					fz	0.06	0.081	0.1	0.1	0.1	0.076
					RPM	17242	12931	10186	8621	6466	5173
					FEED	6207	6285	6112	5173	3879	3145
					Vc	325	325	320	325	325	325
					fz	0.06	0.081	0.1	0.1	0.1	0.076
	6-9	Low alloy steel	0.05D	1.5D	Vc	17242	12931	10186	8621	6466	5173
					RPM	6207	6285	6112	5173	3879	3145
					Vc	325	325	320	325	325	325
					fz	0.06	0.081	0.1	0.1	0.1	0.076
					RPM	17242	12931	10186	8621	6466	5173
					FEED	6207	6285	6112	5173	3879	3145
10 - 11.2	High alloyed steel, and tool steel	0.05D	1.5D	Vc	325	325	320	325	325	325	
				fz	0.06	0.081	0.1	0.1	0.1	0.076	
				RPM	17242	12931	10186	8621	6466	5173	
				FEED	6207	6285	6112	5173	3879	3145	
				Vc	0.060	0.081	0.100	0.100	0.100	0.076	
				fz	17242	12931	10186	8621	6466	5173	
38.1	Hardened steel	0.05D	1.5D	Vc	6207	6285	6112	5173	3879	3145	
				RPM	160	160	160	160	160	160	
				Vc	0.060	0.081	0.101	0.100	0.100	0.073	
				fz	8488	6366	5093	4244	3183	2546	
				RPM	3056	3094	3086	2546	1910	1487	
				FEED	325	325	320	325	325	325	
38.2	Hardened steel	0.05D	1.0D	Vc	17242	12931	10186	8621	6466	5173	
				RPM	6207	6285	6112	5173	3879	3145	
				Vc	0.060	0.081	0.100	0.100	0.100	0.076	
				fz	17242	12931	10186	8621	6466	5173	
				RPM	6207	6285	6112	5173	3879	3145	
				FEED	160	160	160	160	160	160	
40	Chilled Cast Iron	0.05D	1.5D	Vc	0.060	0.081	0.101	0.100	0.100	0.073	
				fz	8488	6366	5093	4244	3183	2546	
				RPM	3056	3094	3086	2546	1910	1487	
				Vc	325	325	320	325	325	325	
				fz	0.060	0.081	0.100	0.100	0.100	0.076	
				RPM	17242	12931	10186	8621	6466	5173	
41	Hardened Cast Iron	0.05D	1.0D	Vc	6207	6285	6112	5173	3879	3145	
				RPM	160	160	160	160	160	160	
				Vc	0.060	0.081	0.101	0.100	0.100	0.073	
				fz	8488	6366	5093	4244	3183	2546	
				RPM	3056	3094	3086	2546	1910	1487	
				FEED	325	325	320	325	325	325	



**GM834 SERIES 6 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.01D	3.0D	Vc	45	45	45	45	45	45	
					fz	0.035	0.045	0.055	0.06	0.065	0.07	
					RPM	2387	1790	1432	1194	895	716	
					FEED	501	483	473	430	349	301	
					Vc	30	30	30	30	30	30	
					fz	0.035	0.044	0.050	0.053	0.061	0.067	
	5	Non-alloy steel	0.01D	3.0D	Vc	1592	1194	955	796	696	477	
					RPM	334	315	286	253	218	192	
					Vc	45	45	45	45	45	45	
					fz	0.035	0.045	0.055	0.06	0.065	0.07	
					RPM	2387	1790	1432	1194	895	716	
					FEED	501	483	473	430	349	301	
6-7	Low alloy steel	0.01D	3.0D	Vc	30	30	30	30	30	30		
				fz	0.035	0.044	0.050	0.053	0.061	0.067		
				RPM	1592	1194	955	796	696	477		
				FEED	334	315	286	253	218	192		
				Vc	45	45	45	45	45	45		
				fz	0.035	0.045	0.055	0.06	0.065	0.07		
8-9	Low alloy steel	0.01D	3.0D	Vc	5570	4377	3501	2918	2188	1671		
				RPM	2005	2075	2080	1733	1313	1003		
				Vc	30	30	30	30	30	30		
				fz	0.035	0.044	0.050	0.053	0.061	0.067		
				RPM	1592	1194	955	796	696	477		
				FEED	334	315	286	253	218	192		
10	High alloyed steel, and tool steel	0.01D	3.0D	Vc	45	45	45	45	45	45		
				fz	0.035	0.045	0.055	0.06	0.065	0.07		
				RPM	2387	1790	1432	1194	895	716		
				FEED	501	483	473	430	349	301		
				Vc	30	30	30	30	30	30		
				fz	0.035	0.044	0.050	0.053	0.061	0.067		
11.1 - 11.2	High alloyed steel, and tool steel	0.01D	3.0D	Vc	1592	1194	955	796	696	477		
				RPM	334	315	286	253	218	192		
				Vc	45	45	45	45	45	45		
				fz	0.035</							

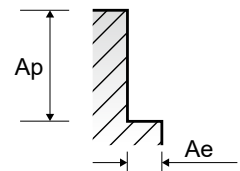


**GM814** SERIES

**3&4 FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
<b>P</b>	1-4	Non-alloy steel	0.3D	1.5D	Vc	310	305	305	315	315	315
					fz	0.05	0.067	0.063	0.075	0.1	0.113
					RPM	16446	12136	9708	8356	6267	5013
					FEED	2467	2439	2447	2507	2507	2266
	5	Non-alloy steel	0.3D	1.5D	Vc	245	245	250	240	255	240
					fz	0.023	0.030	0.028	0.033	0.040	0.039
					RPM	12998	9748	7958	6366	5073	3820
					FEED	897	877	891	840	812	596
	6-7	Low alloy steel	0.3D	1.5D	Vc	310	305	305	315	315	315
					fz	0.05	0.067	0.063	0.075	0.1	0.113
					RPM	16446	12136	9708	8356	6267	5013
					FEED	2467	2439	2447	2507	2507	2266
8-9	Low alloy steel	0.3D	1.5D	Vc	245	245	250	240	255	240	
				fz	0.023	0.030	0.028	0.033	0.040	0.039	
				RPM	12998	9748	7958	6366	5073	3820	
				FEED	897	877	891	840	812	596	
10	High alloyed steel, and tool steel	0.3D	1.5D	Vc	310	305	305	315	315	315	
				fz	0.05	0.067	0.063	0.075	0.1	0.113	
				RPM	16446	12136	9708	8356	6267	5013	
				FEED	2467	2439	2447	2507	2507	2266	
11.1 11.2	High alloyed steel, and tool steel	0.3D	1.5D	Vc	245	245	250	240	255	240	
				fz	0.023	0.030	0.028	0.033	0.040	0.039	
				RPM	12998	9748	7958	6366	5073	3820	
				FEED	897	877	891	840	812	596	
<b>M</b>	14.1	Stainless steel	0.3D	1.5D	Vc	165	165	170	165	175	160
					fz	0.023	0.03	0.028	0.034	0.039	0.038
					RPM	8754	6565	5411	4377	3482	2546
					FEED	604	591	606	595	543	387
<b>K</b>	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.3D	1.5D	Vc	310	305	305	315	315	315
					fz	0.05	0.067	0.063	0.075	0.1	0.113
					RPM	16446	12136	9708	8356	6267	5013
					FEED	2467	2439	2447	2507	2507	2266
<b>H</b>	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	65	65	65	65	65	65
					fz	0.026	0.033	0.036	0.039	0.034	0.038
	40	Chilled Cast Iron	0.3D	1.5D	RPM	3448	2586	2069	1724	1293	1035
					FEED	269	256	298	269	176	157
41	Hardened Cast Iron	0.05D	1.0D	Vc	245	245	250	240	255	240	
				fz	0.023	0.030	0.028	0.033	0.040	0.039	
				RPM	12998	9748	7958	6366	5073	3820	
				FEED	897	877	891	840	812	596	
41	Hardened Cast Iron	0.05D	1.0D	Vc	65	65	65	65	65	65	
				fz	0.026	0.033	0.036	0.039	0.034	0.038	
				RPM	3448	2586	2069	1724	1293	1035	
				FEED	269	256	298	269	176	157	





Leading Through Innovation

**SOLID CARBIDE**

# **TitaNox-POWER END MILLS**

**TitaNox-Power VHM - Schaftfräser**

- High Speed Machining for Exotic Materials: Titanium and Stainless Steels
- Hochgeschwindigkeitsbearbeitung von Sonderwerkstoffen: Titan und rostfreie Stähle





SELECTION GUIDE



SERIES	GMG40 GMG41	GMG28 GMG29	GMG30 GMG31	GMG24 GMG25
FLUTE	4	5	5	5
HELIX ANGLE	43°/45°	43°/44°/45°	43°/44°/45°	43°/44°/45°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE
SIZE MIN	D6.0	D6.0	D6.0	D6.0
SIZE MAX	D25.0	D25.0	D25.0	D25.0
PAGE	C380	C382	C383	C385

GMG26 GMG27	EHE54 EHE55
5	5
43°/44°/45°	40°
SQUARE	ROUGHING CORNER RADIUS
D6.0	D6.0
D25.0	D25.0
C386	C387
LONG LENGTH	-
Y-Coating	TiAlN

**SOLID CARBIDE**  
**TitaNox-POWER**  
**END MILLS**

High Speed Machining for Exotic Materials:  
Titanium and Stainless Steels

LONG LENGTH DOUBLE CORE	SHORT LENGTH	LONG LENGTH	SHORT LENGTH
Y-Coating	Y-Coating	Y-Coating	Y-Coating



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C388

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	GMG40	GMG28	GMG30	GMG24
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○	○
	2		About 0.45% C Annealed	190	13	○	○	○	○
	3		About 0.45% C Quenched & Tempered	250	25	○	○	○	○
	4		About 0.75% C Annealed	270	28	○	○	○	○
	5		About 0.75% C Quenched & Tempered	300	32	○	○	○	○
	6	Low alloy steel	Annealed	180	10	○	○	○	○
	7		Quenched & Tempered	275	29	○	○	○	○
	8		Quenched & Tempered	300	32	○	○	○	○
	9		Quenched & Tempered	350	38	○	○	○	○
	10	High alloyed steel, and tool steel	Annealed	200	15	○	○	○	○
	11		Quenched & Tempered	325	35	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎	◎
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎	◎
	14		Austenitic	180	10	◎	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○
	18		Pearlitic	250	25	○	○	○	○
	19		Ferritic	130		○	○	○	○
20	Malleable cast iron	Pearlitic	230	21	○	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable	60					
	22		Curable Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75					
	24		≤ 12% Si, Curable Hardened	90					
	25		> 12% Si, Not Curable	130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110					
	27		CuZn, CuSnZn (Brass)	90					
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100					
	29		Duroplastic, Fiber Reinforced Plastic						
	30	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○	○	○	○
	32		Cured	280	30	○	○	○	○
	33		Annealed	250	25	○	○	○	○
	34		Ni or Co Based Cured	350	38	○	○	○	○
	35		Cast	320	34	○	○	○	○
	36	Titanium Alloys	Pure Titanium	400 Rm		◎	◎	◎	◎
37	Alpha + Beta Alloys Hardened		1050 Rm		◎	◎	◎	◎	
H	38	Hardened steel	Hardened	550	55				
	39		Hardened	630	60				
	40	Chilled Cast Iron	Cast	400	42				
	41	Hardened Cast Iron	Hardened	550	55				

GMG26	EHE54	1
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		40
		41



HSS

CBN END MILLS

i-Xmill END MILLS

i-SMART MODULAR END MILLS

X5070 END MILLS

4G MILL END MILLS

X-POWER PRO END MILLS

TitaNox-POWER END MILLS

JET-POWER END MILLS

V7 PLUS END MILLS

ALU-POWER HPC END MILLS

ALU-POWER END MILLS

D-POWER GRAPHITE END MILLS

CRX S END MILLS

K-2 END MILLS

ONLY ONE COATED PM60 END MILLS

TANK-POWER END MILLS

GENERAL HSS END MILLS

MILLING CUTTERS

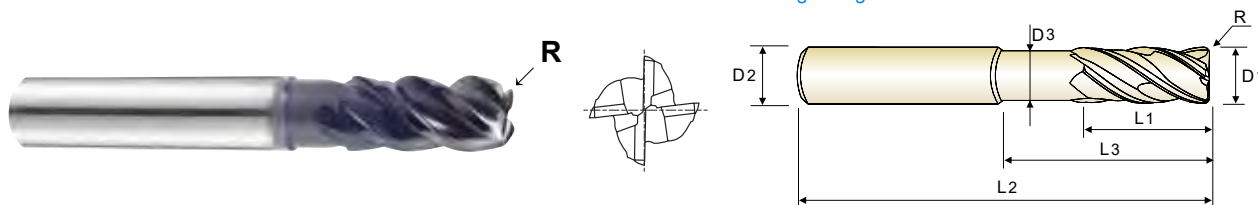
TECHNICAL DATA

**CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKRADIUS mit DOPPELKERN
- CARBURE, 4 DENTS, TORIQUE AVEC ÂME DOUBLE
- FRESA IN MD, 4 TAGLIENTI, TORICA, DOUBLE CORE

▶ Double core end mill has a unique flute design for excellent chip evacuation and higher rigidity.  
▶ The double core adds stability and aids chip flow, reducing tool deflection, improving dimensional stability and workpiece accuracy.

▶ Der Doppelkern hat ein einzigartiges Schneiden Design für eine exzellente Spanabfuhr und bessere Zähigkeit.  
▶ Der Doppelkern erhöht die Stabilität und unterstützt den Spänefluss, reduziert die Werkzeugabdrängung, verbessert die Formstabilität und die Werkstückgenauigkeit.



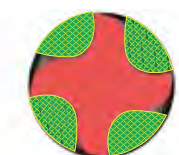
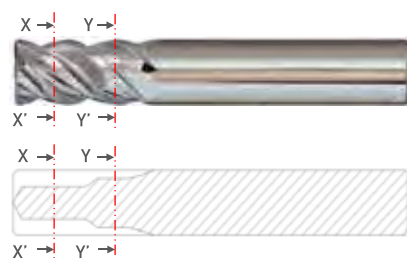
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
GMG40060	GMG41060	R0.5	6.0	6	13	20	57	5.5
GMG40901	GMG41901	R1.0	6.0	6	13	20	57	5.5
GMG40080	GMG41080	R0.5	8.0	8	19	25	63	7.5
GMG40902	GMG41902	R1.0	8.0	8	19	25	63	7.5
GMG40903	GMG41903	R1.5	8.0	8	19	25	63	7.5
GMG40904	GMG41904	R2.0	8.0	8	19	25	63	7.5
GMG40100	GMG41100	R0.5	10.0	10	22	30	72	9.2
GMG40905	GMG41905	R1.0	10.0	10	22	30	72	9.2
GMG40906	GMG41906	R1.5	10.0	10	22	30	72	9.2
GMG40907	GMG41907	R2.0	10.0	10	22	30	72	9.2
GMG40120	GMG41120	R0.5	12.0	12	26	35	83	11.0
GMG40908	GMG41908	R1.0	12.0	12	26	35	83	11.0
GMG40909	GMG41909	R1.5	12.0	12	26	35	83	11.0
GMG40910	GMG41910	R2.0	12.0	12	26	35	83	11.0
GMG40911	GMG41911	R3.0	12.0	12	26	35	83	11.0
GMG40140	GMG41140	R1.0	14.0	14	26	35	83	13.0
GMG40912	GMG41912	R2.0	14.0	14	26	35	83	13.0
GMG40160	GMG41160	R1.0	16.0	16	35	43	92	15.0

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6

◆ 2 STEP CORE



<SECTION X-X'> EXCELLENT CHIP EVACUATION



<SECTION Y-Y'> HIGHER RIGIDITY

◎ : Excellent ○ : Good

ISO Material Description	P										M						K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

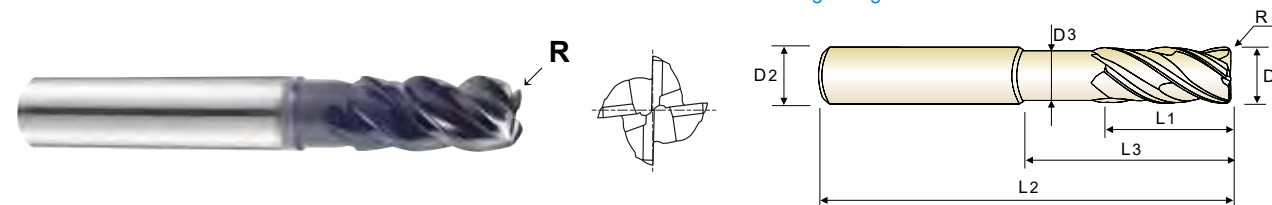


**CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKRADIUS mit DOPPELKERN
- CARBURE, 4 DENTS, TORIQUE AVEC ÂME DOUBLE
- FRESA IN MD, 4 TAGLIENTI, TORICA, DOUBLE CORE

▶ Double core end mill has a unique flute design for excellent chip evacuation and higher rigidity.  
▶ The double core adds stability and aids chip flow, reducing tool deflection, improving dimensional stability and workpiece accuracy.

▶ Der Doppelkern hat ein einzigartiges Schneiden Design für eine exzellente Spanabfuhr und bessere Zähigkeit.  
▶ Der Doppelkern erhöht die Stabilität und unterstützt den Spänefluss, reduziert die Werkzeugabdrängung, verbessert die Formstabilität und die Werkstückgenauigkeit.



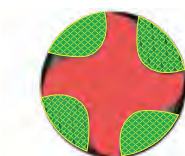
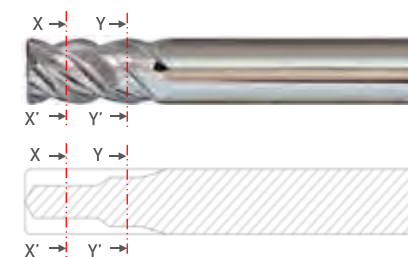
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
GMG40913	GMG41913	R1.5	16.0	16	35	43	92	15.0
GMG40914	GMG41914	R2.0	16.0	16	35	43	92	15.0
GMG40915	GMG41915	R3.0	16.0	16	35	43	92	15.0
GMG40916	GMG41916	R4.0	16.0	16	35	43	92	15.0
GMG40200	GMG41200	R1.0	20.0	20	44	56	110	19.0
GMG40917	GMG41917	R1.5	20.0	20	44	56	110	19.0
GMG40918	GMG41918	R2.0	20.0	20	44	56	110	19.0
GMG40919	GMG41919	R3.0	20.0	20	44	56	110	19.0
GMG40920	GMG41920	R3.5	20.0	20	44	56	110	19.0
GMG40921	GMG41921	R4.0	20.0	20	44	56	110	19.0
GMG40250	GMG41250	R1.0	25.0	25	55	70	130	24.0
GMG40922	GMG41922	R1.5	25.0	25	55	70	130	24.0
GMG40923	GMG41923	R2.0	25.0	25	55	70	130	24.0
GMG40924	GMG41924	R3.0	25.0	25	55	70	130	24.0
GMG40925	GMG41925	R4.0	25.0	25	55	70	130	24.0

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6

◆ 2 STEP CORE



<SECTION X-X'> EXCELLENT CHIP EVACUATION



<SECTION Y-Y'> HIGHER RIGIDITY

◎ : Excellent ○ : Good

ISO Material Description	P										M						K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron	Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○



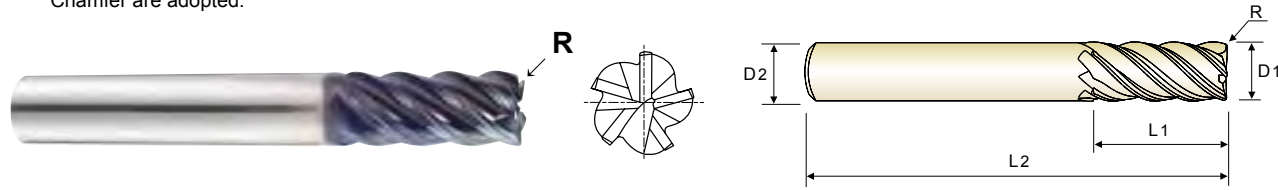
PLAIN SHANK **GMG28** SERIES  
 FLAT SHANK **GMG29** SERIES

**CARBIDE, 5 FLUTE CORNER RADIUS SHORT LENGTH**

- VOLLHARTMETALL, 5 SCHNEIDEN KURZ mit ECKRADIUS
- CARBURE, 5 DENTS, TORIQUE, SÉRIE COURTE
- FRESA IN MD, 5 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶ Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶ Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶ Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE 5 43°/44°/45° PLAIN FLAT Coating Y p.C390

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
						PLAIN
GMG28060	GMG29060	R0.5	6.0	6	10	54
GMG28080	GMG29080	R0.5	8.0	8	12	58
GMG28100	GMG29100	R0.5	10.0	10	14	66
GMG28120	GMG29120	R0.5	12.0	12	16	73
GMG28160	GMG29160	R1.0	16.0	16	22	82
GMG28200	GMG29200	R1.0	20.0	20	26	92
GMG28250	GMG29250	R1.0	25.0	25	29	100

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	○

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○	○



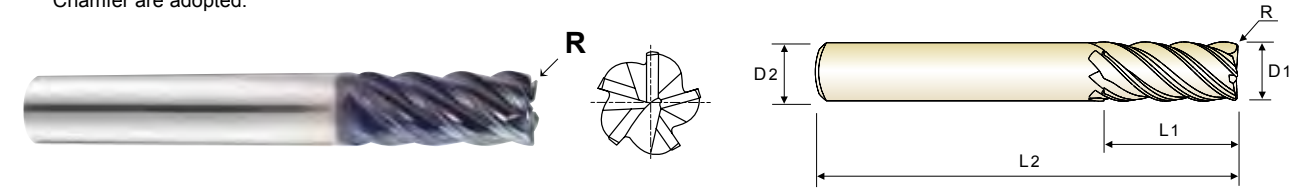
PLAIN SHANK **GMG30** SERIES  
 FLAT SHANK **GMG31** SERIES

**CARBIDE, 5 FLUTE CORNER RADIUS LONG LENGTH**

- VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS
- CARBURE, 5 DENTS, TORIQUE, SÉRIE LONGUE
- FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶ Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶ Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶ Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE 5 43°/44°/45° PLAIN FLAT Coating Y p.C390

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
						PLAIN
GMG30060	GMG31060	R0.3	6.0	6	13	57
GMG30901	GMG31901	R0.5	6.0	6	13	57
GMG30902	GMG31902	R1.0	6.0	6	13	57
GMG30080	GMG31080	R0.5	8.0	8	19	63
GMG30903	GMG31903	R1.0	8.0	8	19	63
GMG30904	GMG31904	R1.5	8.0	8	19	63
GMG30905	GMG31905	R2.0	8.0	8	19	63
GMG30100	GMG31100	R0.5	10.0	10	22	72
GMG30906	GMG31906	R1.0	10.0	10	22	72
GMG30907	GMG31907	R1.5	10.0	10	22	72
GMG30908	GMG31908	R2.0	10.0	10	22	72
GMG30120	GMG31120	R0.5	12.0	12	26	83
GMG30909	GMG31909	R1.0	12.0	12	26	83
GMG30910	GMG31910	R1.5	12.0	12	26	83
GMG30911	GMG31911	R2.0	12.0	12	26	83
GMG30912	GMG31912	R2.5	12.0	12	26	83
GMG30913	GMG31913	R3.0	12.0	12	26	83
GMG30160	GMG31160	R1.0	16.0	16	36	92
GMG30914	GMG31914	R1.5	16.0	16	36	92
GMG30915	GMG31915	R2.0	16.0	16	36	92
GMG30916	GMG31916	R2.5	16.0	16	36	92
GMG30917	GMG31917	R3.0	16.0	16	36	92

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	○

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○	○





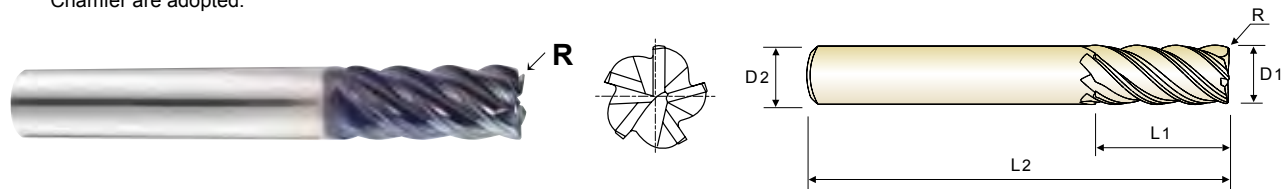
PLAIN SHANK **GMG30** SERIES  
 FLAT SHANK **GMG31** SERIES

**CARBIDE, 5 FLUTE CORNER RADIUS LONG LENGTH**

- VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS
- CARBURE, 5 DENTS, TORIQUE, SÉRIE LONGUE
- FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶ Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶ Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶ Durch die Fase und den Eckradius werden Ausbrüche verhindert.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D1	D2	L1	L2
GMG30918	GMG31918	R4.0	16.0	16	36	92
GMG30200	GMG31200	R1.0	20.0	20	44	104
GMG30919	GMG31919	R1.5	20.0	20	44	104
GMG30920	GMG31920	R2.0	20.0	20	44	104
GMG30921	GMG31921	R2.5	20.0	20	44	104
GMG30922	GMG31922	R3.0	20.0	20	44	104
GMG30923	GMG31923	R4.0	20.0	20	44	104
GMG30924	GMG31924	R5.0	20.0	20	44	104
GMG30250	GMG31250	R1.0	25.0	25	54	121
GMG30925	GMG31925	R1.5	25.0	25	54	121
GMG30926	GMG31926	R2.0	25.0	25	54	121
GMG30927	GMG31927	R2.5	25.0	25	54	121
GMG30928	GMG31928	R3.0	25.0	25	54	121
GMG30929	GMG31929	R4.0	25.0	25	54	121
GMG30930	GMG31930	R5.0	25.0	25	54	121

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	○

ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○



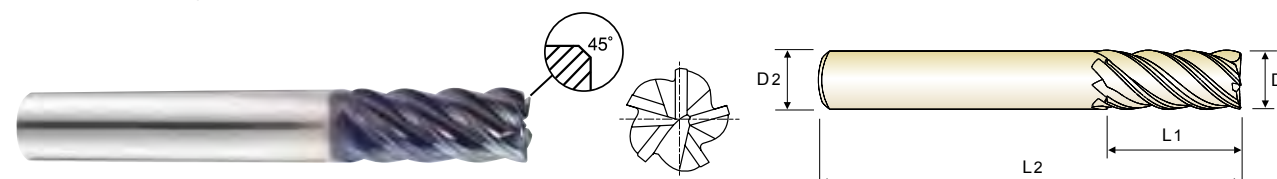
PLAIN SHANK **GMG24** SERIES  
 FLAT SHANK **GMG25** SERIES

**CARBIDE, 5 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 5 SCHNEIDEN KURZ
- CARBURE, 5 DENTS, SÉRIE COURTE
- FRESA IN MD, 5 TAGLIENTI, SERIE CORTA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶ Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶ Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶ Durch die Fase und den Eckradius werden Ausbrüche verhindert.

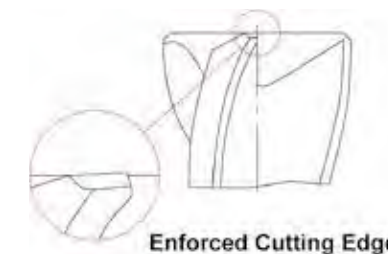


Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D1	D2	L1	L2	
GMG24060	GMG25060	6.0	6	10	54	0.20
GMG24080	GMG25080	8.0	8	12	58	0.20
GMG24100	GMG25100	10.0	10	14	66	0.30
GMG24120	GMG25120	12.0	12	16	73	0.35
GMG24160	GMG25160	16.0	16	22	82	0.40
GMG24200	GMG25200	20.0	20	26	92	0.50
GMG24250	GMG25250	25.0	25	29	100	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	○

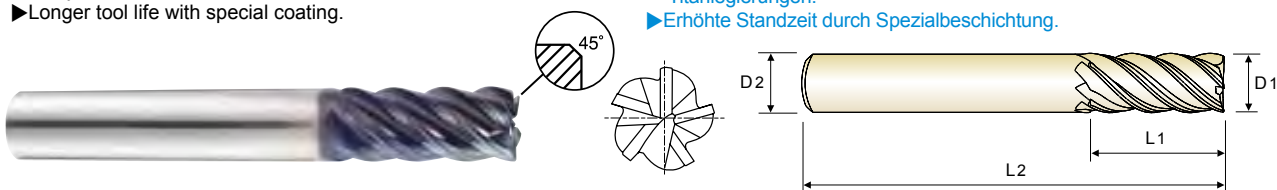
ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

**CARBIDE, 5 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 5 SCHNEIDEN LANG
- CARBURE, 5 DENTS, SÉRIE LONGUE
- FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for Titanium, Titanium Alloys, Inconel and Stainless Steels.
- ▶ Optimized flute design for chip evacuation and rigidity when machining difficult-to-cut materials.
- ▶ Special roughing profile for machining Titanium and Titanium Alloys.
- ▶ Longer tool life with special coating.

- ▶ Einsetzbar für Titan, Titanlegierungen, Nickellegierungen und rostfreie Stähle.
- ▶ Verbessertes Schneidendesign für eine optimale Spanabfuhr und Stabilität beim Bearbeiten von schwer zerspanbaren Materialien.
- ▶ Spezielles Schruppprofil zum Bearbeiten von Titan und Titanlegierungen.
- ▶ Erhöhte Standzeit durch Spezialbeschichtung.



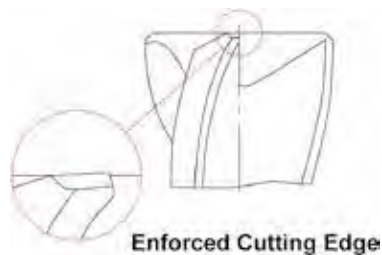
CARBIDE 5 43°/44°/45° PLAIN FLAT G x 45° Coating Y p.C391

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Overall Length	Chamfer
	PLAIN	FLAT	D1	D2	L1	L2		
<b>GMG26060</b>	<b>GMG27060</b>	<b>6.0</b>	<b>6</b>	<b>13</b>	<b>57</b>	<b>0.20</b>		
<b>GMG26080</b>	<b>GMG27080</b>	<b>8.0</b>	<b>8</b>	<b>19</b>	<b>63</b>	<b>0.20</b>		
<b>GMG26100</b>	<b>GMG27100</b>	<b>10.0</b>	<b>10</b>	<b>22</b>	<b>72</b>	<b>0.30</b>		
<b>GMG26120</b>	<b>GMG27120</b>	<b>12.0</b>	<b>12</b>	<b>26</b>	<b>83</b>	<b>0.35</b>		
<b>GMG26160</b>	<b>GMG27160</b>	<b>16.0</b>	<b>16</b>	<b>36</b>	<b>92</b>	<b>0.40</b>		
<b>GMG26200</b>	<b>GMG27200</b>	<b>20.0</b>	<b>20</b>	<b>44</b>	<b>104</b>	<b>0.50</b>		
<b>GMG26250</b>	<b>GMG27250</b>	<b>25.0</b>	<b>25</b>	<b>54</b>	<b>121</b>	<b>0.50</b>		

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

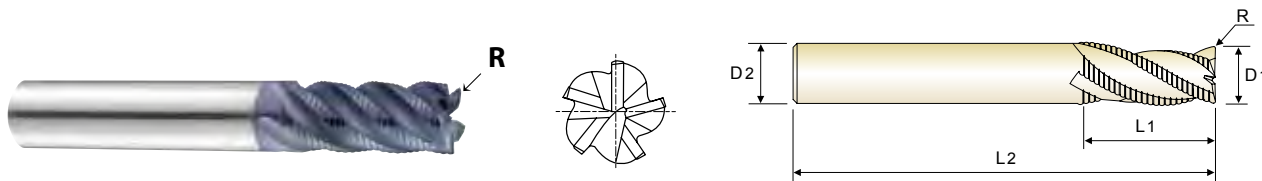


**CARBIDE, 5 FLUTE 40° HELIX CORNER RADIUS ROUGHING - FINE**

- VOLLHARTMETALL, 5 SCHNEIDEN 40° HELIX mit ECKRADIUS FÜR FEINSCHRUPPEN
- CARBURE, 5 DENTS, HÉLICE 40°, TORIQUE, ÉBAUCHE PAS FINS
- FRESA IN MD, 5 TAGLIENTI, ELICA 40°, TORICA, BOMBATO FINE

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶ Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶ Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶ Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE 5 40° HR PLAIN FLAT Coating Y p.C391

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter		Length of Cut		Overall Length
	PLAIN	FLAT		R	D1 (h10)	D2 (h6)	L1	
<b>EHE54060</b>	<b>EHE55060</b>	<b>R0.2</b>	<b>6.0</b>	<b>6</b>	<b>16</b>	<b>57</b>		
<b>EHE54080</b>	<b>EHE55080</b>	<b>R0.2</b>	<b>8.0</b>	<b>8</b>	<b>16</b>	<b>63</b>		
<b>EHE54100</b>	<b>EHE55100</b>	<b>R0.3</b>	<b>10.0</b>	<b>10</b>	<b>22</b>	<b>72</b>		
<b>EHE54120</b>	<b>EHE55120</b>	<b>R0.3</b>	<b>12.0</b>	<b>12</b>	<b>26</b>	<b>83</b>		
<b>EHE54140</b>	<b>EHE55140</b>	<b>R0.3</b>	<b>14.0</b>	<b>14</b>	<b>26</b>	<b>83</b>		
<b>EHE54160</b>	<b>EHE55160</b>	<b>R0.3</b>	<b>16.0</b>	<b>16</b>	<b>32</b>	<b>92</b>		
<b>EHE54200</b>	<b>EHE55200</b>	<b>R0.3</b>	<b>20.0</b>	<b>20</b>	<b>38</b>	<b>104</b>		
<b>EHE54250</b>	<b>EHE55250</b>	<b>R0.3</b>	<b>25.0</b>	<b>25</b>	<b>45</b>	<b>121</b>		

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in μm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
<b>h10</b>	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
<b>h5</b>	0 - 4	0 - 5	0 - 6	0 - 8	0 - 9

\* Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

**GMG40, GMG41 SERIES 4 FLUTES CORNER RADIUS - SIDE CUTTING**

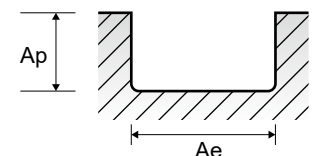
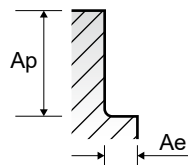
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

**GMG40, GMG41 SERIES 4 FLUTES CORNER RADIUS - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																																			
						6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0																												
P	1-4	Non-alloy steel	0.4D	1.0D	Vc	160	160	160	160	160	160	160	160	fz	0.027	0.035	0.042	0.053	0.058	0.063	0.077	0.084	RPM	8488	6366	5093	4244	3638	3183	2546	2037	FEED	917	891	856	900	844	802	784	684	
					Vc	150	150	150	150	150	150	150	150	150	150	fz	0.025	0.035	0.042	0.049	0.056	0.063	0.070	0.084	RPM	7958	5968	4775	3979	3410	2984	2387	1910	FEED	796	836	802	780	764	752	668
	6-7	Low alloy steel	0.4D	1.0D	Vc	160	160	160	160	160	160	160	160	fz	0.027	0.035	0.042	0.053	0.058	0.063	0.077	0.084	RPM	8488	6366	5093	4244	3638	3183	2546	2037	FEED	917	891	856	900	844	802	784	684	
					Vc	150	150	150	150	150	150	150	150	150	fz	0.025	0.035	0.042	0.049	0.056	0.063	0.070	0.084	RPM	7958	5968	4775	3979	3410	2984	2387	1910	FEED	796	836	802	780	764	752	668	642
					Vc	150	150	150	150	150	150	150	150	150	fz	0.025	0.035	0.042	0.049	0.056	0.063	0.070	0.084	RPM	7958	5968	4775	3979	3410	2984	2387	1910	FEED	796	836	802	780	764	752	668	642
					Vc	150	150	150	150	150	150	150	150	150	fz	0.027	0.035	0.042	0.049	0.056	0.063	0.070	0.084	RPM	7958	5968	4775	3979	3410	2984	2387	1910	FEED	796	836	802	780	764	752	668	642
	9	High alloyed steel, and tool steel	0.4D	1.0D	Vc	150	150	150	150	150	150	150	150	fz	0.027	0.035	0.046	0.053	0.060	0.067	0.077	0.084	RPM	7958	5968	4775	3979	3410	2984	2387	1910	FEED	859	836	879	844	819	800	735	642	
					Vc	150	150	150	150	150	150	150	150	150	fz	0.027	0.035	0.046	0.053	0.060	0.067	0.077	0.084	RPM	7958	5968	4775	3979	3410	2984	2387	1910	FEED	859	836	879	844	819	800	735	642
	M	12-13	Stainless steel	0.4D	1.0D	Vc	155	155	155	155	155	155	155	fz	0.034	0.046	0.057	0.067	0.076	0.086	0.095	0.114	RPM	8223	6167	4934	4112	3524	3084	2467	1974	FEED	1118	1135	1125	1102	1071	1061	937	900	
						Vc	105	105	105	105	105	105	105	105	105	fz	0.025	0.034	0.042	0.048	0.055	0.062	0.071	0.081	RPM	5570	4178	3342	2785	2387	2089	1671	1337	FEED	557	568	561	535	525	518	475
14.1		Stainless steel	0.4D	1.0D	Vc	105	105	105	105	105	105	105	fz	0.025	0.034	0.042	0.048	0.055	0.062	0.071	0.081	RPM	5570	4178	3342	2785	2387	2089	1671	1337	FEED	557	568	561	535	525	518	475	433		
					Vc	44	44	44	44	44	44	44	44	44	fz	0.016	0.021	0.027	0.032	0.036	0.040	0.046	0.052	RPM	2334	1751	1401	1167	1000	875	700	560	FEED	149	147	151	149	144	140	129	117
K	15-20	Grey cast iron	0.4D	1.0D	Vc	175	175	175	175	175	175	175	fz	0.021	0.028	0.035	0.042	0.048	0.053	0.060	0.070	RPM	9284	6963	5570	4642	3979	3482	2785	2228	FEED	780	780	780	780	764	738	668	624		
					Vc	32	32	32	32	32	32	32	32	32	fz	0.020	0.026	0.032	0.038	0.044	0.048	0.055	0.065	RPM	1698	1273	1019	849	728	637	509	407	FEED	136	132	130	129	128	122	112	106
S	31-35	Heat Resistant Super Alloys	0.3D	0.6D	Vc	70	70	70	70	70	70	70	fz	0.034	0.048	0.057	0.067	0.076	0.086	0.095	0.114	RPM	3714	2785	2228	1857	1592	1393	1114	891	FEED	505	535	508	498	484	479	423	406		
					Vc	70	70	70	70	70	70	70	70	70	fz	0.034	0.048	0.057	0.067	0.076	0.086	0.095	0.114	RPM	3714	2785	2228	1857	1592	1393	1114	891	FEED	505	535	508	498	484	479	423	406

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																																		
						6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0																											
P	1-4	Non-alloy steel	1.0D	1.0D	Vc	125	125	125	125	125	125	125	125	fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.084	RPM	6631	4974	3979	3316	2842	2487	1989	1592	FEED	663	676	668	650	637	627	557	535
					Vc	120	120	120	120	120	120	120	120	120	fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.077	RPM	6366	4775	3820	3183	2728	2387	1910	1528	FEED	637	649	642	624	611	602	535
	5	Low alloy steel	1.0D	1.0D	Vc	125	125	125	125	125	125	125	125	fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.084	RPM	6631	4974	3979	3316	2842	2487	1989	1592	FEED	663	676	668	650	637	627	557	535
					Vc	120	120	120	120	120	120	120	120	120	fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.077	RPM	6366	4775	3820	3183	2728	2387	1910	1528	FEED	637	649	642	624	611	602	535
	6-7	Low alloy steel	1.0D	1.0D	Vc	125	125	125	125	125	125	125	125	fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.084	RPM	6631	4974	3979	3316	2842	2487	1989	1592	FEED	663	676	668	650	637	627	557	535
					Vc	120	120	120	120	120	120	120	120	120	fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.077	RPM	6366	4775	3820	3183	2728	2387	1910	1528	FEED	637	649	642	624	611	602	535
	8-9	High alloyed steel, and tool steel	1.0D	1.0D	Vc	120	120	120	120	120	120	120	120	fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.077	RPM	6366	4775	3820	3183	2728	2387	1910	1528	FEED	637	649	642	624	611	602	535	471
					Vc	120	120	120	120	120	120	120	120	120	fz	0.027	0.035	0.042	0.053	0.058	0.063	0.070	0.084	RPM	6366	4775	3820	3183	2728	2387	1910	1528	FEED	688	668	642	675	633	602	588
	M	12-13	Stainless steel	1.0D	1.0D	Vc	125	125	125	125	125	125	125	fz	0.034	0.046	0.057	0.067	0.074	0.081	0.095	0.105	RPM	6631	4974	3979	3316	2842	2487	1989	1592	FEED	902	915	907	889	841	806	756	668
						Vc	85	85	85	85	85	85	85	85	85	fz	0.025	0.034	0.042	0.048	0.055	0.062	0.071	0.081	RPM	4509	3382	2706	2255	1933	1691	1353	1082	FEED	451	460	455	433	425	419
K	14.1	Stainless steel	1.0D	1.0D	Vc	36	36	36	36	36	36	36	fz	0.016	0.021	0.027	0.032	0.036	0.040	0.046	0.052	RPM	1910	1432	1146	955	819	716	573	458	FEED	122	120	124	122	118	115	105	95	
					Vc	140	140	140	140	140	140	140	140	140	fz	0.021	0.028	0.035	0.042	0.048	0.053	0.060	0.067	RPM	7427	5570	4456	3714	3183	2785	2228	1783	FEED	624	624	624	624	611	590	535
S	15-20	Grey cast iron	1.0D	1.0D	Vc	25	25	25	25	25	25	25	fz	0.018	0.024	0.030	0.036	0.040	0.044	0.050	0.055	RPM	1326	995	796	663	568	497	398	318	FEED	95	95	95	95	91	88	80	70	
					Vc	25	25	25	25	25	25	25	25	25	fz	0.018	0.024	0.030	0.036	0.040	0.044	0.050	0.055	RPM	1326	995	796	663	568	497	398	318	FEED	95	95	95	95	91	88	80
S	31-35	Heat Resistant Super Alloys	1.0D	0.4D	Vc	55	55	55	55	55	55	55	fz	0.034	0.046	0.057	0.067	0.076	0.086	0.095	0.105	RPM	2918	2188	1751	1459	1251	1094	875	700	FEED	397	403	399	391	380	376	333	294	
					Vc	55	55	55	55	55	55	55	55	55	fz	0.034	0.046	0.057	0.067	0.076	0.086	0.095	0.105	RPM	2918	2188	1751	1459	1251	1094	875	700	FEED	397	403	399	391	380	376	333



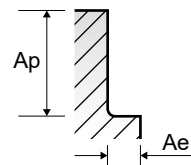


**GMG28 GMG29 GMG30 GMG31 5 FLUTE CORNER RADIUS - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833
					FEED	1299	1089	1146	1203	1130	1089	1057	1020	926
	5	0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101	
				fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101	
				RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286	
				FEED	911	764	804	844	792	764	741	715	649	
	6-7	0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144	
				fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101	
				RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833	
				FEED	1299	1089	1146	1203	1130	1089	1057	1020	926	
8-9	0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101		
			fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101		
			RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286		
			FEED	911	764	804	844	792	764	741	715	649		
10-11.1	0.3D	1.5D(*)	Vc	60	60	60	60	60	60	60	60	60		
			fz	0.024	0.027	0.035	0.044	0.049	0.054	0.058	0.062	0.071		
			RPM	3183	2387	1910	1592	1364	1194	1061	955	764		
			FEED	382	322	334	350	334	322	308	296	271		
M	12-13	0.3D	1.5D(*)	Vc	117	117	117	117	117	117	117	117	117	
				fz	0.024	0.025	0.030	0.046	0.051	0.054	0.057	0.061	0.071	
				RPM	6207	4655	3724	3104	2660	2328	2069	1862	1490	
				FEED	745	582	559	714	678	628	590	568	529	
	14.1	0.3D	1.5D(*)	Vc	82	82	82	82	82	82	82	82	82	
				fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088	
				RPM	4350	3263	2610	2175	1864	1631	1450	1305	1044	
				FEED	653	522	496	685	606	563	508	496	459	
	14.2	0.3D	1.5D(*)	Vc	59	59	59	59	59	59	59	59	59	
				fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088	
				RPM	3130	2348	1878	1565	1341	1174	1043	939	751	
				FEED	470	376	357	493	436	405	365	357	331	
K	15-20	Grey cast iron	0.3D	1.5D(*)	Vc	106	106	106	106	106	106	106	106	106
					fz	0.043	0.048	0.063	0.079	0.087	0.096	0.103	0.111	0.126
					RPM	5623	4218	3374	2812	2410	2109	1874	1687	1350
					FEED	1209	1012	1063	1111	1048	1012	965	936	850
S	31-35	Heat Resistant Super Alloys	0.1D	1.5D	Vc	31	31	31	31	31	31	31	31	31
					fz	0.021	0.022	0.027	0.044	0.046	0.048	0.049	0.053	0.062
					RPM	1645	1233	987	822	705	617	548	493	395
					FEED	173	136	133	181	162	148	134	131	122
	36-37	Titanium Alloys	0.3D	1.5D(*)	Vc	69	69	69	69	69	69	69	69	69
					fz	0.027	0.029	0.034	0.057	0.059	0.062	0.063	0.069	0.079
					RPM	3661	2745	2196	1830	1569	1373	1220	1098	879
					FEED	494	398	373	522	463	426	384	379	347

- \* Maximum recommended depth shown.
- \* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
- \* Reduce speed and feed recommendations for materials harder than listed.
- \* Above recommendations are based on ideal conditions. Adjust parameters accordingly for smaller taper machining centers or less rigid conditions.

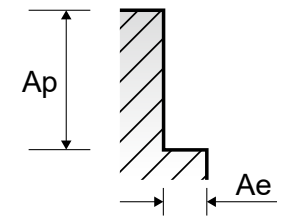


**GMG24 GMG25 GMG26 GMG27 5 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833
					FEED	1299	1089	1146	1203	1130	1089	1057	1020	926
	5	0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101	
				fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101	
				RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286	
				FEED	911	764	804	844	792	764	741	715	649	
	6-7	0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144	
				fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101	
				RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833	
				FEED	1299	1089	1146	1203	1130	1089	1057	1020	926	
8-9	0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101		
			fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101		
			RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286		
			FEED	911	764	804	844	792	764	741	715	649		
10-11.1	High alloyed steel, and tool steel	0.3D	1.5D(*)	Vc	60	60	60	60	60	60	60	60	60	
				fz	0.024	0.027	0.035	0.044	0.049	0.054	0.058	0.062	0.071	
				RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
				FEED	382	322	334	350	334	322	308	296	271	
M	12-13	0.3D	1.5D(*)	Vc	117	117	117	117	117	117	117	117	117	
				fz	0.024	0.025	0.030	0.046	0.051	0.054	0.057	0.061	0.071	
				RPM	6207	4655	3724	3104	2660	2328	2069	1862	1490	
				FEED	745	582	559	714	678	628	590	568	529	
	14.1	Stainless steel	0.3D	1.5D(*)	Vc	82	82	82	82	82	82	82	82	82
					fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088
					RPM	4350	3263	2610	2175	1864	1631	1450	1305	1044
					FEED	653	522	496	685	606	563	508	496	459
	14.2	0.3D	1.5D(*)	Vc	59	59	59	59	59	59	59	59	59	
				fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088	
				RPM	3130	2348	1878	1565	1341	1174	1043	939	751	
				FEED	470	376	357	493	436	405	365	357	331	
K	15-20	Grey cast iron	0.3D	1.5D(*)	Vc	106	106	106	106	106	106	106	106	106
					fz	0.043	0.048	0.063	0.079	0.087	0.096	0.103	0.111	0.126
					RPM	5623	4218	3374	2812	2410	2109	1874	1687	1350
					FEED	1209	1012	1063	1111	1048	1012	965	936	850
S	31-35	Heat Resistant Super Alloys	0.1D	1.5D	Vc	31	31	31	31	31	31	31	31	31
					fz	0.021	0.022	0.027	0.044	0.046	0.048	0.049	0.053	0.062
					RPM	1645	1233	987	822	705	617	548	493	395
					FEED	173	136	133	181	162	148	134	131	122
	36-37	Titanium Alloys	0.3D	1.5D(*)	Vc	69	69	69	69	69	69	69	69	69
					fz	0.027	0.029	0.034	0.057	0.059	0.062	0.063	0.069	0.079
					RPM	3661	2745	2196	1830	1569	1373	1220	1098	879
					FEED	494	398	373	522	463	426	384	379	347

- \* Maximum recommended depth shown.
- \* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
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**EHE54, EHE55 SERIES 5 FLUTES ROUGHING - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0	
M	12-13	Stainless steel	~0.10/0.15D ~0.16/0.10D ~0.25/0.05D	1.5D	Vc	80	80	80	80	80	80	80	80	80
					fz	0.025	0.034	0.041	0.051	0.057	0.063	0.081	0.091	
					RPM	4244	3183	2546	2122	1819	1592	1273	1019	
					FEED	531	541	522	541	518	501	516	463	
S	31-35	Heat Resistant Super Alloys	0.05D	1.0D	Vc	40	40	40	40	40	40	40	40	
					fz	0.020	0.025	0.037	0.040	0.046	0.052	0.061	0.068	
					RPM	2122	1592	1273	1061	909	796	637	509	
					FEED	212	199	236	212	209	207	194	173	
36-37	Titanium Alloys	~0.10/0.15D ~0.16/0.10D ~0.25/0.05D	1.5D	Vc	65	65	65	65	65	65	65	65		
				fz	0.022	0.031	0.038	0.046	0.052	0.058	0.074	0.084		
				RPM	3448	2586	2069	1724	1478	1293	1035	828		
				FEED	379	401	393	397	384	375	383	348		



Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation



**SOLID CARBIDE**

# JET-POWER END MILLS

## JET - POWER VHM/HSS-PM - FRÄSERFRÄSER

- For Exotic materials like Stainless Steels, Nickel Alloys and Titanium
- Für Sonderwerkstoffe wie rostfreie Stähle, Nickellegierungen und Titan.





SELECTION GUIDE



SOLID CARBIDE  
**JET-POWER**  
END MILLS

Exotic materials like Stainless Steels  
Nickel alloys and Titanium

Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C405

SERIES	EH911 EH912	EH913 EH914
FLUTE	2	4
HELIX ANGLE	35°	35°
CUTTING EDGE SHAPE	SQUARE	SQUARE
SIZE MIN	D1.0	D2.0
SIZE MAX	D25.0	D25.0
PAGE	C396	C398

SHORT LENGTH SHORT LENGTH

TiAIN TiAIN



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
P	1	Non-alloy steel	About 0.15% C Annealed	125	
	2		About 0.45% C Annealed	190	13
	3		About 0.45% C Quenched & Tempered	250	25
	4		About 0.75% C Annealed	270	28
	5		About 0.75% C Quenched & Tempered	300	32
	6	Low alloy steel	Annealed	180	10
	7		Quenched & Tempered	275	29
	8		Quenched & Tempered	300	32
	9		Quenched & Tempered	350	38
	10	High alloyed steel, and tool steel	Annealed	200	15
	11		Quenched & Tempered	325	35
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15
	13		Martensitic Quenched & Tempered	240	23
	14		Austenitic	180	10
K	15	Grey cast iron	Pearlitic / ferritic	180	10
	16		Pearlitic (Martensitic)	260	26
	17	Nodular cast iron	Ferritic	160	3
	18		Pearlitic	250	25
	19		Ferritic	130	
20	Malleable cast iron	Pearlitic	230	21	
N	21	Aluminum-wrought alloy	Not Curable	60	
	22		Curable Hardened	100	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	
	24		≤ 12% Si, Curable Hardened	90	
	25		> 12% Si, Not Curable	130	
	26	Copper and Copper Alloys	Cutting Alloys, PB>1%	110	
	27		CuZn, CuSnZn (Brass)	90	
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100	
	29		Duroplastic, Fiber Reinforced Plastic		
30	Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15
	32		Cured	280	30
	33		Annealed	250	25
	34		Ni or Co Based Cured	350	38
	35		Cast	320	34
	36	Titanium Alloys	Pure Titanium	400 Rm	
37	Alpha + Beta Alloys Hardened		1050 Rm		
H	38	Hardened steel	Hardened	550	55
	39		Hardened	630	60
	40	Chilled Cast Iron	Cast	400	42
	41	Hardened Cast Iron	Hardened	550	55

EH915 EH916	EH831 EH841	EH917 EH918	EH919 EH920	EH921 EH942
6&8	Multi Flute	Multi Flute	Multi Flute	Multi Flute
45°	30°	45°	45°	45°
SQUARE	ROUGHING	ROUGHING	ROUGHING	ROUGHING
D6.0	D6.0	D6.0	D4.0	D6.0
D25.0	D25.0	D20.0	D25.0	D20.0
C400	C401	C402	C403	C404
LONG LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN



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					41

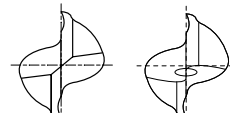


**CARBIDE, 2 FLUTE 35° HELIX SHORT LENGTH**

● **VOLLHARTMETALL, 2 SCHNEIDEN 35° RECHTSSPIRALE KURZ**  
 (●) **Fraise carbure, 2 dents, hélice 35°, courte**  
 (●) **2 TAGLIENTI, ELICA 35°, CORTA**

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall.
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.



up to Ø3mm over Ø3mm

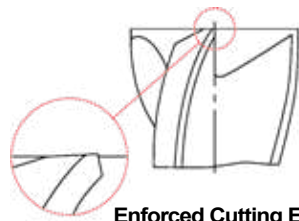
CARBIDE 2 35° PLAIN FLAT TiAIN p.C405

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	HYDRAULIC CHUCK	D15 - 46
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
EH911010	-	1.0	4	2.5	40
EH911901	EH912901	1.0	6	2.5	40
EH911015	-	1.5	4	4	40
EH911902	EH912902	1.5	6	4	40
EH911020	-	2.0	4	6	40
EH911903	EH912903	2.0	6	6	40
EH911025	-	2.5	4	8	40
EH911904	EH912904	2.5	6	8	40
EH911030	EH912030	3.0	6	8	45
EH911035	EH912035	3.5	6	10	45
EH911040	EH912040	4.0	6	11	45
EH911045	EH912045	4.5	6	11	45
EH911050	EH912050	5.0	6	13	50
EH911055	EH912055	5.5	6	13	50
EH911060	EH912060	6.0	6	13	50
EH911065	EH912065	6.5	8	16	60
EH911070	EH912070	7.0	8	16	60
EH911075	EH912075	7.5	8	16	60
EH911080	EH912080	8.0	8	19	60
EH911085	EH912085	8.5	10	19	70

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	◎	◎	○	◎	◎	◎	◎	◎	◎

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											◎	◎				◎	◎			○	

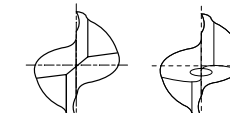


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- ▶ Ultra Feinstkorn - Vollhartmetall.
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up to Ø3mm over Ø3mm

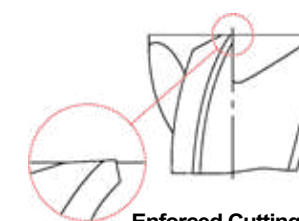
CARBIDE 2 35° PLAIN FLAT TiAIN p.C405

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	HYDRAULIC CHUCK	D15 - 46
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-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
EH911090	EH912090	9.0	10	19	70
EH911095	EH912095	9.5	10	19	70
EH911100	EH912100	10.0	10	22	70
EH911110	EH912110	11.0	12	22	75
EH911120	EH912120	12.0	12	26	75
EH911140	EH912140	14.0	16	26	85
EH911160	EH912160	16.0	16	32	100
EH911180	EH912180	18.0	16	32	100
EH911200	EH912200	20.0	20	38	105
EH911220	EH912220	22.0	20	38	105
EH911250	EH912250	25.0	25	45	120

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	○	◎	◎	○	◎	◎	◎	◎	◎	◎

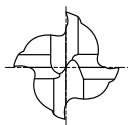
ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											◎	◎				◎	◎			○	

**CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH**

● **VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ**  
 (●) **Fraise carbure, 4 dents, hélice 35°, courte**  
 (●) **4 TAGLIENTI, ELICA 35°, CORTA**

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.

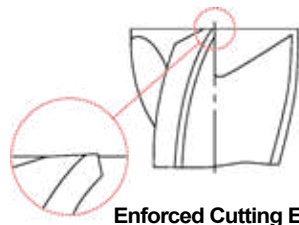


Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
EH913020	-	2.0	4	6	40
EH913901	EH914901	2.0	6	6	40
EH913025	-	2.5	4	8	40
EH913902	EH914902	2.5	6	8	40
EH913030	EH914030	3.0	6	8	45
EH913035	EH914035	3.5	6	10	45
EH913040	EH914040	4.0	6	11	45
EH913045	EH914045	4.5	6	11	45
EH913050	EH914050	5.0	6	13	50
EH913055	EH914055	5.5	6	13	50
EH913060	EH914060	6.0	6	13	50
EH913065	EH914065	6.5	8	16	60
EH913070	EH914070	7.0	8	16	60
EH913075	EH914075	7.5	8	16	60
EH913080	EH914080	8.0	8	19	60
EH913085	EH914085	8.5	10	19	70
EH913090	EH914090	9.0	10	19	70
EH913095	EH914095	9.5	10	19	70
EH913100	EH914100	10.0	10	22	70
EH913110	EH914110	11.0	12	22	75

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	○	○	○	◎	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

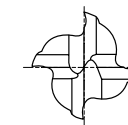


**CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH**

● **VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ**  
 (●) **Fraise carbure, 4 dents, hélice 35°, courte**  
 (●) **4 TAGLIENTI, ELICA 35°, CORTA**

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.

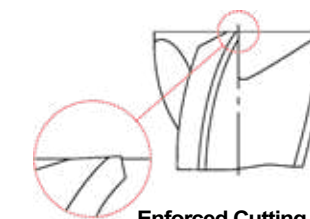


Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	HYDRAULIC CHUCK	D15-46
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
EH913120	EH914120	12.0	12	26	75
EH913140	EH914140	14.0	16	26	85
EH913160	EH914160	16.0	16	32	100
EH913180	EH914180	18.0	16	32	100
EH913200	EH914200	20.0	20	38	105
EH913220	EH914220	22.0	20	38	105
EH913250	EH914250	25.0	25	45	120

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	○	○	○	◎	○	○	○	○	○	○

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH (Positive Rake Angle)**

- VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
- Fraise carbure, 6&8 dents, hélice 45°, longue (Angle de coupe positif)
- 6&8 TAGLIENTI, ELICA 45°, LUNGA (Tagliente positivamente)

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.

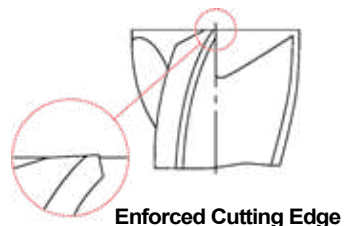


Recommended ToolHolder	Flat Shank		Plain Shank	
	END MILL HOLDER	Page	POWER MILLING CHUCK	Page
⊙	-	-	HYDRAULIC CHUCK	D15-46
⊙	-	-	SHRINK FIT HOLDER	D47-72
○	-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Overall Length	No. of Flute
	PLAIN	FLAT	D1	D2	L1	L2		
EH915060	EH916060	6.0	6	13	57	6		
EH915070	EH916070	7.0	8	16	63	6		
EH915080	EH916080	8.0	8	19	63	6		
EH915090	EH916090	9.0	10	19	72	6		
EH915100	EH916100	10.0	10	22	72	6		
EH915120	EH916120	12.0	12	26	83	6		
EH915140	EH916140	14.0	14	26	83	6		
EH915160	EH916160	16.0	16	32	92	6		
EH915180	EH916180	18.0	18	32	92	8		
EH915200	EH916200	20.0	20	38	104	8		
EH915250	EH916250	25.0	25	44	104	8		

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

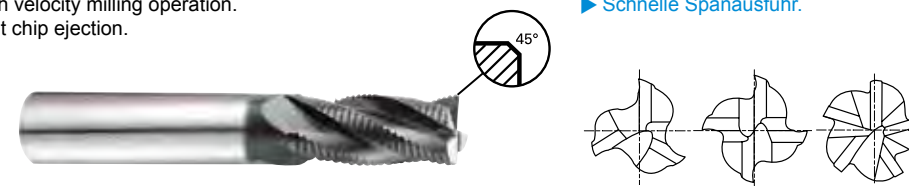


**CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - FINE**

- VOLLHARTMETALL, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN
- Fraise carbure, multi-dents ébauche, pas fin, longue
- 3 - 4 - 5 TAGLIENTI, PER SGROSSATURA, LUNGA - Bombato fine

- ▶ Suitable for low hardness materials(under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc.
- ▶ High velocity milling operation.
- ▶ Fast chip ejection.

- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen..
- ▶ Hochgeschwindigkeitsfräsen.
- ▶ Schnelle Spanausfuhr.



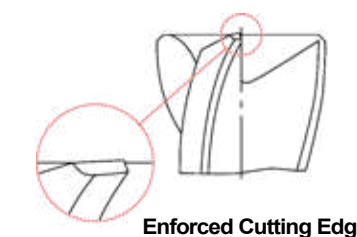
Recommended ToolHolder	Flat Shank		Plain Shank	
	END MILL HOLDER	Page	POWER MILLING CHUCK	Page
⊙	-	-	HYDRAULIC CHUCK	D15-46
⊙	-	-	SHRINK FIT HOLDER	D47-72
○	-	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut	Overall Length	No. of Flute	Chamfer
	PLAIN	FLAT	h10	h5				
EH831060	EH841060	6.0	6	16	57	3	0.38	
EH831070	EH841070	7.0	8	16	63	3	0.38	
EH831080	EH841080	8.0	8	16	63	3	0.38	
EH831090	EH841090	9.0	10	19	72	4	0.38	
EH831100	EH841100	10.0	10	22	72	4	0.38	
EH831120	EH841120	12.0	12	26	83	4	0.55	
EH831140	EH841140	14.0	14	26	83	4	0.55	
EH831160	EH841160	16.0	16	32	92	4	0.55	
EH831180	EH841180	18.0	18	32	92	4	0.55	
EH831200	EH841200	20.0	20	38	104	4	0.55	
EH831250	EH841250	25.0	25	45	121	5	0.55	

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in μm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 -40	0 -48	0 -58	0 -70	0 -84
h5	0 -4	0 -5	0 -6	0 -8	0 -9



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

**CARBIDE, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE**

- VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN
- Fraise carbure, multi-dents ébauche, hélice 45°, pas fin, courte
- 4 - 5 - 6 TAGLIENTI, ELICA 45°, PER SGROSSATURA, CORTA - Bombato fine

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.



p.C410-411

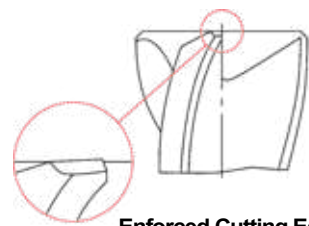
Recommended Tool/Holder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176	
	-	HYDRAULIC CHUCK	D15-46	
	-	SHRINK FIT HOLDER	D47-72	
	-	ER COLLET CHUCK	D73-116	

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
PLAIN	FLAT	h10	h5				
EH917060	EH918060	6.0	6	7	54	4	0.15
EH917080	EH918080	8.0	8	9	58	4	0.18
EH917100	EH918100	10.0	10	14	66	4	0.20
EH917120	EH918120	12.0	12	16	73	4	0.20
EH917160	EH918160	16.0	16	22	82	5	0.20
EH917200	EH918200	20.0	20	26	92	6	0.20

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 -40	0 -48	0 -58	0 -70	0 -84
h5	0 -4	0 -5	0 -6	0 -8	0 -9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	◎	◎						

ISO Material Description	N						S					H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎				○

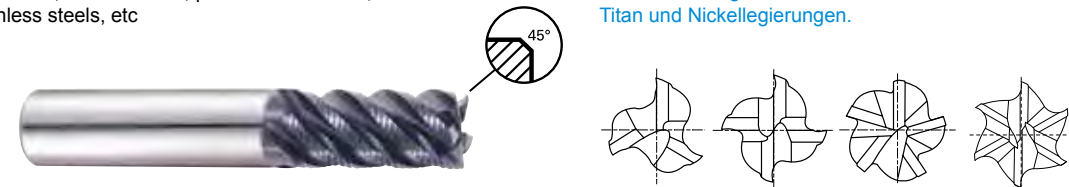


**CARBIDE, MULTI FLUTE 45° HELIX LONG LENGTH ROUGHING - FINE**

- VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN
- Fraise carbure, multi-dents ébauche, hélice 45°, pas fin, longue
- MULTITAGLIENTI, ELICA 45°, PER SGROSSATURA, LUNGA - Bombato fine

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.



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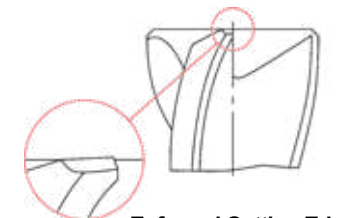
Recommended Tool/Holder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176	
	-	HYDRAULIC CHUCK	D15-46	
	-	SHRINK FIT HOLDER	D47-72	
	-	ER COLLET CHUCK	D73-116	

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
PLAIN	FLAT	h10	h5				
EH919040	EH920040	4.0	6	11	57	3	0.1
EH919050	EH920050	5.0	6	13	57	4	0.13
EH919060	EH920060	6.0	6	16	57	4	0.15
EH919070	EH920070	7.0	8	16	63	4	0.15
EH919080	EH920080	8.0	8	16	63	4	0.18
EH919090	EH920090	9.0	10	19	72	4	0.18
EH919100	EH920100	10.0	10	22	72	4	0.2
EH919120	EH920120	12.0	12	26	83	4	0.2
EH919140	EH920140	14.0	14	26	83	5	0.2
EH919160	EH920160	16.0	16	32	92	5	0.2
EH919200	EH920200	20.0	20	38	104	6	0.2
EH919250	EH920250	25.0	25	45	121	6	0.2

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 -40	0 -48	0 -58	0 -70	0 -84
h5	0 -4	0 -5	0 -6	0 -8	0 -9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	◎	◎						

ISO Material Description	N						S					H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎				○

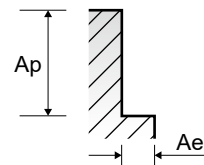




**EH913, EH914 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	1.0D	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	286	325	575	611	668	702	598	524	411	321	246
					Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039
	5	Non-alloy steel	0.05D	1.0D	RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	191	191	363	367	428	393	314	255	206	157	129
					Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	286	325	575	611	668	702	598	524	411	321	246
6-7	Low alloy steel	0.05D	1.0D	Vc	50	50	60	60	65	65	65	65	70	65	65	
				fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039	
				RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828	
				FEED	191	191	363	367	428	393	314	255	206	157	129	
				Vc	75	85	95	100	105	105	100	105	110	105	105	
				fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046	
8-9	Low alloy steel	0.05D	1.0D	RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337	
				FEED	286	325	575	611	668	702	598	524	411	321	246	
				Vc	50	50	60	60	65	65	65	65	70	65	65	
				fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039	
				RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828	
				FEED	191	191	363	367	428	393	314	255	206	157	129	
10	High alloyed steel, and tool steel	0.05D	1.0D	Vc	75	85	95	100	105	105	100	105	110	105	105	
				fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046	
				RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337	
				FEED	286	325	575	611	668	702	598	524	411	321	246	
				Vc	50	50	60	60	65	65	65	65	70	65	65	
				fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039	
11.1 11.2	High alloyed steel, and tool steel	0.05D	1.0D	RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828	
				FEED	191	191	363	367	428	393	314	255	206	157	129	
				Vc	40	45	50	50	55	55	55	50	55	55	55	
				fz	0.006	0.009	0.018	0.024	0.029	0.042	0.045	0.044	0.047	0.045	0.044	
				RPM	6366	4775	3979	3183	2918	2188	1751	1326	1094	875	700	
				FEED	153	172	286	306	338	368	315	233	206	158	123	
M	14.1	Stainless steel	0.05D	1.0D	Vc	40	45	50	50	55	55	55	50	55	55	55
					fz	0.006	0.009	0.018	0.024	0.029	0.042	0.045	0.044	0.047	0.045	0.044
					RPM	6366	4775	3979	3183	2918	2188	1751	1326	1094	875	700
					FEED	153	172	286	306	338	368	315	233	206	158	123
					Vc	25	25	15	15	15	15	15	15	15	15	15
					fz	0.035	0.047	0.106	0.104	0.102	0.078	0.077	0.077	0.077	0.077	0.077
S	31-35	Heat Resistant Super Alloys	0.02D	1.0D	RPM	1326	995	477	398	298	239	191	191	191	191	
					FEED	279	281	304	248	183	149	118	118	118	118	
					Vc	65	65	60	60	60	55	65	65	65	65	
					fz	0.054	0.074	0.095	0.104	0.111	0.086	0.079	0.079	0.079	0.079	
					RPM	3448	2586	1910	1592	1194	875	828	828	828	828	
					FEED	1117	1148	1089	993	795	602	523	523	523	523	
H	40	Chilled Cast Iron	0.05D	1.5D	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	286	325	575	611	668	702	598	524	411	321	246
					Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039



**EH915, EH916 SERIES 6&8 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

**NORMAL SPEED**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						6.0	8.0	10.0	12.0	16.0	20.0	25.0				
P	1-4	Non-alloy steel	0.1D	1.5D	Vc	105	105	105	105	105	105	120				
					fz	0.06	0.079	0.099	0.099	0.1	0.075	0.075				
					RPM	5570	4178	3342	2785	2089	1671	1528				
					FEED	2005	1980	1985	1654	1253	1003	917				
					Vc	75	75	75	75	75	75	85				
					fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068				
	5	Non-alloy steel	0.05D	1.5D	RPM	3979	2984	2387	1989	1492	1194	1082				
					FEED	1409	1397	1404	1158	886	707	589				
					Vc	105	105	105	105	105	105	120				
					fz	0.06	0.079	0.099	0.099	0.1	0.075	0.075				
					RPM	5570	4178	3342	2785	2089	1671	1528				
					FEED	2005	1980	1985	1654	1253	1003	917				
6-7	Low alloy steel	0.1D	1.5D	Vc	75	75	75	75	75	75	85					
				fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068					
				RPM	3979	2984	2387	1989	1492	1194	1082					
				FEED	1409	1397	1404	1158	886	707	589					
				Vc	105	105	105	105	105	105	120					
				fz	0.06	0.079	0.099	0.099	0.1	0.075	0.075					
8-9	Low alloy steel	0.05D	1.5D	RPM	5570	4178	3342	2785	2089	1671	1528					
				FEED	2005	1980	1985	1654	1253	1003	917					
				Vc	75	75	75	75	75	75	85					
				fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068					
				RPM	3979	2984	2387	1989	1492	1194	1082					
				FEED	1409	1397	1404	1158	886	707	589					
10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	105	105	105	105	105	105	120					
				fz	0.06	0.079	0.099	0.099	0.1	0.075	0.075					
				RPM	5570	4178	3342	2785	2089	1671	1528					
				FEED	2005	1980	1985	1654	1253	1003	917					
				Vc	75	75	75	75	75	75	85					
				fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068					
11.1 11.2	High alloyed steel, and tool steel	0.05D	1.5D	RPM	3979	2984	2387	1989	1492	1194	1082					
				FEED	1409	1397	1404	1158	886	707	589					
				Vc	65	65	60	60	60	55	65					
				fz	0.054	0.074	0.095	0.104	0.111	0.086	0.079					
				RPM	3448	2586	1910	1592	1194	875	828					
				FEED	1117	1148	1089	993	795	602	523					
M	14.1	Stainless steel	0.05D	1.5D	Vc	25	25	15	15	15	15	15				
					fz	0.035	0.047	0.106	0.104	0.102	0.078	0.077				
					RPM	1326	995	477	398	298	239	191				
					FEED	279	281	304	248	183	149	118				
					Vc	65	65	60	60	60	55	65				
					fz	0.054	0.074	0.095	0.104	0.111	0.086	0.079				
S	31-35	Heat Resistant Super Alloys	0.02D	1.0D	RPM	1326	995	477	398	298	239	191				
					FEED	279	281	304	248	183	149	118				
					Vc	65	65	60	60	60	55	65				
					fz	0.054	0.074	0.095	0.104	0.111	0.086	0.079				
					RPM	3448	2586	1910	1592	1194	875	828				
					FEED	1117	1148	1089	993	795	602	523				
H	40	Chilled Cast Iron	0.05D	1.5D	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	286	325	575	611	668	702	598	524	411	321	246
					Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039

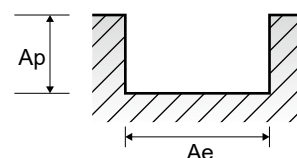
**HIGH SPEED**

ISO</
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**EH831, EH841 SERIES MULTI FLUTES ROUGHING - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

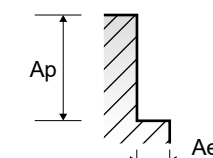
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	1.0D	0.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.03	0.04	0.038	0.045	0.053	0.06	0.067	0.068	0.06
	RPM				15597	11618	9199	8011	6798	6008	5199	4806	4304	
	FEED				1404	1394	1398	1442	1441	1442	1393	1307	1291	
	Vc				234	231	239	226	229	241	249	226	251	
	fz				0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023	
	RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196				
	FEED	484	496	487	480	500	460	423	345	368				
	Low alloy steel	1.0D	0.5D	Vc	294	292	289	302	299	302	294	302	338	
				fz	0.03	0.04	0.038	0.045	0.053	0.06	0.067	0.068	0.06	
				RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304	
				FEED	1404	1394	1398	1442	1441	1442	1393	1307	1291	
Vc				234	231	239	226	229	241	249	226	251		
fz				0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023		
High alloyed steel, and tool steel	1.0D	0.5D	Vc	294	292	289	302	299	302	294	302	338		
			fz	0.03	0.04	0.038	0.045	0.053	0.06	0.067	0.068	0.06		
			RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304		
			FEED	1404	1394	1398	1442	1441	1442	1393	1307	1291		
			Vc	234	231	239	226	229	241	249	226	251		
			fz	0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023		
M	14.1	Stainless steel	1.0D	0.04 ~10:0.25D 0.12~16:0.15D 0.18~25:0.1D	Vc	158	158	160	158	158	166	153	151	170
					fz	0.013	0.018	0.017	0.02	0.024	0.023	0.023	0.023	0.023
	RPM				8382	6287	5093	4191	3592	3302	2706	2403	2165	
	FEED				327	339	346	335	345	304	249	221	249	
	Vc				45	45	41	45	40	40	40	41	47	
	fz				0.016	0.02	0.022	0.024	0.022	0.02	0.021	0.023	0.022	
	RPM	2387	1790	1305	1194	909	796	707	653	598				
	FEED	115	107	115	115	80	64	59	60	66				
	Heat Resistant Super Alloys	1.0D	0.05D	Vc	158	158	160	158	158	166	153	151	170	
				fz	0.013	0.018	0.017	0.02	0.024	0.023	0.023	0.023	0.023	
				RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165	
				FEED	327	339	346	335	345	304	249	221	249	
Vc				234	231	239	226	229	241	249	226	251		
fz				0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023		
S	31-35	Heat Resistant Super Alloys	1.0D	0.05D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023
	RPM				12414	9191	7608	5995	5207	4795	4403	3597	3196	
	FEED				484	496	487	480	500	460	423	345	368	
	Vc				158	158	160	158	158	166	153	151	170	
	fz				0.013	0.018	0.017	0.02	0.024	0.023	0.023	0.023	0.023	
	RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165				
	FEED	327	339	346	335	345	304	249	221	249				
	Titanium Alloys	1.0D	0.04 ~10:0.25D 0.12~16:0.15D 0.18~25:0.1D	Vc	158	158	160	158	158	166	153	151	170	
				fz	0.013	0.018	0.017	0.02	0.024	0.023	0.023	0.023	0.023	
				RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165	
				FEED	327	339	346	335	345	304	249	221	249	
Vc				234	231	239	226	229	241	249	226	251		
fz				0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023		
H	40	Chilled Cast Iron	1.0D	0.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023
	RPM				12414	9191	7608	5995	5207	4795	4403	3597	3196	
	FEED				484	496	487	480	500	460	423	345	368	
	Vc				234	231	239	226	229	241	249	226	251	
	fz				0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023	



**EH831, EH841 SERIES MULTI FLUTES ROUGHING - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

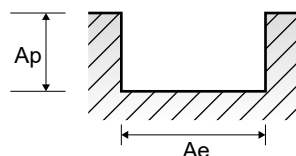
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.113	0.1
	RPM				15597	11618	9199	8011	6798	6008	5199	4806	4304	
	FEED				2340	2335	2318	2403	2393	2403	2329	2173	2152	
	Vc				234	231	239	226	229	241	249	226	251	
	fz				0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039	
	RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196				
	FEED	857	827	852	791	833	767	722	561	623				
	Low alloy steel	0.3D	1.5D	Vc	294	292	289	302	299	302	294	302	338	
				fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.113	0.1	
				RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304	
				FEED	2340	2335	2318	2403	2393	2403	2329	2173	2152	
Vc				234	231	239	226	229	241	249	226	251		
fz				0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039		
High alloyed steel, and tool steel	0.3D	1.5D	Vc	294	292	289	302	299	302	294	302	338		
			fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.113	0.1		
			RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304		
			FEED	2340	2335	2318	2403	2393	2403	2329	2173	2152		
			Vc	234	231	239	226	229	241	249	226	251		
			fz	0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039		
M	14.1	Stainless steel	0.4 ~10:0.15D 0.12~16:0.10D 0.18~25:0.05D	1.5D	Vc	158	158	160	158	158	166	153	151	170
					fz	0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038
	RPM				8382	6287	5093	4191	3592	3302	2706	2403	2165	
	FEED				578	566	570	570	575	515	422	365	411	
	Vc				45	45	41	45	40	40	40	41	47	
	fz				0.026	0.033	0.037	0.04	0.036	0.034	0.036	0.038	0.037	
	RPM	2387	1790	1305	1194	909	796	707	653	598				
	FEED	186	177	193	191	131	108	102	99	111				
	Heat Resistant Super Alloys	0.05D	1.0D	Vc	158	158	160	158	158	166	153	151	170	
				fz	0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038	
				RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165	
				FEED	578	566	570	570	575	515	422	365	411	
Vc				234	231	239	226	229	241	249	226	251		
fz				0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038		
S	31-35	Heat Resistant Super Alloys	1.0D	0.05D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038
	RPM				8382	6287	5093	4191	3592	3302	2706	2403	2165	
	FEED				578	566	570	570	575	515	422	365	411	
	Vc				158	158	160	158	158	166	153	151	170	
	fz				0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038	
	RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165				
	FEED	578	566	570	570	575	515	422	365	411				
	Titanium Alloys	1.5D	0.4 ~10:0.15D 0.12~16:0.10D 0.18~25:0.05D	Vc	158	158	160	158	158	166	153	151	170	
				fz	0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038	
				RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165	
				FEED	578	566	570	570	575	515	422	365	411	
Vc				234	231	239	226	229	241	249	226	251		
fz				0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038		
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039
	RPM				12414	9191	7608	5995	5207	4795	4403	3597	3196	
	FEED				857	827	852	791	833	767	722	561	623	
	Vc				234	231	239	226	229	241	249	226	251	
	fz				0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039	



**EH917 EH918** **EH921 EH942** MULTI FLUTES ROUGHING - **SLOTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

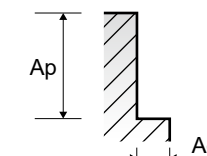
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	1.0D	0.5D	Vc	294	292	289	302	302	302
					fz	0.022	0.03	0.038	0.045	0.048	0.045
	RPM				15597	11618	9199	8011	6008	4806	
	FEED				1373	1394	1398	1442	1442	1298	
	Vc				234	231	239	226	241	226	
	fz				0.01	0.014	0.016	0.02	0.019	0.016	
	RPM	12414	9191	7608	5995	4795	3597				
	FEED	497	515	487	480	455	345				
	6-7	Low alloy steel	1.0D	0.5D	Vc	294	292	289	302	302	302
					fz	0.022	0.03	0.038	0.045	0.048	0.045
	RPM				15597	11618	9199	8011	6008	4806	
	FEED				1373	1394	1398	1442	1442	1298	
Vc	234				231	239	226	241	226		
fz	0.01				0.014	0.016	0.02	0.019	0.016		
RPM	12414	9191	7608	5995	4795	3597					
FEED	497	515	487	480	455	345					
8-9	High alloyed steel, and tool steel	1.0D	0.5D	Vc	294	292	289	302	302	302	
				fz	0.022	0.03	0.038	0.045	0.048	0.045	
RPM				15597	11618	9199	8011	6008	4806		
FEED				1373	1394	1398	1442	1442	1298		
Vc				234	231	239	226	241	226		
fz				0.01	0.014	0.016	0.02	0.019	0.016		
RPM	12414	9191	7608	5995	4795	3597					
FEED	497	515	487	480	455	345					
10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	294	292	289	302	302	302	
				fz	0.022	0.03	0.038	0.045	0.048	0.045	
RPM				15597	11618	9199	8011	6008	4806		
FEED				1373	1394	1398	1442	1442	1298		
Vc				234	231	239	226	241	226		
fz				0.01	0.014	0.016	0.02	0.019	0.016		
RPM	12414	9191	7608	5995	4795	3597					
FEED	497	515	487	480	455	345					
11.1 11.2	High alloyed steel, and tool steel	1.0D	0.5D	Vc	234	231	239	226	241	226	
				fz	0.01	0.014	0.016	0.02	0.019	0.016	
RPM				12414	9191	7608	5995	4795	3597		
FEED				497	515	487	480	455	345		
Vc				158	158	160	158	166	151		
fz				0.01	0.013	0.017	0.02	0.019	0.015		
RPM	8382	6287	5093	4191	3302	2403					
FEED	335	327	346	335	314	216					
M	14.1	Stainless steel	1.0D	0.5D	Vc	45	45	41	45	40	41
					fz	0.012	0.015	0.022	0.024	0.016	0.015
RPM					2387	1790	1305	1194	796	653	
FEED					115	107	115	115	64	59	
Vc					158	158	160	158	166	151	
fz					0.01	0.013	0.017	0.02	0.019	0.015	
RPM	8382	6287	5093	4191	3302	2403					
FEED	335	327	346	335	314	216					
S	31-35	Heat Resistant Super Alloys	1.0D	0.5D	Vc	234	231	239	226	241	226
					fz	0.01	0.014	0.016	0.02	0.019	0.016
RPM					12414	9191	7608	5995	4795	3597	
FEED					372	386	487	480	455	345	
Vc					158	158	160	158	166	151	
fz					0.01	0.013	0.017	0.02	0.019	0.015	
RPM	8382	6287	5093	4191	3302	2403					
FEED	335	327	346	335	314	216					
H	40	Chilled Cast Iron	1.0D	0.5D	Vc	234	231	239	226	241	226
					fz	0.01	0.014	0.016	0.02	0.019	0.016
RPM					12414	9191	7608	5995	4795	3597	
FEED					372	386	487	480	455	345	
Vc					158	158	160	158	166	151	
fz					0.01	0.013	0.017	0.02	0.019	0.015	
RPM	8382	6287	5093	4191	3302	2403					
FEED	335	327	346	335	314	216					



**EH917 EH918** **EH921 EH942** MULTI FLUTES ROUGHING - **SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	294	292	289	302	302	302
					fz	0.037	0.05	0.063	0.075	0.08	0.075
	RPM				15597	11618	9199	8011	6008	4806	
	FEED				2308	2324	2318	2403	2403	2163	
	Vc				234	231	239	226	241	226	
	fz				0.017	0.023	0.028	0.033	0.032	0.026	
	RPM	12414	9191	7608	5995	4795	3597				
	FEED	844	846	852	791	767	561				
	6-7	Low alloy steel	0.3D	1.5D	Vc	294	292	289	302	302	302
					fz	0.037	0.05	0.063	0.075	0.08	0.075
	RPM				15597	11618	9199	8011	6008	4806	
	FEED				2308	2324	2318	2403	2403	2163	
Vc	234				231	239	226	241	226		
fz	0.017				0.023	0.028	0.033	0.032	0.026		
RPM	12414	9191	7608	5995	4795	3597					
FEED	844	846	852	791	767	561					
8-9	High alloyed steel, and tool steel	0.3D	1.5D	Vc	294	292	289	302	302	302	
				fz	0.037	0.05	0.063	0.075	0.08	0.075	
RPM				15597	11618	9199	8011	6008	4806		
FEED				2308	2324	2318	2403	2403	2163		
Vc				234	231	239	226	241	226		
fz				0.017	0.023	0.028	0.033	0.032	0.026		
RPM	12414	9191	7608	5995	4795	3597					
FEED	844	846	852	791	767	561					
10	High alloyed steel, and tool steel	0.3D	1.5D	Vc	294	292	289	302	302	302	
				fz	0.037	0.05	0.063	0.075	0.08	0.075	
RPM				15597	11618	9199	8011	6008	4806		
FEED				2308	2324	2318	2403	2403	2163		
Vc				234	231	239	226	241	226		
fz				0.017	0.023	0.028	0.033	0.032	0.026		
RPM	12414	9191	7608	5995	4795	3597					
FEED	844	846	852	791	767	561					
11.1 11.2	High alloyed steel, and tool steel	0.3D	1.5D	Vc	234	231	239	226	241	226	
				fz	0.017	0.023	0.028	0.033	0.032	0.026	
RPM				12414	9191	7608	5995	4795	3597		
FEED				844	846	852	791	767	561		
Vc				158	158	160	158	166	151		
fz				0.017	0.023	0.028	0.033	0.032	0.026		
RPM	12414	9191	7608	5995	4795	3597					
FEED	844	846	852	791	767	561					
M	14.1	Stainless steel	0.3D	1.5D	Vc	158	158	160	158	166	151
					fz	0.017	0.023	0.028	0.034	0.031	0.025
RPM					8382	6287	5093	4191	3302	2403	
FEED					570	578	570	570	512	360	
Vc					45	45	41	45	40	41	
fz					0.02	0.025	0.037	0.04	0.028	0.025	
RPM	2387	1790	1305	1194	796	653					
FEED	191	179	193	191	111	98					
S	31-35	Heat Resistant Super Alloys	0.05D	1.0D	Vc	158	158	160	158	166	151
					fz	0.017	0.023	0.028	0.034	0.031	0.025
RPM					8382	6287	5093	4191	3302	2403	
FEED					570	578	570	570	512	360	
Vc					45	45	41	45	40	41	
fz					0.02	0.025	0.037	0.04	0.028	0.025	
RPM	2387	1790	1305	1194	796	653					
FEED	191	179	193	191	111	98					
36-37	Titanium Alloys	1.0D	1.5D	Vc	158	158	160	158	166	151	
				fz	0.017	0.023	0.028	0.034	0.031	0.025	
RPM				8382	6287	5093	4191	3302	2403		
FEED				570	578	570	570	512	360		
Vc				234	231	239	226	241	226		
fz				0.017	0.023	0.028	0.033	0.032	0.026		
RPM	12414	9191	7608	5995	4795	3597					
FEED	844	846	852	791	767	561					
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	234	231	239	226	241	226
					fz	0.017	0.023	0.028	0.033	0.032	0.026
RPM					12414	9191	7608	5995	4795	3597	
FEED					844	846	852	791	767	561	
Vc					158	158	160	158	166	151	
fz					0.017	0.023	0.028	0.033	0.032	0.026	
RPM	12414	9191	7608	5995	4795	3597					
FEED	844	846	852	791	767	561					

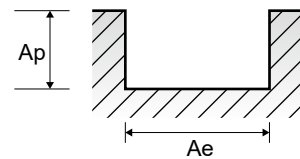




**EH919, EH920 SERIES MULTI FLUTES ROUGHING - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

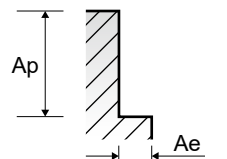
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0			
P	1-4	Non-alloy steel	1.0D	0.5D	Vc	294	294	292	289	302	299	302	302	338			
					fz	0.02	0.022	0.03	0.038	0.045	0.042	0.048	0.045	0.05			
	RPM				23396	15597	11618	9199	8011	6798	6008	4806	4304				
	FEED				1404	1373	1394	1398	1442	1428	1442	1298	1291				
	Vc				234	234	231	239	226	229	241	226	251				
	fz				0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019				
	RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196							
	FEED	503	497	515	487	480	495	455	345	364							
	Low alloy steel	1.0D	0.5D	Vc	294	294	292	289	302	299	302	302	338				
				fz	0.02	0.022	0.03	0.038	0.045	0.042	0.048	0.045	0.05				
				RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304				
				FEED	1404	1373	1394	1398	1442	1428	1442	1298	1291				
Vc				234	234	231	239	226	229	241	226	251					
fz				0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019					
High alloyed steel, and tool steel	1.0D	0.5D	Vc	294	294	292	289	302	299	302	302	338					
			fz	0.02	0.022	0.03	0.038	0.045	0.042	0.048	0.045	0.05					
			RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304					
			FEED	1404	1373	1394	1398	1442	1428	1442	1298	1291					
			Vc	234	234	231	239	226	229	241	226	251					
			fz	0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019					
M	14.1	Stainless steel	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.10D	Vc	158	158	158	160	158	158	166	151	170			
					fz	0.009	0.01	0.013	0.017	0.02	0.019	0.019	0.015	0.019			
	RPM				12573	8382	6287	5093	4191	3592	3302	2403	2165				
	FEED				339	335	327	346	335	341	314	216	247				
	Vc				45	45	45	41	45	40	40	41	47				
	fz				0.011	0.012	0.015	0.022	0.024	0.018	0.016	0.015	0.018				
	Heat Resistant Super Alloys	1.0D	0.05D	Vc	3581	2387	1790	1305	1194	909	796	653	598				
				RPM	118	115	107	115	115	82	64	59	65				
				Vc	158	158	158	160	158	158	166	151	170				
				fz	0.009	0.01	0.013	0.017	0.02	0.019	0.019	0.015	0.019				
				RPM	12573	8382	6287	5093	4191	3592	3302	2403	2165				
				FEED	339	335	327	346	335	341	314	216	247				
S	31-35	Heat Resistant Super Alloys	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.10D	Vc	158	158	158	160	158	158	166	151	170			
					fz	0.009	0.01	0.013	0.017	0.02	0.019	0.019	0.015	0.019			
	RPM				12573	8382	6287	5093	4191	3592	3302	2403	2165				
	FEED				339	335	327	346	335	341	314	216	247				
	36-37				Titanium Alloys	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.10D	Vc	234	234	231	239	226	229	241	226	251
								fz	0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019
RPM	18621	12414	9191	7608				5995	5207	4795	3597	3196					
FEED	503	497	515	487				480	495	455	345	364					
H	40	Chilled Cast Iron	1.0D	0.5D				Vc	234	234	231	239	226	229	241	226	251
								fz	0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196			
					FEED	503	497	515	487	480	495	455	345	364			



**EH919, EH920 SERIES MULTI FLUTES ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0				
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	294	294	292	289	302	299	302	302	338				
					fz	0.033	0.037	0.05	0.063	0.075	0.071	0.08	0.075	0.083				
	RPM				23396	15597	11618	9199	8011	6798	6008	4806	4304					
	FEED				2316	2308	2324	2318	2403	2413	2403	2163	2143					
	Vc				234	234	231	239	226	229	241	226	251					
	fz				0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032					
	Low alloy steel	0.3D	1.5D	Vc	294	294	292	289	302	299	302	302	338					
				fz	0.033	0.037	0.05	0.063	0.075	0.071	0.08	0.075	0.083					
				RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304					
				FEED	2316	2308	2324	2318	2403	2413	2403	2163	2143					
				Vc	234	234	231	239	226	229	241	226	251					
				fz	0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032					
High alloyed steel, and tool steel	0.3D	1.5D	Vc	294	294	292	289	302	299	302	302	338						
			fz	0.033	0.037	0.05	0.063	0.075	0.071	0.08	0.075	0.083						
			RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304						
			FEED	2316	2308	2324	2318	2403	2413	2403	2163	2143						
			Vc	234	234	231	239	226	229	241	226	251						
			fz	0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032						
M	14.1	Stainless steel	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	1.5D	Vc	158	158	158	160	158	158	166	151	170				
					fz	0.015	0.017	0.023	0.028	0.034	0.032	0.031	0.025	0.032				
	RPM				12573	8382	6287	5093	4191	3592	3302	2403	2165					
	FEED				566	570	578	570	570	575	512	360	416					
	Vc				45	45	45	41	45	40	40	41	47					
	fz				0.018	0.02	0.025	0.037	0.04	0.029	0.028	0.025	0.031					
	S	31-35	Heat Resistant Super Alloys	1.0D	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	Vc	3581	2387	1790	1305	1194	909	796	653	598			
						RPM	193	191	179	193	191	132	111	98	111			
		36-37				Titanium Alloys	1.0D	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	Vc	158	158	158	160	158	158	166	151	170
									fz	0.015	0.017	0.023	0.028	0.034	0.032	0.031	0.025	0.032
		RPM							12573	8382	6287	5093	4191	3592	3302	2403	2165	
		FEED							566	570	578	570	570	575	512	360	416	
H	40	Chilled Cast Iron	0.3D	1.5D	Vc				234	234	231	239	226	229	241	226	251	
					fz				0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032	
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196				
					FEED	838	844	846	852	791	833	767	561	614				





Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation



**SOLID CARBIDE**



# V7 PLUS END MILLS

## V7 Plus VHM - Schaftfräser

- High Performance Carbide End Mills for Steels, Cast Iron and Stainless Steels
- Hochleistungs-VHM-Schaftfräser für Stähle, Gusseisen und rostfreie Stähle









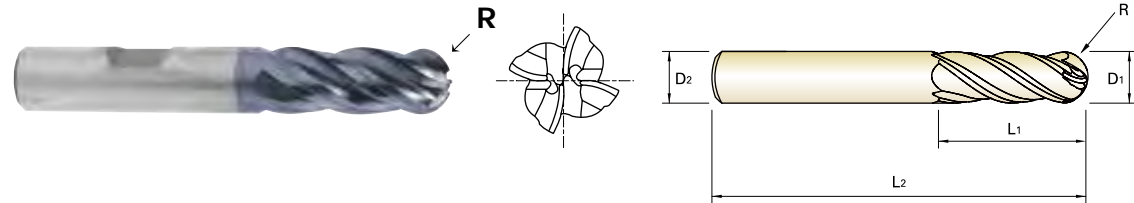
PLAIN SHANK **GMG55** SERIES  
 FLAT SHANK **GMG56** SERIES

**CARBIDE, 4 FLUTE BALL NOSE**

- VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS
- CARBURE, 4 DENTS, HÉMISPHERIQUE
- MD, 4 TAGLIENTI SEMISFERICA

▶Special flute geometry and multiple helix eliminate vibrations  
 ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40

▶Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
 ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE 4 35°/37° ±0.02 PLAIN FLAT Coating Y p.C436

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose		Mill Diameter	Shank Diameter		Length of Cut		Overall Length
	PLAIN	FLAT		R	D1	D2	L1	
GMG55030	GMG56030	R1.5	3.0	6	8	57		
GMG55040	GMG56040	R2.0	4.0	6	11	57		
GMG55050	GMG56050	R2.5	5.0	6	13	57		
GMG55060	GMG56060	R3.0	6.0	6	13	57		
GMG55080	GMG56080	R4.0	8.0	8	19	63		
GMG55100	GMG56100	R5.0	10.0	10	22	72		
GMG55120	GMG56120	R6.0	12.0	12	26	83		
GMG55160	GMG56160	R8.0	16.0	16	32	92		
GMG55200	GMG56200	R10.0	20.0	20	38	104		
GMG55250	GMG56250	R12.5	25.0	25	38	104		

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



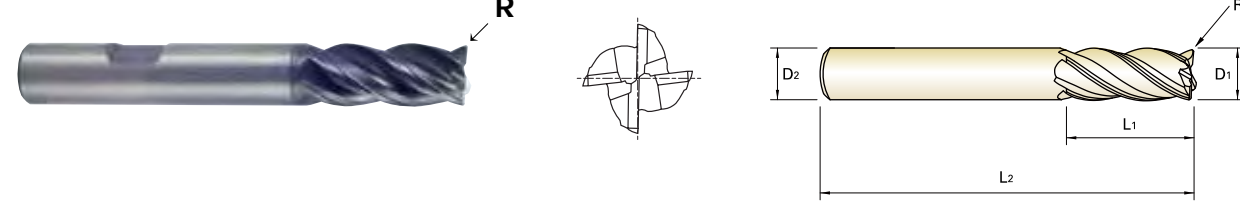
PLAIN SHANK **GMF54** SERIES  
 FLAT SHANK **GMF55** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS SHORT LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS KURZ
- CARBURE, 4 DENTS, SÉRIE COURTE, RAYONNÉE
- MD, 4 TAGLIENTI SERIE CORTA TORICA

▶Special flute geometry and multiple helix eliminate vibrations  
 ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40

▶Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
 ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE 4 35°/37° PLAIN FLAT Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter		Length of Cut		Overall Length
	PLAIN	FLAT		R	D1	D2	L1	
GMF54030	GMF55030	R0.3	3.0	6	7	54		
GMF54901	GMF55901	R0.5	3.0	6	7	54		
GMF54040	GMF55040	R0.3	4.0	6	8	54		
GMF54902	GMF55902	R0.5	4.0	6	8	54		
GMF54050	GMF55050	R0.3	5.0	6	10	54		
GMF54903	GMF55903	R0.5	5.0	6	10	54		
GMF54060	GMF55060	R0.3	6.0	6	10	54		
GMF54904	GMF55904	R0.5	6.0	6	10	54		
GMF54905	GMF55905	R1.0	6.0	6	10	54		
GMF54080	GMF55080	R0.5	8.0	8	12	58		
GMF54906	GMF55906	R1.0	8.0	8	12	58		
GMF54100	GMF55100	R0.5	10.0	10	14	66		
GMF54907	GMF55907	R1.0	10.0	10	14	66		
GMF54120	GMF55120	R0.5	12.0	12	16	73		
GMF54908	GMF55908	R1.0	12.0	12	16	73		
GMF54909	GMF55909	R2.0	12.0	12	16	73		
GMF54140	GMF55140	R0.5	14.0	14	18	75		
GMF54160	GMF55160	R1.0	16.0	16	22	82		
GMF54912	GMF55912	R2.0	16.0	16	22	82		
GMF54913	GMF55913	R3.0	16.0	16	22	82		
GMF54180	GMF55180	R1.0	18.0	18	24	84		
GMF54200	GMF55200	R1.0	20.0	20	26	92		
GMF54916	GMF55916	R2.0	20.0	20	26	92		
GMF54917	GMF55917	R3.0	20.0	20	26	92		

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



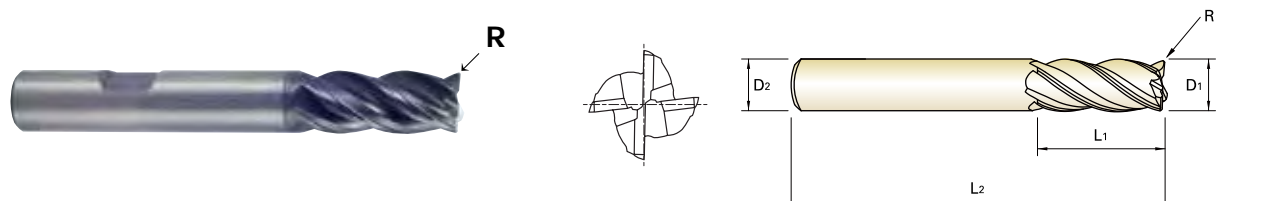
PLAIN SHANK **GMF58** SERIES  
FLAT SHANK **GMF59** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS LONG LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS LANG
- CARBURE, 4 DENTS, SÉRIE LONGUE, RAYONNÉE
- MD, 4 TAGLIENTI SERIE LUNGA TORICA

▶Special flute geometry and multiple helix eliminate vibrations  
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE 4 35°/37° PLAIN FLAT Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	PLAIN	FLAT				
GMF58030	GMF59030	R0.3	3.0	6	8	57
GMF58901	GMF59901	R0.5	3.0	6	8	57
GMF58040	GMF59040	R0.3	4.0	6	11	57
GMF58902	GMF59902	R0.5	4.0	6	11	57
GMF58050	GMF59050	R0.3	5.0	6	13	57
GMF58903	GMF59903	R0.5	5.0	6	13	57
GMF58060	GMF59060	R0.3	6.0	6	13	57
GMF58904	GMF59904	R0.5	6.0	6	13	57
GMF58905	GMF59905	R1.0	6.0	6	13	57
GMF58080	GMF59080	R0.5	8.0	8	19	63
GMF58906	GMF59906	R1.0	8.0	8	19	63
GMF58100	GMF59100	R0.5	10.0	10	22	72
GMF58907	GMF59907	R1.0	10.0	10	22	72
GMF58120	GMF59120	R0.5	12.0	12	26	83
GMF58908	GMF59908	R1.0	12.0	12	26	83
GMF58909	GMF59909	R2.0	12.0	12	26	83
GMF58140	GMF59140	R0.5	14.0	14	26	83
GMF58160	GMF59160	R1.0	16.0	16	32	92
GMF58912	GMF59912	R2.0	16.0	16	32	92
GMF58913	GMF59913	R3.0	16.0	16	32	92
GMF58180	GMF59180	R1.0	18.0	18	32	92
GMF58200	GMF59200	R1.0	20.0	20	38	104
GMF58916	GMF59916	R2.0	20.0	20	38	104
GMF58917	GMF59917	R3.0	20.0	20	38	104
GMF58250	GMF59250	R1.0	25.0	25	38	104

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M						K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel			Grey cast iron			Nodular cast iron			Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21							
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230						
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎						

ISO	N										S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41				
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55						
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550				
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				



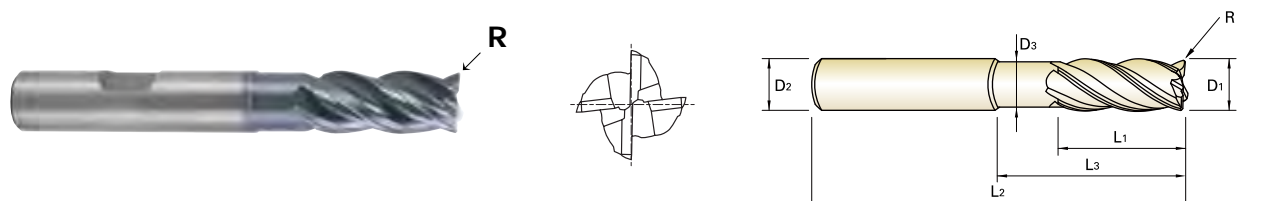
PLAIN SHANK **GMF62** SERIES  
FLAT SHANK **GMF63** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM HALS
- CARBURE, 4 DENTS, DÉTALONNÉE, RAYONNÉE
- MD, 4 TAGLIENTI CON SCARICO ESTESO TORICA

▶Special flute geometry and multiple helix eliminate vibrations  
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE 4 35°/37° PLAIN FLAT Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	PLAIN	FLAT						
GMF62030	GMF63030	R0.3	3.0	6	7	12	54	2.7
GMF62901	GMF63901	R0.5	3.0	6	7	12	54	2.7
GMF62902	GMF63902	R0.3	3.0	6	7	17	57	2.7
GMF62903	GMF63903	R0.5	3.0	6	7	17	57	2.7
GMF62040	GMF63040	R0.3	4.0	6	8	15	57	3.7
GMF62904	GMF63904	R0.5	4.0	6	8	15	57	3.7
GMF62905	GMF63905	R0.3	4.0	6	8	22	63	3.7
GMF62906	GMF63906	R0.5	4.0	6	8	22	63	3.7
GMF62050	GMF63050	R0.3	5.0	6	10	17	57	4.7
GMF62907	GMF63907	R0.5	5.0	6	10	17	57	4.7
GMF62908	GMF63908	R0.3	5.0	6	10	27	67	4.7
GMF62909	GMF63909	R0.5	5.0	6	10	27	67	4.7
GMF62060	GMF63060	R0.3	6.0	6	10	15	57	5.5
GMF62910	GMF63910	R0.5	6.0	6	10	15	57	5.5
GMF62911	GMF63911	R1.0	6.0	6	10	15	57	5.5
GMF62912	GMF63912	R0.3	6.0	6	10	20	62	5.5
GMF62913	GMF63913	R0.5	6.0	6	10	20	62	5.5
GMF62914	GMF63914	R1.0	6.0	6	10	20	62	5.5
GMF62915	GMF63915	R0.3	6.0	6	10	32	74	5.5
GMF62916	GMF63916	R0.5	6.0	6	10	32	74	5.5
GMF62917	GMF63917	R1.0	6.0	6	10	32	74	5.5
GMF62080	GMF63080	R0.5	8.0	8	12	20	63	7.5
GMF62918	GMF63918	R1.0	8.0	8	12	20	63	7.5
GMF62919	GMF63919	R0.5	8.0	8	12	30	73	7.5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M						K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel			Grey cast iron			Nodular cast iron			Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21							
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230						
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎						

ISO	N										S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed				Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41				
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55						
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550				
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				





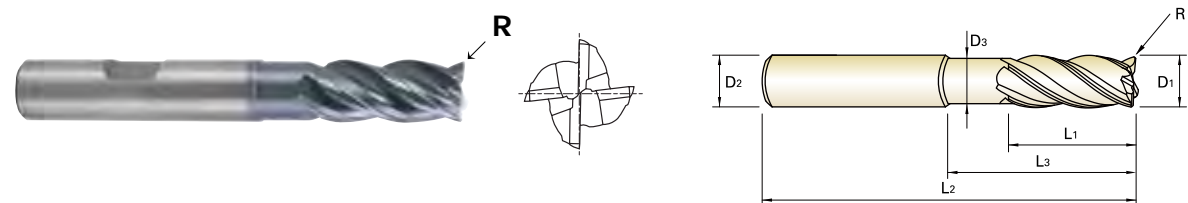
PLAIN SHANK **GMF62** SERIES  
FLAT SHANK **GMF63** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM HALS
- CARBURE, 4 DENTS, DÉTALONNÉE, RAYONNÉE
- MD, 4 TAGLIENTI CON SCARICO ESTESO TORICA

►Special flute geometry and multiple helix eliminate vibrations  
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►Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE 4 35°/37° PLAIN FLAT Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	
								PLAIN
GMF62920	GMF63920	R1.0	8.0	8	12	30	73	7.5
GMF62921	GMF63921	R0.5	8.0	8	12	46	90	7.5
GMF62922	GMF63922	R1.0	8.0	8	12	46	90	7.5
GMF62100	GMF63100	R0.5	10.0	10	14	25	72	9.2
GMF62923	GMF63923	R1.0	10.0	10	14	25	72	9.2
GMF62924	GMF63924	R0.5	10.0	10	14	35	82	9.2
GMF62925	GMF63925	R1.0	10.0	10	14	35	82	9.2
GMF62926	GMF63926	R0.5	10.0	10	14	55	102	9.2
GMF62927	GMF63927	R1.0	10.0	10	14	55	102	9.2
GMF62120	GMF63120	R0.5	12.0	12	16	30	83	11.0
GMF62928	GMF63928	R1.0	12.0	12	16	30	83	11.0
GMF62929	GMF63929	R2.0	12.0	12	16	30	83	11.0
GMF62930	GMF63930	R0.5	12.0	12	16	40	93	11.0
GMF62931	GMF63931	R1.0	12.0	12	16	40	93	11.0
GMF62932	GMF63932	R2.0	12.0	12	16	40	93	11.0
GMF62933	GMF63933	R0.5	12.0	12	16	64	117	11.0
GMF62934	GMF63934	R1.0	12.0	12	16	64	117	11.0
GMF62935	GMF63935	R2.0	12.0	12	16	64	117	11.0
GMF62160	GMF63160	R1.0	16.0	16	22	38	92	15.0
GMF62936	GMF63936	R2.0	16.0	16	22	38	92	15.0
GMF62937	GMF63937	R3.0	16.0	16	22	38	92	15.0
GMF62938	GMF63938	R1.0	16.0	16	22	55	109	15.0
GMF62939	GMF63939	R2.0	16.0	16	22	55	109	15.0
GMF62940	GMF63940	R3.0	16.0	16	22	55	109	15.0

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



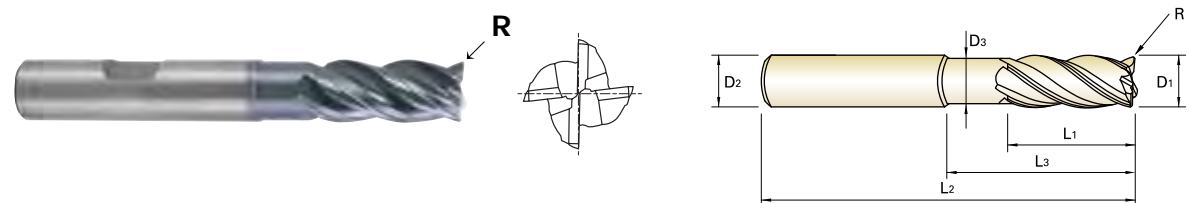
PLAIN SHANK **GMF62** SERIES  
FLAT SHANK **GMF63** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM HALS
- CARBURE, 4 DENTS, DÉTALONNÉE, RAYONNÉE
- MD, 4 TAGLIENTI CON SCARICO ESTESO TORICA

►Special flute geometry and multiple helix eliminate vibrations  
►Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

►Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
►Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE 4 35°/37° PLAIN FLAT Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	
								PLAIN
GMF62941	GMF63941	R1.0	16.0	16	22	87	141	15.0
GMF62942	GMF63942	R2.0	16.0	16	22	87	141	15.0
GMF62943	GMF63943	R3.0	16.0	16	22	87	141	15.0
GMF62200	GMF63200	R1.0	20.0	20	26	50	104	19.0
GMF62944	GMF63944	R2.0	20.0	20	26	50	104	19.0
GMF62945	GMF63945	R3.0	20.0	20	26	50	104	19.0
GMF62946	GMF63946	R1.0	20.0	20	26	70	124	19.0
GMF62947	GMF63947	R2.0	20.0	20	26	70	124	19.0
GMF62948	GMF63948	R3.0	20.0	20	26	70	124	19.0
GMF62949	GMF63949	R1.0	20.0	20	26	110	164	19.0
GMF62950	GMF63950	R2.0	20.0	20	26	110	164	19.0
GMF62951	GMF63951	R3.0	20.0	20	26	110	164	19.0

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



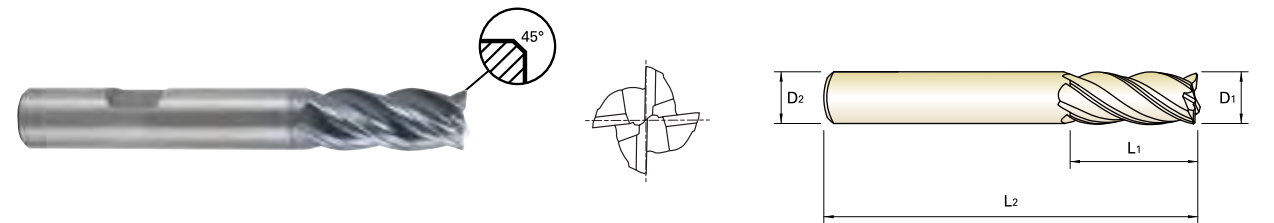
PLAIN SHANK **GMF52** SERIES  
 FLAT SHANK **GMF53** SERIES

**CARBIDE, 4 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN KURZ
- CARBURE, 4 DENTS, SÉRIE COURTE
- MD, 4 TAGLIENTI SERIE CORTA

▶ Special flute geometry and multiple helix eliminate vibrations  
 ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶ Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
 ▶ Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



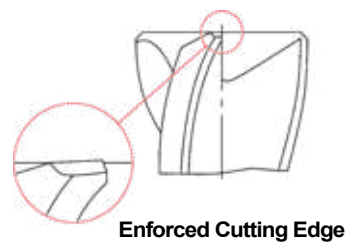
**CARBIDE** 4 35°/37° PLAIN FLAT C x 45° Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer	
						PLAIN
GMF52030	GMF53030	3.0	6	7	54	0.10
GMF52040	GMF53040	4.0	6	8	54	0.15
GMF52050	GMF53050	5.0	6	10	54	0.15
GMF52060	GMF53060	6.0	6	10	54	0.20
GMF52080	GMF53080	8.0	8	12	58	0.20
GMF52100	GMF53100	10.0	10	14	66	0.30
GMF52120	GMF53120	12.0	12	16	73	0.35
GMF52140	GMF53140	14.0	14	18	75	0.40
GMF52160	GMF53160	16.0	16	22	82	0.40
GMF52180	GMF53180	18.0	18	24	84	0.50
GMF52200	GMF53200	20.0	20	26	92	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



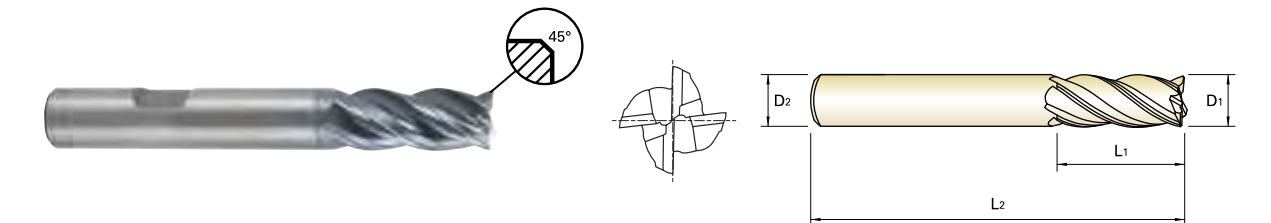
PLAIN SHANK **GMF56** SERIES  
 FLAT SHANK **GMF57** SERIES

**CARBIDE, 4 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN LANG
- CARBURE, 4 DENTS, SÉRIE LONGUE
- MD, 4 TAGLIENTI SERIE LUNGA

▶ Special flute geometry and multiple helix eliminate vibrations  
 ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶ Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
 ▶ Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



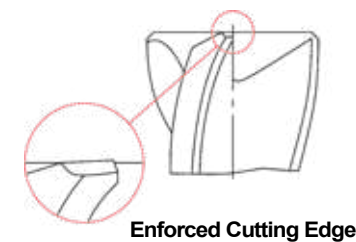
**CARBIDE** 4 35°/37° PLAIN FLAT C x 45° Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer	
						PLAIN
GMF56030	GMF57030	3.0	6	8	57	0.10
GMF56040	GMF57040	4.0	6	11	57	0.15
GMF56050	GMF57050	5.0	6	13	57	0.15
GMF56060	GMF57060	6.0	6	13	57	0.20
GMF56080	GMF57080	8.0	8	19	63	0.20
GMF56100	GMF57100	10.0	10	22	72	0.30
GMF56120	GMF57120	12.0	12	26	83	0.35
GMF56140	GMF57140	14.0	14	26	83	0.40
GMF56160	GMF57160	16.0	16	32	92	0.40
GMF56180	GMF57180	18.0	18	32	92	0.50
GMF56200	GMF57200	20.0	20	38	104	0.50
GMF56250	GMF57250	25.0	25	38	104	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



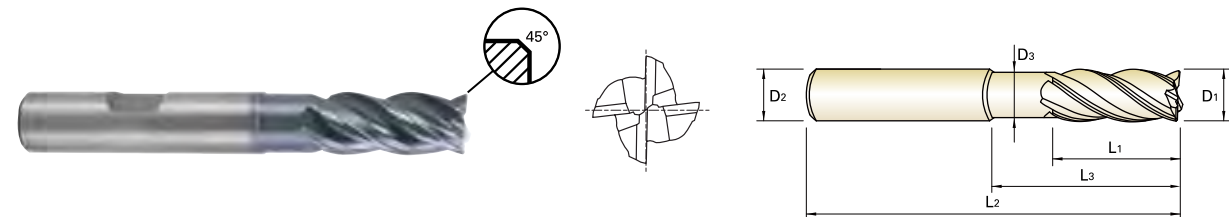
PLAIN SHANK **GMF60** SERIES  
FLAT SHANK **GMF61** SERIES

**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM HALS
- CARBURE, 4 DENTS, DÉTALONNÉE
- MD, 4 TAGLIENTI CON SCARICO ESTESO

▶Special flute geometry and multiple helix eliminate vibrations  
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE 4 35°/37° PLAIN FLAT C x 45° Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
PLAIN	FLAT	D1	D2	L1	L3	L2	D3	
GMF60030	GMF61030	3.0	6	7	12	54	2.7	0.10
GMF60901	GMF61901	3.0	6	7	17	57	2.7	0.10
GMF60902	GMF61902	3.0	6	8	14	57	2.7	0.10
GMF60040	GMF61040	4.0	6	8	15	57	3.7	0.15
GMF60903	GMF61903	4.0	6	8	22	63	3.7	0.15
GMF60904	GMF61904	4.0	6	11	16	57	3.7	0.15
GMF60050	GMF61050	5.0	6	10	17	57	4.7	0.15
GMF60905	GMF61905	5.0	6	10	27	67	4.7	0.15
GMF60906	GMF61906	5.0	6	13	18	57	4.7	0.15
GMF60060	GMF61060	6.0	6	10	15	57	5.5	0.20
GMF60907	GMF61907	6.0	6	10	20	62	5.5	0.20
GMF60908	GMF61908	6.0	6	10	32	74	5.5	0.20
GMF60909	GMF61909	6.0	6	13	21	57	5.5	0.20
GMF60080	GMF61080	8.0	8	12	20	63	7.5	0.20
GMF60910	GMF61910	8.0	8	12	30	73	7.5	0.20
GMF60911	GMF61911	8.0	8	12	46	90	7.5	0.20
GMF60912	GMF61912	8.0	8	19	27	63	7.5	0.20
GMF60100	GMF61100	10.0	10	14	25	72	9.2	0.30
GMF60913	GMF61913	10.0	10	14	35	82	9.2	0.30
GMF60914	GMF61914	10.0	10	14	55	102	9.2	0.30
GMF60915	GMF61915	10.0	10	22	32	72	9.2	0.30

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02
Over Ø12	0 ~ - 0.03



Enforced Cutting Edge ◎ : Excellent ○ : Good

ISO	P										M						K							
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	26	3	25	21	21					
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	260	160	250	130	230					
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	



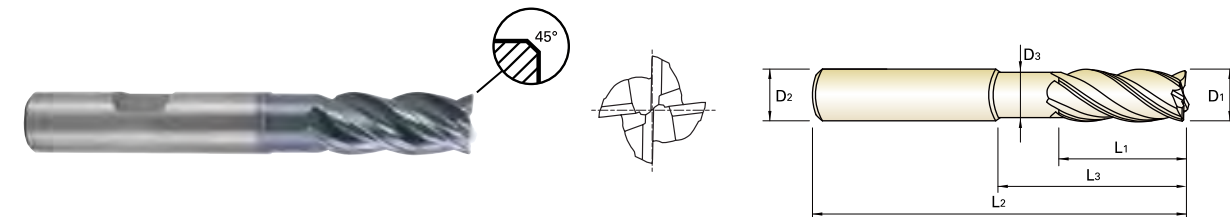
PLAIN SHANK **GMF60** SERIES  
FLAT SHANK **GMF61** SERIES

**CARBIDE, 4 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM HALS
- CARBURE, 4 DENTS, DÉTALONNÉE
- MD, 4 TAGLIENTI CON SCARICO ESTESO

▶Special flute geometry and multiple helix eliminate vibrations  
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Die spezielle Schneidengeometrie und der ungleiche Drill verhindern Vibrationen  
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



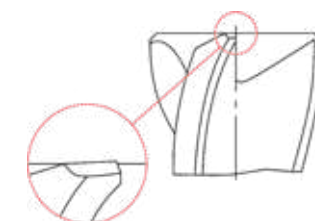
CARBIDE 4 35°/37° PLAIN FLAT C x 45° Coating Y p.C437

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
PLAIN	FLAT	D1	D2	L1	L3	L2	D3	
GMF60120	GMF61120	12.0	12	16	30	83	11.0	0.35
GMF60916	GMF61916	12.0	12	16	40	93	11.0	0.35
GMF60917	GMF61917	12.0	12	16	64	117	11.0	0.35
GMF60918	GMF61918	12.0	12	26	38	83	11.0	0.35
GMF60160	GMF61160	16.0	16	22	38	92	15.0	0.40
GMF60919	GMF61919	16.0	16	22	55	109	15.0	0.40
GMF60920	GMF61920	16.0	16	22	87	141	15.0	0.40
GMF60921	GMF61921	16.0	16	32	44	92	15.0	0.40
GMF60200	GMF61200	20.0	20	26	50	104	19.0	0.50
GMF60922	GMF61922	20.0	20	26	70	124	19.0	0.50
GMF60923	GMF61923	20.0	20	26	110	164	19.0	0.50
GMF60924	GMF61924	20.0	20	38	54	104	19.0	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02
Over Ø12	0 ~ - 0.03



Enforced Cutting Edge

ISO	P										M						K							
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
HRc	13	25	28	32	38	10	29	32	38	45	15	23	10	10	26	3	25	21	21					
HB	125	190	250	270	300	180	275	300	350	200	200	240	180	180	260	160	250	130	230					
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	





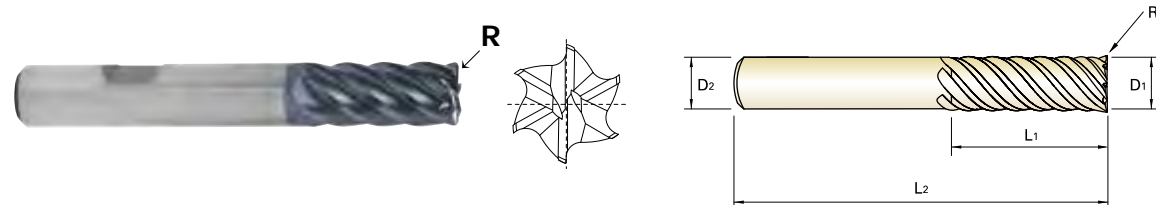
PLAIN SHANK **GMG16** SERIES  
 FLAT SHANK **GMG17** SERIES

**CARBIDE, 6 FLUTE CORNER RADIUS LONG LENGTH**

- VOLLHARTMETALL, 6 SCHNEIDEN ECKENRADIUS LANG
- CARBURE, 6 DENTS, SÉRIE LONGUE, RAYONNÉE
- MD, 6 TAGLIENTI SERIE LUNGA TORICA

▶ The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling  
 ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶ Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochoidales Fräsen.  
 ▶ Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



Icons: CARBIDE, 6, 45°, PLAIN, FLAT, Coating, Y, p.C438

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter		Shank Diameter		Length of Cut		Overall Length	
		PLAIN	FLAT	D1	D2	L1	L2	L1	L2
GMG16060	R0.5	GMG17060	6.0	6	13	57			
GMG16901	R1.0	GMG17901	6.0	6	13	57			
GMG16080	R0.5	GMG17080	8.0	8	19	63			
GMG16902	R1.0	GMG17902	8.0	8	19	63			
GMG16100	R0.5	GMG17100	10.0	10	22	72			
GMG16903	R1.0	GMG17903	10.0	10	22	72			
GMG16904	R1.5	GMG17904	10.0	10	22	72			
GMG16905	R2.0	GMG17905	10.0	10	22	72			
GMG16120	R0.5	GMG17120	12.0	12	26	83			
GMG16906	R1.0	GMG17906	12.0	12	26	83			
GMG16907	R1.5	GMG17907	12.0	12	26	83			
GMG16908	R2.0	GMG17908	12.0	12	26	83			
GMG16909	R3.0	GMG17909	12.0	12	26	83			
GMG16160	R1.0	GMG17160	16.0	16	32	92			
GMG16910	R1.5	GMG17910	16.0	16	32	92			
GMG16911	R2.0	GMG17911	16.0	16	32	92			
GMG16912	R3.0	GMG17912	16.0	16	32	92			
GMG16200	R1.0	GMG17200	20.0	20	38	104			
GMG16913	R1.5	GMG17913	20.0	20	38	104			
GMG16914	R2.0	GMG17914	20.0	20	38	104			
GMG16915	R3.0	GMG17915	20.0	20	38	104			
GMG16250	R1.0	GMG17250	25.0	25	44	104			
GMG16916	R1.5	GMG17916	25.0	25	44	104			
GMG16917	R2.0	GMG17917	25.0	25	44	104			
GMG16918	R3.0	GMG17918	25.0	25	44	104			

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02
Over Ø12	0 ~ - 0.03

h5  
 \* Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



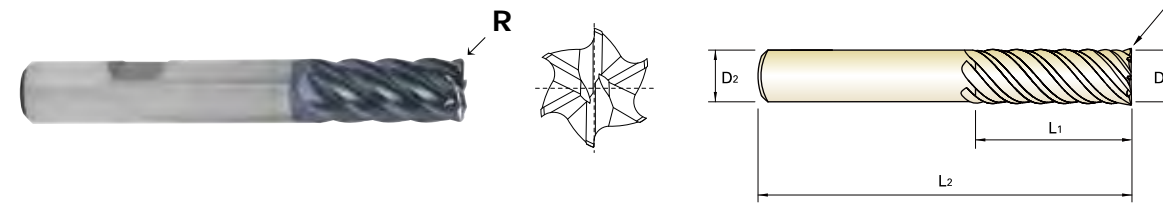
PLAIN SHANK **GMG18** SERIES  
 FLAT SHANK **GMG19** SERIES

**CARBIDE, 6 FLUTE CORNER RADIUS EXTRA LONG LENGTH**

- VOLLHARTMETALL, 6 SCHNEIDEN ECKENRADIUS EXTRA LANG
- CARBURE, 6 DENTS, SÉRIE EXTRA-LONGUE, RAYONNÉE
- MD, 6 TAGLIENTI SERIE EXTRA LUNGA TORICA

▶ The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling  
 ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶ Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochoidales Fräsen.  
 ▶ Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



Icons: CARBIDE, 6, 45°, PLAIN, FLAT, Coating, Y, p.C438

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter		Shank Diameter		Length of Cut		Overall Length	
		PLAIN	FLAT	D1	D2	L1	L2	L1	L2
GMG18060	R0.5	GMG19060	6.0	6	24	75			
GMG18901	R1.0	GMG19901	6.0	6	24	75			
GMG18080	R0.5	GMG19080	8.0	8	32	75			
GMG18902	R1.0	GMG19902	8.0	8	32	75			
GMG18903	R2.0	GMG19903	8.0	8	32	75			
GMG18100	R0.5	GMG19100	10.0	10	40	100			
GMG18904	R1.0	GMG19904	10.0	10	40	100			
GMG18905	R1.5	GMG19905	10.0	10	40	100			
GMG18906	R2.0	GMG19906	10.0	10	40	100			
GMG18120	R0.5	GMG19120	12.0	12	48	120			
GMG18907	R1.0	GMG19907	12.0	12	48	120			
GMG18908	R1.5	GMG19908	12.0	12	48	120			
GMG18909	R2.0	GMG19909	12.0	12	48	120			
GMG18910	R3.0	GMG19910	12.0	12	48	120			
GMG18160	R1.0	GMG19160	16.0	16	64	140			
GMG18911	R1.5	GMG19911	16.0	16	64	140			
GMG18912	R2.0	GMG19912	16.0	16	64	140			
GMG18913	R3.0	GMG19913	16.0	16	64	140			
GMG18200	R1.0	GMG19200	20.0	20	80	150			
GMG18914	R1.5	GMG19914	20.0	20	80	150			
GMG18915	R2.0	GMG19915	20.0	20	80	150			
GMG18916	R3.0	GMG19916	20.0	20	80	150			
GMG18917	R4.0	GMG19917	20.0	20	80	150			
GMG18918	R5.0	GMG19918	20.0	20	80	150			

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5
	* Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



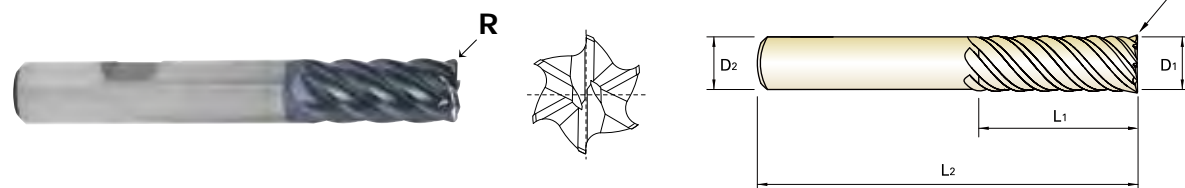
PLAIN SHANK **GMG18** SERIES  
 FLAT SHANK **GMG19** SERIES

**CARBIDE, 6 FLUTE CORNER RADIUS EXTRA LONG LENGTH**

- VOLLHARTMETALL, 6 SCHNEIDEN ECKENRADIUS EXTRA LANG
- CARBURE, 6 DENTS, SÉRIE EXTRA-LONGUE, RAYONNÉE
- MD, 6 TAGLIENTI SERIE EXTRA LUNGA TORICA

▶ The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling  
 ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶ Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochoidales Fräsen.  
 ▶ Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
						PLAIN
<b>GMG18250</b>	<b>GMG19250</b>	R1.0	25.0	25	100	170
<b>GMG18919</b>	<b>GMG19919</b>	R1.5	25.0	25	100	170
<b>GMG18920</b>	<b>GMG19920</b>	R2.0	25.0	25	100	170
<b>GMG18921</b>	<b>GMG19921</b>	R3.0	25.0	25	100	170
<b>GMG18922</b>	<b>GMG19922</b>	R4.0	25.0	25	100	170
<b>GMG18923</b>	<b>GMG19923</b>	R5.0	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	3	21
HB	125	190	250	270	300	180	275	300	350	350	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



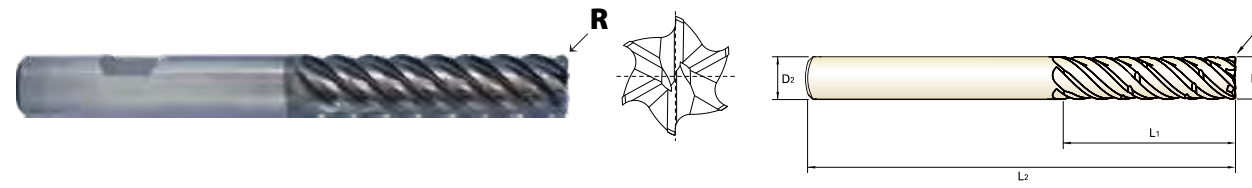
PLAIN SHANK **GMH58** SERIES  
 FLAT SHANK **GMH59** SERIES

**6 FLUTE CORNER RADIUS EXTRA LONG LENGTH CHIP SPLITTER**

- VOLLHARTMETALL, 6 SCHNEIDEN ECKRADIUS EXTRA LANG SPANTEILER
- CARBURE, 6 dents, extra-longue, fendeur des copeaux
- MD, 6 TAGLIENTI, TORICA, SERIE EXTRA LUNGA CON ROMPI TRUCIOLO

▶ Special chip splitter design for better chip removal shortened chip length at high axial machining  
 ▶ High Performance for Steels, Stainless Steels and Cast Iron

▶ Spezielles Spanteilerdesign für verbesserte Spanabfuhr durch kurze Späne bei hohem axialen Eingriff  
 ▶ Hohe Leistung bei der Bearbeitung von Stählen, rostfreien Stählen und Gusseisen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
						PLAIN
<b>GMH58916</b>	<b>GMH59916</b>	R3.0	20.0	20	80	150
<b>GMH58917</b>	<b>GMH59917</b>	R4.0	20.0	20	80	150
<b>GMH58918</b>	<b>GMH59918</b>	R5.0	20.0	20	80	150
<b>GMH58250</b>	<b>GMH59250</b>	R1.0	25.0	25	100	170
<b>GMH58919</b>	<b>GMH59919</b>	R1.5	25.0	25	100	170
<b>GMH58920</b>	<b>GMH59920</b>	R2.0	25.0	25	100	170
<b>GMH58921</b>	<b>GMH59921</b>	R3.0	25.0	25	100	170
<b>GMH58922</b>	<b>GMH59922</b>	R4.0	25.0	25	100	170
<b>GMH58923</b>	<b>GMH59923</b>	R5.0	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	3	21
HB	125	190	250	270	300	180	275	300	350	350	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



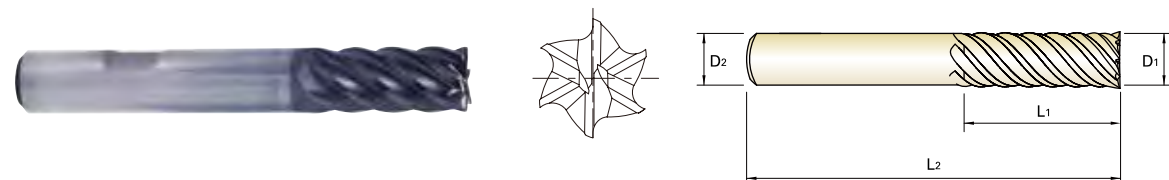
PLAIN SHANK **GMG12** SERIES  
 FLAT SHANK **GMG13** SERIES

**CARBIDE, 6 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 6 SCHNEIDEN, LANG
- CARBURE, 6 DENTS, SÉRIE -LONGUE
- MD, 6 TAGLIENTI SERIE LUNGA

► The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling  
 ► Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

► Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochoidales Fräsen.  
 ► Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



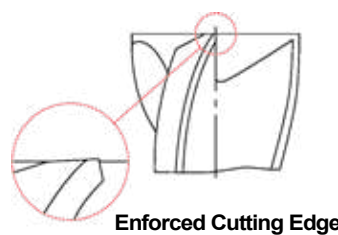
CARBIDE 6 45° PLAIN FLAT Coating Y p.C438

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	HYDRAULIC CHUCK	D15 - 46
-	-	ER COLLET CHUCK	D73 - 116
-	-	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GMG12060	GMG13060	6.0	6	13	57
GMG12080	GMG13080	8.0	8	19	63
GMG12100	GMG13100	10.0	10	22	72
GMG12120	GMG13120	12.0	12	26	83
GMG12160	GMG13160	16.0	16	32	92
GMG12200	GMG13200	20.0	20	38	104
GMG12250	GMG13250	25.0	25	44	104

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	350	200	240	180	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



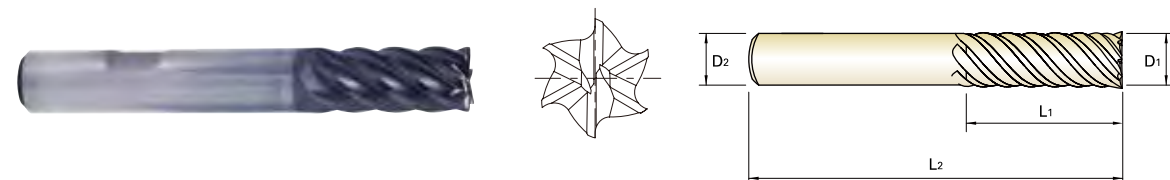
PLAIN SHANK **GMG14** SERIES  
 FLAT SHANK **GMG15** SERIES

**CARBIDE, 6 FLUTE EXTRA LONG LENGTH**

- VOLLHARTMETALL, 6 SCHNEIDEN, EXTRA LANG
- CARBURE, 6 DENTS, SÉRIE EXTRA-LONGUE
- MD, 6 TAGLIENTI SERIE EXTRA LUNGA

► The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling  
 ► Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

► Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochoidales Fräsen.  
 ► Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



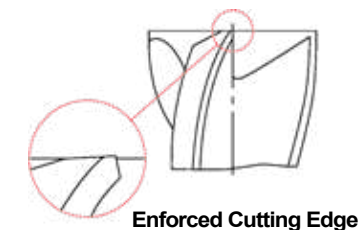
CARBIDE 6 45° PLAIN FLAT Coating Y p.C438

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	HYDRAULIC CHUCK	D15 - 46
-	-	ER COLLET CHUCK	D73 - 116
-	-	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GMG14060	GMG15060	6.0	6	24	75
GMG14080	GMG15080	8.0	8	32	75
GMG14100	GMG15100	10.0	10	40	100
GMG14120	GMG15120	12.0	12	48	120
GMG14160	GMG15160	16.0	16	64	140
GMG14200	GMG15200	20.0	20	80	150
GMG14250	GMG15250	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	23	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	350	200	240	180	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N				S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





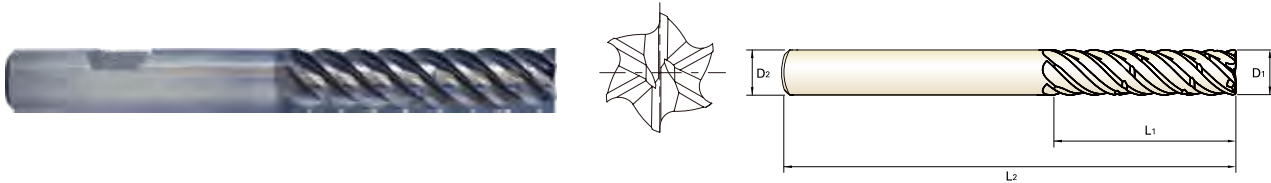
PLAIN SHANK **GMH56** SERIES  
 FLAT SHANK **GMH57** SERIES

**CARBIDE, 6 FLUTE EXTRA LONG LENGTH CHIP SPLITTER**

**VOLLHARTMETALL, 6-SCHNEIDEN-SPANTEILER MIT EXTRA LANGER LÄNGE**  
 Carbure, 6 Dents, Torique, Extra-Longue, Fendeur Des Copeaux  
 MD, 6 TAGLIENTI, SERIE EXTRA LUNGA CON ROMPI TRUCIOLO

- Special chip splitter design for better chip removal shortened chip length at high axial machining
- High Performance for Steels, Stainless Steels and Cast Iron

- Spezielles Spanteilerdesign für verbesserte Spanabfuhr durch kurze Späne bei hohem axialen Eingriff
- Hohe Leistung bei der Bearbeitung von Stählen, rostfreien Stählen und Gusseisen.



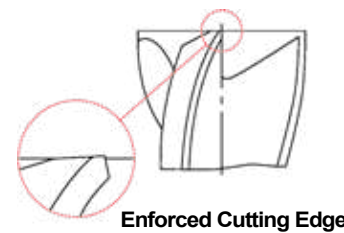
**CARBIDE** **6** **45°** **PLAIN** **FLAT** **Coating** **Y** **p.C439**

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GMH56060	GMH57060	6.0	6	24	75
GMH56080	GMH57080	8.0	8	32	75
GMH56100	GMH57100	10.0	10	40	100
GMH56120	GMH57120	12.0	12	48	120
GMH56160	GMH57160	16.0	16	64	140
GMH56200	GMH57200	20.0	20	80	150
GMH56250	GMH57250	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N				S						H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55			
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **EMB72** SERIES  
 FLAT SHANK **EMB73** SERIES

**CARBIDE, 5 FLUTE LONG LENGTH**

**VOLLHARTMETALL, 5 SCHNEIDEN LANG**  
 Fraise carbure, 5 dents, longue  
 5 TAGLIENTI, SERIE LUNGA, EVOLVENTE VARIABILE

- Special flute geometry eliminates vibrations
- Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- Excellent finished work piece
- Higher speeds, deeper cuts and excellent metal removal rates

- Spezielle Schneidengeometrie verhindert Vibrationen
- Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRC
- Bessere Werkstückoberflächen.
- Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



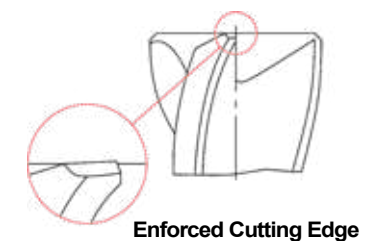
**CARBIDE** **5** **Sinusoidal** **PLAIN** **FLAT** **C x 45°** **AlTiN** **p.C440**

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	HYDRAULIC CHUCK	D15-46
-	-	ER COLLET CHUCK	D73-116
-	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT					
EMB72060	EMB73060	6.0	6	13	57	0.1
EMB72080	EMB73080	8.0	8	19	63	0.1
EMB72100	EMB73100	10.0	10	22	72	0.1
EMB72120	EMB73120	12.0	12	26	83	0.1
EMB72140	EMB73140	14.0	14	26	83	0.2
EMB72160	EMB73160	16.0	16	32	92	0.2
EMB72180	EMB73180	18.0	18	32	92	0.2
EMB72200	EMB73200	20.0	20	38	104	0.2
EMB72250	EMB73250	25.0	25	38	104	0.2

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N				S						H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55			
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



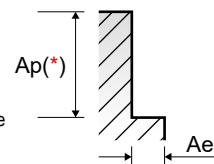


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**GMG16 GMG17 GMG18 GMG19 GMG12 GMG13 GMG14 GMG15** 6 FLUTE - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	2.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	5	0.05D	2.0D	Vc	205	205	205	205	205	205	205	
				fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174	
				RPM	10876	8157	6525	5438	4078	3263	2610	
				FEED	3263	4160	4150	4176	3646	3269	2725	
	6-7	Low alloy steel	0.05D	2.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
8-9	0.05D	2.0D	Vc	205	205	205	205	205	205	205		
			fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174		
			RPM	10876	8157	6525	5438	4078	3263	2610		
			FEED	3263	4160	4150	4176	3646	3269	2725		
10-11.1	High alloyed steel, and tool steel	0.05D	2.0D	Vc	100	100	100	100	100	100	100	
				fz	0.041	0.071	0.088	0.105	0.123	0.137	0.144	
				RPM	5305	3979	3183	2653	1989	1592	1273	
				FEED	1305	1695	1681	1671	1468	1308	1100	
M	12-13	0.05D	2.0D	Vc	215	215	215	215	215	215	215	
				fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168	
				RPM	11406	8555	6844	5703	4277	3422	2737	
				FEED	3353	4312	4270	4277	3747	3326	2759	
M	14.1	Stainless steel	0.05D	2.0D	Vc	145	145	145	145	145	145	145
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143
					RPM	7692	5769	4615	3846	2885	2308	1846
					FEED	1892	2458	2437	2423	2129	1897	1584
M	14.2	0.05D	2.0D	Vc	135	135	135	135	135	135	135	
				fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142	
				RPM	7162	5371	4297	3581	2686	2149	1719	
				FEED	1762	2288	2269	2256	1982	1766	1464	
K	15-20	Grey cast iron	0.05D	2.0D	Vc	225	225	225	225	225	225	225
					fz	0.082	0.139	0.173	0.208	0.242	0.270	0.278
					RPM	11937	8952	7162	5968	4476	3581	2865
					FEED	5844	7477	7426	7434	6510	5801	4785
S	31-35	Heat Resistant Super Alloys	0.05D	2.0D	Vc	35	35	35	35	35	35	35
					fz	0.033	0.055	0.070	0.082	0.097	0.112	0.115
					RPM	1857	1393	1114	928	696	557	446
					FEED	368	460	468	457	405	374	307
S	36-37	Titanium Alloys	0.05D	2.0D	Vc	115	115	115	115	115	115	115
					fz	0.033	0.055	0.070	0.083	0.097	0.113	0.117
					RPM	6101	4576	3661	3050	2288	1830	1464
					FEED	1208	1510	1537	1519	1332	1241	1028



(\*) : If product's Length of Cut(L.O.C) is below 2D, it must be applied with L.O.C x 90%

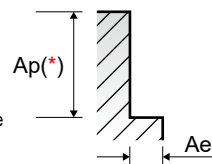


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**GMH58 GMH59 GMH56 GMH57** 6 FLUTE CHIP SPLITTER - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	5	0.05D	3.0D	Vc	205	205	205	205	205	205	205	
				fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174	
				RPM	10876	8157	6525	5438	4078	3263	2610	
				FEED	3263	4160	4150	4176	3646	3269	2725	
	6-7	Low alloy steel	0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
8-9	0.05D	3.0D	Vc	205	205	205	205	205	205	205		
			fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174		
			RPM	10876	8157	6525	5438	4078	3263	2610		
			FEED	3263	4160	4150	4176	3646	3269	2725		
10-11.1	High alloyed steel, and tool steel	0.05D	3.0D	Vc	100	100	100	100	100	100	100	
				fz	0.041	0.071	0.088	0.105	0.123	0.137	0.144	
				RPM	5305	3979	3183	2653	1989	1592	1273	
				FEED	1305	1695	1681	1671	1468	1308	1100	
M	12-13	0.05D	3.0D	Vc	215	215	215	215	215	215	215	
				fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168	
				RPM	11406	8555	6844	5703	4277	3422	2737	
				FEED	3353	4312	4270	4277	3747	3326	2759	
M	14.1	Stainless steel	0.05D	3.0D	Vc	145	145	145	145	145	145	145
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143
					RPM	7692	5769	4615	3846	2885	2308	1846
					FEED	1892	2458	2437	2423	2129	1897	1584
M	14.2	0.05D	3.0D	Vc	135	135	135	135	135	135	135	
				fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142	
				RPM	7162	5371	4297	3581	2686	2149	1719	
				FEED	1762	2288	2269	2256	1982	1766	1464	
K	15-20	Grey cast iron	0.05D	3.0D	Vc	225	225	225	225	225	225	225
					fz	0.082	0.139	0.173	0.208	0.242	0.270	0.278
					RPM	11937	8952	7162	5968	4476	3581	2865
					FEED	5844	7477	7426	7434	6510	5801	4785
S	31-35	Heat Resistant Super Alloys	0.05D	3.0D	Vc	35	35	35	35	35	35	35
					fz	0.033	0.055	0.070	0.082	0.097	0.112	0.115
					RPM	1857	1393	1114	928	696	557	446
					FEED	368	460	468	457	405	374	307
S	36-37	Titanium Alloys	0.05D	3.0D	Vc	115	115	115	115	115	115	115
					fz	0.033	0.055	0.070	0.083	0.097	0.113	0.117
					RPM	6101	4576	3661	3050	2288	1830	1464
					FEED	1208	1510	1537	1519	1332	1241	1028



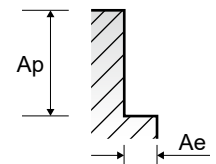
(\*) : If product's Length of Cut(L.O.C) is below 2D, it must be applied with L.O.C x 90%



**EMB72, EMB73 SERIES 5 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-2	Non-alloy steel	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
					Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
	6	High alloyed steel, and tool steel	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
					Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
10	High alloyed steel, and tool steel	0.25D	1.25D	Vc	105	105	105	145	105	105	105	
				fz	0.030	0.032	0.038	0.043	0.064	0.068	0.076	
				RPM	5570	4178	3342	3846	2387	2089	1671	
				FEED	836	668	635	827	764	710	635	
				Vc	115	115	115	115	115	115	115	
				fz	0.030	0.032	0.038	0.063	0.065	0.069	0.076	
M	Stainless steel	0.25D	1.25D	Vc	135	135	135	135	135	135	135	
				fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089	
				RPM	7162	5371	4297	3581	3069	2686	2149	
				FEED	1218	1021	1074	1128	1059	1021	956	
				Vc	115	115	115	115	115	115	115	
				fz	0.030	0.032	0.038	0.063	0.065	0.069	0.076	
K	Grey cast iron	0.25D	1.25D	Vc	135	135	135	135	135	135	135	
				fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089	
				RPM	7162	5371	4297	3581	3069	2686	2149	
				FEED	1218	1021	1074	1128	1059	1021	956	
				Vc	25	25	25	25	25	25	25	
				fz	0.017	0.020	0.025	0.036	0.045	0.048	0.060	
S	Heat Resistant Super Alloys	0.25D	1.0D	Vc	85	85	85	85	85	85	85	
				fz	0.030	0.031	0.038	0.050	0.057	0.063	0.075	
				RPM	4509	3382	2706	2255	1933	1691	1353	
				FEED	676	524	514	564	551	533	507	
				Vc	25	25	25	25	25	25	25	
				fz	0.017	0.020	0.025	0.036	0.045	0.048	0.060	
S	Titanium Alloys	0.25D	1.25D	Vc	25	25	25	25	25	25	25	
				fz	0.017	0.020	0.025	0.036	0.045	0.048	0.060	
				RPM	1326	995	796	663	568	497	398	
				FEED	113	99	99	119	128	119	119	
				Vc	85	85	85	85	85	85	85	
				fz	0.030	0.031	0.038	0.050	0.057	0.063	0.075	





Leading Through Innovation

**SOLID CARBIDE**

# **ALU-POWER HPC END MILLS**

## **Alu Power HPC VHM Fräser**

- For Aluminium, Aluminum Die Cast, Non-ferrous Alloys and Plastics
- Für Aluminium, Aluminiumdruckguss, Nichteisenlegierungen und Kunststoffe



SELECTION GUIDE



SERIES	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
FLUTE	3	3	3	3
HELIX ANGLE	37°	37°	37°	37°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	D6.0	D6.0	D3.0	D6.0
SIZE MAX	D20.0	D20.0	D25.0	D20.0
PAGE	C444	C447	C450	C451

**SOLID CARBIDE**  
**ALU-POWER HPC**  
**END MILLS**

3-Flute, High-Performance,  
For Aluminum, Aluminum Die Cast,  
Non-Ferrous Alloys And Plastics



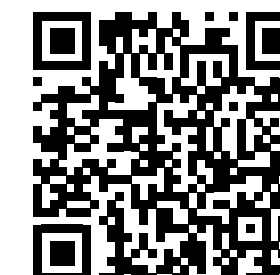
Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C452

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc				
P	1	Non-alloy steel	About 0.15% C Annealed	125					
	2		About 0.45% C Annealed	190	13				
	3		About 0.45% C Quenched & Tempered	250	25				
	4		About 0.75% C Annealed	270	28				
	5		About 0.75% C Quenched & Tempered	300	32				
	6	Low alloy steel	Annealed	180	10				
	7		Quenched & Tempered	275	29				
	8		Quenched & Tempered	300	32				
	9		Quenched & Tempered	350	38				
	10		High alloyed steel, and tool steel	Annealed	200	15			
	11		Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				
	13		Martensitic Quenched & Tempered	240	23				
	14		Austenitic	180	10				
K	15	Grey cast iron	Pearlitic / ferritic	180	10				
	16		Pearlitic (Martensitic)	260	26				
	17	Nodular cast iron	Ferritic	160	3				
	18		Pearlitic	250	25				
	19	Malleable cast iron	Ferritic	130					
	20		Pearlitic	230	21				
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎	◎	◎
	22		Curable Hardened	100		◎	◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	◎	◎	◎
	24		≤ 12% Si, Curable Hardened	90		◎	◎	◎	◎
	25		> 12% Si, Not Curable	130		○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○	○
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.			○	○	○
	30								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Annealed	250	25				
	34		Ni or Co Based	Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm					
37	Alpha + Beta Alloys		Hardened	1050 Rm					
H	38	Hardened steel	Hardened	550	55				
	39		Hardened	630	60				
	40	Chilled Cast Iron	Cast	400	42				
	41	Hardened Cast Iron	Hardened	550	55				

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**AEROSPACE SOLUTIONS & COMPOSITE MATERIALS**



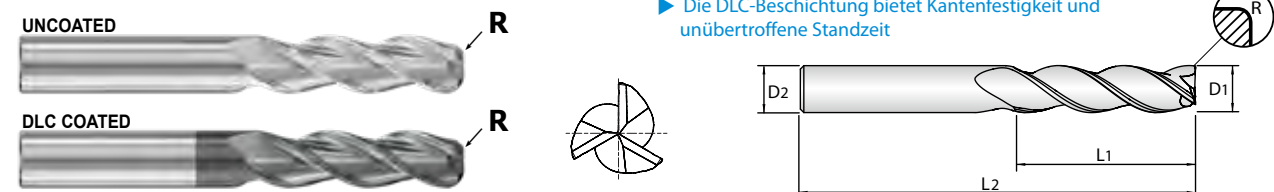


**CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS**

- Vollhartmetall, 3 Schneiden 37° Eckradius
- Fraise carbure, 3 dents, torique, hélice 37°
- 3 TAGLIENTI, ELICA 37°, SPIGOLO RAGGIATO

- ▶ Balanced cutting with less vibration
- ▶ Ability to run at higher speeds with less heat in aluminum
- ▶ More efficient chip evacuation
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- ▶ DLC Coating provides edge strength and unsurpassed tool life

- ▶ Ausgewogenes Fräsen, mit weniger Vibrationen
- ▶ Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- ▶ Effizientere Spanabfuhr
- ▶ Fähigkeit, extremen Radialkräften entgegenzuwirken
- ▶ Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter		Length of Cut		Overall Length
	Uncoated	DLC		R	D1	D2	L1	
E5H24060	JAH24060	R0.5	6.0	6	6	13	57	
E5H24901	JAH24901	R1.0	6.0	6	6	13	57	
E5H24902	JAH24902	R1.5	6.0	6	6	13	57	
E5H24903	JAH24903	R0.8	6.0	6	6	13	72	
E5H24904	JAH24904	R1.2	6.0	6	6	13	72	
E5H24905	JAH24905	R0.5	6.0	6	6	24	75	
E5H24906	JAH24906	R1.0	6.0	6	6	24	75	
E5H24080	JAH24080	R0.3	8.0	8	8	19	63	
E5H24907	JAH24907	R0.5	8.0	8	8	19	63	
E5H24908	JAH24908	R1.0	8.0	8	8	19	63	
E5H24909	JAH24909	R1.5	8.0	8	8	19	63	
E5H24910	JAH24910	R0.5	8.0	8	8	32	75	
E5H24911	JAH24911	R1.0	8.0	8	8	32	75	
E5H24912	JAH24912	R1.5	8.0	8	8	32	75	
E5H24913	JAH24913	R2.0	8.0	8	8	32	75	
E5H24100	JAH24100	R0.3	10.0	10	10	22	72	
E5H24914	JAH24914	R0.5	10.0	10	10	22	72	
E5H24915	JAH24915	R1.0	10.0	10	10	22	72	
E5H24916	JAH24916	R1.5	10.0	10	10	22	72	
E5H24917	JAH24917	R0.5	10.0	10	10	40	100	

▶ NEXT PAGE

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

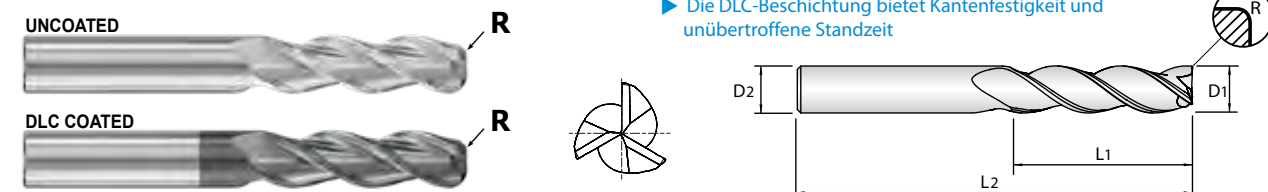


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Plain Shank	Page
HYDRAULIC CHUCK	D15-46
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POWER MILLING CHUCK	D161-176
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SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter		Length of Cut		Overall Length
	Uncoated	DLC		R	D1	D2	L1	
E5H24918	JAH24918	R1.0	10.0	10	10	40	100	
E5H24919	JAH24919	R1.5	10.0	10	10	40	100	
E5H24920	JAH24920	R2.0	10.0	10	10	40	100	
E5H24120	JAH24120	R1.5	12.0	12	12	26	83	
E5H24921	JAH24921	R2.0	12.0	12	12	26	83	
E5H24922	JAH24922	R2.5	12.0	12	12	26	83	
E5H24923	JAH24923	R3.0	12.0	12	12	26	83	
E5H24924	JAH24924	R0.5	12.0	12	12	48	100	
E5H24925	JAH24925	R1.0	12.0	12	12	48	100	
E5H24926	JAH24926	R1.5	12.0	12	12	48	100	
E5H24927	JAH24927	R2.0	12.0	12	12	48	100	
E5H24928	JAH24928	R2.5	12.0	12	12	48	100	
E5H24929	JAH24929	R3.0	12.0	12	12	48	100	
E5H24140	JAH24140	R1.0	14.0	14	14	30	89	
E5H24930	JAH24930	R2.0	14.0	14	14	30	89	
E5H24931	JAH24931	R3.0	14.0	14	14	30	89	
E5H24160	JAH24160	R1.5	16.0	16	16	32	92	
E5H24932	JAH24932	R2.0	16.0	16	16	32	92	
E5H24933	JAH24933	R2.5	16.0	16	16	32	92	
E5H24934	JAH24934	R3.0	16.0	16	16	32	92	

▶ NEXT PAGE

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

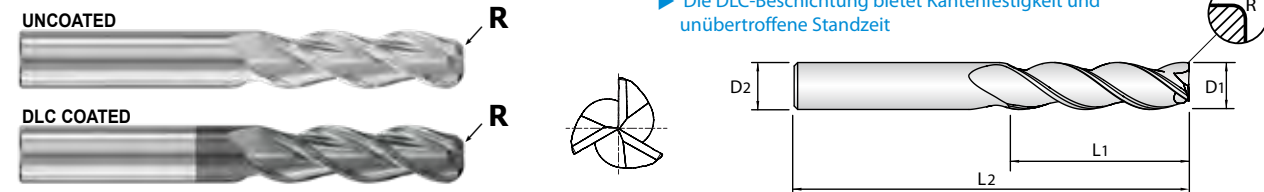
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	Uncoated	DLC				
E5H24935	JAH24935	R4.0	D1	D2	L1	L2
E5H24936	JAH24936	R0.5	16.0	16	64	125
E5H24937	JAH24937	R1.0	16.0	16	64	125
E5H24938	JAH24938	R1.5	16.0	16	64	125
E5H24939	JAH24939	R2.0	16.0	16	64	125
E5H24940	JAH24940	R2.5	16.0	16	64	125
E5H24941	JAH24941	R3.0	16.0	16	64	125
E5H24942	JAH24942	R4.0	16.0	16	64	125
E5H24200	JAH24200	R2.0	20.0	20	38	104
E5H24943	JAH24943	R2.5	20.0	20	38	104
E5H24944	JAH24944	R3.0	20.0	20	38	104
E5H24945	JAH24945	R4.0	20.0	20	38	104
E5H24946	JAH24946	R0.5	20.0	20	80	150
E5H24947	JAH24947	R1.0	20.0	20	80	150
E5H24948	JAH24948	R1.5	20.0	20	80	150
E5H24949	JAH24949	R2.0	20.0	20	80	150
E5H24950	JAH24950	R2.5	20.0	20	80	150
E5H24951	JAH24951	R3.0	20.0	20	80	150
E5H24952	JAH24952	R4.0	20.0	20	80	150

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

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ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

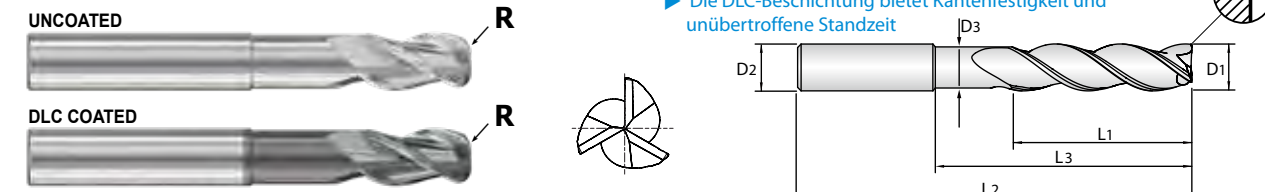


**CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK**

- Vollhartmetall, 3 Schneiden 37° Eckradius mit verlängertem Hals
- Fraise carbure, 3 dents, torique, hélice 37°, détalonnée, extra-courte
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POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	Uncoated	DLC						
E5H25060	JAH25060	R0.5	D1	D2	L1	L3	L2	D3
E5H25901	JAH25901	R1.0	6.0	6	10	20	63	5.7
E5H25902	JAH25902	R0.5	6.0	6	13	30	72	5.7
E5H25903	JAH25903	R1.0	6.0	6	13	30	72	5.7
E5H25080	JAH25080	R0.3	8.0	8	12	25	75	7.4
E5H25904	JAH25904	R0.5	8.0	8	12	25	75	7.4
E5H25905	JAH25905	R0.8	8.0	8	12	25	75	7.4
E5H25906	JAH25906	R1.0	8.0	8	12	25	75	7.4
E5H25907	JAH25907	R1.2	8.0	8	12	25	75	7.4
E5H25908	JAH25908	R1.5	8.0	8	12	25	75	7.4
E5H25909	JAH25909	R1.6	8.0	8	12	25	75	7.4
E5H25100	JAH25100	R0.3	10.0	10	14	35	100	9.2
E5H25910	JAH25910	R0.5	10.0	10	14	35	100	9.2
E5H25911	JAH25911	R0.8	10.0	10	14	35	100	9.2
E5H25912	JAH25912	R1.0	10.0	10	14	35	100	9.2
E5H25913	JAH25913	R1.2	10.0	10	14	35	100	9.2
E5H25914	JAH25914	R1.5	10.0	10	14	35	100	9.2
E5H25915	JAH25915	R1.6	10.0	10	14	35	100	9.2

▶ NEXT PAGE

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

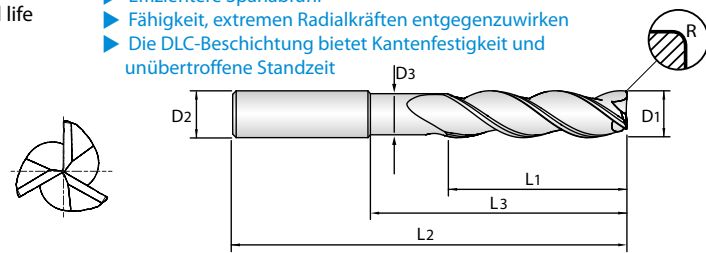
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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- ▶ Ausgewogenes Fräsen, mit weniger Vibrationen
- ▶ Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmebringung in den Werkstoff Aluminium
- ▶ Effizientere Spanabfuhr
- ▶ Fähigkeit, extremen Radialkräften entgegenzuwirken
- ▶ Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
Uncoated	DLC	R	D1	D2	L1	L3	L2	D3
E5H25916	JAH25916	R2.4	10.0	10	14	35	100	9.2
E5H25120	JAH25120	R0.5	12.0	12	16	40	100	11.0
E5H25917	JAH25917	R0.8	12.0	12	16	40	100	11.0
E5H25918	JAH25918	R1.0	12.0	12	16	40	100	11.0
E5H25919	JAH25919	R1.2	12.0	12	16	40	100	11.0
E5H25920	JAH25920	R1.5	12.0	12	16	40	100	11.0
E5H25921	JAH25921	R1.6	12.0	12	16	40	100	11.0
E5H25922	JAH25922	R2.0	12.0	12	16	40	100	11.0
E5H25923	JAH25923	R2.4	12.0	12	16	40	100	11.0
E5H25924	JAH25924	R2.5	12.0	12	16	40	100	11.0
E5H25925	JAH25925	R3.0	12.0	12	16	40	100	11.0
E5H25926	JAH25926	R4.0	12.0	12	16	40	100	11.0
E5H25140	JAH25140	R1.0	14.0	14	18	45	125	13.0
E5H25927	JAH25927	R2.0	14.0	14	18	45	125	13.0
E5H25928	JAH25928	R3.0	14.0	14	18	45	125	13.0
E5H25929	JAH25929	R4.0	14.0	14	18	45	125	13.0
E5H25160	JAH25160	R0.8	16.0	16	20	50	125	15.0
E5H25930	JAH25930	R1.2	16.0	16	20	50	125	15.0

Unit : mm

▶ NEXT PAGE

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

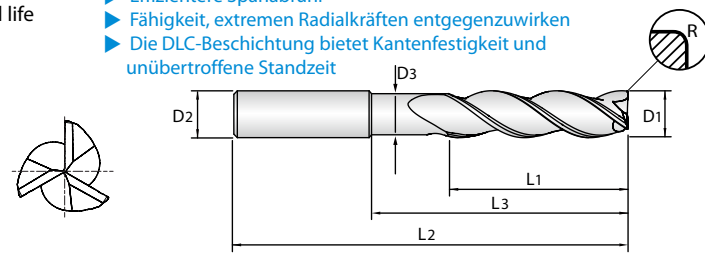


**CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK**

- Vollhartmetall, 3 Schneiden 37° Eckradius mit verlängertem Hals
- Fraise carbure, 3 dents, torique, hélice 37°, détalonnée, extra-courte
- 3 TAGLIENTI, ELICA 37°, SPIGOLO RAGGIATO SCARICATA

- ▶ Balanced cutting with less vibration
- ▶ Ability to run at higher speeds with less heat in aluminum
- ▶ More efficient chip evacuation
- ▶ Ability to counteract extreme radial forces
- ▶ DLC Coating provides edge strength and unsurpassed tool life

- ▶ Ausgewogenes Fräsen, mit weniger Vibrationen
- ▶ Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmebringung in den Werkstoff Aluminium
- ▶ Effizientere Spanabfuhr
- ▶ Fähigkeit, extremen Radialkräften entgegenzuwirken
- ▶ Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
Uncoated	DLC	R	D1	D2	L1	L3	L2	D3
E5H25931	JAH25931	R1.6	16.0	16	20	50	125	15.0
E5H25932	JAH25932	R2.0	16.0	16	20	50	125	15.0
E5H25933	JAH25933	R2.4	16.0	16	20	50	125	15.0
E5H25934	JAH25934	R2.5	16.0	16	20	50	125	15.0
E5H25935	JAH25935	R3.0	16.0	16	20	50	125	15.0
E5H25936	JAH25936	R3.2	16.0	16	20	50	125	15.0
E5H25937	JAH25937	R4.0	16.0	16	20	50	125	15.0
E5H25200	JAH25200	R0.8	20.0	20	25	65	150	19.0
E5H25938	JAH25938	R1.2	20.0	20	25	65	150	19.0
E5H25939	JAH25939	R1.6	20.0	20	25	65	150	19.0
E5H25940	JAH25940	R2.0	20.0	20	25	65	150	19.0
E5H25941	JAH25941	R2.4	20.0	20	25	65	150	19.0
E5H25942	JAH25942	R2.5	20.0	20	25	65	150	19.0
E5H25943	JAH25943	R3.0	20.0	20	25	65	150	19.0
E5H25944	JAH25944	R3.2	20.0	20	25	65	150	19.0
E5H25945	JAH25945	R4.0	20.0	20	25	65	150	19.0

Unit : mm

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				





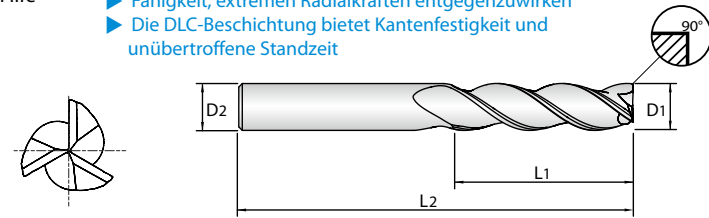
UNCOATED **E5H22** SERIES  
 DLC COATED **JAH22** SERIES  
 PLAIN SHANK

**CARBIDE, 3 FLUTE 37° HELIX**

- Vollhartmetall, 3 Schneiden 37°
- Fraise carbure, torique, hélice 37°
- 3 TAGLIENTI, ELICA 37°

- ▶ Balanced cutting with less vibration
- ▶ Ability to run at higher speeds with less heat in aluminum
- ▶ More efficient chip evacuation
- ▶ Ability to counteract extreme radial forces
- ▶ DLC Coating provides edge strength and unsurpassed tool life

- ▶ Ausgewogenes Fräsen, mit weniger Vibrationen
- ▶ Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
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Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Uncoated	DLC	D1	D2	L1	L2
E5H22030	JAH22030	3.0	6	8	52
E5H22040	JAH22040	4.0	6	11	55
E5H22050	JAH22050	5.0	6	13	57
E5H22060	JAH22060	6.0	6	13	57
E5H22901	JAH22901	6.0	6	13	72
E5H22902	JAH22902	6.0	6	24	75
E5H22080	JAH22080	8.0	8	19	63
E5H22903	JAH22903	8.0	8	32	75
E5H22100	JAH22100	10.0	10	22	72
E5H22904	JAH22904	10.0	10	40	100
E5H22120	JAH22120	12.0	12	26	83
E5H22905	JAH22905	12.0	12	48	100
E5H22140	JAH22140	14.0	14	30	89
E5H22160	JAH22160	16.0	16	32	92
E5H22906	JAH22906	16.0	16	64	125
E5H22200	JAH22200	20.0	20	38	104
E5H22907	JAH22907	20.0	20	80	150
E5H22250	JAH22250	25.0	25	50	125

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

C450 phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

YG-1 CO., LTD.



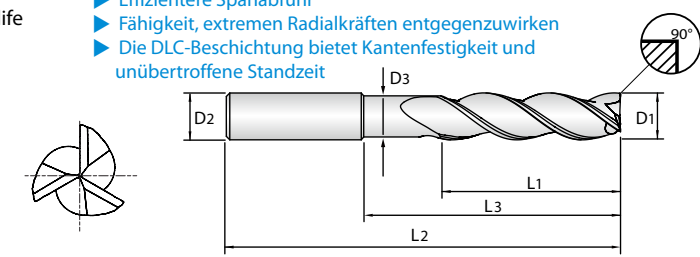
UNCOATED **E5H23** SERIES  
 DLC COATED **JAH23** SERIES  
 PLAIN SHANK

**CARBIDE, 3 FLUTE 37° HELIX with EXTENDED NECK**

- Vollhartmetall, 3 Schneiden 37°
- Fraise carbure, 3 dents, hélice 37°, détalonnée, extra-courte
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Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
Uncoated	DLC	D1	D2	L1	L3	L2	D3
E5H23060	JAH23060	6.0	6	10	20	75	5.7
E5H23080	JAH23080	8.0	8	12	25	75	7.4
E5H23100	JAH23100	10.0	10	14	35	100	9.2
E5H23120	JAH23120	12.0	12	16	40	100	11.0
E5H23140	JAH23140	14.0	14	18	45	125	13.0
E5H23160	JAH23160	16.0	16	20	50	125	15.0
E5H23200	JAH23200	20.0	20	25	65	150	19.0

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

YG-1 CO., LTD.

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

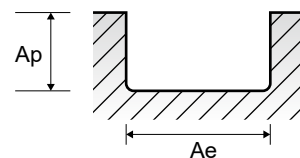
C451

**E5H24, JAH24, E5H25, JAH25 SERIES**

**3 FLUTE CORNER RADIUS - SLOTTING**

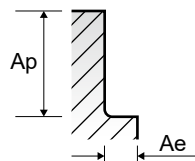
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)				
						6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	25889	15533	12945	9708	7767
					FEED	5918	5326	5918	4883	4439
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	9708	5825	4854	3641	2913
					FEED	2219	1997	1831	1665	1665
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	268	268	268	268	268
					fz	0.051	0.102	0.127	0.140	0.152
					RPM	14218	8531	7109	5332	4265
					FEED	2167	2600	2708	2235	1950
29.1	Non Metallic Materials	1.0D	1.0D	Vc	503	503	503	503	503	
				fz	0.102	0.191	0.254	0.279	0.305	
				RPM	26685	16011	13342	10007	8005	
				FEED	8134	9150	10167	8388	7320	

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.



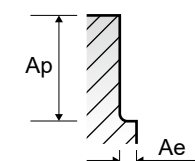
**3 FLUTE CORNER RADIUS - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)				
						6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	610	610	610	610	610
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	32361	19417	16181	12136	9708
					FEED	7398	6658	7398	6103	5548
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	244	244	244	244	244
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	12945	7767	6472	4854	3883
					FEED	2959	2663	2959	2441	2219
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	351	351	351	351	351
					fz	0.051	0.102	0.127	0.140	0.152
					RPM	18621	11173	9311	6983	5586
					FEED	2838	3405	3547	2927	2554
29.1	Non Metallic Materials	0.5D	1.5D	Vc	625	625	625	625	625	
				fz	0.102	0.191	0.254	0.279	0.305	
				RPM	33157	19894	16579	12434	9947	
				FEED	10106	11370	12633	10422	9096	



**3 FLUTE CORNER RADIUS - SIDE CUTTING HSM (Light)**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)				
						6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.05D	2.0D	Vc	1006	1006	1006	1006	1006
					fz	0.140	0.267	0.356	0.381	0.419
					RPM	53370	32022	26685	20014	16011
					FEED	22367	25621	28467	22876	20131
	23~25	Aluminum-cast, alloyed	0.05D	2.0D	Vc	366	366	366	366	366
					fz	0.140	0.267	0.356	0.381	0.419
					RPM	19417	11650	9708	7281	5825
					FEED	8138	9321	10357	8323	7324
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	2.0D	Vc	564	564	564	564	564
					fz	0.114	0.216	0.292	0.330	0.356
					RPM	29921	17953	14961	11220	8976
					FEED	10260	11628	13110	11115	9576
29.1	Non Metallic Materials	0.05D	2.0D	Vc	1021	1021	1021	1021	1021	
				fz	0.229	0.432	0.584	0.635	0.699	
				RPM	54166	32499	27083	20312	16250	
				FEED	37147	42100	47465	38695	34051	

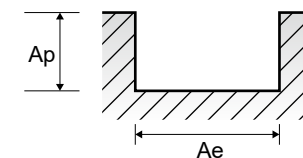


**E5H22, JAH22, E5H23, JAH23 SERIES**

**3 FLUTE - SLOTTING**

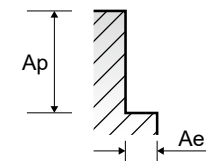
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)						
						3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488	488	488
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	51778	25889	15533	12945	9708	7767	6213
					FEED	3946	5918	5326	5918	4883	4439	4735
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183	183	183
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	19417	9708	5825	4854	3641	2913	2330
					FEED	1480	2219	1997	2219	1831	1665	1775
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	268	268	268	268	268	268	268
					fz	0.020	0.051	0.102	0.127	0.140	0.152	0.178
					RPM	28436	14218	8531	7109	5332	4265	3412
					FEED	1733	2167	2600	2708	2235	1950	1820
29.1	Non Metallic Materials	1.0D	1.0D	Vc	503	503	503	503	503	503	503	
				fz	0.038	0.102	0.191	0.254	0.279	0.305	0.356	
				RPM	53370	26685	16011	13342	10007	8005	6404	
				FEED	6100	8134	9150	10167	8388	7320	6832	

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.



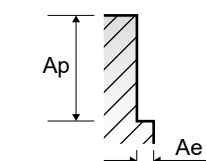
**3 FLUTE - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)						
						3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	610	610	610	610	610	610	610
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	64723	32361	19417	16181	12136	9708	7767
					FEED	4932	7398	6658	7398	6103	5548	5918
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	244	244	244	244	244	244	244
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	25889	12945	7767	6472	4854	3883	3107
					FEED	1973	2959	2663	2959	2441	2219	2367
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	351	351	351	351	351	351	351
					fz	0.020	0.051	0.102	0.127	0.140	0.152	0.178
					RPM	37242	18621	11173	9311	6983	5586	4469
					FEED	2270	2838	3405	3547	2927	2554	2384
29.1	Non Metallic Materials	0.5D	1.5D	Vc	625	625	625	625	625	625	625	
				fz	0.038	0.102	0.191	0.254	0.279	0.305	0.356	
				RPM	66314	33157	19894	16579	12434	9947	7958	
				FEED	7580	10106	11370	12633	10422	9096	8489	



**3 FLUTE - SIDE CUTTING HSM (Light)**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)						
						3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	0.05D	2.0D	Vc	1006	1006	1006	1006	1006	1006	1006
					fz	0.053	0.140	0.267	0.356	0.381	0.419	0.495
					RPM	106740	53370	32022	26685	20014	16011	12809
					FEED	17080	22367	25621	28467	22876	20131	19033
	23~25	Aluminum-cast, alloyed	0.05D	2.0D	Vc	366	366	366	366	366	366	366
					fz	0.053	0.140	0.267	0.356	0.381	0.419	0.495
					RPM	38834	19417	11650	9708	7281	5825	4660
					FEED	6214	8138	9321	10357	8323	7324	6924
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	2.0D	Vc	564	564	564	564	564	564	564
					fz	0.043	0.114	0.216	0.292	0.330	0.356	0.406
					RPM	59842	29921	17953	14961	11220	8976	7181
					FEED	7752	10260	11628	13110	11115	9576	8755
29.1	Non Metallic Materials	0.05D	2.0D	Vc	1021	1021	1021	1021	1021	1021	1021	
				fz	0.086	0.229	0.432	0.584	0.635	0.699	0.813	
				RPM	108331	54166	32499	27083	20312	16250	13000	
				FEED	28066	37147	42100	47465	38695	34051	31699	





Global Cutting Tool Leader **YG-1**



# MILLING





Leading Through Innovation



**SOLID CARBIDE**

# ALU-POWER END MILLS

**Alu - Power Fräser**

- For Aluminium Alloys and Silent Cutting
- Für Aluminiumlegierungen und geräuscharmen Schnitt



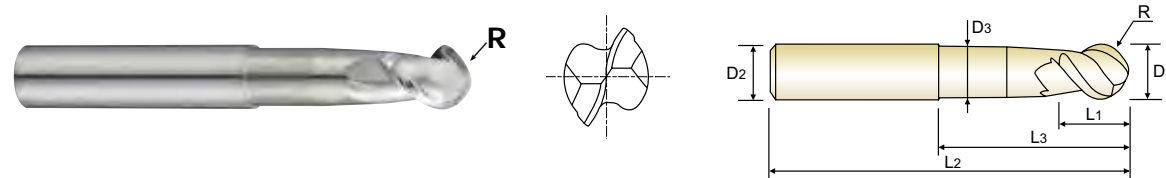


**CARBIDE, 2 FLUTE 50° HELIX BALL NOSE with NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETEL  
 (●) Fraise carbure, 2 dents, hémisphérique, hélice 50°, détalonnée  
 (●) 2 TAGLIENTI, ELICA 50°, SEMISFERICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



CARBIDE 2 50° ±0.02 PLAIN UNCOATED p.C470

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
		SHRINK FIT HOLDER	D47 - 72
		POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut		Overall Length	Neck Diameter
	R(±0.02)	D1	D2	L1	L3	L2	D3
E5910060	R3.0	6.0	6	5.5	25	55	5.4
E5910080	R4.0	8.0	8	7	30	65	7.2
E5910100	R5.0	10.0	10	8.5	35	75	9
E5910120	R6.0	12.0	12	10.5	40	75	11
E5910160	R8.0	16.0	16	14	50	90	14.5
E5910200	R10.0	20.0	20	17	50	100	18

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
± 0.02	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**CARBIDE, 3 FLUTE 40° HELIX BALL NOSE with NECK**

● VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETEL  
 (●) Fraise carbure, 3 dents, hémisphérique, hélice 40°, détalonnée  
 (●) 3 TAGLIENTI, ELICA 40°, SEMISFERICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



CARBIDE 3 40° ±0.02 PLAIN UNCOATED p.C470

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
		SHRINK FIT HOLDER	D47 - 72
		POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut		Overall Length	Neck Diameter
	R(±0.02)	D1	D2	L1	L3	L2	D3
E5908020	R1.0	2.0	6	3	5	60	1.9
E5908025	R1.25	2.5	6	4	6	60	2.4
E5908030	R1.5	3.0	6	4.5	6.5	60	2.8
E5908035	R1.75	3.5	6	5	7	65	3.2
E5908040	R2.0	4.0	6	6	8	65	3.7
E5908050	R2.5	5.0	6	7.5	10	65	4.6
E5908060	R3.0	6.0	6	9	12	75	5.6
E5908080	R4.0	8.0	8	12	25	75	7.4
E5908100	R5.0	10.0	10	15	30	80	9.4
E5908120	R6.0	12.0	12	18	36	90	11.4
E5908160	R8.0	16.0	16	24	40	100	15.4

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

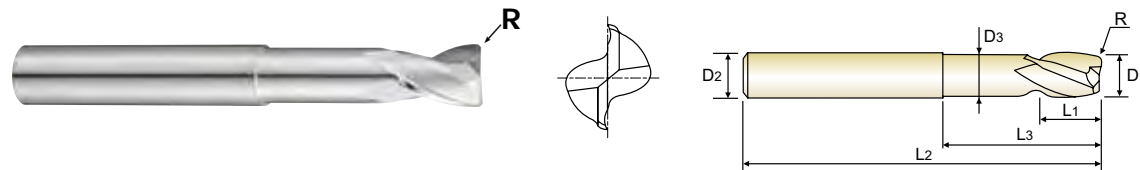


**CARBIDE, 2 FLUTE CORNER RADIUS with NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 2 dents, torique, détalonnée
- 2 TAGLIENTI, TORICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Reduces chipping of corner edges

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr
- ▶ Reduzierung von Schneideckenausbrüchen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D1	D2	L1	L3	L2	D3
E5909040	R0.3	4.0	6.0	5	10	50	3.6
E5909060	R0.5	6.0	6.0	8	20	60	5.4
E5909080	R0.6	8.0	8.0	10	30	70	7.2
E5909100	R0.8	10.0	10.0	12	36	80	9
E5909120	R1.0	12.0	12.0	14	40	90	11
E5909160	R1.3	16.0	16.0	18	45	100	14.5
E5909200	R1.6	20.0	20.0	24	45	100	18

▶ TIN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○													

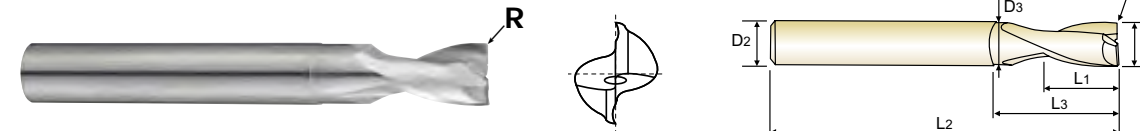


**CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS with NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 2 dents, torique, hélice 25°, détalonnée
- 2 TAGLIENTI, ELICA 25°, TORICA, SCARICATA

- ▶ Designed for machining aluminum, aluminum alloys and non-ferrous material
- ▶ Mirror surface - Excellent surface finish
- ▶ Increased tool life and higher cutting accuracy
- ▶ Maximum-metal removal rate
- ▶ Superior chip evacuation
- ▶ Corner Radius to avoid chipping problems

- ▶ Entwickelt für die Bearbeitung von Aluminium, Aluminiumlegierungen, NE-Metalle
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Maximale Zerspanungsleistung.
- ▶ Überlegene Spanabfuhr
- ▶ Eckradien verhindern Schneidkantenausbrüche



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D1	D2	L1	L3	L2	D3
E5930020	R0.2	2.0	3	3	6	40	1.9
E5930030	R0.2	3.0	3	4	8	40	2.9
E5930040	R0.2	4.0	4	5	12	50	3.8
E5930050	R0.2	5.0	5	8	14	50	4.8
E5930060	R0.2	6.0	6	8	18	65	5.7
E5930080	R0.2	8.0	8	10	22	70	7.7
E5930100	R0.2	10.0	10	14	28	80	9.7
E5930120	R0.2	12.0	12	16	35	90	11.5
E5930160	R0.2	16.0	16	20	40	90	15.5
E5930200	R0.2	20.0	20	25	50	100	19.5

▶ TIN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

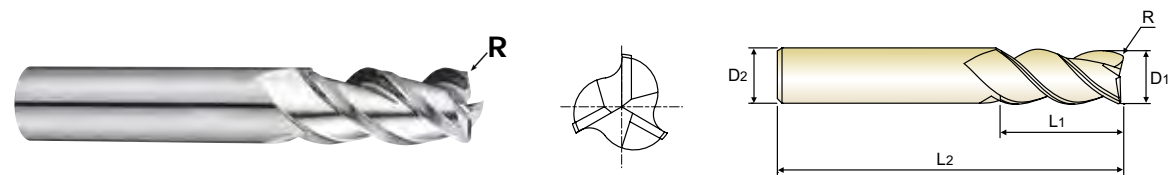
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○													

**CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS**

● **VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS**  
 ○ **Fraise carbure, 3 dents, torique, hélice 45°, longue**  
 ○ **3 TAGLIENTI, ELICA 45°, TORICA, SERIE LUNGA**

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Reduces chipping of corner edges

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr
- ▶ Reduzierung von Schneideckenausbrüchen.



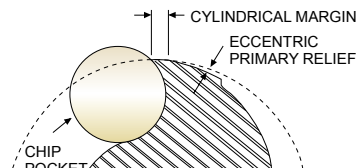
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
E5E51030	R0.5	3.0	6	12	57
E5E51901	R1.0	3.0	6	12	57
E5E51040	R0.5	4.0	6	15	57
E5E51902	R1.0	4.0	6	15	57
E5E51050	R0.5	5.0	6	20	57
E5E51903	R1.0	5.0	6	20	57
E5E51060	R0.5	6.0	6	20	65
E5E51904	R1.0	6.0	6	20	65
E5E51080	R0.5	8.0	8	22	65
E5E51905	R1.0	8.0	8	22	65
E5E51100	R0.5	10.0	10	25	70
E5E51906	R1.0	10.0	10	25	70
E5E51907	R2.0	10.0	10	25	70
E5E51120	R0.5	12.0	12	25	75
E5E51908	R1.0	12.0	12	25	75
E5E51909	R2.0	12.0	12	25	75
E5E51160	R0.5	16.0	16	35	90
E5E51910	R1.0	16.0	16	35	90
E5E51911	R2.0	16.0	16	35	90
E5E51200	R0.5	20.0	20	40	100
E5E51912	R1.0	20.0	20	40	100
E5E51913	R2.0	20.0	20	40	100

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

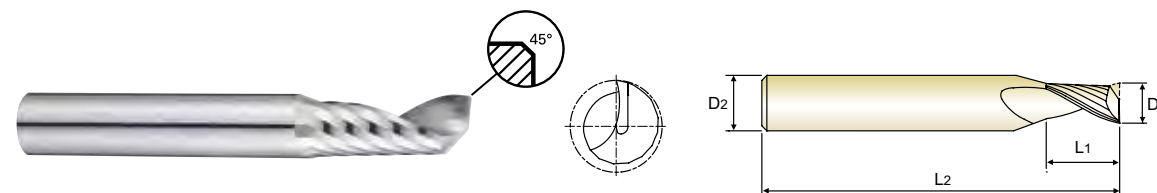


**CARBIDE, 1 FLUTE**

● **VOLLHARTMETALL, 1 SCHNEIDEN**  
 ○ **Fraise carbure, 1 dent**  
 ○ **1 TAGLIENTE**

- ▶ Designed for non-ferrous material, non-metal like aluminum and acrylic
- ▶ 1 Flute allows excellent finished workpiece and chip evacuation

- ▶ Entwickelt für NE-Metalle und nichtmetallische Werkstoffe wie Aluminium und Acryl
- ▶ 1 Spannute ermöglicht hervorragende Werkstückoberflächen und Spanabfuhr



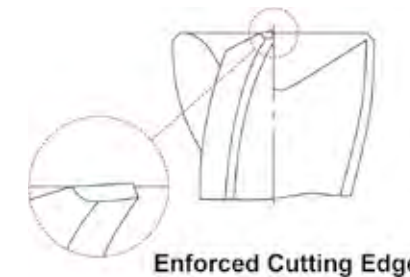
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
	D1	D2	L1	L2	
E5E47020	2.0	3	8	50	0.04
E5E47030	3.0	3	12	50	0.05
E5E47040	4.0	4	15	60	0.07
E5E47050	5.0	5	17	60	0.09
E5E47060	6.0	6	20	65	0.10
E5E47080	8.0	8	22	65	0.14
E5E47100	10.0	10	25	75	0.14
E5E47120	12.0	12	30	80	0.14

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

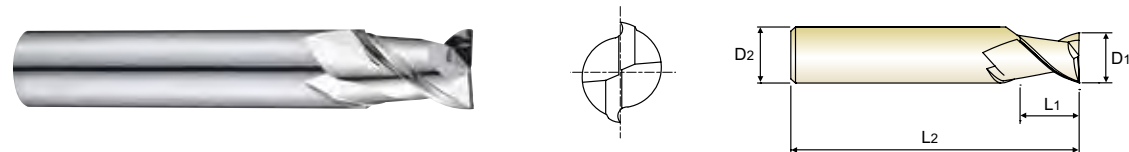
ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**CARBIDE, 2 FLUTE 45° HELIX SHORT LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE KURZ
- ① Fraise carbure, 2 dents, hélice 45°, courte
- ② 2 TAGLIENTI, ELICA 45°, SERIE CORTA

- ▶ Suitable for high speed machining in aluminum and other non-ferrous materials
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation

- ▶ Zur HSC- Bearbeitung von Aluminium und anderen Nichteisenmetallen.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr



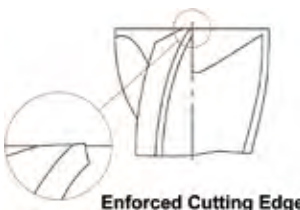
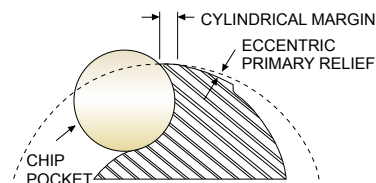
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
E5E48030	3.0	6	5	50
E5E48040	4.0	6	8	54
E5E48050	5.0	6	9	54
E5E48060	6.0	6	10	54
E5E48080	8.0	8	12	58
E5E48100	10.0	10	14	66
E5E48120	12.0	12	16	73
E5E48140	14.0	14	18	75
E5E48160	16.0	16	22	82
E5E48180	18.0	18	24	84
E5E48200	20.0	20	26	92

▶ TIN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommend	◎	◎	◎	◎	◎																

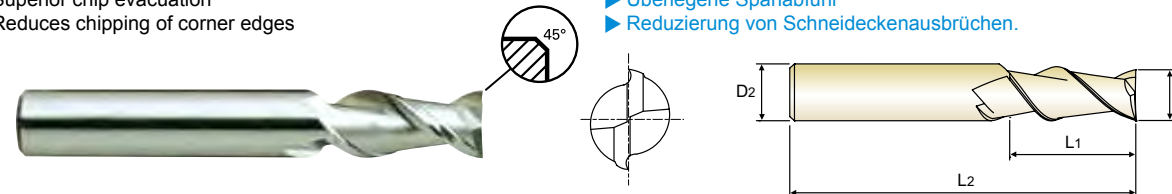


**CARBIDE, 2 FLUTE 45° HELIX LONG LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE LANG
- ① Fraise carbure, 2 dents, hélice 45°, longue
- ② 2 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for high speed machining in aluminum and other non-ferrous materials
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Reduces chipping of corner edges

- ▶ Zur HSC- Bearbeitung von Aluminium und anderen Nichteisenmetallen.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr
- ▶ Reduzierung von Schneideckenausbrüchen.



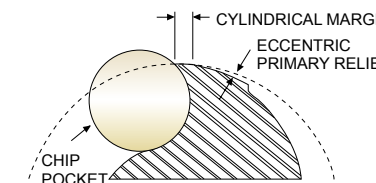
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall length	Chamfer
	D1	D2	L1	L2	
E5522030	3.0	6	8	57	0.05
E5522040	4.0	6	11	57	0.05
E5522050	5.0	6	13	57	0.05
E5522060	6.0	6	13	57	0.05
E5522080	8.0	8	19	63	0.05
E5522100	10.0	10	22	72	0.10
E5522120	12.0	12	26	83	0.10
E5522140	14.0	14	26	83	0.10
E5522160	16.0	16	32	92	0.10
E5522180	18.0	18	32	92	0.10
E5522200	20.0	20	38	104	0.10

▶ TIN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommend	◎	◎	◎	◎	◎																

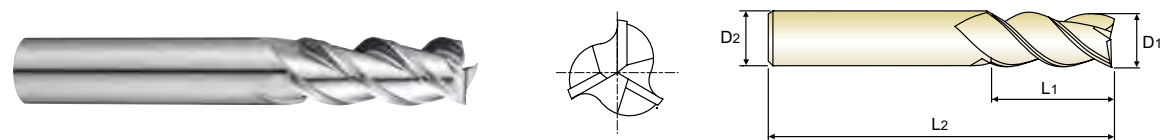


**CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH**

● **VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG**  
 (●) **Fraise carbure, 3 dents, hélice 45°, longue**  
 (●) **3 TAGLIENTI, ELICA 45°, SERIE LUNGA**

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing
- ▶ Überlegene Spanabfuhr



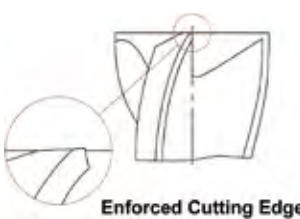
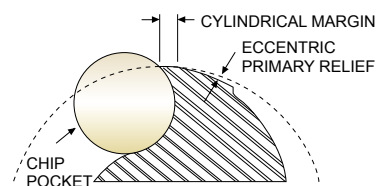
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
		SHRINK FIT HOLDER	D47 - 72
		POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
E5E49030	3.0	6	12	57
E5E49040	4.0	6	15	57
E5E49050	5.0	6	20	57
E5E49060	6.0	6	20	65
E5E49080	8.0	8	22	65
E5E49100	10.0	10	25	70
E5E49120	12.0	12	25	75
E5E49160	16.0	16	35	90
E5E49200	20.0	20	40	100

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎																	

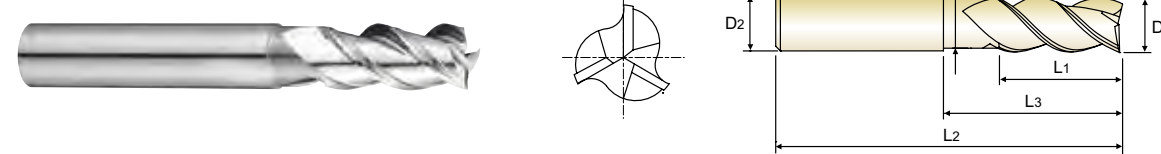


**CARBIDE, 3 FLUTE 45° HELIX with NECK**

● **VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE mit ABGESETZTEM SCHAFTTETEL**  
 (●) **Fraise carbure, 3 dents, hélice 45°, détalonnée**  
 (●) **3 TAGLIENTI, ELICA 45°, SCARICATA**

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing
- ▶ Überlegene Spanabfuhr



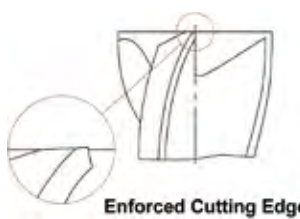
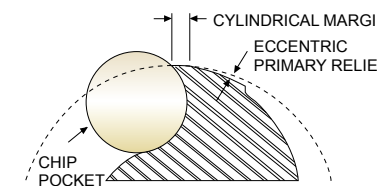
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
		SHRINK FIT HOLDER	D47 - 72
		POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
E5E50030	3.0	6	8	12	57	2.7
E5E50040	4.0	6	11	18	57	3.7
E5E50050	5.0	6	13	18	57	4.7
E5E50060	6.0	6	13	18	57	5.7
E5E50080	8.0	8	21	25	63	7.4
E5E50100	10.0	10	22	30	72	9.2
E5E50120	12.0	12	26	36	83	11
E5E50160	16.0	16	36	42	92	15
E5E50200	20.0	20	41	52	104	19

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P									M					K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎																	



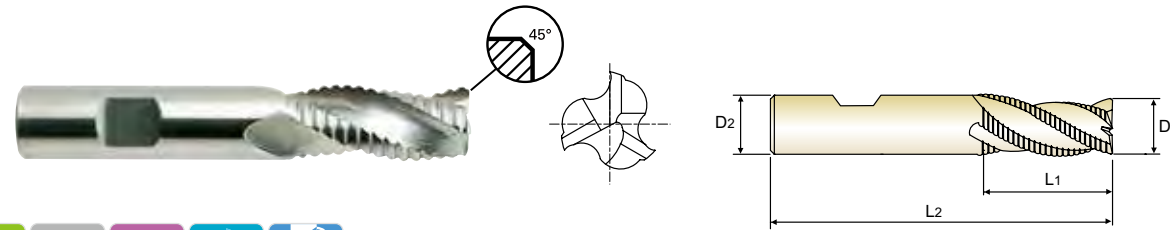
PLAIN SHANK **E5742** SERIES  
FLAT SHANK **E5711** SERIES

**CARBIDE, 3 FLUTE LONG LENGTH ROUGHING**

● VOLLHARTMETALL, 3 SCHNEIDEN LANG SCHRUPPFRÄSER  
○ Fraise carbure, 3 dents, ébauche, longue  
○ 3 TAGLIENTI, PER SGROSSATURA, SERIE LUNGA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

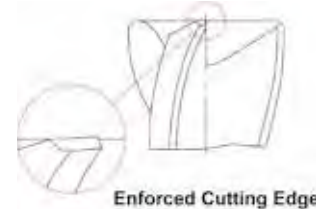
Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Overall length		Chamfer
	PLAIN	FLAT	D1	D2	L1	L2	L2		
E5742060	E5711060	6.0	6	16	57	0.60			
E5742070	E5711070	7.0	8	16	63	0.60			
E5742080	E5711080	8.0	8	16	63	0.60			
E5742090	E5711090	9.0	10	19	72	0.60			
E5742100	E5711100	10.0	10	22	72	0.60			
E5742120	E5711120	12.0	12	26	83	0.60			
E5742140	E5711140	14.0	14	26	83	0.91			
E5742160	E5711160	16.0	16	32	92	0.91			
E5742180	E5711180	18.0	18	32	92	0.91			
E5742200	E5711200	20.0	20	38	104	0.91			
E5742250	E5711250	25.0	25	45	121	0.91			

▶ TIN, TiCN and TiAlN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
<b>h10</b>	0 -40	0 -48	0 -58	0 -70	0 -84
<b>h5</b>	0 -4	0 -5	0 -6	0 -8	0 -9



◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	54	56	58	60	62	64	66	68	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	10	26	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



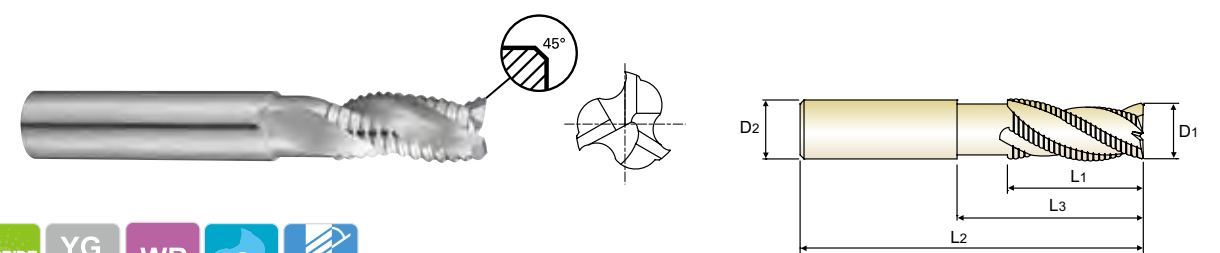
PLAIN SHANK **E5E39** SERIES  
FLAT SHANK **E5E40** SERIES

**CARBIDE, 3 FLUTE ROUGHING with NECK**

● VOLLHARTMETALL, 3 SCHNEIDEN SCHRUPPFRÄSER mit ABGESETZTEM SCHAFTTETL  
○ Fraise carbure, 3 dents, ébauche détalonnée  
○ 3 TAGLIENTI, PER SGROSSATURA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK	D15-46
		SHRINK FIT HOLDER	D47-72
		POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116

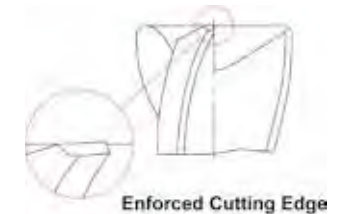
Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Length Below Shank		Overall length		Neck Diameter		Chamfer
	PLAIN	FLAT	D1	D2	L1	L3	L2	L2	D3	D3	D3		
E5E39060	E5E40060	6.0	6	16	20	57	5	0.60					
E5E39080	E5E40080	8.0	8	16	25	63	7	0.60					
E5E39100	E5E40100	10.0	10	22	30	72	9	0.60					
E5E39120	E5E40120	12.0	12	26	36	83	10.5	0.60					
E5E39160	E5E40160	16.0	16	32	42	92	14.5	0.91					
E5E39200	E5E40200	20.0	20	38	52	104	18.5	0.91					

▶ TIN, TiCN and TiAlN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
<b>h10</b>	0 -40	0 -48	0 -58	0 -70	0 -84
<b>h5</b>	0 -4	0 -5	0 -6	0 -8	0 -9



Enforced Cutting Edge

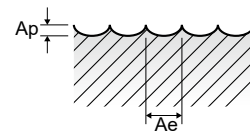
◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	54	56	58	60	62	64	66	68	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	10	26	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**E5910 SERIES 2 FLUTE BALL**

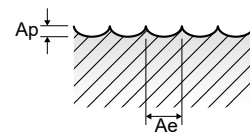
Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.2D	0.5D	Vc	270	280	350	420	440	350
					fz	0.049	0.071	0.084	0.107	0.123	0.157
					RPM	14324	11141	11141	11141	8754	5570
	23~24	Aluminum-cast, alloyed	0.2D	0.5D	Vc	176	182	228	273	286	228
					fz	0.049	0.071	0.084	0.107	0.123	0.157
					RPM	9311	7242	7242	7242	5690	3621
	26~28	Copper and Copper Alloys (Bronze / Brass)	0.2D	0.5D	Vc	85	85	105	125	135	105
					fz	0.04	0.06	0.069	0.089	0.101	0.131
					RPM	4509	3382	3342	3316	2686	1671
FEED	361	406	461	590	543	438					



**E5908 SERIES 3 FLUTE BALL**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)										
						2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0	16.0
N	21~22	Aluminum-wrought alloy	0.2D	0.5D	Vc	135	140	135	160	180	225	270	280	350	420	440
					fz	0.018	0.022	0.026	0.028	0.035	0.038	0.049	0.071	0.084	0.107	0.123
					RPM	21486	17825	14324	14551	14324	14324	11141	11141	11141	8754	8754
	23~24	Aluminum-cast, alloyed	0.2D	0.5D	Vc	88	91	88	104	117	146	176	182	228	273	286
					fz	0.018	0.022	0.026	0.028	0.035	0.038	0.049	0.071	0.084	0.107	0.123
					RPM	13966	11586	9311	9458	9311	9311	9311	7242	7242	7242	5690
	26~28	Copper and Copper Alloys (Bronze / Brass)	0.2D	0.5D	Vc	40	40	40	50	55	70	85	85	105	125	135
					fz	0.015	0.018	0.022	0.022	0.028	0.031	0.04	0.06	0.069	0.089	0.101
					RPM	6366	5093	4244	4547	4377	4456	4509	3382	3342	3316	2686
FEED	286	275	280	300	368	414	541	609	692	885	814					



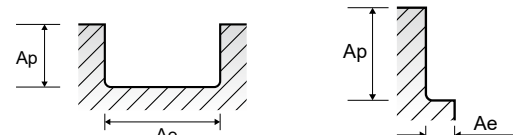
**E5930 SERIES**

**2 FLUTE CORNER RADIUS - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)										
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	65	100	130	165	195	200	250	300	320	250	
					fz	0.022	0.035	0.046	0.05	0.058	0.09	0.11	0.135	0.156	0.2	
					RPM	10345	10610	10345	10504	10345	7958	7958	7958	6366	3979	
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	42	65	85	107	127	130	163	195	208	163	
					fz	0.022	0.035	0.046	0.05	0.058	0.09	0.11	0.135	0.156	0.2	
					RPM	6724	6897	6724	6828	6724	5173	5173	5173	4138	2586	
	FEED	296	483	619	683	780	931	1138	1397	1291	1035					

**2 FLUTE CORNER RADIUS - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)										
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
N	21~22	Aluminum-wrought alloy	0.2-Ø10-0.25D Ø12-Ø20=0.5D	1.0D	Vc	65	100	130	165	195	200	250	300	320	250	
					fz	0.039	0.046	0.054	0.065	0.077	0.115	0.135	0.170	0.194	0.250	
					RPM	10345	10610	10345	10504	10345	7958	7958	7958	6366	3979	
	23~24	Aluminum-cast, alloyed	0.2-Ø10-0.25D Ø12-Ø20=0.5D	1.0D	Vc	42	65	85	107	127	130	163	195	208	163	
					fz	0.039	0.046	0.054	0.065	0.077	0.115	0.135	0.170	0.194	0.250	
					RPM	6724	6897	6724	6828	6724	5173	5173	5173	4138	2586	
	FEED	524	634	726	888	1036	1190	1397	1759	1606	1293					



**E5909 SERIES**

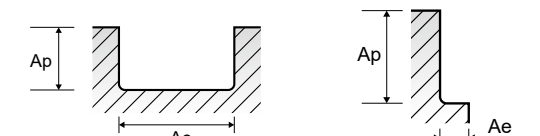
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fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

**2 FLUTE CORNER RADIUS - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)						
						4.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	130	195	200	250	300	320	250
					fz	0.046	0.058	0.09	0.11	0.135	0.156	0.2
					RPM	10345	10345	7958	7958	6366	3979	
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	85	127	130	163	195	208	163
					fz	0.046	0.058	0.09	0.11	0.135	0.156	0.2
					RPM	6724	6724	5173	5173	4138	2586	
	26~28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	Vc	40	60	60	75	90	95	75
					fz	0.038	0.049	0.075	0.092	0.114	0.132	0.167
					RPM	3183	3183	2387	2387	2387	1890	1194
FEED	242	312	358	439	544	499	399					

**2 FLUTE CORNER RADIUS - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)						
						4.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	~Ø10=0.25D Ø12-Ø20=0.5D	1.0D	Vc	130	195	200	250	300	320	250
					fz	0.054	0.077	0.115	0.135	0.17	0.194	0.25
					RPM	10345	10345	7958	7958	6366	3979	
	23~24	Aluminum-cast, alloyed	~Ø10=0.25D Ø12-Ø20=0.5D	1.0D	Vc	85	127	130	163	195	208	163
					fz	0.054	0.077	0.115	0.135	0.17	0.194	0.25
					RPM	6724	6724	5173	5173	4138	2586	
	26~28	Copper and Copper Alloys (Bronze / Brass)	~Ø10=0.25D Ø12-Ø20=0.5D	1.0D	Vc	40	60	60	75	90	95	75
					fz	0.045	0.064	0.097	0.114	0.142	0.163	0.21
					RPM	3183	3183	2387	2387	2387	1890	1194
FEED	286	407	463	544	678	616	501					



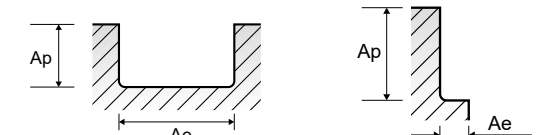
**E5E51 SERIES**

**3 FLUTE CORNER RADIUS - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)										
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0		
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	95	125	155	190	200	250	300	300	250		
					fz	0.039	0.050	0.055	0.066	0.096	0.117	0.145	0.174	0.220		
					RPM	10080	9947	9868	10080	7958	7958	7958	5968	3979		
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	62	81	101	124	130	163	195	195	163		
					fz	0.039	0.050	0.055	0.066	0.096	0.117	0.145	0.174	0.220		
					RPM	6552	6466	6414	6552	5173	5173	5173	3879	2586		
	FEED	767	970	1058	1297	1490	1816	2250	2025	1707						

**3 FLUTE CORNER RADIUS - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)										
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0		
N	21~22	Aluminum-wrought alloy	0.15D	2.5D	Vc	95	125	155	190	200	250	300	300	250		
					fz	0.050	0.061	0.072	0.083	0.125	0.145	0.179	0.220	0.262		
					RPM	10080	9947	9868	10080	7958	7958	7958	5968	3979		
	23~24	Aluminum-cast, alloyed	0.15D	2.5D	Vc	62	81	101	124	130	163	195	195	163		
					fz	0.050	0.061	0.072	0.083	0.125	0.145	0.179	0.220	0.262		
					RPM	6552	6466	6414	6552	5173	5173	5173	3879	2586		
	FEED	983	1183	1385	1631	1940	2250	2778	2560	2033						

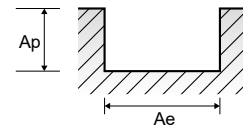




**E5E47 SERIES 1 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	21~22	Aluminum-wrought alloy	1.0D	1.5D	Vc	145	170	190	190	190	195	190	190
					fz	0.065	0.094	0.120	0.150	0.180	0.244	0.333	0.440
					RPM	23077	18038	15120	12096	10080	7759	6048	5040
	23~24	Aluminum-cast, alloyed	1.0D	1.5D	Vc	94	111	124	124	124	127	124	124
					fz	0.065	0.094	0.120	0.150	0.180	0.244	0.333	0.440
					RPM	15000	11724	9828	7862	6552	5043	3931	3276
	29.1	Non Metallic Materials (Duroplastic)	1.0D	1.5D	Vc	200	235	250	235	255	250	250	255
					fz	0.069	0.096	0.120	0.147	0.170	0.240	0.300	0.343
					RPM	31831	24934	19894	14961	13528	9947	7958	6764
FEED	2196	2394	2387	2199	2300	2387	2387	2387	2320				



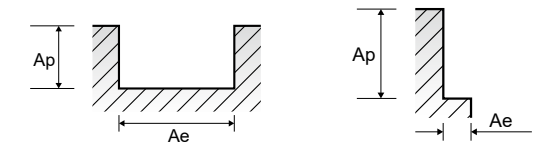
**E5E49, E5E50 SERIES 3 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)									
						3.0	4.0	5.0	6.0	8.0	9.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	65	90	110	130	140	160	175	210	210	175
					fz	0.035	0.045	0.050	0.060	0.088	0.097	0.106	0.131	0.158	0.200
					RPM	6897	7162	7003	6897	5570	5659	5570	5570	4178	2785
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	724	967	1050	1241	1471	1647	1771	2189	1980	1671
					fz	0.035	0.045	0.050	0.060	0.088	0.097	0.106	0.131	0.158	0.200
					RPM	4483	4655	4552	4483	3621	3678	3621	3621	2716	1810
	FEED	471	628	683	807	956	1070	1151	1423	1287	1086				

**3 FLUTE - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)									
						3.0	4.0	5.0	6.0	8.0	9.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.15D	1.5D ~ 2.5D	Vc	65	90	110	130	140	160	175	210	210	175
					fz	0.045	0.055	0.065	0.075	0.113	0.122	0.131	0.163	0.200	0.238
					RPM	6897	7162	7003	6897	5570	5659	5570	5570	4178	2785
	23~24	Aluminum-cast, alloyed	0.15D	1.5D ~ 2.5D	Vc	42	59	72	85	91	104	114	137	137	114
					fz	0.045	0.055	0.065	0.075	0.113	0.122	0.131	0.163	0.200	0.238
					RPM	4483	4655	4552	4483	3621	3678	3621	3621	2716	1810
	FEED	605	768	888	1009	1227	1346	1423	1771	1629	1293				

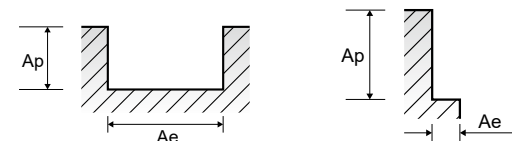


**E5E48, E5522, E5521 SERIES 2 FLUTE - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)											
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	95	125	155	190	200	250	300	265	300	225	250	
					fz	0.035	0.045	0.050	0.060	0.088	0.106	0.131	0.150	0.158	0.175	0.200	
					RPM	10080	9947	9868	10080	7958	7958	7958	6025	5968	3979	3979	
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	62	81	101	124	130	163	195	172	195	146	163	
					fz	0.035	0.045	0.050	0.060	0.088	0.106	0.131	0.150	0.158	0.175	0.200	
					RPM	6552	6466	6414	6552	5173	5173	5173	3916	3879	2586	2586	
	FEED	459	582	641	786	910	1097	1355	1175	1226	905	1035					

**2 FLUTE - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)											
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	
N	21~22	Aluminum-wrought alloy	0.3-0.10-0.25D 0.12-0.20-0.5D	1.0D	Vc	95	125	155	190	200	250	300	265	300	225	250	
					fz	0.045	0.055	0.065	0.075	0.113	0.131	0.163	0.183	0.200	0.225	0.238	
					RPM	10080	9947	9868	10080	7958	7958	7958	6025	5968	3979	3979	
	23~24	Aluminum-cast, alloyed	0.3-0.10-0.25D 0.12-0.20-0.5D	1.0D	Vc	62	81	101	124	130	163	195	172	195	146	163	
					fz	0.045	0.055	0.065	0.075	0.113	0.131	0.163	0.183	0.200	0.225	0.238	
					RPM	6552	6466	6414	6552	5173	5173	5173	3916	3879	2586	2586	
	FEED	590	711	834	983	1169	1355	1686	1433	1552	1164	1231					

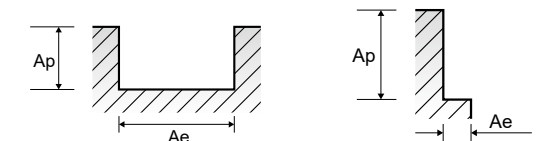


**E5E39, E5E40, E5742, E5711 SERIES 3 FLUTE ROUGHING - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	1.5D	Vc	198	201	204	241	241	242
					fz	0.168	0.167	0.179	0.167	0.167	0.165
					RPM	10504	7998	6494	6393	4795	3852
	23~24	Aluminum-cast, alloyed	1.0D	1.5D	Vc	5294	4007	3487	3203	2402	1907
					fz	129	131	133	157	157	157
					RPM	6828	5198	4221	4155	3116	2504
	FEED	3441	2604	2267	2082	1561	1239				

**3 FLUTE ROUGHING - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	254	264	267	320	322	320
					fz	0.168	0.168	0.169	0.165	0.167	0.163
					RPM	13475	10504	8499	8488	6406	5093
	23~24	Aluminum-cast, alloyed	0.5D	1.5D	Vc	6791	5294	4309	4202	3209	2490
					fz	165	172	174	208	209	208
					RPM	8759	6828	5524	5517	4164	3310
	FEED	4414	3441	2801	2731	2086	1619				





Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation



**SOLID CARBIDE**

# **D-POWER GRAPHITE END MILLS**

## **D - POWER Graphit VHM - Fräser**

- For Graphites
- Für Graphite





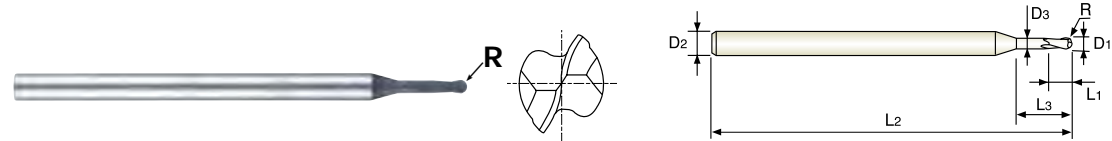


**CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETEL
- Fraise carbure, 2 dents, hémisphérique, détalonnée, micro-fraise
- 2 TAGLIENTI, SEMISFERICA, SERIE MINI, SCARICATA

► Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.  
 ► Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.  
 ► High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

► Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.  
 ► Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.  
 ► Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Recommended Tool Holder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
E1997002000040	R0.1	0.2	3	0.2	-	40	-
E1997003000040	R0.15	0.3	3	0.3	-	40	-
E1997004000040	R0.2	0.4	3	0.4	-	40	-
E1997005025040	R0.25	0.5	3	0.5	2.5	40	0.45
E1997006	R0.3	0.6	3	0.6	3	40	0.55
E1997006050040	R0.3	0.6	3	0.6	5	40	0.55
E1997008	R0.4	0.8	3	0.8	4	40	0.75
E1997008070040	R0.4	0.8	3	0.8	7	40	0.75
E1997010	R0.5	1.0	3	1	5	40	0.95
E1997903	R0.5	1.0	3	1	8.5	40	0.95
E1997010120040	R0.5	1.0	3	1	12	40	0.95
E1997012	R0.6	1.2	3	1.2	6	50	1.15
E1997012100050	R0.6	1.2	3	1.2	10	50	1.15
E1997015	R0.75	1.5	3	1.5	7.5	50	1.4
E1997906	R0.75	1.5	3	1.5	12	50	1.4
E1997015180050	R0.75	1.5	3	1.5	18	50	1.4
E1997020	R1.0	2.0	3	2.2	10	60	1.9
E1997908	R1.0	2.0	3	2.2	16	60	1.9
E1997020250060	R1.0	2.0	3	2.2	25	60	1.9
E1997030100065	R1.5	3.0	4	3	10	65	2.9
E1997030150065	R1.5	3.0	4	3	15	65	2.9
E1997030200065	R1.5	3.0	4	3	20	65	2.9
E1997030250075	R1.5	3.0	4	3	25	75	2.9
E1997030300075	R1.5	3.0	4	3	30	75	2.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	230	
Recommend																					

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○				◎													

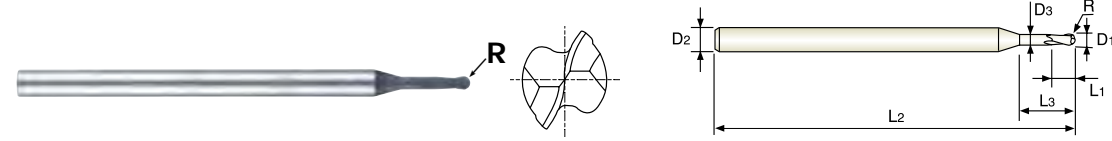


**CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETEL
- Fraise carbure, 2 dents, hémisphérique, détalonnée, micro-fraise
- 2 TAGLIENTI, SEMISFERICA, SERIE MINI, SCARICATA

► Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.  
 ► Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.  
 ► High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

► Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.  
 ► Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.  
 ► Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Recommended Tool Holder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
E1997040200065	R2.0	4.0	6	4	20	65	3.9
E1997040300075	R2.0	4.0	6	4	30	75	3.9
E1997040400090	R2.0	4.0	6	4	40	90	3.9
E1997050200065	R2.5	5.0	6	5	20	65	4.9
E1997050300075	R2.5	5.0	6	5	30	75	4.9
E1997050400090	R2.5	5.0	6	5	40	90	4.9
E1997050500090	R2.5	5.0	6	5	50	90	4.9
E1997060300075	R3.0	6.0	6	6	30	75	5.9
E1997060400090	R3.0	6.0	6	6	40	90	5.9
E1997060500090	R3.0	6.0	6	6	50	90	5.9
E1997060600100	R3.0	6.0	6	6	60	100	5.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	230	
Recommend																					

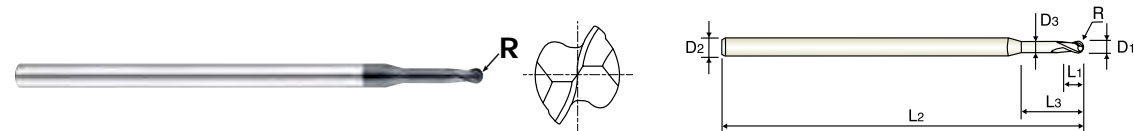
  

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○				◎													

**CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL**  
 (●) **Fraise carbure, 2 dents, hémisphérique, détalonnée, micro-fraise**  
 (●) **2 TAGLIENTI, SEMISFERICA, SERIE MINI, SCARICATA**

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EIB93004040	R0.2	0.4	4	0.6	4	45	0.36
EIB93004060	R0.2	0.4	4	0.6	6	45	0.36
EIB93006040	R0.3	0.6	4	1	4	45	0.56
EIB93006060	R0.3	0.6	4	1	6	45	0.56
EIB93006080	R0.3	0.6	4	1	8	45	0.56
EIB93010060	R0.5	1.0	4	1.5	6	45	0.95
EIB93010080	R0.5	1.0	4	1.5	8	45	0.95
EIB93010120	R0.5	1.0	4	1.5	12	45	0.95
EIB93015120	R0.75	1.5	4	1.75	12	45	1.45
EIB93020080	R1.0	2.0	4	3	8	60	1.95
EIB93020120	R1.0	2.0	4	3	12	60	1.95
EIB93020160	R1.0	2.0	4	3	16	60	1.95
EIB93040160	R2.0	4.0	4	6	16	60	3.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

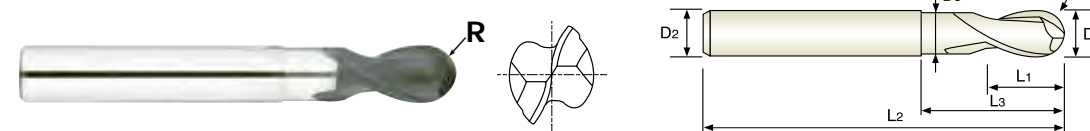
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												



**CARBIDE, 2 FLUTE BALL NOSE SHORT LENGTH with NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETL**  
 (●) **Fraise carbure, 2 dents, hémisphérique, détalonnée, courte**  
 (●) **2 TAGLIENTI, SEMISFERICA, SERIE CORTA, SCARICATA**

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI880020	R1.0	2.0	6	3	5	60	1.9
EI880025	R1.25	2.5	6	4	6	60	2.4
EI880030	R1.5	3.0	6	4.5	6.5	60	2.8
EI880035	R1.75	3.5	6	5	7	65	3.2
EI880040	R2.0	4.0	6	6	8	65	3.7
EI880050	R2.5	5.0	6	7.5	10	65	4.6
EI880060	R3.0	6.0	6	9	12	75	5.6
EI880080	R4.0	8.0	8	12	25	75	7.4
EI880100	R5.0	10.0	10	15	30	80	9.4
EI880120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

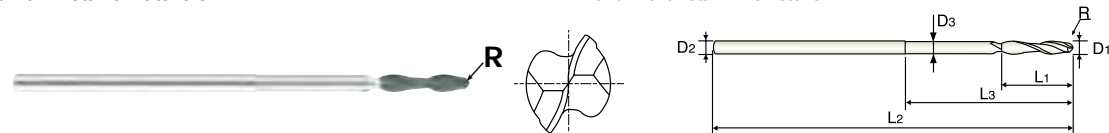


**CARBIDE, 2 FLUTE BALL NOSE LONG LENGTH with NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS LANG mit ABGESETZTEM SCHAFTTETEL**  
 (●) **Fraise carbure, 2 dents, hémisphérique, détalonnée, longue**  
 (●) **2 TAGLIENTI, SEMISFERICA, SERIE LUNGA**

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



**CARBIDE** 2 30° ±0.01 PLAIN Diamond p.C493

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter		Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	D3	L1	L3	L2	D3
EI451020	R1.0	2.0	4		10	20	80	1.95
EI451030	R1.5	3.0	4		15	25	80	2.9
EI451040	R2.0	4.0	4		20	30	80	3.9
EI451050	R2.5	5.0	6		30	50	100	4.9
EI451060	R3.0	6.0	6		30	50	100	5.5
EI451070	R3.5	7.0	6		30	-	100	-
EI451080	R4.0	8.0	8		40	60	110	7.5
EI451090	R4.5	9.0	8		40	-	110	-
EI451100	R5.0	10.0	10		50	70	120	9.5
EI451120	R6.0	12.0	12		55	75	130	11.5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

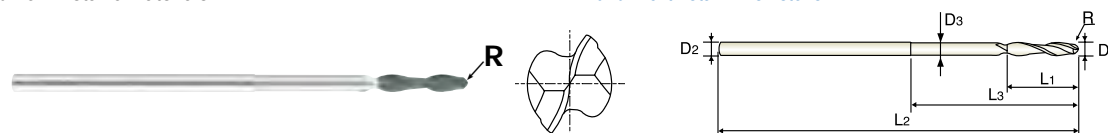


**CARBIDE, 2 FLUTE BALL NOSE LONG REACH with NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS GROÙE REICHWEITE mit ABGESETZTEM SCHAFTTETEL**  
 (●) **Fraise carbure, 2 dents, hémisphérique longue portée, détalonnée**  
 (●) **2 TAGLIENTI, SEMISFERICA PER CAVITA' PROFONDE**

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



**CARBIDE** 2 30° ±0.01 PLAIN Diamond p.C493

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter		Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	D3	L1	L3	L2	D3
EI450020	R1.0	2.0	4		10	20	100	1.95
EI450030	R1.5	3.0	4		15	25	100	2.9
EI450040	R2.0	4.0	4		20	30	100	3.9
EI450050	R2.5	5.0	6		30	50	120	4.9
EI450060	R3.0	6.0	6		30	50	150	5.5
EI450070	R3.5	7.0	6		30	-	150	-
EI450080	R4.0	8.0	8		40	60	150	7.5
EI450090	R4.5	9.0	8		40	-	150	-
EI450100	R5.0	10.0	10		50	70	180	9.5
EI450120	R6.0	12.0	12		55	75	200	11.5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

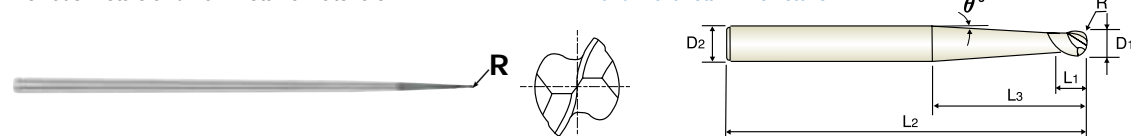
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

**CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL
- Fraise carbure, 2 dents, hémisphérique avec entrée conique
- 2 TAGLIENTI, SEMISFERICA CON SCARICO CONICO

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE 2 30° ±0.01 PLAIN Diamond p.C493

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R (±0.01)	D1	D2	L1	L3	L2	θ°
EIB87010	R0.5	1.0	3	2	-	40	8° 30'
EIB87901	R0.5	1.0	3	2	30	60	2°
EIB87902	R0.5	1.0	3	2	70	100	1°
EIB87015	R0.75	1.5	3	3	-	40	6° 15'
EIB87903	R0.75	1.5	3	3	30	60	1° 30'
EIB87904	R0.75	1.5	3	3	58	100	45°
EIB87020	R1.0	2.0	3	4	-	40	4° 15'
EIB87905	R1.0	2.0	3	4	30	60	1°
EIB87906	R1.0	2.0	4	4	70	100	1°

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	350	200	325	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron									
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

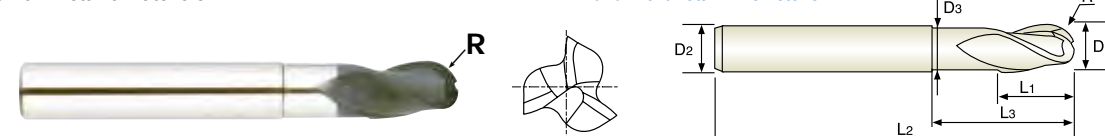


**CARBIDE, 3 FLUTE BALL NOSE SHORT LENGTH with NECK**

- VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETEL
- Fraise carbure, 3 dents, hémisphérique, détalonnée, courte
- 3 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE 3 30° ±0.01 PLAIN Diamond p.C493

Recommended ToolHolder: HYDRAULIC CHUCK SHRINK FIT HOLDER (D15-46, D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK SK SLIM CHUCK (D73-116, D183-201)

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI881020	R1.0	2.0	6	3	5	60	1.9
EI881025	R1.25	2.5	6	4	6	60	2.4
EI881030	R1.5	3.0	6	4.5	6.5	60	2.8
EI881035	R1.75	3.5	6	5	7	65	3.2
EI881040	R2.0	4.0	6	6	8	65	3.7
EI881050	R2.5	5.0	6	7.5	10	65	4.6
EI881060	R3.0	6.0	6	9	12	75	5.6
EI881080	R4.0	8.0	8	12	25	75	7.4
EI881100	R5.0	10.0	10	15	30	80	9.4
EI881120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	350	200	325	240	180	180	260	160	250	130	230
Recommend																				

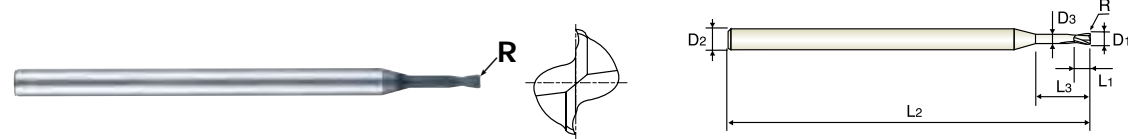
  

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron									
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

**CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK**

**VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETEL**  
**Fraise carbure, 2 dents, torique, détalonnée, micro-fraise**  
**2 TAGLIENTI, TORICA, SERIE MINI, SCARICATA**

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



**CARBIDE** 2 30° PLAIN Diamond p.C493

Recommended ToolHolder: Plain Shank, Hydraulic Chuck, Shrink Fit Holder, Power Milling Chuck, ER Collet Chuck, SK Slim Chuck.

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
E199600200000	-	0.2	3	0.3	-	40	-
E199600300000	-	0.3	3	0.5	-	40	-
E199600400000	-	0.4	3	0.6	-	40	-
E199600505025	R0.05	0.5	3	0.7	2.5	40	0.45
E199600505040	R0.05	0.5	3	0.7	4	40	0.45
E1996006	R0.05	0.6	3	0.9	3	40	0.55
E199600605050	R0.05	0.6	3	0.9	5	40	0.55
E1996008	R0.05	0.8	3	1.2	4	40	0.75
E199600805070	R0.05	0.8	3	1.2	7	40	0.75
E1996010	R0.1	1.0	3	1.5	5	40	0.95
E1996904	R0.1	1.0	3	1.5	8.5	40	0.95
E199601010120	R0.1	1.0	3	1.5	12	40	0.95
E1996012	R0.1	1.2	3	1.8	6	50	1.15
E199601210100	R0.1	1.2	3	1.8	10	50	1.15
E1996015	R0.15	1.5	3	2.2	7.5	50	1.4
E1996907	R0.15	1.5	3	2.2	12	50	1.4
E199601515180	R0.15	1.5	3	2.2	18	50	1.4
E1996020	R0.15	2.0	3	2.2	10	60	1.9
E1996909	R0.15	2.0	3	2.2	16	60	1.9
E199602015250	R0.15	2.0	3	2.2	25	60	1.9
E199603020100	R0.2	3.0	4	3	10	65	2.9
E199603020150	R0.2	3.0	4	3	15	65	2.9
E199603020200	R0.2	3.0	4	3	20	65	2.9
E199603020250	R0.2	3.0	4	3	25	75	2.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

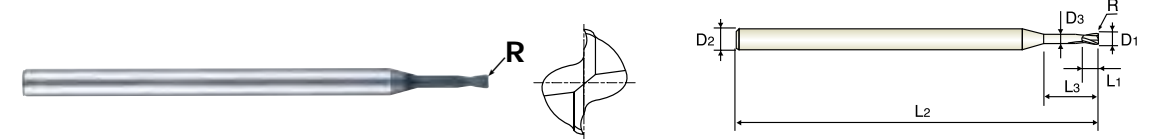
ISO Material Description	N						S						H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○				◎													



**CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK**

**VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETEL**  
**Fraise carbure, 2 dents, torique, détalonnée, micro-fraise**  
**2 TAGLIENTI, TORICA, SERIE MINI, SCARICATA**

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



**CARBIDE** 2 30° PLAIN Diamond p.C493

Recommended ToolHolder: Plain Shank, Hydraulic Chuck, Shrink Fit Holder, Power Milling Chuck, ER Collet Chuck, SK Slim Chuck.

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
E199603020300	R0.2	3.0	4	3	30	75	2.9
E199604020200	R0.2	4.0	6	4	20	65	3.9
E199604020300	R0.2	4.0	6	4	30	75	3.9
E199604020400	R0.2	4.0	6	4	40	90	3.9
E199605030200	R0.3	5.0	6	5	20	75	4.9
E199605030300	R0.3	5.0	6	5	30	75	4.9
E199605030400	R0.3	5.0	6	5	40	90	4.9
E199605030500	R0.3	5.0	6	5	50	90	4.9
E199606030300	R0.3	6.0	6	6	30	75	5.9
E199606030400	R0.3	6.0	6	6	40	90	5.9
E199606030500	R0.3	6.0	6	6	50	90	5.9
E199606030600	R0.3	6.0	6	6	60	100	5.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

ISO Material Description	N						S						H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○				◎													



**CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK**

- VOLLHARTMETALL, 2 SCHEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFFTEIL
- Fraise carbure, 2 dents, torique avec entrée conique
- 2 TAGLIENTI, TORICA CON SCARICO CONICO

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE 2 30° PLAIN Diamond p.C493

Recommended ToolHolder: Plain Shank, Hydraulic Chuck, Shrink Fit Holder, Power Milling Chuck, ER Collet Chuck, SK Slim Chuck. Page: D15-46, D47-72, D161-176, D73-116, D183-201.

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R	D1	D2	L1	L3	L2	θ°
EIB86010	R0.1	1.0	3	2	30	60	2°
EIB86901	R0.1	1.0	3	2	70	100	1°
EIB86015	R0.15	1.5	3	3	30	60	1° 30'
EIB86902	R0.15	1.5	3	3	50	100	1°
EIB86020	R0.15	2.0	3	4	30	60	1°
EIB86903	R0.15	2.0	4	4	70	100	1°

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○				◎													



**CARBIDE, 3 FLUTE 40° HELIX CORNER RADIUS SHORT LENGTH**

- VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE ECKENRADIUS KURZ
- Fraise carbure, 3 dents, torique, hélice 40°, courte
- 3 TAGLIENTI, ELICA 40°, TORICA, SERIE CORTA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE 3 40° PLAIN Diamond p.C494

Recommended ToolHolder: Plain Shank, Hydraulic Chuck, Shrink Fit Holder, Power Milling Chuck, ER Collet Chuck, SK Slim Chuck. Page: D15-46, D47-72, D161-176, D73-116, D183-201.

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
EIA13020	R0.15	2.0	3	6	40
EIA13030	R0.15	3.0	3	12	40
EIA13040	R0.2	4.0	4	14	50
EIA13050	R0.3	5.0	5	16	50
EIA13060	R0.3	6.0	6	20	65
EIA13080	R0.5	8.0	8	20	65
EIA13100	R0.5	10.0	10	25	75
EIA13120	R0.5	12.0	12	25	75

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

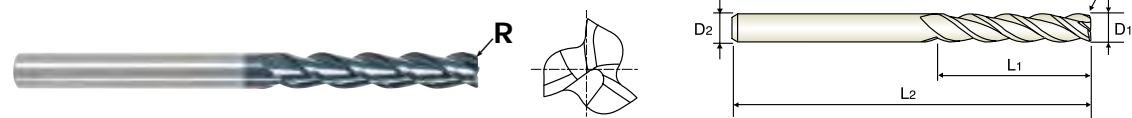
  

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○				◎													

**CARBIDE, 3 FLUTE 40° HELIX CORNER RADIUS LONG LENGTH**

- VOLLHARTMETALL, 3 SCHNEIDN 40° RECHTSSPIRALE ECKENRADIUS LANG
- Fraise carbure, 3 dents, torique, hélice 40°, longue
- 3 TAGLIENTI, ELICA 40°, TORICA, SERIE LUNGA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
EIA14020	R0.15	2.0	3	9	60
EIA14030	R0.15	3.0	3	30	60
EIA14040	R0.2	4.0	4	30	60
EIA14050	R0.3	5.0	5	35	70
EIA14060	R0.3	6.0	6	40	100
EIA14080	R0.5	8.0	8	40	100
EIA14100	R0.5	10.0	10	40	100
EIA14120	R0.5	12.0	12	45	100

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

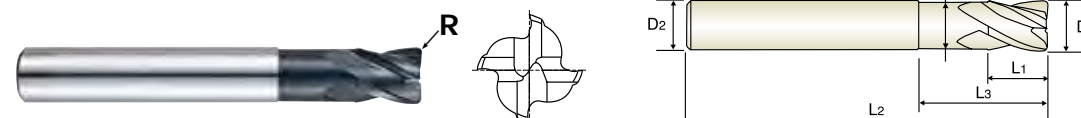
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron									
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												



**CARBIDE, 4 FLUTE CORNER RADIUS with NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
- Fraise carbure, 4 dents, torique, détalonnée
- 4 TAGLIENTI, TORICA, SCARICATA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schafffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schafffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
EIB88060	R0.5	6.0	6	10	40	80	5.9
EIB88080	R0.5	8.0	8	10	40	80	7.8
EIB88901	R1.0	8.0	8	10	60	100	7.8
EIB88100	R0.5	10.0	10	25	-	75	-
EIB88902	R0.5	10.0	10	12	40	80	9.8
EIB88903	R1.0	10.0	10	12	40	80	9.8
EIB88904	R0.5	10.0	10	12	80	125	9.8
EIB88120	R0.5	12.0	12	25	-	80	-
EIB88905	R0.5	12.0	12	15	40	80	11.8
EIB88906	R1.0	12.0	12	15	40	80	11.8
EIB88907	R1.0	12.0	12	15	80	125	11.8

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

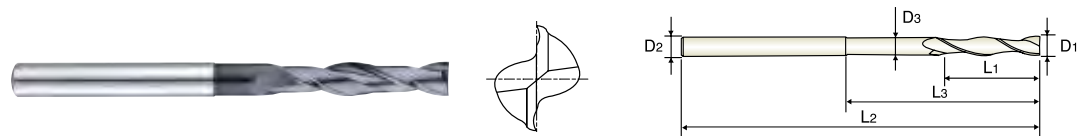
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron									
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

**CARBIDE, 2 FLUTE LONG LENGTH with NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN LANG mit ABGESETZTEM SCHAFTTETEL**  
 ○ **Fraise carbure, 2 dents, détalonnée, longue**  
 ○ **2 TAGLIENTI, SERIE LUNGA**

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Plain Shank	Page
HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
EIB0400502040	0.5	3	1	2	40	0.45
EIB0400603040	0.6	3	2	3	40	0.55
EIB0400704040	0.7	3	2	4	40	0.65
EIB0400805040	0.8	3	2	5	40	0.75
EIB0400906040	0.9	3	2	6	40	0.85
EIB0401008075	1.0	4	3	8	75	0.95
EIB0401510075	1.5	4	4	10	75	1.45
EIB0402016100	2.0	4	6	16	100	1.9
EIB0402520100	2.5	4	8	20	100	2.4
EIB0403030100	3.0	6	8	30	100	2.8
EIB0403535100	3.5	6	10	35	100	3.2
EIB0404040100	4.0	6	20	40	100	3.7
EIB0405050125	5.0	6	25	50	125	4.6
EIB0406060140	6.0	6	30	60	140	5.6
EIB0407000140	7.0	6	35	-	140	-
EIB0408080150	8.0	8	40	80	150	7.4
EIB0409000150	9.0	8	45	-	150	-
EIB0410080150	10.0	10	50	80	150	9.4
EIB0411000150	11.0	10	50	-	150	-
EIB0412080150	12.0	12	55	80	150	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

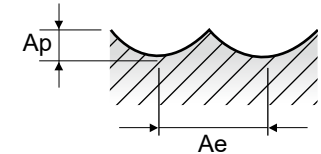
ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												



**EI997, EIB93, EIB87 SERIES 2 FLUTE BALL NOSE**

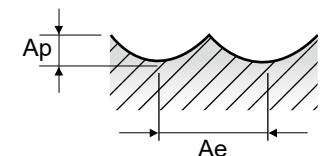
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						0.4	0.6	0.8	1.0	1.2	1.5	2.0	3.0	4.0	5.0	6.0
N	29.2	Graphite	0.2D	0.2D	Vc	50	75	100	125	150	190	250	255	250	250	265
					fz	0.008	0.010	0.012	0.015	0.018	0.020	0.025	0.041	0.073	0.091	0.104
					RPM	39789	39789	39789	39789	39789	40319	39789	27056	19894	15915	14059
FEED	637	796	955	1194	1432	1613	1989	2219	2905	2897	2924					



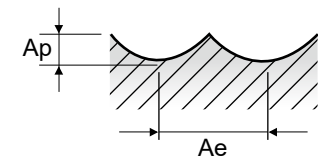
**EI880, EI451, EI450 SERIES 2 FLUTE BALL NOSE**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0	
N	29.2	Graphite	0.2D	0.2D	Vc	100	125	150	175	200	245	285	325	360	395	
					fz	0.025	0.035	0.045	0.055	0.066	0.082	0.098	0.115	0.133	0.150	
					RPM	15915	15915	15915	15915	15915	15597	15120	12931	11459	10478	
FEED	796	1114	1432	1751	2101	2558	2963	2974	3048	3143						



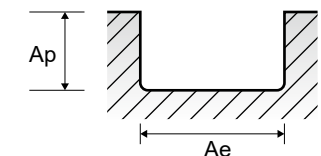
**EI881 SERIES 3 FLUTE BALL NOSE**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0	
N	29.2	Graphite	0.2D	0.2D	Vc	100	125	150	175	200	245	285	325	360	395	
					fz	0.025	0.035	0.045	0.055	0.065	0.082	0.099	0.115	0.133	0.151	
					RPM	15915	15915	15915	15915	15915	15597	15120	12931	11459	10478	
FEED	1194	1671	2149	2626	3104	3837	4491	4461	4572	4746						



**EI996, EIB86 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						0.4	0.6	0.8	1.0	1.2	1.5	2.0	3.0	4.0	5.0	6.0
N	29.2	Graphite	1.0D	0.5D	Vc	50	75	100	125	150	190	250	255	250	250	265
					fz	0.008	0.008	0.010	0.012	0.015	0.018	0.020	0.035	0.058	0.072	0.082
					RPM	39789	39789	39789	39789	39789	40319	39789	27056	19894	15915	14059
FEED	637	637	796	955	1194	1451	1592	1894	2308	2292	2306					

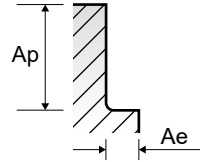




**EIA13, EIA14 SERIES 3 FLUTE CORNER RADIUS - SIDE CUTTING**

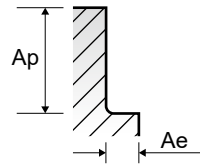
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
<b>N</b>	29.2	Graphite	0.3D	0.3D	Vc	250	375	505	630	755	805	815	790
					fz	0.025	0.035	0.05	0.06	0.07	0.088	0.11	0.13
					RPM	39789	39789	40187	40107	40054	32030	25942	20955
					FEED	2984	4178	6028	7219	8411	8456	8561	8173



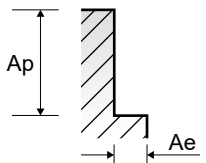
**EIB88 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)			
						6.0	8.0	10.0	12.0
<b>N</b>	29.2	Graphite	0.3D	0.3D	Vc	755	805	815	790
					fz	0.035	0.044	0.055	0.065
					RPM	40054	32030	25942	20955
					FEED	5608	5637	5707	5448



**EIB04 SERIES 2 FLUTE - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						0.4	0.6	0.8	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
<b>N</b>	29.2	Graphite	0.1D	1.5D	Vc	50	75	100	125	190	155	190	225	220	205	200	205	205
					fz	0.003	0.004	0.007	0.009	0.010	0.016	0.020	0.026	0.043	0.064	0.081	0.092	0.109
					RPM	39789	39789	39789	39789	40319	24669	20160	17905	14006	10876	7958	6525	5438
					FEED	239	318	557	716	806	789	806	931	1204	1392	1289	1201	1185





Leading Through Innovation



**SOLID CARBIDE**

# CRX S END MILLS

## CRX S FRÄSER

- DLC Coated Carbide End Mills for Copper
- DLC beschichtete VHM Fräser für die Kuper



SELECTION GUIDE



SOLID CARBIDE  
**CRX S**  
END MILLS

DLC Coated Carbide End Mills for Copper

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C505

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc					
P	1	Non-alloy steel	About 0.15% C Annealed	125						
	2		About 0.45% C Annealed	190	13					
	3		About 0.45% C Quenched & Tempered	250	25					
	4		About 0.75% C Annealed	270	28					
	5		About 0.75% C Quenched & Tempered	300	32					
	6	Low alloy steel	Annealed	180	10					
	7		Quenched & Tempered	275	29					
	8		Quenched & Tempered	300	32					
	9		Quenched & Tempered	350	38					
	10		High alloyed steel, and tool steel	Annealed	200	15				
	11	Quenched & Tempered	325	35						
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15					
	13		Martensitic Quenched & Tempered	240	23					
	14		Austenitic	180	10					
K	15	Grey cast iron	Pearlitic / ferritic	180	10					
	16		Pearlitic (Martensitic)	260	26					
	17	Nodular cast iron	Ferritic	160	3					
	18		Pearlitic	250	25					
	19	Malleable cast iron	Ferritic	130						
	20		Pearlitic	230	21					
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	○	○
	22		Curable Hardened	100		○	○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75						
	24		≤ 12% Si, Curable Hardened	90						
	25		> 12% Si, Not Curable	130						
	26		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		◎	◎	◎	◎
	27	Non Metallic Materials	CuZn, CuSnZn (Brass)	90		◎	◎	◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper	100		◎	◎	◎	◎	◎
	29		Duroplastic, Fiber Reinforced Plastic				○	○	○	○
	30	Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15					
	32		Cured	280	30					
	33		Annealed	250	25					
	34		Cured	350	38					
	35		Cast	320	34					
	36	Titanium Alloys	Pure Titanium	400 Rm						
37	Alpha + Beta Alloys Hardened		1050 Rm							
H	38	Hardened steel	Hardened	550	55					
	39		Hardened	630	60					
	40	Chilled Cast Iron	Cast	400	42					
	41	Hardened Cast Iron	Hardened	550	55					

SERIES	SGED28	SGED27	SGED29	SGED31	SGED30
FLUTE	2	2	2	2	2
HELIX ANGLE	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	R0.5	R0.25	D1.0	D1.0	D0.5
SIZE MAX	R6.0	R6.0	D12.0	D12.0	D12.0
PAGE	C497	C498	C500	C502	C503

	EXTENDED NECK	EXTENDED NECK		EXTENDED NECK
	DLC	DLC	DLC	DLC



PLAIN SHANK **SGED28** SERIES

CARBIDE, 2 FLUTE BALL NOSE DLC COATING

● VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG  
 ○ Fraise carbure, 2 dents, hémisphérique, revêtue DLC  
 ◎ 2 TAGLIENTI, SEMISFERICA, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ Tight radius tolerance is applied (±0.005mm tolerance under R3).
- ▶ Excellent surface roughness from Mirror Face of cutting edges

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hochgenaue Radiustoleranz (± 0.005mm Toleranz unter R3mm)
- ▶ Sehr gute Oberflächenrauigkeit wird durch die besonders behandelte Schneide erreicht



CARBIDE 2 30° ±0.005 R PLAIN DLC p.C505

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

EDP No.	Radius of Ball Nose R(±0.005)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
SGED28010	R0.5	1.0	6	2.5	50
SGED28015	R0.75	1.5	6	4	50
SGED28020	R1.0	2.0	6	5	50
SGED28030	R1.5	3.0	6	8	60
SGED28040	R2.0	4.0	6	8	70
SGED28050	R2.5	5.0	6	12	90
SGED28060	R3.0	6.0	6	12	90
SGED28080	R4.0	8.0	8	16	100
SGED28100	R5.0	10.0	10	20	100
SGED28120	R6.0	12.0	12	25	110

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3		0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323																					
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommend																					
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB																					
Recommend	○	○				◎	◎	◎		○											



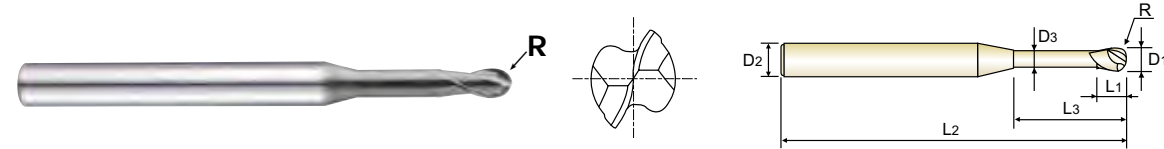


**CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETEL**  
 (●) **Fraise carbure, 2 dents, hémisphérique, détalonnée, revêtue DLC**  
 (●) **2 TAGLIENTI, SEMISFERICA CON SCARICO ESTESO, RIV. DLC**

- ▶ Designed for copper, copper alloys soft graphite, reinforced plastics and the materials affiliated with non-ferrous metals.
- ▶ Tight radius tolerance is applied ( $\pm 0.005\text{mm}$  tolerance under R3).
- ▶ Excellent surface roughness thanks to Mirror Face of cutting edges
- ▶ High strength and minimized vibration are available due to two step taper neck(under R0.5).

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hochgenaue Raduistoleranz ( $\pm 0.005\text{mm}$  Toleranz unter R3mm)
- ▶ Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter R 0,5mm)



CARBIDE 2 30° R ±0.005 R ±0.010 PLAIN DLC p.C506

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

R0.25-R3 R4-R6

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R( $\pm 0.005$ )	D1	D2	L1	L3	L2	D3
SGED2700502	R0.25	0.5	4	0.5	2	45	0.45
SGED2700504	R0.25	0.5	4	0.5	4	45	0.45
SGED2700506	R0.25	0.5	4	0.5	6	45	0.45
SGED2700508	R0.25	0.5	4	0.5	8	45	0.45
SGED2700510	R0.25	0.5	4	0.5	10	45	0.45
SGED2700602	R0.3	0.6	4	0.6	2	45	0.55
SGED2700604	R0.3	0.6	4	0.6	4	45	0.55
SGED2700606	R0.3	0.6	4	0.6	6	45	0.55
SGED2700608	R0.3	0.6	4	0.6	8	45	0.55
SGED2700610	R0.3	0.6	4	0.6	10	45	0.55
SGED2700804	R0.4	0.8	4	0.8	4	45	0.75
SGED2700806	R0.4	0.8	4	0.8	6	45	0.75
SGED2700808	R0.4	0.8	4	0.8	8	45	0.75
SGED2700810	R0.4	0.8	4	0.8	10	45	0.75
SGED2700812	R0.4	0.8	4	0.8	12	45	0.75
SGED2701004	R0.5	1.0	4	1	4	45	0.95
SGED2701006	R0.5	1.0	4	1	6	45	0.95
SGED2701008	R0.5	1.0	4	1	8	45	0.95
SGED2701010	R0.5	1.0	4	1	10	45	0.95
SGED2701012	R0.5	1.0	4	1	12	45	0.95
SGED2701506	R0.75	1.5	4	1.5	6	45	1.45
SGED2701508	R0.75	1.5	4	1.5	8	45	1.45
SGED2701510	R0.75	1.5	4	1.5	10	45	1.45
SGED2701512	R0.75	1.5	4	1.5	12	45	1.45

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	$\pm 0.005$	0 ~ - 0.012	h5
over R3	$\pm 0.010$	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

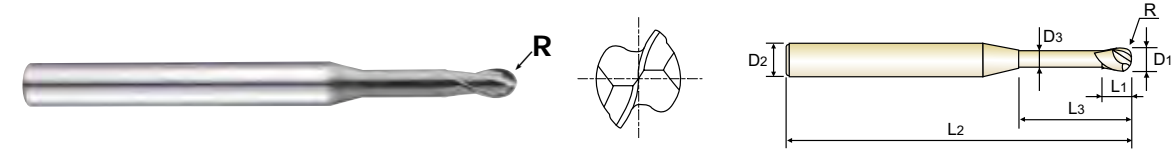


**CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETEL**  
 (●) **Fraise carbure, 2 dents, hémisphérique, détalonnée, revêtue DLC**  
 (●) **2 TAGLIENTI, SEMISFERICA CON SCARICO ESTESO, RIV. DLC**

- ▶ Designed to copper, copper alloys soft graphite, reinforced plastics and the materials affiliated with non-ferrous metals.
- ▶ Tight radius tolerance is applied ( $\pm 0.005\text{mm}$  tolerance under R3).
- ▶ Excellent surface roughness thanks to Mirror Face of cutting edges
- ▶ High strength and minimized vibration are available due to two step taper neck(under R0.5).

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hochgenaue Raduistoleranz ( $\pm 0.005\text{mm}$  Toleranz unter R3mm)
- ▶ Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter R 0,5mm)



CARBIDE 2 30° R ±0.005 R ±0.010 PLAIN DLC p.C506

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

R0.25-R3 R4-R6

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R( $\pm 0.005$ )	D1	D2	L1	L3	L2	D3
SGED2701516	R0.75	1.5	4	1.5	16	50	1.45
SGED2702006	R1.0	2.0	4	3	6	45	1.95
SGED2702008	R1.0	2.0	4	3	8	45	1.95
SGED2702010	R1.0	2.0	4	3	10	45	1.95
SGED2702012	R1.0	2.0	4	3	12	45	1.95
SGED2702016	R1.0	2.0	4	3	16	50	1.95
SGED2703010	R1.5	3.0	6	4	10	50	2.85
SGED2703012	R1.5	3.0	6	4	12	50	2.85
SGED2703016	R1.5	3.0	6	4	16	60	2.85
SGED2703020	R1.5	3.0	6	4	20	60	2.85
SGED2704010	R2.0	4.0	6	5	10	50	3.85
SGED2704012	R2.0	4.0	6	5	12	50	3.85
SGED2704016	R2.0	4.0	6	5	16	60	3.85
SGED2704020	R2.0	4.0	6	5	20	60	3.85
SGED2704025	R2.0	4.0	6	5	25	60	3.85
SGED2706020	R3.0	6.0	6	8	20	60	5.85
SGED2706030	R3.0	6.0	6	8	30	90	5.85
SGED2708020	R4.0	8.0	8	10	20	70	7.70
SGED2710025	R5.0	10.0	10	12	25	80	9.70
SGED2712025	R6.0	12.0	12	14	25	80	11.70

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	$\pm 0.005$	0 ~ - 0.012	h5
over R3	$\pm 0.010$	0 ~ - 0.015	

◎ : Excellent ○ : Good

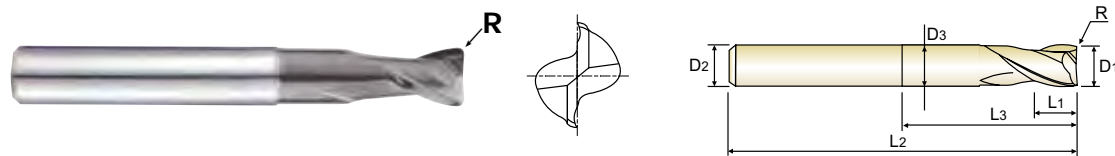
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

**CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC Beschichtung mit ABGESETZTEM SCHAFTTETL  
 (1) Fraise carbure, 2 dents, torique, détalonnée, revêtue DLC  
 (2) 2 TAGLIENTI, TORICA CON SCARICO ESTESO, RIVESTIMENTO DLC

► Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.  
 ► Excellent surface roughness from Mirror Face of cutting edges

► Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen  
 ► Ausgelegt für verschiedene Anwendungen, z.B. schrumpfen, schrumpfschichten und zur schlicht Bearbeitung, aufgrund der neuartigen Geometrie



CARBIDE 2 30° ±0.010 ±0.015 PLAIN DLC p.C505

Recommended ToolHolder: HYDRAULIC CHUCK (D15-46), SHRINK FIT HOLDER (D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116), SK SLIM CHUCK (D183-201)

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SGED290100104	R0.1	1.0	4	1.5	4	45	0.95
SGED290100106	R0.1	1.0	4	1.5	6	45	0.95
SGED290100108	R0.1	1.0	4	1.5	8	45	0.95
SGED290100204	R0.2	1.0	4	1.5	4	45	0.95
SGED290100206	R0.2	1.0	4	1.5	6	45	0.95
SGED290100208	R0.2	1.0	4	1.5	8	45	0.95
SGED290150106	R0.1	1.5	4	2.3	6	45	1.45
SGED290150108	R0.1	1.5	4	2.3	8	45	1.45
SGED290150110	R0.1	1.5	4	2.3	10	45	1.45
SGED290150206	R0.2	1.5	4	2.3	6	45	1.45
SGED290150208	R0.2	1.5	4	2.3	8	45	1.45
SGED290150210	R0.2	1.5	4	2.3	10	45	1.45
SGED290200208	R0.2	2.0	4	3	8	45	1.95
SGED290200210	R0.2	2.0	4	3	10	45	1.95
SGED290200212	R0.2	2.0	4	3	12	45	1.95
SGED290200508	R0.5	2.0	4	3	8	45	1.95
SGED290200510	R0.5	2.0	4	3	10	45	1.95
SGED290200512	R0.5	2.0	4	3	12	45	1.95
SGED290300210	R0.2	3.0	6	4.5	10	50	2.85
SGED290300212	R0.2	3.0	6	4.5	12	50	2.85
SGED290300216	R0.2	3.0	6	4.5	16	60	2.85
SGED290300310	R0.3	3.0	6	4.5	10	50	2.85
SGED290300312	R0.3	3.0	6	4.5	12	50	2.85
SGED290300316	R0.3	3.0	6	4.5	16	60	2.85

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0 ~ - 0.012	h5
over Ø6	±0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	34	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎													

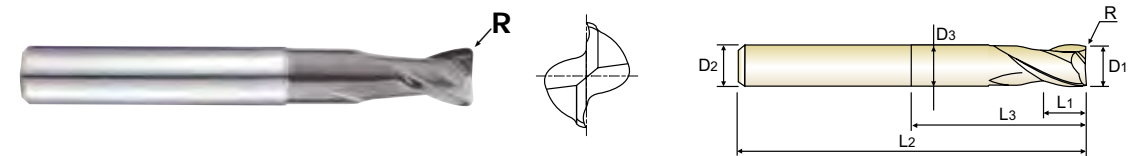


**CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK**

● VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC Beschichtung mit ABGESETZTEM SCHAFTTETL  
 (1) Fraise carbure, 2 dents, torique, détalonnée, revêtue DLC  
 (2) 2 TAGLIENTI, TORICA CON SCARICO ESTESO, RIVESTIMENTO DLC

► Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.  
 ► Excellent surface roughness from Mirror Face of cutting edges

► Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen  
 ► Ausgelegt für verschiedene Anwendungen, z.B. schrumpfen, schrumpfschichten und zur schlicht Bearbeitung, aufgrund der neuartigen Geometrie



CARBIDE 2 30° ±0.010 ±0.015 PLAIN DLC p.C505

Recommended ToolHolder: HYDRAULIC CHUCK (D15-46), SHRINK FIT HOLDER (D47-72), POWER MILLING CHUCK (D161-176), ER COLLET CHUCK (D73-116), SK SLIM CHUCK (D183-201)

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
SGED290400212	R0.2	4.0	6	6	12	50	3.85
SGED290400216	R0.2	4.0	6	6	16	60	3.85
SGED290400220	R0.2	4.0	6	6	20	60	3.85
SGED290400512	R0.5	4.0	6	6	12	50	3.85
SGED290400516	R0.5	4.0	6	6	16	60	3.85
SGED290400520	R0.5	4.0	6	6	20	60	3.85
SGED290600320	R0.3	6.0	6	9	20	60	5.85
SGED290600520	R0.5	6.0	6	9	20	60	5.85
SGED290601020	R1.0	6.0	6	9	20	60	5.85
SGED290800325	R0.3	8.0	8	12	25	65	7.70
SGED290800525	R0.5	8.0	8	12	25	65	7.70
SGED290801025	R1.0	8.0	8	12	25	65	7.70
SGED291000530	R0.5	10.0	10	15	30	70	9.70
SGED291001030	R1.0	10.0	10	15	30	70	9.70
SGED291200532	R0.5	12.0	12	18	32	80	11.70
SGED291201032	R1.0	12.0	12	18	32	80	11.70

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0 ~ - 0.012	h5
over Ø6	±0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	34	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎													



PLAIN SHANK **SGED31** SERIES

**CARBIDE, 2 FLUTE DLC COATING**

- VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG
- ① Fraise carbure, 2 dents, revêtue DLC
- ② 2 TAGLIENTI, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie was zur verminderten Gratbildung führt



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
SGED31010	1.0	6	2.5	50
SGED31015	1.5	6	4	50
SGED31020	2.0	6	6	50
SGED31025	2.5	6	8	50
SGED31030	3.0	6	10	50
SGED31040	4.0	6	12	50
SGED31050	5.0	6	15	60
SGED31060	6.0	6	15	60
SGED31080	8.0	8	20	65
SGED31100	10.0	10	25	70
SGED31120	12.0	12	30	80

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												



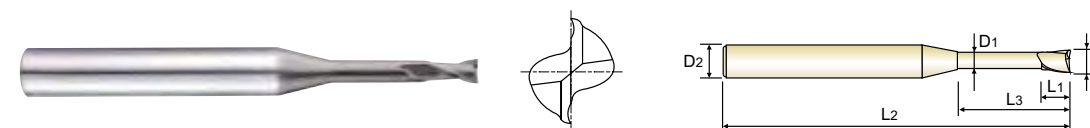
PLAIN SHANK **SGED30** SERIES

**CARBIDE, 2 FLUTE DLC COATING with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL
- ① Fraise carbure, 2 dents, détalonnée, revêtue DLC
- ② 2 TAGLIENTI, SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ High toughness and minimized vibration applied from two step taper neck (under dia. 1.0mm)
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter Ø 1mm)
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SGED3000502	0.5	4	0.7	2	45	0.45
SGED3000504	0.5	4	0.7	4	45	0.45
SGED3000506	0.5	4	0.7	6	45	0.45
SGED3000508	0.5	4	0.7	8	45	0.45
SGED3000510	0.5	4	0.7	10	45	0.45
SGED3000602	0.6	4	0.9	2	45	0.55
SGED3000604	0.6	4	0.9	4	45	0.55
SGED3000606	0.6	4	0.9	6	45	0.55
SGED3000608	0.6	4	0.9	8	45	0.55
SGED3000610	0.6	4	0.9	10	45	0.55
SGED3000804	0.8	4	1.2	4	45	0.75
SGED3000806	0.8	4	1.2	6	45	0.75
SGED3000808	0.8	4	1.2	8	45	0.75
SGED3000810	0.8	4	1.2	10	45	0.75
SGED3000812	0.8	4	1.2	12	45	0.75
SGED3001004	1.0	4	1.5	4	45	0.95
SGED3001006	1.0	4	1.5	6	45	0.95
SGED3001008	1.0	4	1.5	8	45	0.95
SGED3001010	1.0	4	1.5	10	45	0.95
SGED3001012	1.0	4	1.5	12	45	0.95
SGED3001506	1.5	4	2.3	6	45	1.45
SGED3001508	1.5	4	2.3	8	45	1.45
SGED3001510	1.5	4	2.3	10	45	1.45
SGED3001512	1.5	4	2.3	12	45	1.45

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												





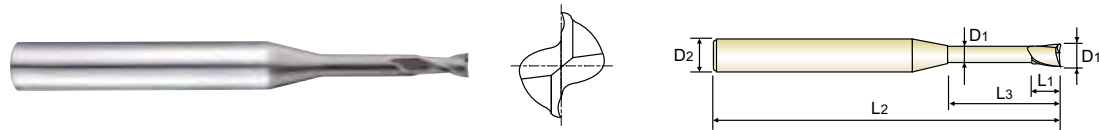
PLAIN SHANK **SGED30** SERIES

**CARBIDE, 2 FLUTE DLC COATING with EXTENDED NECK**

● **VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETEL**  
 ○ **Fraise carbure, 2 dents, détalonnée, revêtue DLC**  
 ○ **2 TAGLIENTI, SCARICO ESTESO, RIVESTIMENTO DLC**

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ High toughness and minimized vibration applied from two step taper neck (under dia. 1.0mm)
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter Ø 1mm)
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie



Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
SGED3001516	1.5	4	2.3	16	50	1.45
SGED3002008	2.0	4	3	8	45	1.95
SGED3002010	2.0	4	3	10	45	1.95
SGED3002012	2.0	4	3	12	45	1.95
SGED3002016	2.0	4	3	16	50	1.95
SGED3003008	3.0	6	4.5	8	50	2.85
SGED3003010	3.0	6	4.5	10	50	2.85
SGED3003012	3.0	6	4.5	12	50	2.85
SGED3003016	3.0	6	4.5	16	60	2.85
SGED3003020	3.0	6	4.5	20	60	2.85
SGED3004010	4.0	6	6	10	50	3.85
SGED3004012	4.0	6	6	12	50	3.85
SGED3004016	4.0	6	6	16	60	3.85
SGED3004020	4.0	6	6	20	60	3.85
SGED3004025	4.0	6	6	25	60	3.85
SGED3006020	6.0	6	8	20	60	5.85
SGED3006030	6.0	6	8	30	90	5.85
SGED3008020	8.0	8	12	20	70	7.70
SGED3010025	10.0	10	15	25	80	9.70
SGED3012025	12.0	12	18	25	80	11.70

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ -0.012	h5
over Ø6	0 ~ -0.015	

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N					S										H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○				◎	◎	◎														

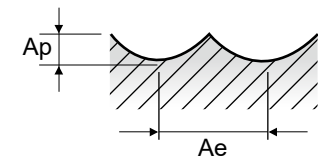


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**SGED28** SERIES 2 FLUTE BALL

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0			
N	21-22	Aluminum-wrought alloy	0.05D	0.02D	Vc	155	300	295	285	290	295	300	300	300			
					fz	0.01	0.022	0.031	0.042	0.052	0.061	0.079	0.101	0.12			
					RPM	49338	47746	31300	22680	18462	15650	11937	9549	7958			
N	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	0.02D	Vc	130	150	150	145	145	145	150	150				
					fz	0.011	0.02	0.028	0.038	0.047	0.055	0.072	0.092	0.109			
					RPM	41380	23873	15915	11539	9231	7692	5968	4775	3979			
N	29.1	Duroplastic	0.05D	0.02D	Vc	155	315	445	435	440	445	450	455				
					fz	0.008	0.015	0.019	0.026	0.033	0.038	0.05	0.063	0.076			
					RPM	49338	50134	47216	34616	28011	23608	17905	14483	11937			
					FEED	789	1504	1794	1800	1849	1794	1790	1825	1814			



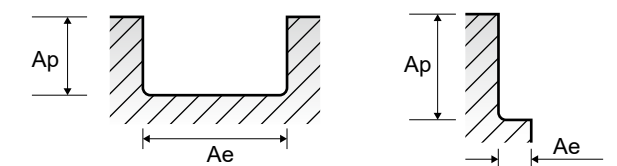
**SGED29** SERIES

2 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0			
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	155	315	470	630	785	840	840	840	835			
					fz	0.01	0.018	0.026	0.037	0.043	0.052	0.068	0.089	0.105			
					RPM	49338	50134	49869	50134	49975	44563	33423	26738	22149			
N	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	Vc	155	315	420	420	425	420	420	420				
					fz	0.01	0.017	0.026	0.031	0.039	0.047	0.063	0.079	0.095			
					RPM	49338	50134	44563	33423	27056	22282	16711	13369	11141			
N	29.1	Duroplastic	1.0D	0.5D	Vc	155	315	470	630	785	940	1255	1255				
					fz	0.007	0.014	0.021	0.026	0.034	0.042	0.057	0.069	0.084			
					RPM	49338	50134	49869	50134	49975	49869	49935	39948	33555			
					FEED	691	1404	2094	2607	3398	4189	5693	5513	5637			

2 FLUTE CORNER RADIUS - SIDE CUTTING

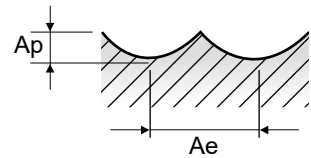
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0			
N	21-22	Aluminum-wrought alloy	0.5D	1.0D	Vc	155	315	470	630	785	940	940	940	940			
					fz	0.014	0.028	0.042	0.053	0.065	0.079	0.105	0.131	0.157			
					RPM	49338	50134	49869	50134	49975	49869	37401	29921	24934			
N	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.0D	Vc	155	315	470	630	630	630	630	630				
					fz	0.012	0.025	0.037	0.047	0.06	0.073	0.094	0.12	0.141			
					RPM	49338	50134	49869	50134	40107	33423	25067	20054	16711			
N	29.1	Duroplastic	0.5D	1.0D	Vc	155	315	470	630	785	940	1255	1255				
					fz	0.012	0.025	0.037	0.05	0.065	0.075	0.084	0.105	0.125			
					RPM	49338	50134	49869	50134	49975	49869	49935	39948	33555			
					FEED	1184	2507	3690	5013	6497	7480	8389	8389	8389			



**SGED27 SERIES 2 FLUTE BALL**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	21	Aluminum-wrought alloy	0.05D	0.02D	Vc	80	95	125	155	250	245	240	240	245	250	250	250
					fz	0.005	0.007	0.009	0.01	0.022	0.03	0.042	0.052	0.061	0.079	0.1	0.122
					RPM	50930	50399	49736	49338	39789	25995	19099	15279	12998	9947	7958	6631
	FEED	509	706	895	987	1751	1560	1604	1589	1586	1572	1592	1618				
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	0.02D	Vc	80	95	110	110	125	125	120	120	125	125	125	125
					fz	0.005	0.007	0.009	0.011	0.02	0.028	0.038	0.047	0.055	0.072	0.091	0.111
					RPM	50930	50399	43768	35014	19894	13263	9549	7639	6631	4974	3979	3316
	FEED	509	706	788	770	796	743	726	718	729	716	724	736				
	29.1	Duroplastic	0.05D	0.02D	Vc	80	95	125	155	315	370	360	365	370	375	375	375
fz					0.004	0.005	0.006	0.006	0.013	0.019	0.027	0.033	0.039	0.05	0.064	0.077	
RPM					50930	50399	49736	49338	50134	39258	28648	23237	19629	14921	11937	9947	
FEED	407	504	597	592	1303	1492	1547	1534	1531	1492	1528	1532					



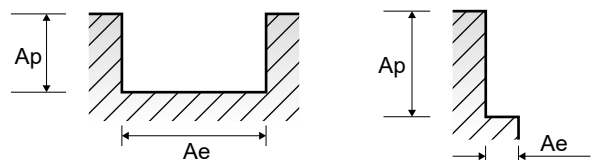
**SGED30, SGED31 SERIES**

**2 FLUTE - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.0
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	80	95	125	155	315	330	325	325	330	325	330
					fz	0.005	0.006	0.008	0.01	0.01	0.023	0.032	0.048	0.064	0.081	0.097
					RPM	50930	50399	49736	49338	50134	35014	25863	17242	13130	10345	8754
	FEED	509	605	796	987	1003	1611	1655	1655	1681	1676	1698				
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	Vc	80	95	105	110	160	165	160	165	165	160	165
					fz	0.005	0.006	0.008	0.01	0.01	0.023	0.032	0.048	0.064	0.081	0.097
					RPM	50930	50399	41778	35014	25465	17507	12732	8754	6565	5093	4377
	FEED	509	605	668	700	509	805	815	840	840	825	849				
	29.1	Duroplastic	1.0D	0.5D	Vc	80	95	125	155	315	470	490	490	500	490	495
fz					0.001	0.002	0.002	0.003	0.004	0.007	0.009	0.014	0.018	0.023	0.028	
RPM					50930	50399	49736	49338	50134	49869	38993	25995	19894	15597	13130	
FEED	102	202	199	296	401	698	702	728	716	717	735					

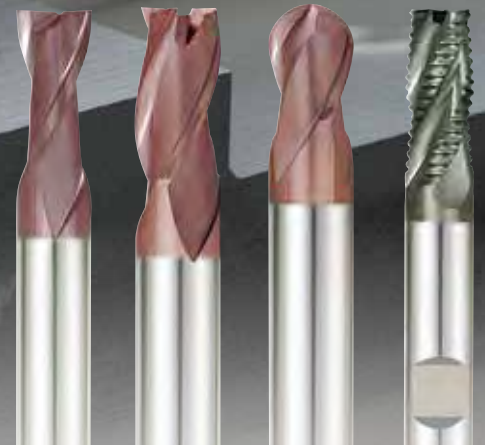
**2 FLUTE - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.0
N	21-22	Aluminum-wrought alloy	0.5D	1.0D	Vc	80	95	125	130	260	260	265	270	265	265	270
					fz	0.005	0.006	0.008	0.01	0.011	0.025	0.034	0.053	0.069	0.086	0.107
					RPM	50930	50399	49736	41380	41380	27587	21088	14324	10544	8435	7162
	FEED	509	605	796	828	910	1379	1434	1518	1455	1451	1533				
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.0D	Vc	80	85	85	85	170	175	175	180	175	175	180
					fz	0.005	0.006	0.008	0.01	0.01	0.023	0.032	0.05	0.064	0.08	0.1
					RPM	50930	45094	33820	27056	27056	18568	13926	9549	6963	5570	4775
	FEED	509	541	541	541	541	854	891	955	891	891	955				
	29.1	Duroplastic	0.5D	1.0D	Vc	80	95	125	155	315	350	350	360	350	350	360
fz					0.004	0.005	0.006	0.008	0.009	0.018	0.026	0.04	0.051	0.064	0.08	
RPM					50930	50399	49736	49338	50134	37136	27852	19099	13926	11141	9549	
FEED	407	504	597	789	902	1337	1448	1528	1420	1426	1528					





Leading Through Innovation



**SOLID CARBIDE**

# **K-2 END MILLS**

**K-2 VHM - Fräser**

- General Purpose / Conventional or High Speed Milling / Wet & Dry Cutting
- Für allgemeinen Einsatz / Konventionelles oder Hochgeschwindigkeitsfräsen





SELECTION GUIDE



SOLID CARBIDE K-2 END MILLS

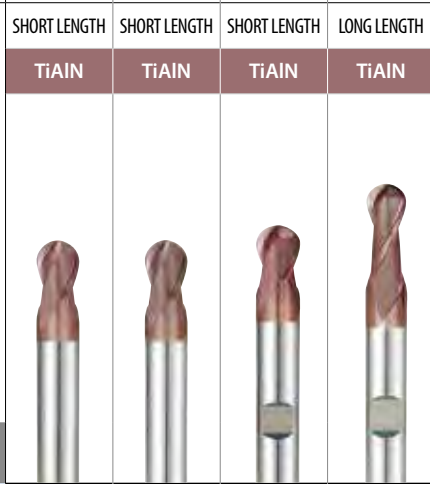
General Purpose Conventional or High Speed Milling Wet & Dry Cutting

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

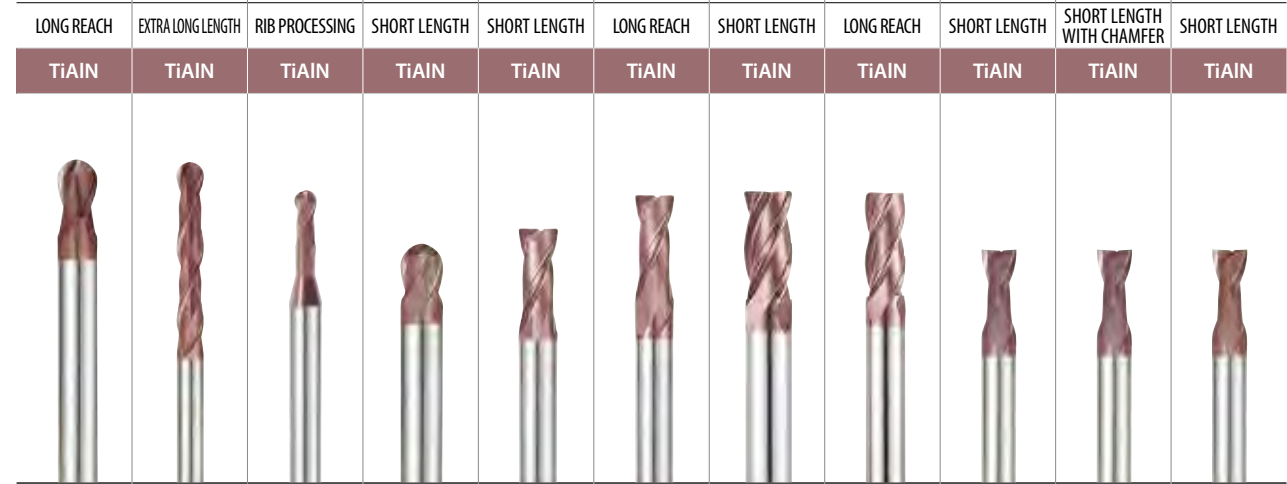
Recommended cutting conditions : P 597

Table with 4 columns: SERIES (G9624, G9A70, G9437, G9438), FLUTE (2), HELIX ANGLE (30°), CUTTING EDGE SHAPE (BALL NOSE), SIZE MIN (R1.0), SIZE MAX (R10.0), PAGE (C514, C515, C516, C517)



Main selection table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRc, and performance indicators (◎/○) for each of the four end mill series.

Table with 11 columns: G9454, G9455, G9B81, G9634, G9B82, G9B83, G9B84, G9B85, G9424, G9G44, G9A68. Includes flute counts, helix angles, and cutting edge shapes.



Performance matrix for the 11 end mill series, showing suitability (◎/○) for various materials and conditions.



SELECTION GUIDE



SOLID CARBIDE  
**K-2**  
END MILLS

General Purpose with Coating  
Conventional or High Speed Milling, Wet or Dry Cutting

Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C565

SERIES	G9444	G9527	G9445	G9G45
FLUTE	2	2	2	2
HELIX ANGLE	≈ 30°	≈ 30°	≈ 30°	≈ 30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D2.0	D3.5	D2.0	D3.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0
PAGE	C532	C533	C534	C535

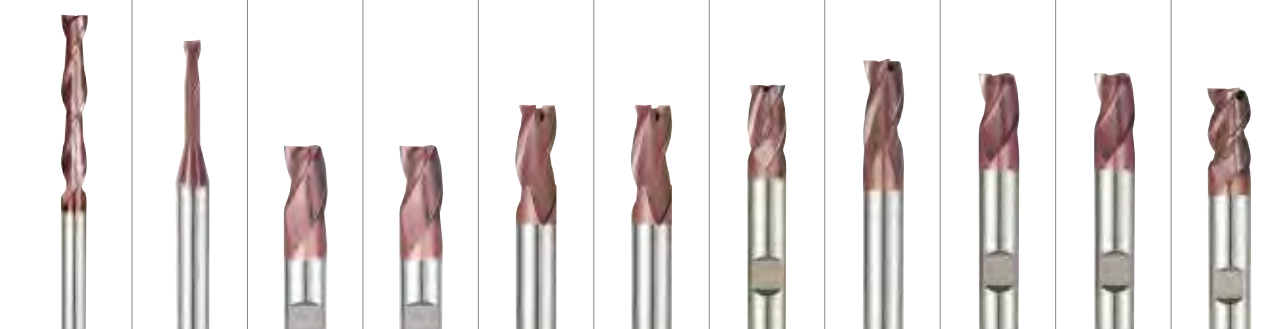
	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH with CHAMFER
	TiAIN	TiAIN	TiAIN	TiAIN



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc					
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	
	8		Quenched & Tempered	300	32	◎	◎	◎	◎	
	9		Quenched & Tempered	350	38	◎	◎	◎	◎	
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎	◎
	11	Quenched & Tempered		325	35	◎	◎	◎	◎	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○	○	
	13		Martensitic Quenched & Tempered	240	23	○	○	○	○	
	14		Austenitic	180	10	○	○	○	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○	
	16		Pearlitic (Martensitic)	260	26	○	○	○	○	
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○	
	18		Pearlitic	250	25	○	○	○	○	
	19	Malleable cast iron	Ferritic	130		○	○	○	○	
	20		Pearlitic	230	21	○	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	○	
	22		Curable Hardened	100		○	○	○	○	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○	○	
	24		≤ 12% Si, Curable Hardened	90		○	○	○	○	
	25		> 12% Si, Not Curable	130		○	○	○	○	
	26		Cutting Alloys, PB>1%	110		○	○	○	○	
	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90		○	○	○	○	
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○	○	
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			○	○	○	○	
	30		Rubber, Wood, etc.			○	○	○	○	
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○
	32			Cured	280	30	○	○	○	○
	33		Ni or Co Based	Annealed	250	25	○	○	○	○
	34			Cured	350	38	○	○	○	○
	35			Cast	320	34	○	○	○	○
	36	Titanium Alloys	Pure Titanium	400 Rm		○	○	○	○	
37	Alpha + Beta Alloys Hardened		1050 Rm		○	○	○	○		
H	38	Hardened steel	Hardened	550	55					
	39			630	60					
	40	Chilled Cast Iron	Cast	400	42	○	○	○	○	
	41			Hardened Cast Iron	550	55				

G9452	G9B80	G9410 G9553	G9G46	G9425	G9G47	G9439	G9528	G9433	G9G48	G9447
2	2	3	3	3	3	3	3	3	3	3
30°	30°	30°	30°	30°	30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	45°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
D3.0	D0.4	D0.5	D3.0	D1.0	D3.0	D2.0	D3.5	D3.0	D3.0	D3.0
D20.0	D4.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0
C537	C538	C541	C543	C544	C545	C546	C547	C548	C549	C550

EXTRA LONG LENGTH	RIB PROCESSING	THROW AWAY	THROW AWAY with CHAMFER	SHORT LENGTH	SHORT LENGTH with CHAMFER	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH with CHAMFER	LONG LENGTH
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN



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○	○	○	○	○	○	○	○	○	○	○	40
											41



SELECTION GUIDE



SOLID CARBIDE  
**K-2**  
END MILLS

General Purpose with Coating  
Conventional or High Speed Milling, Wet or Dry Cutting

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C565

SERIES	G9G49	G9432	G9G50
FLUTE	3	4	4
HELIX ANGLE	45°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE
SIZE MIN	D3.0	D1.0	D3.0
SIZE MAX	D20.0	D20.0	D20.0
PAGE	C551	C552	C553
	LONG LENGTH with CHAMFER	SHORT LENGTH	SHORT LENGTH with CHAMFER
	TiAIN	TiAIN	TiAIN



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	G9G49	G9432	G9G50
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎
	8		Quenched & Tempered	300	32	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎
	10	High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎
	11		Quenched & Tempered	325	35	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○
	13		Martensitic Quenched & Tempered	240	23	○	○	○
	14		Austenitic	180	10	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○
	18		Pearlitic	250	25	○	○	○
	19	Malleable cast iron	Ferritic	130		○	○	○
	20		Pearlitic	230	21	○	○	○
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○
	22		Curable Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○
	24		≤ 12% Si, Curable Hardened	90		○	○	○
	25		> 12% Si, Not Curable	130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○	○
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100		○	○	○
	29		Duroplastic, Fiber Reinforced Plastic					
	30	Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○	○	○
	32		Cured	280	30	○	○	○
	33		Annealed	250	25	○	○	○
	34		Ni or Co Based Cured	350	38	○	○	○
	35		Cast	320	34	○	○	○
	36	Titanium Alloys	Pure Titanium	400 Rm		○	○	○
37	Alpha + Beta Alloys Hardened		1050 Rm		○	○	○	
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40	Chilled Cast Iron	Cast	400	42	○	○	○
	41	Hardened Cast Iron	Hardened	550	55			

G9A69	G9448	G9540	G9449	G9G51	G9H73 G9H74	G9H75 G9H76	G9453	G9F45 G9F46	G9A42	G9400
4	4	4	4	4	4	4	4	4&6	Multi Flute	2
30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	Multiple Helix	Multiple Helix	30°	45°	30°	30°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	DRILL MILL
D1.0	D2.0	D3.5	D2.0	D3.0	D3.0	D3.0	D3.0	D3.0	D6.0	D3.0
D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D25.0	D20.0
C554	C555	C556	C557	C558	C559	C560	C561	C562	C563	C564
SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH with CHAMFER	SHORT LENGTH	LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH LONG LENGTH	LONG LENGTH	-
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	X-Coating	X-Coating	TiAIN	TiAIN	X-Coating	TiAIN



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											38
											39
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											41







PLAIN SHANK **G9624** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
- ① Fraise carbure, 2 dents, hémisphérique, courte
- ② 2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE 2 30° R ±0.02 DIN 6535HA TiAlN p.C565

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9624020	R1.0	2.0	6	4	48
G9624025	R1.25	2.5	6	4	48
G9624030	R1.5	3.0	6	4	48
G9624040	R2.0	4.0	6	6	50
G9624901	R2.0	4.0	4	12	40
G9624050	R2.5	5.0	6	7	51
G9624902	R2.5	5.0	5	14	50
G9624060	R3.0	6.0	6	7	51
G9624080	R4.0	8.0	8	9	59
G9624100	R5.0	10.0	10	10	60
G9624120	R6.0	12.0	12	14	71
G9624140	R7.0	14.0	14	14	71
G9624160	R8.0	16.0	16	16	76
G9624180	R9.0	18.0	18	18	76
G9624200	R10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K																										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



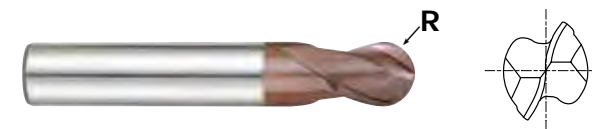
PLAIN SHANK **G9A70** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
- ① Fraise carbure, 2 dents, hémisphérique, courte
- ② 2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE 2 30° R ±0.02 DIN 6535HA TiAlN p.C565

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A70010	R0.5	1.0	3	3	39
G9A70015	R0.75	1.5	3	5	39
G9A70020	R1.0	2.0	3	7	39
G9A70025	R1.25	2.5	3	8	39
G9A70030	R1.5	3.0	3	9	39
G9A70040	R2.0	4.0	4	14	51
G9A70050	R2.5	5.0	5	16	51
G9A70060	R3.0	6.0	6	19	64
G9A70080	R4.0	8.0	8	21	64
G9A70100	R5.0	10.0	10	22	70
G9A70110	R5.5	11.0	11	25	70
G9A70120	R6.0	12.0	12	25	76
G9A70160	R8.0	16.0	16	32	89
G9A70200	R10.0	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K																										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **G9437** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
- ① Fraise carbure, 2 dents, hémisphérique, courte
- ② 2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9437020	R1.0	2.0	6	3	50
G9437030	R1.5	3.0	6	4	50
G9437040	R2.0	4.0	6	5	54
G9437050	R2.5	5.0	6	6	54
G9437060	R3.0	6.0	6	7	54
G9437080	R4.0	8.0	8	9	58
G9437100	R5.0	10.0	10	11	66
G9437120	R6.0	12.0	12	12	73
G9437140	R7.0	14.0	14	14	75
G9437180	R9.0	18.0	18	18	84
G9437200	R10.0	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



FLAT SHANK **G9438** SERIES

**CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS
- ① Fraise carbure, 2 dents, hémisphérique, longue
- ② 2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9438020	R1.0	2.0	3	6	38
G9438030	R1.5	3.0	6	7	57
G9438040	R2.0	4.0	6	8	57
G9438050	R2.5	5.0	6	10	57
G9438060	R3.0	6.0	6	10	57
G9438080	R4.0	8.0	8	16	63
G9438100	R5.0	10.0	10	19	72
G9438120	R6.0	12.0	12	22	83
G9438140	R7.0	14.0	14	22	83
G9438160	R8.0	16.0	16	26	92
G9438180	R9.0	18.0	18	26	92
G9438200	R10.0	20.0	20	32	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P					M				K										
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



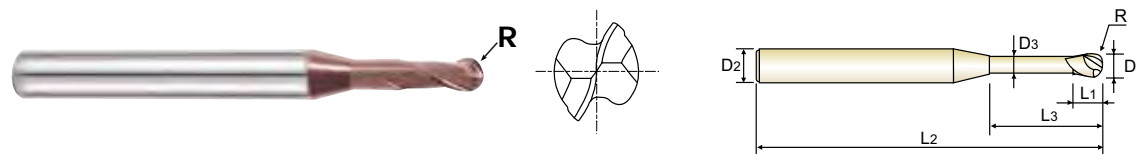


**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- 2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE 2 30° R ±0.02 DIN 6535HA TiAlN p.C566-567

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Recommended ToolHolder

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length D3	Neck Diameter D3
G9B81004	R0.2	0.4	4	0.7	2	50	0.37
G9B81005	R0.25	0.5	4	0.75	2	50	0.45
G9B81901	R0.25	0.5	4	0.75	4	50	0.45
G9B81902	R0.25	0.5	4	0.75	6	50	0.45
G9B81006	R0.3	0.6	4	0.9	2	50	0.55
G9B81903	R0.3	0.6	4	0.9	4	50	0.55
G9B81904	R0.3	0.6	4	0.9	6	50	0.55
G9B81008	R0.4	0.8	4	1.2	4	50	0.75
G9B81905	R0.4	0.8	4	1.2	6	50	0.75
G9B81906	R0.4	0.8	4	1.2	8	50	0.75
G9B81010	R0.5	1.0	4	1.5	6	50	0.95
G9B81907	R0.5	1.0	4	1.5	8	50	0.95
G9B81908	R0.5	1.0	4	1.5	10	50	0.95
G9B81909	R0.5	1.0	4	1.5	12	50	0.95
G9B81012	R0.6	1.2	4	1.8	8	50	1.15
G9B81910	R0.6	1.2	4	1.8	12	50	1.15
G9B81014	R0.7	1.4	4	2.1	16	50	1.35
G9B81015	R0.75	1.5	4	2.3	6	50	1.45
G9B81911	R0.75	1.5	4	2.3	8	50	1.45
G9B81912	R0.75	1.5	4	2.3	10	50	1.45
G9B81913	R0.75	1.5	4	2.3	12	50	1.45
G9B81914	R0.75	1.5	4	2.3	16	50	1.45
G9B81915	R0.75	1.5	4	2.3	20	50	1.45
G9B81016	R0.8	1.6	4	2.4	8	50	1.55

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

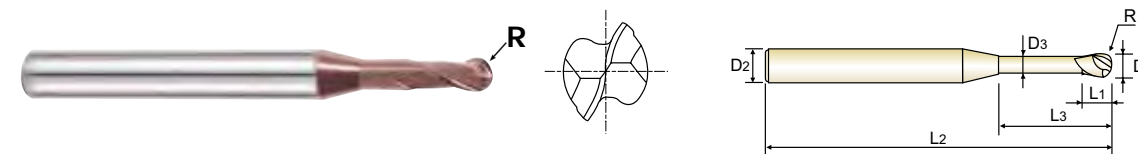


**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- 2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE 2 30° R ±0.02 DIN 6535HA TiAlN p.C566-567

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Recommended ToolHolder

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length D3	Neck Diameter D3
G9B81916	R0.8	1.6	4	2.4	12	50	1.55
G9B81917	R0.8	1.6	4	2.4	16	50	1.55
G9B81918	R0.8	1.6	4	2.4	20	50	1.55
G9B81020	R1.0	2.0	4	3	8	50	1.95
G9B81919	R1.0	2.0	4	3	10	50	1.95
G9B81920	R1.0	2.0	4	3	12	50	1.95
G9B81921	R1.0	2.0	4	3	14	50	1.95
G9B81922	R1.0	2.0	4	3	16	50	1.95
G9B81923	R1.0	2.0	4	3	20	50	1.95
G9B81030	R1.5	3.0	6	4.5	10	50	2.85
G9B81924	R1.5	3.0	6	4.5	12	50	2.85
G9B81925	R1.5	3.0	6	4.5	16	60	2.85
G9B81926	R1.5	3.0	6	4.5	20	60	2.85
G9B81927	R1.5	3.0	6	4.5	25	75	2.85
G9B81040	R2.0	4.0	6	6	12	50	3.85
G9B81928	R2.0	4.0	6	6	16	60	3.85
G9B81929	R2.0	4.0	6	6	20	75	3.85
G9B81930	R2.0	4.0	6	6	25	75	3.85
G9B81931	R2.0	4.0	6	6	30	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **G9634** SERIES

**CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE**

- VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS
- Fraise carbure, 4 dents, hémisphérique, courte
- 4 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Recommended ToolHolder

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9634020	R1.0	2.0	6	4	48
G9634030	R1.5	3.0	6	4	48
G9634040	R2.0	4.0	6	6	50
G9634050	R2.5	5.0	6	7	51
G9634060	R3.0	6.0	6	7	51
G9634080	R4.0	8.0	8	9	59
G9634100	R5.0	10.0	10	10	60
G9634120	R6.0	12.0	12	14	71
G9634140	R7.0	14.0	14	14	71
G9634160	R8.0	16.0	16	16	76
G9634180	R9.0	18.0	18	18	76
G9634200	R10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9B82** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS
- Fraise carbure, 2 dents, torique, courte
- 2 TAGLIENTI, SERIE CORTA, TORICA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 2 Schneiden zum Nutenfräsen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Recommended ToolHolder

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B82020	R0.2	2.0	4	4	50
G9B82901	R0.3	2.0	4	4	50
G9B82902	R0.5	2.0	4	4	50
G9B82025	R0.2	2.5	4	5	50
G9B82903	R0.3	2.5	4	5	50
G9B82904	R0.5	2.5	4	5	50
G9B82030	R0.2	3.0	4	6	50
G9B82905	R0.3	3.0	4	6	50
G9B82906	R0.5	3.0	4	6	50
G9B82907	R1.0	3.0	4	6	50
G9B82040	R0.2	4.0	4	8	50
G9B82908	R0.3	4.0	4	8	50
G9B82909	R0.5	4.0	4	8	50
G9B82910	R1.0	4.0	4	8	50
G9B82050	R0.2	5.0	6	10	50
G9B82911	R0.3	5.0	6	10	50
G9B82912	R0.5	5.0	6	10	50
G9B82913	R1.0	5.0	6	10	50
G9B82060	R0.2	6.0	6	12	50
G9B82914	R0.3	6.0	6	12	50
G9B82915	R0.5	6.0	6	12	50
G9B82916	R1.0	6.0	6	12	50

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9B82** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS
- Fraise carbure, 2 dents, torique, courte
- 2 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE 2 30° DIN 6535HA TiAlN p.C569

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B82080	R0.5	8.0	8	16	60
G9B82917	R1.0	8.0	8	16	60
G9B82918	R1.5	8.0	8	16	60
G9B82919	R2.0	8.0	8	16	60
G9B82920	R2.5	8.0	8	16	60
G9B82100	R0.5	10.0	10	20	75
G9B82921	R1.0	10.0	10	20	75
G9B82922	R1.5	10.0	10	20	75
G9B82923	R2.0	10.0	10	20	75
G9B82924	R2.5	10.0	10	20	75
G9B82120	R0.5	12.0	12	24	75
G9B82925	R1.0	12.0	12	24	75
G9B82926	R1.5	12.0	12	24	75
G9B82927	R2.0	12.0	12	24	75
G9B82928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S				H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9B83** SERIES

**CARBIDE, 2 FLUTE LONG REACH CORNER RADIUS**

- VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE ECKENRADIUS
- Fraise carbure, 2 dents, torique longue portée
- 2 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE 2 30° DIN 6535HA TiAlN p.C569

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B83030	R0.5	3.0	4	6	75
G9B83901	R1.0	3.0	4	6	75
G9B83040	R0.5	4.0	4	8	75
G9B83902	R1.0	4.0	4	8	75
G9B83050	R0.5	5.0	6	10	75
G9B83903	R1.0	5.0	6	10	75
G9B83060	R0.5	6.0	6	12	75
G9B83904	R1.0	6.0	6	12	75
G9B83080	R0.5	8.0	8	16	100
G9B83905	R1.0	8.0	8	16	100
G9B83906	R1.5	8.0	8	16	100
G9B83907	R2.0	8.0	8	16	100
G9B83908	R2.5	8.0	8	16	100
G9B83100	R0.5	10.0	10	20	100
G9B83909	R1.0	10.0	10	20	100
G9B83910	R1.5	10.0	10	20	100
G9B83911	R2.0	10.0	10	20	100
G9B83912	R2.5	10.0	10	20	100
G9B83120	R0.5	12.0	12	24	100
G9B83913	R1.0	12.0	12	24	100
G9B83914	R1.5	12.0	12	24	100
G9B83915	R2.0	12.0	12	24	100
G9B83916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S				H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





PLAIN SHANK **G9B84** SERIES

**CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS**

● **VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS**  
 ( ) **Fraise carbure, 4 dents, torique, courte**  
 ( ) **4 TAGLIENTI, SERIE CORTA, TORICA**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE 4 30° DIN 6535HA TiAlN p.C570

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Recommended ToolHolder

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B84020	R0.2	2.0	4	4	50
G9B84901	R0.3	2.0	4	4	50
G9B84902	R0.5	2.0	4	4	50
G9B84025	R0.2	2.5	4	5	50
G9B84903	R0.3	2.5	4	5	50
G9B84904	R0.5	2.5	4	5	50
G9B84030	R0.2	3.0	4	6	50
G9B84905	R0.3	3.0	4	6	50
G9B84906	R0.5	3.0	4	6	50
G9B84907	R1.0	3.0	4	6	50
G9B84040	R0.2	4.0	4	8	50
G9B84908	R0.3	4.0	4	8	50
G9B84909	R0.5	4.0	4	8	50
G9B84910	R1.0	4.0	4	8	50
G9B84050	R0.2	5.0	6	10	50
G9B84911	R0.3	5.0	6	10	50
G9B84912	R0.5	5.0	6	10	50
G9B84913	R1.0	5.0	6	10	50
G9B84060	R0.2	6.0	6	12	50
G9B84914	R0.3	6.0	6	12	50
G9B84915	R0.5	6.0	6	12	50
G9B84916	R1.0	6.0	6	12	50
G9B84080	R0.5	8.0	8	16	60
G9B84917	R1.0	8.0	8	16	60

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9B84** SERIES

**CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS**

● **VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS**  
 ( ) **Fraise carbure, 4 dents, torique, courte**  
 ( ) **4 TAGLIENTI, SERIE CORTA, TORICA**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE 4 30° DIN 6535HA TiAlN p.C570

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Recommended ToolHolder

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B84918	R1.5	8.0	8	16	60
G9B84919	R2.0	8.0	8	16	60
G9B84920	R2.5	8.0	8	16	60
G9B84100	R0.5	10.0	10	20	75
G9B84921	R1.0	10.0	10	20	75
G9B84922	R1.5	10.0	10	20	75
G9B84923	R2.0	10.0	10	20	75
G9B84924	R2.5	10.0	10	20	75
G9B84120	R0.5	12.0	12	24	75
G9B84925	R1.0	12.0	12	24	75
G9B84926	R1.5	12.0	12	24	75
G9B84927	R2.0	12.0	12	24	75
G9B84928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9B85** SERIES

**CARBIDE, 4 FLUTE LONG REACH CORNER RADIUS**

- VOLLHARTMETALL, 4 SCHNEIDEN GROÙE REICHWEITE ECKENRADIUS
- Fraise carbure, 4 dents, torique longue portée
- 4 TAGLIENTI, SERIE LUNGA, TORICA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
○	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B85030	R0.5	3.0	4	6	75
G9B85901	R1.0	3.0	4	6	75
G9B85040	R0.5	4.0	4	8	75
G9B85902	R1.0	4.0	4	8	75
G9B85050	R0.5	5.0	6	10	75
G9B85903	R1.0	5.0	6	10	75
G9B85060	R0.5	6.0	6	12	75
G9B85904	R1.0	6.0	6	12	75
G9B85080	R0.5	8.0	8	16	100
G9B85905	R1.0	8.0	8	16	100
G9B85906	R1.5	8.0	8	16	100
G9B85907	R2.0	8.0	8	16	100
G9B85908	R2.5	8.0	8	16	100
G9B85100	R0.5	10.0	10	20	100
G9B85909	R1.0	10.0	10	20	100
G9B85910	R1.5	10.0	10	20	100
G9B85911	R2.0	10.0	10	20	100
G9B85912	R2.5	10.0	10	20	100
G9B85120	R0.5	12.0	12	24	100
G9B85913	R1.0	12.0	12	24	100
G9B85914	R1.5	12.0	12	24	100
G9B85915	R2.0	12.0	12	24	100
G9B85916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

⊙ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9424** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ
- Fraise carbure, 2 dents, courte
- 2 TAGLIENTI, CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 2 Schneiden zum Nutenfräsen.



	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
○	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9424010	1.0	4	3	40
G9424015	1.5	4	4.5	40
G9424020	2.0	2	8	32
G9424025	2.5	2.5	8	32
G9424030	3.0	3	12	32
G9424035	3.5	3.5	12	32
G9424040	4.0	4	12	40
G9424045	4.5	4.5	14	50
G9424050	5.0	5	14	50
G9424055	5.5	5.5	16	50
G9424060	6.0	6	16	50
G9424070	7.0	7	20	60
G9424080	8.0	8	20	60
G9424090	9.0	9	20	60
G9424100	10.0	10	22	70
G9424120	12.0	12	22	70
G9424140	14.0	14	25	75
G9424160	16.0	16	25	75
G9424200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

⊙ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9G44** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH WITH CHAMFER**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ
- Fraise carbure, 2 dents, courte
- 2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



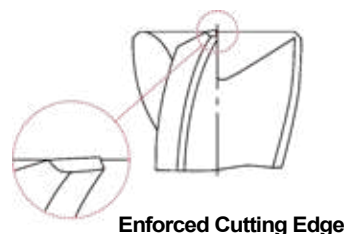
CARBIDE 2 30° DIN 6535HA C x 45° TiAlN p.C571

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G44030	3.0	3	12	32	0.10
G9G44040	4.0	4	12	40	0.10
G9G44050	5.0	5	14	50	0.10
G9G44060	6.0	6	16	50	0.10
G9G44080	8.0	8	20	60	0.13
G9G44100	10.0	10	22	70	0.13
G9G44120	12.0	12	22	70	0.18
G9G44140	14.0	14	25	75	0.18
G9G44160	16.0	16	25	75	0.18
G9G44200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **G9A68** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ
- Fraise carbure, 2 dents, courte
- 2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE 2 30° DIN 6535HA TiAlN p.C571

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A68010	1.0	3	3	39
G9A68015	1.5	3	5	39
G9A68020	2.0	3	7	39
G9A68025	2.5	3	7	39
G9A68030	3.0	3	9	39
G9A68040	4.0	4	14	51
G9A68050	5.0	5	16	51
G9A68060	6.0	6	19	64
G9A68080	8.0	8	21	64
G9A68100	10.0	10	22	70
G9A68120	12.0	12	25	76
G9A68160	16.0	16	32	89
G9A68200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



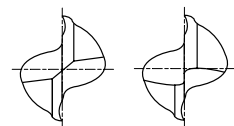


FLAT SHANK **G9444** SERIES

**CARBIDE, 2 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN KURZ
- Fraise carbure, 2 dents, courte
- 2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



under Ø3mm from Ø3mm

CARBIDE DIN 6527 2 30° DIN 6535HB TiAlN p.C571

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9444020	2.0	6	3	50
G9444030	3.0	6	4	50
G9444035	3.5	6	4	50
G9444040	4.0	6	5	54
G9444045	4.5	6	5	54
G9444050	5.0	6	6	54
G9444060	6.0	6	7	54
G9444070	7.0	8	8	58
G9444080	8.0	8	9	58
G9444090	9.0	10	10	66
G9444100	10.0	10	11	66
G9444120	12.0	12	12	73
G9444140	14.0	14	14	75
G9444160	16.0	16	16	82
G9444180	18.0	18	18	84
G9444200	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

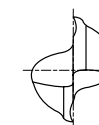


PLAIN SHANK **G9527** SERIES

**CARBIDE, 2 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- 2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE DIN 6528 2 30° DIN 6535HA TiAlN p.C571

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9527035	3.5	3.5	7	50
G9527040	4.0	4	8	50
G9527045	4.5	4.5	8	50
G9527050	5.0	5	10	50
G9527055	5.5	5.5	10	57
G9527060	6.0	6	10	57
G9527065	6.5	6.5	13	60
G9527070	7.0	7	13	60
G9527075	7.5	7.5	16	63
G9527080	8.0	8	16	63
G9527085	8.5	8.5	16	67
G9527090	9.0	9	16	67
G9527095	9.5	9.5	19	72
G9527100	10.0	10	19	72
G9527110	11.0	11	22	83
G9527120	12.0	12	22	83
G9527130	13.0	13	22	83
G9527140	14.0	14	22	83
G9527150	15.0	15	26	92
G9527160	16.0	16	26	92
G9527180	18.0	18	26	92
G9527200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



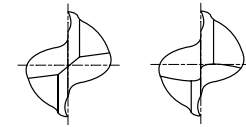
FLAT SHANK **G9445** SERIES

**CARBIDE, 2 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- 2 TAGLIENTI, SERIE LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 2 Schneiden zum Nutenfräsen.



up to Ø2mm over Ø2mm



Recommended ToolHolder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46	D161-176
-	-	SHRINK FIT HOLDER	D47-72	-
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445901	2.0	● 3	6	38
G9445028	2.8	6	7	57
G9445030	3.0	6	7	57
G9445035	3.5	6	7	57
G9445038	3.8	6	8	57
G9445040	4.0	6	8	57
G9445045	4.5	6	8	57
G9445048	4.8	6	10	57
G9445050	5.0	6	10	57
G9445957	5.8	6	10	57
G9445060	6.0	6	10	57
G9445967	6.8	8	13	63
G9445070	7.0	8	13	63
G9445977	7.8	8	16	63
G9445080	8.0	8	16	63
G9445087	8.7	10	16	72
G9445090	9.0	10	16	72
G9445097	9.7	10	19	72
G9445100	10.0	10	19	72
G9445117	11.7	12	22	83
G9445120	12.0	12	22	83
G9445137	13.7	14	22	83
G9445140	14.0	14	22	83

● with plain shank

► NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



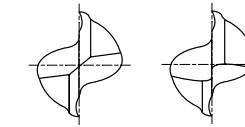
FLAT SHANK **G9445** SERIES

**CARBIDE, 2 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- 2 TAGLIENTI, SERIE LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 2 Schneiden zum Nutenfräsen.



up to Ø2mm over Ø2mm



Recommended ToolHolder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46	D161-176
-	-	SHRINK FIT HOLDER	D47-72	-
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445157	15.7	16	26	92
G9445160	16.0	16	26	92
G9445177	17.7	18	26	92
G9445180	18.0	18	26	92
G9445197	19.7	20	32	104
G9445200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



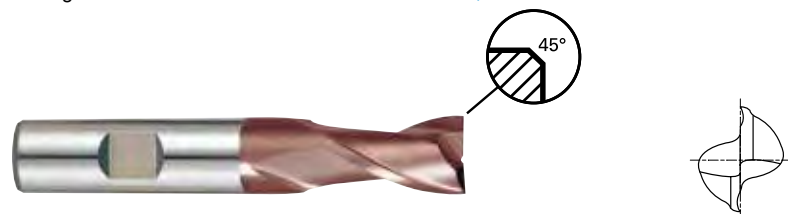
FLAT SHANK **G9G45** SERIES

**CARBIDE, 2 FLUTE LONG LENGTH WITH CHAMFER**

- VOLLHARTMETALL, 2 SCHNEIDEN LANG
- Fraise carbure, 2 dents, longue
- 2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



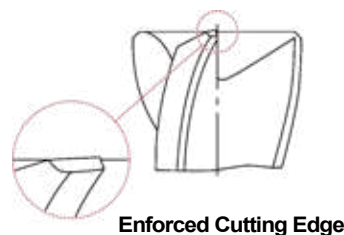
CARBIDE DIN 6527 2  $\approx 30^\circ$   
 DIN 6535HB C x 45° TiAlN p.C571

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G45030	3.0	6	7	57	0.10
G9G45040	4.0	6	8	57	0.10
G9G45050	5.0	6	10	57	0.10
G9G45060	6.0	6	10	57	0.10
G9G45080	8.0	8	16	63	0.13
G9G45100	10.0	10	19	72	0.13
G9G45120	12.0	12	22	83	0.18
G9G45140	14.0	14	22	83	0.18
G9G45160	16.0	16	26	92	0.18
G9G45200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	15	26	3	25	3	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	



PLAIN SHANK **G9452** SERIES

**CARBIDE, 2 FLUTE EXTRA LONG LENGTH**

- VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG
- Fraise carbure, 2 dents, extra-longue
- 2 TAGLIENTI, SERIE EXTRA LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE 2  $30^\circ$  DIN 6535HA TiAlN p.C571

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9452903	3.0	3	20	60
G9452030	3.0	3	30	75
G9452904	4.0	4	20	60
G9452040	4.0	4	30	75
G9452905	5.0	5	25	75
G9452050	5.0	5	40	100
G9452906	6.0	6	30	75
G9452060	6.0	6	50	150
G9452908	8.0	8	30	75
G9452080	8.0	8	50	150
G9452910	10.0	10	40	100
G9452100	10.0	10	60	150
G9452912	12.0	12	45	100
G9452120	12.0	12	75	150
G9452914	14.0	14	45	100
G9452140	14.0	14	65	150
G9452916	16.0	16	45	100
G9452160	16.0	16	65	150
G9452918	18.0	18	45	100
G9452180	18.0	18	65	150
G9452920	20.0	20	45	100
G9452200	20.0	20	65	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	15	26	3	25	3	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	





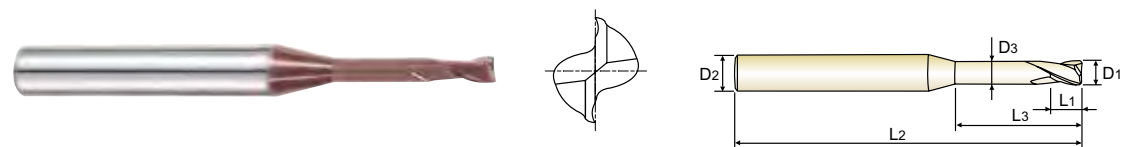
PLAIN SHANK **G9B80** SERIES

**CARBIDE, 2 FLUTE RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN
- ① Fraise carbure, 2 dents pour usinage de rainure
- ② TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46 D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	D3	D3
G9B80004	0.4	4	0.7	2	50	0.37
G9B80901	0.4	4	0.7	4	50	0.37
G9B80005	0.5	4	0.75	2	50	0.45
G9B80902	0.5	4	0.75	4	50	0.45
G9B80903	0.5	4	0.75	6	50	0.45
G9B80006	0.6	4	0.9	2	50	0.55
G9B80904	0.6	4	0.9	4	50	0.55
G9B80905	0.6	4	0.9	6	50	0.55
G9B80007	0.7	4	1.1	4	50	0.65
G9B80906	0.7	4	1.1	6	50	0.65
G9B80008	0.8	4	1.2	4	50	0.75
G9B80907	0.8	4	1.2	6	50	0.75
G9B80908	0.8	4	1.2	8	50	0.75
G9B80009	0.9	4	1.4	6	50	0.85
G9B80909	0.9	4	1.4	8	50	0.85
G9B80910	0.9	4	1.4	10	50	0.85
G9B80010	1.0	4	1.5	6	50	0.95
G9B80911	1.0	4	1.5	8	50	0.95
G9B80912	1.0	4	1.5	10	50	0.95
G9B80913	1.0	4	1.5	12	50	0.95
G9B80012	1.2	4	1.8	6	50	1.15
G9B80914	1.2	4	1.8	8	50	1.15
G9B80915	1.2	4	1.8	10	50	1.15
G9B80916	1.2	4	1.8	12	50	1.15

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



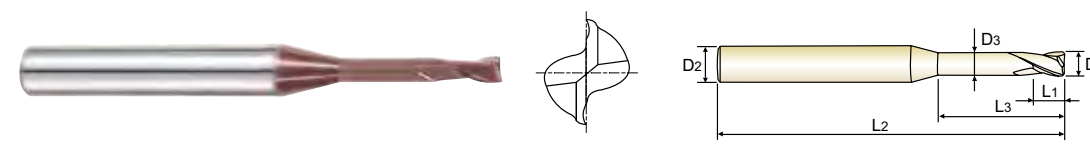
PLAIN SHANK **G9B80** SERIES

**CARBIDE, 2 FLUTE RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN
- ① Fraise carbure, 2 dents pour usinage de rainure
- ② TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46 D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	D3	D3
G9B80015	1.5	4	2.3	6	50	1.45
G9B80917	1.5	4	2.3	8	50	1.45
G9B80918	1.5	4	2.3	10	50	1.45
G9B80919	1.5	4	2.3	12	50	1.45
G9B80920	1.5	4	2.3	14	50	1.45
G9B80921	1.5	4	2.3	16	50	1.45
G9B80922	1.5	4	2.3	18	50	1.45
G9B80923	1.5	4	2.3	20	50	1.45
G9B80020	2.0	4	3	6	50	1.95
G9B80924	2.0	4	3	8	50	1.95
G9B80925	2.0	4	3	10	50	1.95
G9B80926	2.0	4	3	12	50	1.95
G9B80927	2.0	4	3	14	50	1.95
G9B80928	2.0	4	3	16	50	1.95
G9B80929	2.0	4	3	18	50	1.95
G9B80930	2.0	4	3	20	50	1.95
G9B80025	2.5	4	3.7	8	50	2.40
G9B80931	2.5	4	3.7	12	50	2.40
G9B80932	2.5	4	3.7	16	50	2.40
G9B80933	2.5	4	3.7	20	50	2.40

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



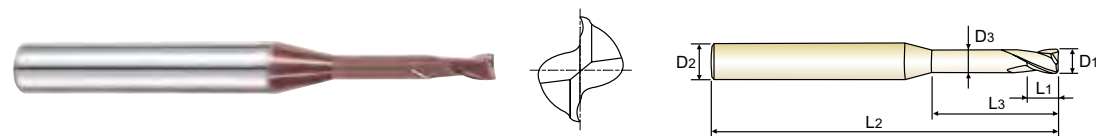
PLAIN SHANK **G9B80** SERIES

**CARBIDE, 2 FLUTE RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN
- Fraise carbure, 2 dents pour usinage de rainure
- 2 TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE 2 30° DIN 6535HA TiAlN p.C572-573

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	D3	D3
G9B80030	3.0	6	4.5	8	50	2.85
G9B80934	3.0	6	4.5	12	50	2.85
G9B80935	3.0	6	4.5	16	60	2.85
G9B80936	3.0	6	4.5	20	60	2.85
G9B80937	3.0	6	4.5	25	75	2.85
G9B80040	4.0	6	6	12	50	3.85
G9B80938	4.0	6	6	16	60	3.85
G9B80939	4.0	6	6	20	75	3.85
G9B80940	4.0	6	6	25	75	3.85
G9B80941	4.0	6	6	30	75	3.85
G9B80942	4.0	6	6	35	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



FLAT SHANK **G9410** SERIES  
PLAIN SHANK **G9553** SERIES

**CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY**

- VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER
- Fraise carbure, 3 dents, à jeter, courte
- 3 TAGLIENTI, SERIE EXTRA CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaffräsern.



CARBIDE 3 30° PLAIN FLAT TiAlN p.C574-575

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9553005	0.5	3	1.5	38
G9553006	0.6	3	1.5	38
G9553008	0.8	3	2	38
G9553010	1.0	3	2	38
G9553012	1.2	3	2	38
G9553015	1.5	3	2	38
G9553018	1.8	3	2	38
-	G9410020	2.0	6	35
-	G9410025	2.5	6	36
-	G9410030	3.0	6	36
-	G9410035	3.5	6	37
-	G9410040	4.0	6	38
-	G9410045	4.5	6	38
-	G9410050	5.0	6	39
-	G9410055	5.5	6	39
-	G9410957	5.8	6	39
-	G9410060	6.0	6	39
-	G9410967	6.8	8	42
-	G9410070	7.0	8	42
-	G9410977	7.8	8	42
-	G9410080	8.0	8	43
-	G9410087	8.7	10	48
-	G9410090	9.0	10	48
-	G9410097	9.7	10	48

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



FLAT SHANK **G9410** SERIES  
 PLAIN SHANK **G9553** SERIES

**CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY**

● **VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER**  
 (●) **Fraise carbure, 3 dents, à jeter, courte**  
 (●) **3 TAGLIENTI, SERIE EXTRA CORTA**

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



CARBIDE 3 30° PLAIN FLAT TiAlN p.C574-575

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
					PLAIN
-	<b>G9410100</b>	10.0	10	13	50
-	<b>G9410120</b>	12.0	12	15	55
-	<b>G9410140</b>	14.0	14	15	58
-	<b>G9410160</b>	16.0	16	18	62
-	<b>G9410180</b>	18.0	18	20	70
-	<b>G9410200</b>	20.0	20	22	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	20	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	



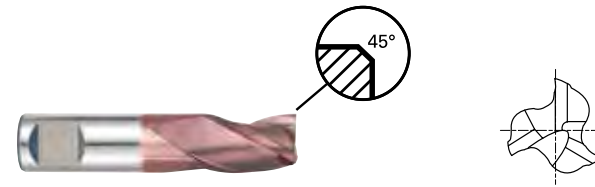
FLAT SHANK **G9G46** SERIES

**CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY WITH CHAMFER**

● **VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER**  
 (●) **Fraise carbure, 3 dents, à jeter, courte**  
 (●) **3 TAGLIENTI, SERIE EXTRA CORTA**

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



CARBIDE 3 30° FLAT C x 45° TiAlN p.C574-575

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
<b>G9G46040</b>	4.0	6	7	38	0.1
<b>G9G46050</b>	5.0	6	8	39	0.1
<b>G9G46060</b>	6.0	6	8	39	0.1
<b>G9G46080</b>	8.0	8	11	43	0.13
<b>G9G46100</b>	10.0	10	13	50	0.13
<b>G9G46120</b>	12.0	12	15	55	0.18
<b>G9G46140</b>	14.0	14	15	58	0.18
<b>G9G46160</b>	16.0	16	18	62	0.18
<b>G9G46200</b>	20.0	20	22	75	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	20	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

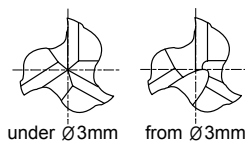


**CARBIDE, 3 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 3 SCHNEIDEN KURZ
- Fraise carbure, 3 dents, courte
- 3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaffräsern.



CARBIDE 3 30° DIN 6535HA TiAlN p.C574-575

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9425010	1.0	4	3	40
G9425015	1.5	4	4.5	40
G9425020	2.0	2	8	32
G9425025	2.5	3	8	32
G9425030	3.0	3	12	32
G9425035	3.5	4	12	32
G9425040	4.0	4	12	40
G9425045	4.5	5	14	50
G9425050	5.0	5	14	50
G9425055	5.5	6	16	50
G9425060	6.0	6	16	50
G9425070	7.0	7	20	60
G9425080	8.0	8	20	60
G9425090	9.0	9	20	60
G9425100	10.0	10	22	70
G9425120	12.0	12	22	70
G9425140	14.0	14	25	75
G9425160	16.0	16	25	75
G9425200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**CARBIDE, 3 FLUTE SHORT LENGTH WITH CHAMFER**

- VOLLHARTMETALL, 3 SCHNEIDEN KURZ
- Fraise carbure, 3 dents, courte
- 3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaffräsern.



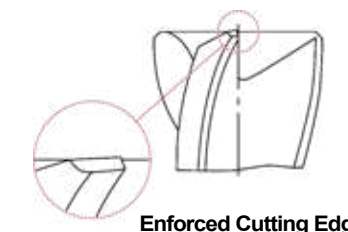
CARBIDE 3 30° DIN 6535HA C x 45° TiAlN p.C574-575

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G47030	3.0	3	12	32	0.1
G9G47040	4.0	4	12	40	0.1
G9G47050	5.0	5	14	50	0.1
G9G47060	6.0	6	16	50	0.1
G9G47080	8.0	8	20	60	0.13
G9G47100	10.0	10	22	70	0.13
G9G47120	12.0	12	22	70	0.18
G9G47140	14.0	14	25	75	0.18
G9G47160	16.0	16	25	75	0.18
G9G47200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



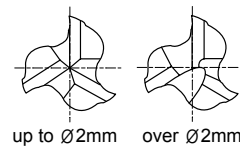
FLAT SHANK **G9439** SERIES

**CARBIDE, 3 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 3 SCHNEIDEN KURZ
- Fraise carbure, 3 dents, courte
- 3 TAGLIENTI, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaffräsern.



CARBIDE DIN 6527 3 30° DIN 6535HB TiAlN p.C574-575

	Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137		HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
	-	-	SHRINK FIT HOLDER	D47 - 72
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9439020	2.0	6	3	50
G9439030	3.0	6	4	50
G9439035	3.5	6	4	50
G9439040	4.0	6	5	54
G9439045	4.5	6	5	54
G9439050	5.0	6	6	54
G9439060	6.0	6	7	54
G9439070	7.0	8	8	58
G9439080	8.0	8	9	58
G9439090	9.0	10	10	66
G9439100	10.0	10	11	66
G9439120	12.0	12	12	73
G9439140	14.0	14	14	75
G9439160	16.0	16	16	82
G9439180	18.0	18	18	84
G9439200	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	40	42	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



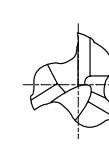
PLAIN SHANK **G9528** SERIES

**CARBIDE, 3 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 3 SCHNEIDEN LANG
- Fraise carbure, 3 dents, longue
- 3 TAGLIENTI, SERIE LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaffräsern.



CARBIDE DIN 6528 3 30° DIN 6535HA TiAlN p.C574-575

	Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137		HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
	-	-	SHRINK FIT HOLDER	D47 - 72
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9528035	3.5	3.5	7	50
G9528040	4.0	4	8	50
G9528045	4.5	4.5	8	50
G9528050	5.0	5	10	50
G9528055	5.5	5.5	10	57
G9528060	6.0	6	10	57
G9528065	6.5	6.5	13	60
G9528070	7.0	7	13	60
G9528075	7.5	7.5	16	63
G9528080	8.0	8	16	63
G9528085	8.5	8.5	16	67
G9528090	9.0	9	16	67
G9528095	9.5	9.5	19	72
G9528100	10.0	10	19	72
G9528110	11.0	11	22	83
G9528120	12.0	12	22	83
G9528130	13.0	13	22	83
G9528140	14.0	14	22	83
G9528150	15.0	15	26	92
G9528160	16.0	16	26	92
G9528180	18.0	18	26	92
G9528200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	40	42	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



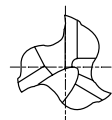
FLAT SHANK **G9433** SERIES

**CARBIDE, 3 FLUTE LONG LENGTH**

● **VOLLHARTMETALL, 3 SCHNEIDEN LANG**  
 (●) **Fraise carbure, 3 dents, longue**  
 (●) **3 TAGLIANTI, SERIE LUNGA**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9433030	3.0	6	7	57
G9433040	4.0	6	8	57
G9433050	5.0	6	10	57
G9433060	6.0	6	10	57
G9433080	8.0	8	16	63
G9433090	9.0	10	16	72
G9433100	10.0	10	19	72
G9433120	12.0	12	22	83
G9433140	14.0	14	22	83
G9433160	16.0	16	26	92
G9433180	18.0	18	26	92
G9433200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



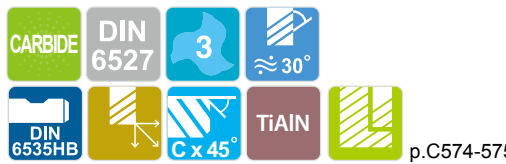
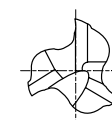
FLAT SHANK **G9G48** SERIES

**CARBIDE, 3 FLUTE LONG LENGTH WITH CHAMFER**

● **VOLLHARTMETALL, 3 SCHNEIDEN LANG**  
 (●) **Fraise carbure, 3 dents, longue**  
 (●) **3 TAGLIANTI, SERIE LUNGA**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

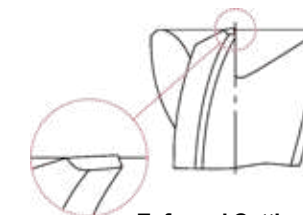


Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G48030	3.0	6	7	57	0.10
G9G48040	4.0	6	8	57	0.10
G9G48050	5.0	6	10	57	0.10
G9G48060	6.0	6	10	57	0.10
G9G48080	8.0	8	16	63	0.13
G9G48100	10.0	10	19	72	0.13
G9G48120	12.0	12	22	83	0.18
G9G48140	14.0	14	22	83	0.18
G9G48160	16.0	16	26	92	0.18
G9G48200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



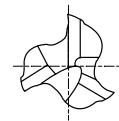


FLAT SHANK **G9447** SERIES

**CARBIDE, 3 FLUTE 45° HELIX, LONG LENGTH**

● VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG  
 (●) Fraise carbure, 3 dents, hélice 45°, longue  
 (●) 3 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46 D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9447030	3.0	6	7	57
G9447035	3.5	6	7	57
G9447040	4.0	6	8	57
G9447045	4.5	6	8	57
G9447050	5.0	6	10	57
G9447060	6.0	6	10	57
G9447070	7.0	8	13	63
G9447080	8.0	8	16	63
G9447090	9.0	10	16	72
G9447100	10.0	10	19	72
G9447120	12.0	12	22	83
G9447140	14.0	14	22	83
G9447160	16.0	16	26	92
G9447180	18.0	18	26	92
G9447200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

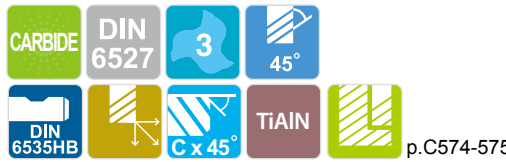
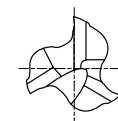


FLAT SHANK **G9G49** SERIES

**CARBIDE, 3 FLUTE 45° HELIX, LONG LENGTH WITH CHAMFER**

● VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG  
 (●) Fraise carbure, 3 dents, hélice 45°, longue  
 (●) 3 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.



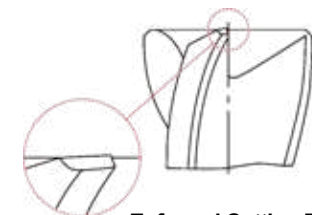
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46 D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G49030	3.0	6	7	57	0.10
G9G49040	4.0	6	8	57	0.10
G9G49050	5.0	6	10	57	0.10
G9G49060	6.0	6	10	57	0.10
G9G49080	8.0	8	16	63	0.13
G9G49100	10.0	10	19	72	0.13
G9G49120	12.0	12	22	83	0.18
G9G49140	14.0	14	22	83	0.18
G9G49160	16.0	16	26	92	0.18
G9G49200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

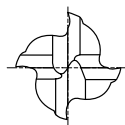
ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

**CARBIDE, 4 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN KURZ
- Fraise carbure, 4 dents, courte
- 4 TAGLIENTI, CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9432010	1.0	4	3	40
G9432015	1.5	4	4.5	40
G9432020	2.0	2	8	32
G9432025	2.5	2.5	8	32
G9432030	3.0	3	12	32
G9432035	3.5	3.5	12	32
G9432040	4.0	4	12	40
G9432045	4.5	4.5	14	50
G9432050	5.0	5	14	50
G9432055	5.5	5.5	16	50
G9432060	6.0	6	16	50
G9432070	7.0	7	20	60
G9432080	8.0	8	20	60
G9432090	9.0	9	20	60
G9432100	10.0	10	22	70
G9432120	12.0	12	22	70
G9432140	14.0	14	25	75
G9432160	16.0	16	25	75
G9432200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

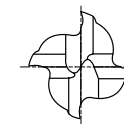


**CARBIDE, 4 FLUTE SHORT LENGTH WITH CHAMFER**

- VOLLHARTMETALL, 4 SCHNEIDEN KURZ
- Fraise carbure, 4 dents, courte
- 4 TAGLIENTI, CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G50030	3.0	3	12	32	0.10
G9G50040	4.0	4	12	40	0.10
G9G50050	5.0	5	14	50	0.10
G9G50060	6.0	6	16	50	0.10
G9G50080	8.0	8	20	60	0.13
G9G50100	10.0	10	22	70	0.13
G9G50120	12.0	12	22	70	0.18
G9G50140	14.0	14	25	75	0.18
G9G50160	16.0	16	25	75	0.18
G9G50200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **G9A69** SERIES

**CARBIDE, 4 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN KURZ
- Fraise carbure, 4 dents, courte
- 4 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



CARBIDE 4 30° DIN 6535HA TiAIN p.C576

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A69010	1.0	3	3	39
G9A69015	1.5	3	5	39
G9A69020	2.0	3	7	39
G9A69025	2.5	3	7	39
G9A69030	3.0	3	10	39
G9A69040	4.0	4	14	51
G9A69050	5.0	5	16	51
G9A69060	6.0	6	19	64
G9A69080	8.0	8	21	64
G9A69100	10.0	10	22	70
G9A69120	12.0	12	25	76
G9A69160	16.0	16	32	89
G9A69200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	13	21	
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	



FLAT SHANK **G9448** SERIES

**CARBIDE, 4 FLUTE SHORT LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN KURZ
- Fraise carbure, 4 dents, courte
- 4 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



CARBIDE DIN 6527 4 30° DIN 6535HB TiAIN p.C576

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9448020	2.0	6	4	50
G9448025	2.5	6	4	50
G9448030	3.0	6	5	50
G9448035	3.5	6	6	50
G9448040	4.0	6	8	54
G9448045	4.5	6	8	54
G9448050	5.0	6	9	54
G9448060	6.0	6	10	54
G9448070	7.0	8	11	58
G9448080	8.0	8	12	58
G9448090	9.0	10	13	66
G9448100	10.0	10	14	66
G9448120	12.0	12	16	73
G9448140	14.0	14	18	75
G9448160	16.0	16	22	82
G9448180	18.0	18	24	84
G9448200	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	13	21	
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	





PLAIN SHANK **G9540** SERIES

**CARBIDE, 4 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN LANG
- Fraise carbure, 4 dents, longue
- 4 TAGLIENTI, SERIE LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9540035	3.5	3.5	10	50
G9540040	4.0	4	11	50
G9540045	4.5	4.5	11	50
G9540050	5.0	5	13	50
G9540055	5.5	5.5	13	57
G9540060	6.0	6	13	57
G9540065	6.5	6.5	16	60
G9540070	7.0	7	16	60
G9540075	7.5	7.5	19	63
G9540080	8.0	8	19	63
G9540085	8.5	8.5	19	67
G9540090	9.0	9	19	67
G9540095	9.5	9.5	22	72
G9540100	10.0	10	22	72
G9540110	11.0	11	26	83
G9540120	12.0	12	26	83
G9540130	13.0	13	26	83
G9540140	14.0	14	26	83
G9540150	15.0	15	32	92
G9540160	16.0	16	32	92
G9540180	18.0	18	32	92
G9540200	20.0	20	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **G9449** SERIES

**CARBIDE, 4 FLUTE LONG LENGTH**

- VOLLHARTMETALL, 4 SCHNEIDEN LANG
- Fraise carbure, 4 dents, longue
- 4 TAGLIENTI, SERIE LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9449901	2.0	● 3	7	38
G9449030	3.0	6	8	57
G9449035	3.5	6	10	57
G9449040	4.0	6	11	57
G9449045	4.5	6	11	57
G9449050	5.0	6	13	57
G9449060	6.0	6	13	57
G9449070	7.0	8	16	63
G9449080	8.0	8	19	63
G9449090	9.0	10	19	72
G9449100	10.0	10	22	72
G9449120	12.0	12	26	83
G9449140	14.0	14	26	83
G9449160	16.0	16	32	92
G9449180	18.0	18	32	92
G9449200	20.0	20	38	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

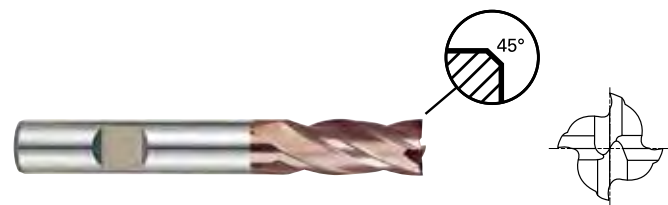


FLAT SHANK **G9G51** SERIES

**CARBIDE, 4 FLUTE LONG LENGTH WITH CHAMFER**

● **VOLLHARTMETALL, 4 SCHNEIDEN LANG**  
 (●) **Fraise carbure, 4 dents, longue**  
 (●) **4 TAGLIENTI, SERIE LUNGA**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

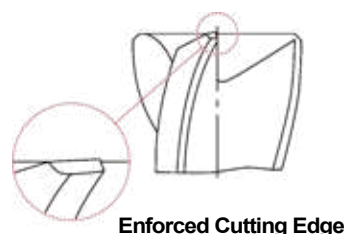


Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G51030	3.0	6	8	57	0.10
G9G51040	4.0	6	11	57	0.10
G9G51050	5.0	6	13	57	0.10
G9G51060	6.0	6	13	57	0.10
G9G51080	8.0	8	19	63	0.13
G9G51100	10.0	10	22	72	0.13
G9G51120	12.0	12	26	83	0.18
G9G51140	14.0	14	26	83	0.18
G9G51160	16.0	16	32	92	0.18
G9G51200	20.0	20	38	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **G9H73** SERIES  
 FLAT SHANK **G9H74** SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX SHORT LENGTH WITH CHAMFER**

● **HARTMETALL, 4-SCHNEIDEN-VARIABLE DRALL KURZE LÄNGE MIT FASE**  
 (●) **Fraise carbure, 4 dents, hélice multiple, courte**  
 (●) **MD, 4 TAGLIENTI, PASSO ED ELICA DIFFERENZIATI, SPIGOLO CON SMUSSO 45°**

- ▶ New Coating enhances heat and oxidation resistance
- ▶ Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation
- ▶ Unique Geometry applied to Reduce Vibration
- ▶ Neue Beschichtung verbessert die Hitze- und Oxidationsbeständigkeit
- ▶ Multiple Helix Design zur Reduzierung von Vibrationen
- ▶ Einzigartige Geometrie für optimale Spanbildung und Spanabfuhr

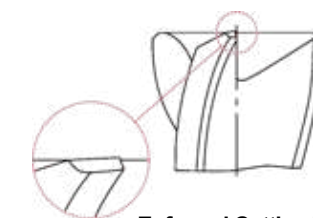


Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

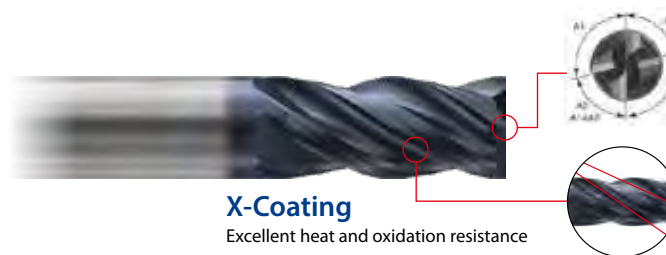
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT					
G9H73030N	G9H74030N	3.0	6	5	50	0.10
G9H73040N	G9H74040N	4.0	6	8	54	0.15
G9H73050N	G9H74050N	5.0	6	9	54	0.15
G9H73060N	G9H74060N	6.0	6	10	54	0.20
G9H73080N	G9H74080N	8.0	8	12	58	0.20
G9H73100N	G9H74100N	10.0	10	14	66	0.30
G9H73120N	G9H74120N	12.0	12	16	73	0.35
G9H73160N	G9H74160N	16.0	16	22	82	0.40
G9H73200N	G9H74200N	20.0	20	26	92	0.50

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge



**X-Coating**  
Excellent heat and oxidation resistance

**Unequal Index**  
Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Chip Evacuation with Better Surface Finish

**Multiple Helix**  
Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation Concluding Faster and Heavier Cutting making Higher Productivity

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	45	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	400	200	325	200	240	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

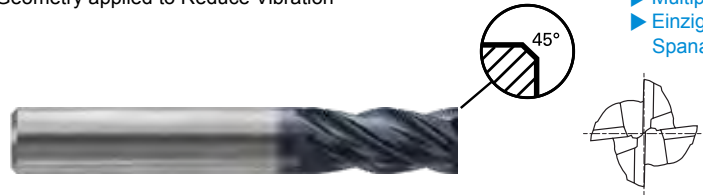


PLAIN SHANK **G9H75** SERIES  
 FLAT SHANK **G9H76** SERIES

**CARBIDE, 4 FLUTE MULTIPLE HELIX LONG LENGTH WITH CHAMFER**

● HARTMETALL, 4-SCHNEIDEN-VARIABLER LANG LÄNGE MIT FASE  
 ( ) Fraise carbure, 4 dents, hélice multiple, longue  
 ( ) MD, 4 TAGLIENTI, PASSO ED ELICA DIFFERENZIATI, CON SMUSSO 45° - SERIE LUNGA

- ▶ New Coating enhances heat and oxidation resistance
- ▶ Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation
- ▶ Unique Geometry applied to Reduce Vibration
- ▶ Neue Beschichtung verbessert die Hitze- und Oxidationsbeständigkeit
- ▶ Multiple Helix Design zur Reduzierung von Vibrationen
- ▶ Einzigartige Geometrie für optimale Spanbildung und Spanabfuhr



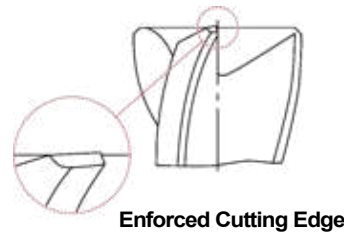
CARBIDE DIN 6527 4 35°/37°  
 PLAIN FLAT C x 45° X Coating p.C577

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

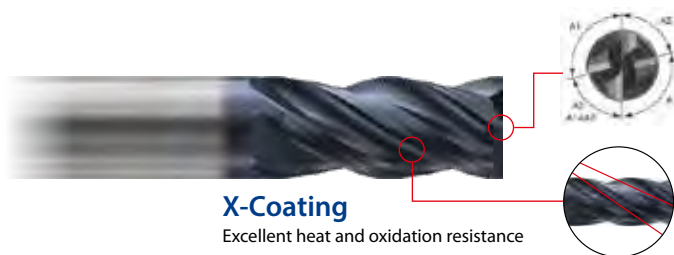
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT					
G9H75030N	G9H76030N	3.0	6	8	57	0.10
G9H75040N	G9H76040N	4.0	6	11	57	0.15
G9H75050N	G9H76050N	5.0	6	13	57	0.15
G9H75060N	G9H76060N	6.0	6	13	57	0.20
G9H75080N	G9H76080N	8.0	8	19	63	0.20
G9H75100N	G9H76100N	10.0	10	22	72	0.30
G9H75120N	G9H76120N	12.0	12	26	83	0.35
G9H75160N	G9H76160N	16.0	16	32	92	0.40
G9H75200N	G9H76200N	20.0	20	38	104	0.50

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5



**Unequal Index**  
 Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Chip Evacuation with Better Surface Finish



**Multiple Helix**  
 Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation Concluding Faster and Heavier Cutting making Higher Productivity

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **G9453** SERIES

**CARBIDE, 4 FLUTE EXTRA LONG LENGTH**

● VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG  
 ( ) Fraise carbure, 4 dents, extra-longue  
 ( ) 4 TAGLIENTI, SERIE EXTRA LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



CARBIDE 4 30° DIN 6535HA TiAlN p.C576

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9453903	3.0	3	20	60
G9453030	3.0	3	30	75
G9453904	4.0	4	20	60
G9453040	4.0	4	30	75
G9453905	5.0	5	25	75
G9453050	5.0	5	40	100
G9453906	6.0	6	30	75
G9453060	6.0	6	50	150
G9453908	8.0	8	30	75
G9453080	8.0	8	50	150
G9453910	10.0	10	40	100
G9453100	10.0	10	60	150
G9453912	12.0	12	45	100
G9453120	12.0	12	75	150
G9453914	14.0	14	45	100
G9453140	14.0	14	65	150
G9453916	16.0	16	45	100
G9453160	16.0	16	65	150
G9453918	18.0	18	45	100
G9453180	18.0	18	65	150
G9453920	20.0	20	45	100
G9453200	20.0	20	65	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



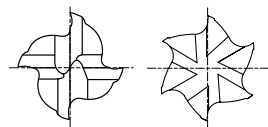


PLAIN SHANK **G9F45** SERIES  
 PLAIN SHANK **G9F46** SERIES

**CARBIDE, 4&6 FLUTE 45° HELIX SHORT / LONG LENGTH**

● VOLLHARTMETALL, 4&6 SCHNEIDEN 45° RECHTSSPIRALE KURZ / LANG  
 (●) Fraise carbure, 4&6 dents, hélice 45°, courte / longue  
 (●) 4&6 TAGLIENTI, ELICA 45°, SERIE CORTA / LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung geeignet.
- ▶ Exzellente Hochleistungs Mühlen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46 D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

**SHORT**

Unit : mm

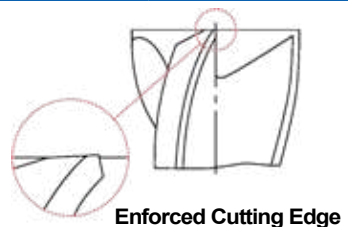
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F45030	3.0	4	6	50	4
G9F45040	4.0	4	11	50	4
G9F45050	5.0	6	13	50	6
G9F45060	6.0	6	16	50	6
G9F45080	8.0	8	19	60	6
G9F45100	10.0	10	22	75	6
G9F45120	12.0	12	26	75	6
G9F45140	14.0	14	30	90	6
G9F45160	16.0	16	32	100	6
G9F45180	18.0	18	38	100	6
G9F45200	20.0	20	38	100	6

**LONG**

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F46120	12.0	12	50	100	6
G9F46160	16.0	16	65	150	6
G9F46200	20.0	20	75	150	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○

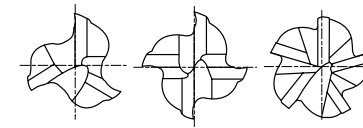


FLAT SHANK **G9A42** SERIES

**CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - COARSE**

● VOLLHARTMETALL, MEHRSCHEIDEN LANG SCHRUPPFÄSER - GROB  
 (●) Fraise carbure, multi-dents, ébauche, pas grossier, longue  
 (●) 3 - 4 - 5 TAGLIENTI, PER SGROSSATURA, SERIE LUNGA - Bombato grosso

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Fast chip ejection.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Guter Spanauswurf.

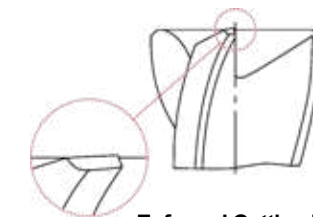


Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46 D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	h10	h5				
G9A42060	6.0	6	16	57	3.00	0.60
G9A42080	8.0	8	16	63	3.00	0.60
G9A42100	10.0	10	22	72	4.00	0.60
G9A42120	12.0	12	26	83	4.00	0.74
G9A42140	14.0	14	26	83	4.00	0.94
G9A42160	16.0	16	32	92	4.00	0.94
G9A42180	18.0	18	32	92	4.00	0.94
G9A42200	20.0	20	38	104	4.00	0.94
G9A42250	25.0	25	45	121	5.00	0.94

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in μm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 -40	0 -48	0 -58	0 -70	0 -84
h5	0 -4	0 -5	0 -6	0 -8	0 -9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○





PLAIN SHANK **G9400** SERIES

**CARBIDE, 2 FLUTE DRILL MILLS**

- VOLLHARTMETALL, 2 SCHNEIDEN BOHRNUTEN FRÄSER
- Fraise foret carbure, 2 dents, multi-fonctions
- 2 TAGLIENTI, FRESA IN MD A 90°



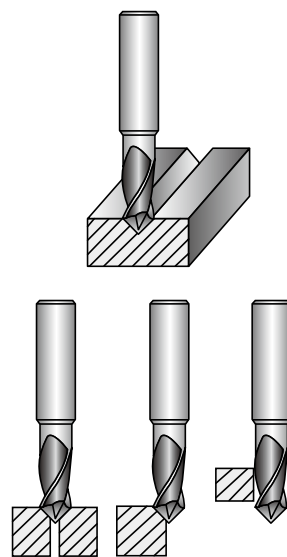
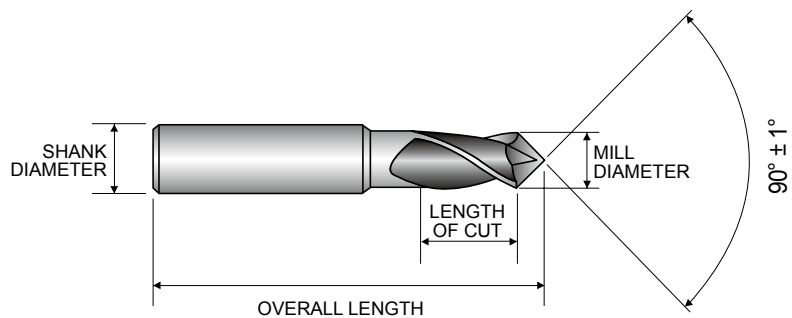
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15-46 D161-176
-	-	SHRINK FIT HOLDER	D47-72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73-118 D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9400030	3.0	4	6	50
G9400040	4.0	5	8	50
G9400050	5.0	6	10	50
G9400060	6.0	8	12	60
G9400080	8.0	10	16	70
G9400100	10.0	12	18	70
G9400120	12.0	12	20	70
G9400140	14.0	14	24	80
G9400160	16.0	16	26	80
G9400200	20.0	20	32	100

▶TiN, TiCN and TiAlN Coatings are available on your request.

- Performs many drilling and milling operations that are not presently done with the standard end mill.
- Among the many vertical milling machine operations, applications for the Drill Mill are: Drilling, Slotting, NC Milling, Drilling & Slotting, Profile Milling and Chamfering.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
Ø3 ~ Ø10=h9	h5
Ø12 ~ Ø20=d9	

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

ISO	N				S						H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

◎ : Excellent ○ : Good



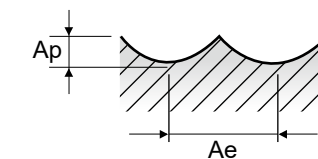
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOLHENE SCHNEIDPARAMETER**

**G9624, G9A70, G9437, G9438, G9454, G9455** SERIES **2 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Ae	Parameter	Mill Diameter (Ø)												
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	
P	1-4	Non-alloy steel	0.2D	Vc	80	105	110	125	135	155	170	190	200	205	215	225	
				fz	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201	
				RPM	12732	11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581	
				FEED	662	557	613	716	859	1098	1320	1512	1501	1468	1430	1440	
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
				5	Low alloy steel	0.2D	Vc	55	80	90	95	110	125	135	150	160	160
	fz	0.023	0.023	0.031			0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158		
	RPM	8754	8488	7162			6048	5836	4974	4297	3979	3638	3183	3006	2785		
	FEED	403	390	444			484	700	796	859	955	931	898	890	880		
	Ap	0.2	0.2	0.2			0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
	6-7	High alloy steel, and tool steel	0.2D	Vc			80	105	110	125	135	155	170	190	200	205	215
	fz			0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201		
RPM	12732			11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581			
FEED	662			557	613	716	859	1098	1320	1512	1501	1468	1430	1440			
Ap	0.2			0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3			
8-9	High alloy steel, and tool steel			0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
fz		0.023	0.023		0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158			
RPM		8754	8488		7162	6048	5836	4974	4297	3979	3638	3183	3006	2785			
FEED		403	390		444	484	700	796	859	955	931	898	890	880			
Ap		0.2	0.2		0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3			
10		High alloy steel, and tool steel	0.2D		Vc	80	105	110	125	135	155	170	190	200	205	215	225
fz	0.026			0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201			
RPM	12732			11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581			
FEED	662			557	613	716	859	1098	1320	1512	1501	1468	1430	1440			
Ap	0.2			0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3			
11.1 - 11.2	High alloy steel, and tool steel			0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
fz		0.023	0.023		0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158			
RPM		8754	8488		7162	6048	5836	4974	4297	3979	3638	3183	3006	2785			
FEED		403	390		444	484	700	796	859	955	931	898	890	880			
Ap		0.2	0.2		0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3			
K		15-20	Grey cast iron Nodular cast iron Malleable cast iron		0.7D	Vc	65	65	65	65	65	65	65	65	65	65	65
	fz			0.01		0.016	0.028	0.04	0.053	0.092	0.112	0.131	0.164	0.177	0.209	0.2	
	RPM			10345		6897	5173	4138	3448	2586	2069	1724	1364	1293	1061	1035	
	FEED			207		221	290	331	366	476	463	452	447	458	444	414	
N	21~22	Aluminum-wrought alloy	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185	
				fz	0.006	0.01	0.013	0.019	0.023	0.034	0.044	0.061	0.073	0.07	0.079	0.092	
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944	
				FEED	372	414	403	460	476	541	546	631	631	543	531	542	
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
				23~25	Aluminum-cast, alloyed	0.7D	Vc	195	195	195	190	195	200	195	195	190	195
	fz	0.006	0.01	0.013			0.019	0.023	0.034	0.044	0.061	0.073	0.07	0.079	0.092		
	RPM	31035	20690	15518			12096	10345	7958	6207	5173	4320	3879	3360	2944		
	FEED	372	414	403			460	476	541	546	631	631	543	531	542		
	Ap	0.3	0.3	0.3			0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
	H	38.1	Hardened steel	0.2D			Vc	25	35	45	50	50	50	55	55	55	60
					fz	0.016	0.016	0.021	0.024	0.03	0.046	0.054	0.07	0.081	0.091	0.1	0.111
RPM					3979	3714	3581	3183	2653	1989	1751	1459	1251	1194	1061	955	
40		Chilled Cast Iron	0.2D	Vc	127	119	150	153	159	183	189	204	203	217	212	212	
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158	
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785	
FEED	403	390	444	484	700	796	859	955	931	898	890	880					
Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3					

※ The FEED, in long & extra long types, should be reduced by around 50%



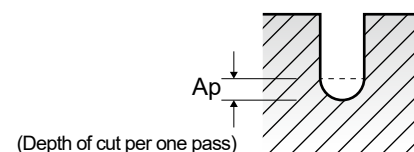
**G9B81 SERIES 2 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)				
				0.4	0.5	0.6	0.8	1.0
P	1-4	Non-alloy steel	Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
			RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000
			FEED	150~415	150~415	190~535	190~535	210~595
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
			Vc	24~30	30~38	36~46	48~61	55~69
	5	Non-alloy steel	fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007
			RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100
			FEED	75~230	75~230	95~300	95~300	105~330
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
			Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
6-7	Low alloy steel	RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000	
		FEED	150~415	150~415	190~535	190~535	210~595	
		Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	
		Vc	24~30	30~38	36~46	48~61	55~69	
		fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007	
		RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100	
8-9	Low alloy steel	FEED	75~230	75~230	95~300	95~300	105~330	
		Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	
		Vc	33~43	41~53	50~64	66~85	77~97	
		fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010	
		RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000	
		FEED	150~415	150~415	190~535	190~535	210~595	
10	High alloyed steel, and tool steel	Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	
		Vc	24~30	30~38	36~46	48~61	55~69	
		fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007	
		RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100	
		FEED	75~230	75~230	95~300	95~300	105~330	
		Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	
11.1 - 11.2	High alloyed steel, and tool steel	Vc	24~30	30~38	36~46	48~61	55~69	
		fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007	
11.1 - 11.2	High alloyed steel, and tool steel	RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100	
		FEED	75~230	75~230	95~300	95~300	105~330	
11.1 - 11.2	High alloyed steel, and tool steel	Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	

※ The FEED, in long & extra long types, should be reduced by around 50%

▶ NEXT PAGE

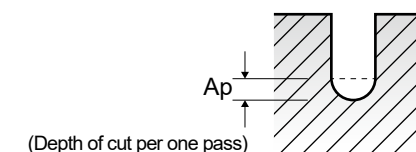


**G9B81 SERIES 2 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

VDI 3323	Parameter	Mill Diameter (Ø)							
		1.2	1.4	1.5	1.6	1.8	2.0	3.0	4.0
1-4	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
	fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
	RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
	FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
5	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
	fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
	RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
6-7	FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
	fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
8-9	RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
	FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
10	fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
	RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
	FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
11.1 - 11.2	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
	fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
	RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
	FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
11.1 - 11.2	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360

※ The FEED, in long & extra long types, should be reduced by around 50%







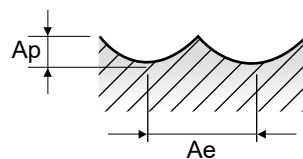
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G9634 SERIES 4 FLUTE BALL NOSE**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Parameter	Mill Diameter (Ø)																																																																											
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0																																																																
P	1-4	Non-alloy steel	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225	fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15	RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581	FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3										
				5	0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175	fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119	RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785	FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3								
						6-7	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225	fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15	RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581	FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3						
								8-9	0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175	fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119	RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785	FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3				
										10	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225	fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15	RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581	FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
												11.1 - 11.2	0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175	fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119	RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785	FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	K	15-20	0.7D											Vc	65	65	65	65	65	65	65	65	60	65	60	65	fz	0.008	0.012	0.021	0.03	0.04	0.068	0.083	0.097	0.125	0.135	0.159	0.15	RPM	10345	6897	5173	4138	3448	2586	2069	1724	1364	1293	1061	1035	FEED	331	331	434	497	552	703	687	669	682	698	675	621	Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				N	21~22									0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185	fz	0.005	0.007	0.01	0.015	0.017	0.026	0.033	0.046	0.055	0.053	0.06	0.069	RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944	FEED	621	579	621	726	703	828	819	952	950	822	806	813	Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
						23~25	0.7D								Vc	195	195	195	190	195	200	195	195	190	195	190	185	fz	0.005	0.007	0.01	0.015	0.017	0.026	0.033	0.046	0.055	0.053	0.06	0.069	RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944	FEED	621	579	621	726	703	828	819	952	950	822	806	813	Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
								H	38.1						0.2D	Vc	25	35	45	50	55	55	55	55	55	55	60	60	fz	0.008	0.012	0.016	0.019	0.022	0.034	0.041	0.053	0.062	0.073	0.076	0.084	RPM	3979	3714	3581	3183	2653	2188	1751	1459	1251	1094	1061	955	FEED	127	178	229	242	233	298	287	309	310	320	323	321	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
										40	0.2D					Vc	65	80	90	95	110	125	135	150	160	160	170	175	fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119	RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785	FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326	Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3

※ The FEED, in long & extra long types, should be reduced by around 50%



**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G9B82, G9B83 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

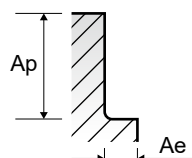
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)																																																					
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0																																														
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70	70	fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	RPM	7958	5836	5173	4456	3714	2785	2228	1857	FEED	159	175	259	276	290	318	285	241																		
					5	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45	45	fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	RPM	4775	3714	3183	2546	2387	1790	1273	1194	FEED	95	119	159	158	196	179	127	115															
								6-7	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70	70	fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	RPM	7958	5836	5173	4456	3714	2785	2228	1857	FEED	159	175	259	276	290	318	285	241												
											8-9	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45	45	fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	RPM	4775	3714	3183	2546	2387	1790	1273	1194	FEED	95	119	159	158	196	179	127	115									
														10	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70	70	fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	RPM	7958	5836	5173	4456	3714	2785	2228	1857	FEED	159	175	259	276	290	318	285	241						
																	11.1 - 11.2	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45	45	fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	RPM	4775	3714	3183	2546	2387	1790	1273	1194	FEED	95	119	159	158	196	179	127	115			
	M	14.1	Stainless steel	1.0D																0.5D (Up to Ø3 : 0.2D)	Vc	25	30	35	35	35	35	35	35	35	fz	0.009	0.016	0.025	0.031	0.04	0.053	0.059	0.058	RPM	3979	3183	2785	2228	1857	1393	1114	928	FEED	72	102	139	138	149	148	131	108		
					K	15-20	Grey cast iron Nodular cast iron Malleable cast iron														1.0D	1.0D	Vc	60	55	60	55	55	55	60	55	fz	0.012	0.018	0.024	0.03	0.043	0.063	0.077	0.102	RPM	9549	5836	4775	3501	2918	2188	1910	1459	FEED	229	210	229	210	251	276	294	298	
								N	21~22	Aluminum-wrought alloy													1.0D	1.0D	Vc	140	145	140	145	145	145	145	140	fz	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	RPM	22282	15385	11141	9231	7692	5769	4615	3714	FEED	446	462	468	462	492	496	489
											23~25	Aluminum-cast, alloyed	1.0D												1.0D	Vc	140	145	140	145	145	145	145	140	fz	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	RPM	22282	15385	11141	9231	7692	5769	4615	3714	FEED	446	462	468	462	492	496
														26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D										1.0D	Vc	105	105	110	105	105	110	105	105	fz	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066	RPM	16711	11141	8754	6685	5570	4377	3342	2785	FEED	334	334	333	334	368
																	29.1	Non Metallic Materials	1.0D								1.0D	Vc	105	105	110	105	105	110	105	105	fz	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066	RPM	16711	11141	8754	6685	5570	4377	3342	2785	FEED	334	334	333	334
H																																																											

**G9B84, G9B85 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)											
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0		
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90		
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047		
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387		
					FEED	140	233	229	267	484	519	554	616	509	449		
					Vc	30	35	40	45	50	50	55	55	55	55		
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037		
	5	Non-alloy steel	0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55		
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037		
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459		
					FEED	76	119	153	172	302	306	362	333	266	216		
					Vc	55	55	60	70	80	85	90	90	85	90		
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047		
6-7	Low alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90			
				fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047			
				RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387			
				FEED	140	233	229	267	484	519	554	616	509	449			
				Vc	30	35	40	45	50	50	55	55	55	55			
				fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037			
8-9	Low alloy steel	0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55			
				fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037			
				RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459			
				FEED	76	119	153	172	302	306	362	333	266	216			
				Vc	55	55	60	70	80	85	90	90	85	90			
				fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047			
10	High alloyed steel, and tool steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90			
				fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047			
				RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387			
				FEED	140	233	229	267	484	519	554	616	509	449			
				Vc	30	35	40	45	50	50	55	55	55	55			
				fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037			
11.1 - 11.2	High alloyed steel, and tool steel	0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55			
				fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037			
				RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459			
				FEED	76	119	153	172	302	306	362	333	266	216			
				Vc	25	35	35	35	40	40	45	45	45	45			
				fz	0.002	0.004	0.006	0.009	0.018	0.024	0.029	0.042	0.044	0.045			
M	14.1	Stainless steel	0.1D	1.0D	Vc	25	35	35	35	40	40	45	45	45	45		
					fz	0.002	0.004	0.006	0.009	0.018	0.024	0.029	0.042	0.044	0.045		
					RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194		
					FEED	64	119	134	134	229	244	277	301	252	215		
					Vc	60	55	60	55	60	55	55	55	60	55		
					fz	0.008	0.013	0.017	0.026	0.035	0.044	0.065	0.093	0.116	0.155		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459		
					fz	611	607	649	607	668	616	759	814	886	905		
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459		
					FEED	611	607	649	607	668	616	759	814	886	905		
					Vc	140	130	140	145	140	145	145	145	145	140		
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095		
N	21~22	Aluminum-wrought alloy	0.1D	1.5D	Vc	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714		
					fz	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411		
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714		
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411		
					Vc	140	130	140	145	140	145	145	145	145	140		
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095		
	23~25	Aluminum-cast, alloyed	0.1D	1.5D	Vc	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714		
					fz	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411		
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714		
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411		
					Vc	80	95	105	105	110	105	105	110	105	105		
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096		
26-28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	Vc	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785			
				fz	611	887	1070	1070	1015	1016	1070	1103	1083	1070			
				RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785			
				FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070			
				Vc	80	95	105	105	110	105	105	110	105	105			
				fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096			
29.1	Non Metallic Materials	0.1D	1.5D	Vc	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785			
				fz	611	887	1070	1070	1015	1016	1070	1103	1083	1070			
				RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785			
				FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070			
				Vc	30	35	40	45	50	55	55	55	55	55			
				fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037			
H	40	Chilled Cast Iron	0.1D	1.0D	Vc	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459		
					fz	76	119	153	172	302	306	362	333	266	216		
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459		
					FEED	76	119	153	172	302	306	362	333	266	216		
					Vc	25	25	30	35	40	40	45	45	45	45		
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048		

※ The FEED, in long & extra long types, should be reduced by around 50%



**G9424, G9G44, G9A68, G9444, G9527, G9445, G9G45, G9452 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)															
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0			
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3: 0.2D)	Vc	45	45	50	55	65	70	70	70	70	75	75	70				
					fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063			
					RPM	14324	9549	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114			
					FEED	115	153	159	175	259	276	290	318	285	241	215	185	140			
					Vc	25	25	30	35	40	40	45	45	40	45	45	50	45			
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05			
	5	Non-alloy steel	1.0D	0.5D (Up to Ø3: 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45			
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05			
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716			
					FEED	64	85	95	119	159	159	196	179	127	115	98	99	72			
					Vc	45	45	50	55	65	70	70	70	70	70	75	75	70			
					fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063			
6-7	Low alloy steel	1.0D	0.5D (Up to Ø3: 0.2D)	Vc	45	45	50	55	65	70	70	70	70	75	75	70					
				fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063				
				RPM	14324	9549	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114				
				FEED	115	153	159	175	259	276	290	318	285	241	215	185	140				
				Vc	25	25	30	35	40	40	45	45	40	45	45	50	45				
				fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048</							

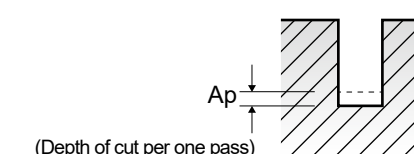
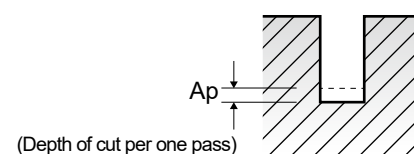
**G9B80 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)						
				0.4	0.5	0.6	0.7	0.8	0.9	1.0
P	1-4	Non-alloy steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75
			fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014
			RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000
			FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
	5	Non-alloy steel	Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53
			fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015
			RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000
			FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
6-7	Low alloy steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75	
		fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	
		RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000	
		FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
8-9	Low alloy steel	Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53	
		fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015	
		RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000	
		FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
10	High alloyed steel, and tool steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75	
		fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	
		RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000	
		FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
11.1 - 11.2	High alloyed steel, and tool steel	Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53	
		fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015	
		RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000	
		FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
		Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	

※ The FEED, in long & extra long types, should be reduced by around 50%

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**G9B80 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.  
Ap = mm

VDI 3323	Parameter	Mill Diameter (Ø)								
		1.2	1.4	1.5	1.6	1.8	2.0	2.5	3.0	4.0
1-4	Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
	fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
	RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
	FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
5	Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
	fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
	RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
	FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
6-7	Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
	fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
	RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
	FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
8-9	Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
	fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
	RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
	FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
10	Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
	fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
	RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
	FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
11.1 - 11.2	Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
	fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
	RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
	FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360





**G9432, G9G50, G9A69, G9448, G9540, G9449, G9G51, G9453 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)																																																							
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0																																											
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	0.047	0.047	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269
					Vc	30	35	40	45	50	55	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133	
	5	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269		
					Vc	30	35	40	45	50	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133		
	6-7	Low alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269		
					Vc	30	35	40	45	50	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133		
	8-9	Low alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269		
					Vc	30	35	40	45	50	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133		
	10	High alloyed steel, and tool steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269		
					Vc	30	35	40	45	50	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133		
	11.1 - 11.2	High alloyed steel, and tool steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269		
					Vc	30	35	40	45	50	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133		
M	14.1	Stainless steel	0.1D	1.0D	Vc	25	35	35	35	40	45	45	45	45	45	50	45	fz	0.002	0.004	0.006	0.009	0.018	0.024	0.029	0.042	0.044	0.045	0.045	0.045	RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194	1023	995	716	FEED	64	119	134	134	229	244	277	301	252	215	184	179	132			
					Vc	60	55	60	55	60	55	55	55	60	55	55	55	55	fz	0.008	0.013	0.017	0.026	0.035	0.044	0.065	0.093	0.116	0.155	0.182	0.22	0.288	RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875	FEED	611	607	649	607	668	616	759	814	886	905	910	963	1008	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140	145	140	fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095	0.108	0.125	0.163	RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228	FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411	1424	1442	1453		
					Vc	140	130	140	145	140	145	145	145	145	140	145	145	140	fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095	0.108	0.125	0.163	RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228	FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411	1424	1442	1453	
N	23~25	Aluminum-cast, alloyed	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105	110	105	fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083		
					Vc	80	95	105	105	110	105	105	110	105	105	110	105	105	fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083	
26-28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105	110	105	fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083			
				Vc	80	95	105	105	110	105	105	110	105	105	110	105	105	fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083		
29.1	Non Metallic Materials	0.1D	1.5D	Vc	30	35	40	45	50	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133			
				Vc	30	35	40	45	50	55	55	55	55	55	60	55	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	FEED	76	119	153	172	302	306	362	333	266	216	190	177	133			
H	40	Chilled Cast Iron	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269		
					Vc	30	35	40	45	50	55	55	55	55	55</																																														



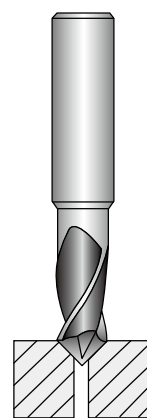


**G9400 SERIES 2 FLUTE DRILL MILLS - CHAMFERING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)									
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	1-2	Non-alloy steel	Vc	60	65	65	60	60	65	70	70	85	
			fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137	
			RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353	
	FEED		318	321	331	331	339	343	371	348	371		
	3-4		Vc	45	55	55	55	55	55	60	65	65	
			fz	0.023	0.027	0.036	0.043	0.058	0.073	0.091	0.105	0.14	
			RPM	4775	4377	3501	2918	2188	1751	1592	1293	1035	
	FEED		220	236	252	251	254	256	290	272	290		
	5		Vc	40	45	45	40	40	50	50	50	55	
			fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134	
			RPM	4244	3581	2865	2122	1592	1326	995	875	875	
FEED	195	201	201	187	191	210	220	229	235				
6	Vc	60	65	65	60	60	65	70	70	85			
	fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137			
	RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353			
FEED	318	321	331	331	339	343	371	348	371				
7	Vc	45	55	55	55	55	60	65	65	65			
	fz	0.023	0.027	0.036	0.043	0.058	0.073	0.091	0.105	0.14			
	RPM	4775	4377	3501	2918	2188	1751	1592	1293	1035			
FEED	220	236	252	251	254	256	290	272	290				
8-9	Vc	40	45	45	40	40	50	50	50	55			
	fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134			
	RPM	4244	3581	2865	2122	1592	1326	995	875	875			
FEED	195	201	201	187	191	210	220	229	235				
10	Vc	60	65	65	60	60	65	70	70	85			
	fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137			
	RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353			
FEED	318	321	331	331	339	343	371	348	371				
11.1	Vc	40	45	45	40	40	50	50	50	55			
	fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134			
	RPM	4244	3581	2865	2122	1592	1326	995	875	875			
FEED	195	201	201	187	191	210	220	229	235				
M 14.1	Vc	30	35	40	35	35	40	40	40	45			
	fz	0.021	0.025	0.029	0.037	0.055	0.064	0.11	0.122	0.122			
	RPM	3183	2785	2546	1857	1393	1273	1061	796	716			
FEED	134	139	148	137	153	163	166	175	175				
N	21~22	Aluminum-wrought alloy	Vc	145	160	150	150	155	175	185	195	195	
			fz	0.025	0.032	0.045	0.057	0.075	0.085	0.1	0.134	0.175	
			RPM	15385	12732	9549	7958	6167	5570	4907	3879	3104	
	FEED		769	815	859	907	925	947	981	1040	1086		
	23~25		Vc	145	160	150	150	155	175	185	195	195	
			fz	0.025	0.032	0.045	0.057	0.075	0.085	0.1	0.134	0.175	
RPM		15385	12732	9549	7958	6167	5570	4907	3879	3104			
FEED	769	815	859	907	925	947	981	1040	1086				

※ The FEED, in long & extra long types, should be reduced by around 50%

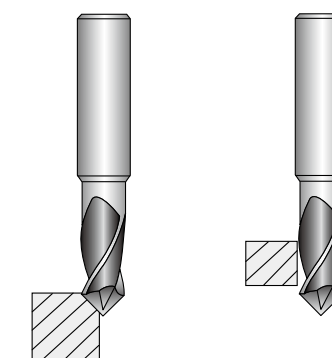


**G9400 SERIES 2 FLUTE DRILL MILLS - CHAMFERING & SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)									
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	1-2	Non-alloy steel	Vc	80	85	85	80	80	90	95	90	95	
			fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063	
			RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512	
	FEED		136	135	141	153	159	172	186	193	191		
	3-4		Vc	50	55	55	55	55	55	60	65	60	
			fz	0.008	0.01	0.013	0.018	0.024	0.03	0.041	0.05	0.064	
			RPM	5305	4377	3501	2918	2188	1751	1592	1293	955	
	FEED		85	88	91	105	105	105	131	129	122		
	5		Vc	45	50	50	50	45	55	55	55	55	
			fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06	
			RPM	4775	3979	3183	2653	1790	1751	1459	1094	875	
FEED	76	72	76	90	90	95	105	101	105				
6	Vc	80	85	85	80	80	90	95	90	95			
	fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063			
	RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512			
FEED	136	135	141	153	159	172	186	193	191				
7	Vc	50	55	55	55	55	60	65	60	60			
	fz	0.008	0.01	0.013	0.018	0.024	0.03	0.041	0.05	0.064			
	RPM	5305	4377	3501	2918	2188	1751	1592	1293	955			
FEED	85	88	91	105	105	105	131	129	122				
8-9	Vc	45	50	50	50	45	55	55	55	55			
	fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06			
	RPM	4775	3979	3183	2653	1790	1751	1459	1094	875			
FEED	76	72	76	90	90	95	105	101	105				
10	Vc	80	85	85	80	80	90	95	90	95			
	fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063			
	RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512			
FEED	136	135	141	153	159	172	186	193	191				
11.1	Vc	45	50	50	50	45	55	55	55	55			
	fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06			
	RPM	4775	3979	3183	2653	1790	1751	1459	1094	875			
FEED	76	72	76	90	90	95	105	101	105				
M 14.1	Vc	30	35	40	35	40	45	45	45	40			
	fz	0.008	0.01	0.013	0.018	0.024	0.027	0.036	0.046	0.069			
	RPM	3183	2785	2546	1857	1592	1432	1194	895	637			
FEED	51	56	66	67	76	77	86	82	88				
N	21~22	Aluminum-wrought alloy	Vc	185	210	210	205	205	225	230	230	230	
			fz	0.008	0.01	0.013	0.019	0.03	0.037	0.045	0.05	0.064	
			RPM	19629	16711	13369	10876	8157	7162	6101	4576	3661	
	FEED		314	334	348	413	489	530	549	458	469		
	23~25		Vc	185	210	210	205	205	225	230	230	230	
			fz	0.008	0.01	0.013	0.019	0.03	0.037	0.045	0.05	0.064	
RPM		19629	16711	13369	10876	8157	7162	6101	4576	3661			
FEED	314	334	348	413	489	530	549	458	469				
S 36-37	Vc	30	35	40	35	40	45	45	45	40			
	fz	0.008	0.01	0.013	0.018	0.024	0.027	0.036	0.046	0.069			
	RPM	3183	2785	2546	1857	1592	1432	1194	895	637			
FEED	51	56	66	67	76	77	86	82	88				

※ The FEED, in long & extra long types, should be reduced by around 50%



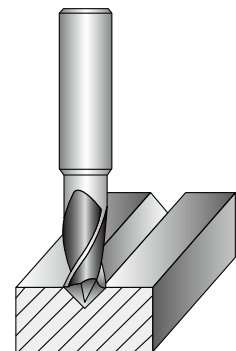
**G9400** SERIES

**2 FLUTE DRILL MILLS - V-GROOVING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)									
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	1-2	Non-alloy steel	Vc	80	85	85	80	80	90	95	100	95	
			fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029	
			RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512	
	FEED		85	81	87	85	89	92	91	92	88		
	3-4		Vc	55	60	55	55	55	55	55	65	60	
			fz	0.004	0.004	0.006	0.007	0.012	0.014	0.02	0.022	0.028	
		RPM	5836	4775	3501	2918	2188	1751	1459	1293	955		
	5	Vc	45	50	50	50	45	55	55	55	55		
		fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03		
		RPM	4775	3979	3183	2653	1790	1751	1459	1094	875		
	6	Vc	80	85	85	80	80	90	95	100	95		
		fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029		
RPM		8488	6764	5411	4244	3183	2865	2520	1989	1512			
7	Vc	55	60	55	55	55	55	55	65	60			
	fz	0.004	0.004	0.006	0.007	0.012	0.014	0.02	0.022	0.028			
	RPM	5836	4775	3501	2918	2188	1751	1459	1293	955			
8-9	Vc	45	50	50	50	45	55	55	55	55			
	fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03			
	RPM	4775	3979	3183	2653	1790	1751	1459	1094	875			
10	Vc	80	85	85	80	80	90	95	100	95			
	fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029			
	RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512			
11.1	Vc	45	50	50	50	45	55	55	55	55			
	fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03			
	RPM	4775	3979	3183	2653	1790	1751	1459	1094	875			
M	14.1	Stainless steel	Vc	30	35	40	35	40	45	45	45	40	
			fz	0.004	0.005	0.006	0.008	0.01	0.011	0.013	0.019	0.028	
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637	
N	21~22	Aluminum-wrought alloy	Vc	185	210	210	205	205	220	230	230	230	
			fz	0.008	0.01	0.013	0.016	0.022	0.026	0.03	0.041	0.052	
			RPM	19629	16711	13369	10876	8157	7003	6101	4576	3661	
S	36-37	Titanium Alloys	Vc	30	35	40	35	40	45	45	45	40	
			fz	0.004	0.005	0.006	0.008	0.01	0.011	0.013	0.019	0.028	
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637	

※ The FEED, in long & extra long types, should be reduced by around 50%





Leading Through Innovation



**HSS PM60**

# ONLY ONE COATED PM60 END MILLS

**Only One, beschichtete Pulvermetall PM60 Schaftfräser**

- Perfect Solution of Carbide Chipping under Vibrations
- Perfekte Lösung bei Zerspanung unter Vibrationen





SELECTION GUIDE



COATED PM60 ONLY ONE END MILLS

Perfect solution to protect Carbide chipping problems under vibrations

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

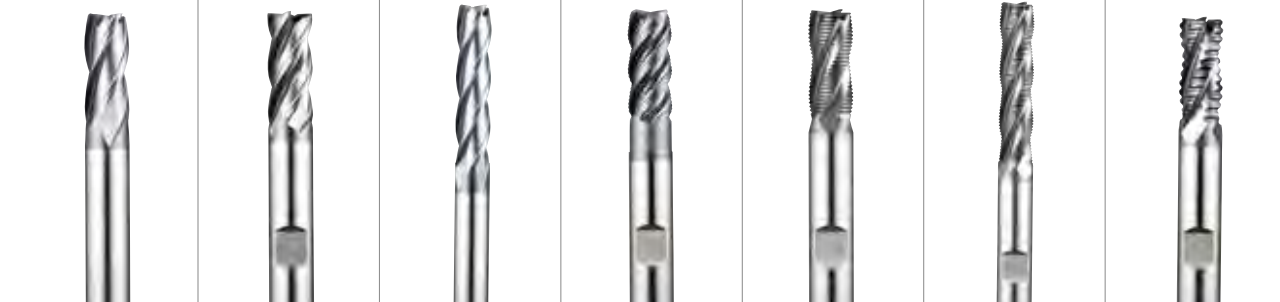
Recommended cutting conditions : p. C596

Table with 3 columns: SERIES, FLUTE, HELIX ANGLE, CUTTING EDGE SHAPE, SIZE MIN, SIZE MAX, PAGE. Rows include GYG77 GYF97, GYG72 GYF99, GYG01.



Main selection table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRc, and application suitability icons (◎/○) for each of the three end mill series.

Table with 7 columns: GYG74 GYF96, GYG52, GYG76 GYG02, GYF95, GYF94, GYF98, GYG03. Rows include FLUTE, HELIX ANGLE, CUTTING EDGE SHAPE, SIZE MIN, SIZE MAX, PAGE, and length specifications.



Large application suitability table with 7 columns corresponding to the end mill series and 41 rows corresponding to the ISO/VDI material codes from the main table.



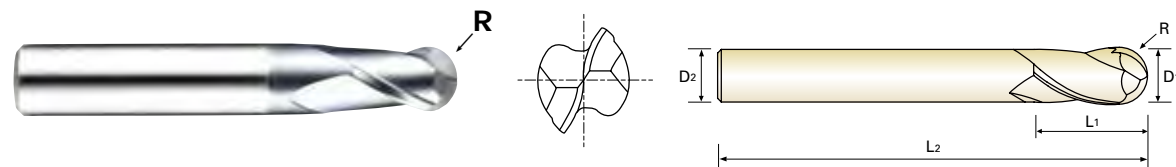


PLAIN SHANK **GYG77** SERIES

FLAT SHANK **GYF97** SERIES

**PM60, 2 FLUTE BALL NOSE SHORT LENGTH**

- PM60, 2 Schneiden, Stirnradius kurz
- Revêtue YG-AICrN - PM60, 2 dents, série courte, hémisphérique
- Rivestita PM60, 2 TAGLIENTE SERIE CORTA SEMISFERICA



PM 60 2 30° ±0.02 PLAIN FLAT Coating Y p.C596

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R(±0.02)	D1	D2	L1	L2
GYG77010	GYF97010	R0.5	1.0	6	2.5	47
GYG77020	GYF97020	R1.0	2.0	6	4	48
GYG77030	GYF97030	R1.5	3.0	6	5	49
GYG77040	GYF97040	R2.0	4.0	6	7	51
GYG77050	GYF97050	R2.5	5.0	6	8	52
GYG77060	GYF97060	R3.0	6.0	6	8	52
GYG77070	GYF97070	R3.5	7.0	8	10	60
GYG77080	GYF97080	R4.0	8.0	8	11	61
GYG77090	GYF97090	R4.5	9.0	10	11	61
GYG77100	GYF97100	R5.0	10.0	10	13	63
GYG77120	GYF97120	R6.0	12.0	12	16	73
GYG77140	GYF97140	R7.0	14.0	12	16	73
GYG77160	GYF97160	R8.0	16.0	16	19	79
GYG77180	GYF97180	R9.0	18.0	16	19	79
GYG77200	GYF97200	R10.0	20.0	20	22	88
GYG77250	GYF97250	R12.5	25.0	25	26	102

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○													○	

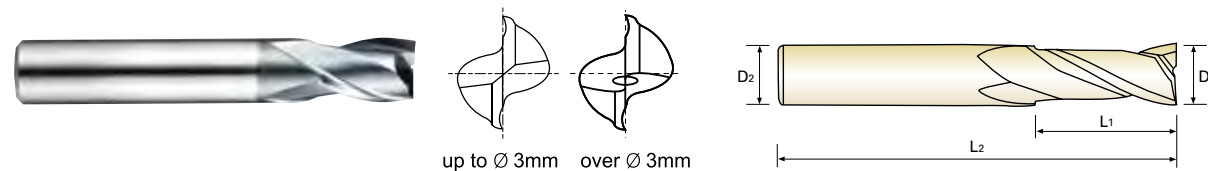


PLAIN SHANK **GYG72** SERIES

FLAT SHANK **GYF99** SERIES

**PM60, 2 FLUTE SHORT LENGTH**

- PM60, 2 Schneiden, kurz, Zentrumschnitt
- Revêtue YG-AICrN - PM60, 2 dents, série courte (Coupe au centre)
- Rivestita PM60, 2 TAGLIENTI SERIE CORTA (Tagliante al centro)



PM 60 2 30° PLAIN FLAT Coating Y p.C597

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GYG72010	GYF99010	1.0	6	2.5	47
GYG72020	GYF99020	2.0	6	4	48
GYG72030	GYF99030	3.0	6	5	49
GYG72040	GYF99040	4.0	6	7	51
GYG72050	GYF99050	5.0	6	8	52
GYG72060	GYF99060	6.0	6	8	52
GYG72070	GYF99070	7.0	8	10	60
GYG72080	GYF99080	8.0	8	11	61
GYG72090	GYF99090	9.0	10	11	61
GYG72100	GYF99100	10.0	10	13	63
GYG72120	GYF99120	12.0	12	16	73
GYG72140	GYF99140	14.0	12	16	73
GYG72160	GYF99160	16.0	16	19	79
GYG72180	GYF99180	18.0	16	19	79
GYG72200	GYF99200	20.0	20	22	88
GYG72220	GYF99220	22.0	20	22	88
GYG72250	GYF99250	25.0	25	26	102

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

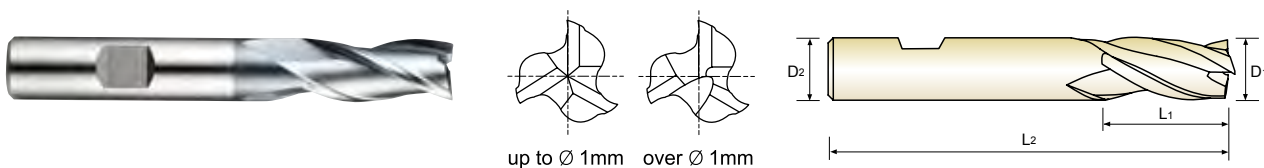
ISO Material Description	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○													○	



FLAT SHANK **GYG01** SERIES

**PM60, 3 FLUTE SHORT LENGTH (Center Cut)**

- PM60, 3 Schneiden, kurz, Zentrumschnitt
- Revêtue YG-AICrN - PM60, 3 dents, série courte (Coupe au centre)
- Rivestita PM60, 3 TAGLIENTI SERIE CORTA (Tagliante al centro)



PM 60
3
30°
FLAT
Coating
p.C598-599

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Overall Length	
	D1	D2	D2	D1	L1	L2	L2	L1
GYG01010	1.0	6	6	1.0	3	47	47	3
GYG01020	2.0	6	6	2.0	7	51	51	7
GYG01030	3.0	6	6	3.0	8	52	52	8
GYG01040	4.0	6	6	4.0	11	55	55	11
GYG01050	5.0	6	6	5.0	13	57	57	13
GYG01060	6.0	6	6	6.0	13	57	57	13
GYG01070	7.0	8	8	7.0	16	66	66	16
GYG01080	8.0	8	8	8.0	19	69	69	19
GYG01090	9.0	10	10	9.0	19	69	69	19
GYG01100	10.0	10	10	10.0	22	72	72	22
GYG01120	12.0	12	12	12.0	26	83	83	26
GYG01140	14.0	12	12	14.0	26	83	83	26
GYG01160	16.0	16	16	16.0	32	92	92	32
GYG01180	18.0	16	16	18.0	32	92	92	32
GYG01200	20.0	20	20	20.0	38	104	104	38
GYG01220	22.0	20	20	22.0	38	104	104	38
GYG01250	25.0	25	25	25.0	45	121	121	45

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	42	45	48	52	55	58	62	65	68	72	75	78	82	85
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230	230	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

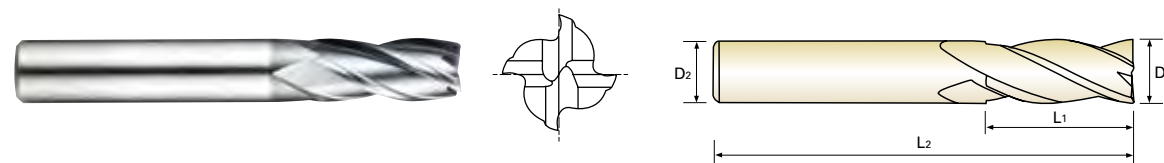
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **GYG74** SERIES  
FLAT SHANK **GYF96** SERIES

**PM60, 4 FLUTE SHORT LENGTH (Center Cut)**

- PM60, 4 Schneiden, kurz, Zentrumschnitt
- Revêtue YG-AICrN - PM60, 4 dents, série courte (Coupe au centre)
- Rivestita PM60, 4 TAGLIENTI SERIE CORTA (Tagliante al centro)



PM 60
4
30°
PLAIN
FLAT
Coating
p.C600

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Overall Length	
	PLAIN	FLAT	D1	D2	L1	L2	L2	L1
GYG74010	GYF96010	1.0	6	6	3	49	49	3
GYG74020	GYF96020	2.0	6	6	7	51	51	7
GYG74030	GYF96030	3.0	6	6	8	52	52	8
GYG74040	GYF96040	4.0	6	6	11	55	55	11
GYG74050	GYF96050	5.0	6	6	13	57	57	13
GYG74060	GYF96060	6.0	6	6	13	57	57	13
GYG74070	GYF96070	7.0	8	8	16	66	66	16
GYG74080	GYF96080	8.0	8	8	19	69	69	19
GYG74090	GYF96090	9.0	10	10	19	69	69	19
GYG74100	GYF96100	10.0	10	10	22	72	72	22
GYG74120	GYF96120	12.0	12	12	26	83	83	26
GYG74140	GYF96140	14.0	12	12	26	83	83	26
GYG74160	GYF96160	16.0	16	16	32	92	92	32
GYG74180	GYF96180	18.0	16	16	32	92	92	32
GYG74200	GYF96200	20.0	20	20	38	104	104	38
GYG74220	GYF96220	22.0	20	20	38	104	104	38
GYG74250	GYF96250	25.0	25	25	45	121	121	45

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	42	45	48	52	55	58	62	65	68	72	75	78	82	85
HB	125	190	250	270	300	180	275	300	350	200	240	180	260	160	250	130	230	230	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

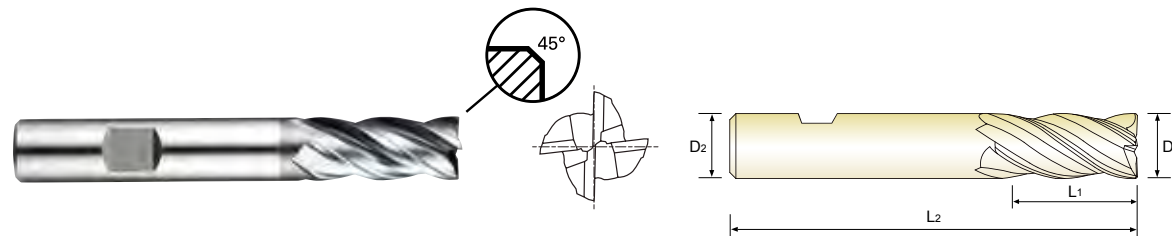




FLAT SHANK **GYG52** SERIES

**PM60, 4 FLUTE MULTIPLE HELIX SHORT LENGTH (Center Cut)**

- PM60, 4 Schneiden, mit ungleichem Drall, kurz, Zentrumschnitt
- Revêtue YG-AICrN - PM60, 4 dents, hélice multiple, série courte (Coupe au centre)
- Rivestita PM60, 4 TAGLIENTI elica variabile SERIE CORTA (Tagliente al centro)



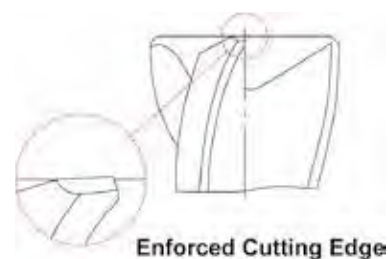
PM 60
4
35°/37°
FLAT
C x 45°
Coating
p.C601

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	-	SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Overall Length		Chamfer
	D1	D2	D1	D2	L1	L2	L1	L2	
GYG52030	3.0	6	6	6	8	52	0.1	0.1	
GYG52040	4.0	6	6	6	11	55	0.1	0.1	
GYG52050	5.0	6	6	6	13	57	0.1	0.1	
GYG52060	6.0	6	6	6	13	57	0.1	0.1	
GYG52070	7.0	8	8	8	16	66	0.1	0.1	
GYG52080	8.0	8	8	8	19	69	0.1	0.1	
GYG52090	9.0	10	10	10	19	69	0.1	0.1	
GYG52100	10.0	10	10	10	22	72	0.1	0.1	
GYG52120	12.0	12	12	12	26	83	0.1	0.1	
GYG52140	14.0	12	12	12	26	83	0.2	0.2	
GYG52160	16.0	16	16	16	32	92	0.2	0.2	
GYG52180	18.0	16	16	16	32	92	0.2	0.2	
GYG52200	20.0	20	20	20	38	104	0.2	0.2	
GYG52220	22.0	20	20	20	38	104	0.2	0.2	
GYG52250	25.0	25	25	25	45	121	0.2	0.2	

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

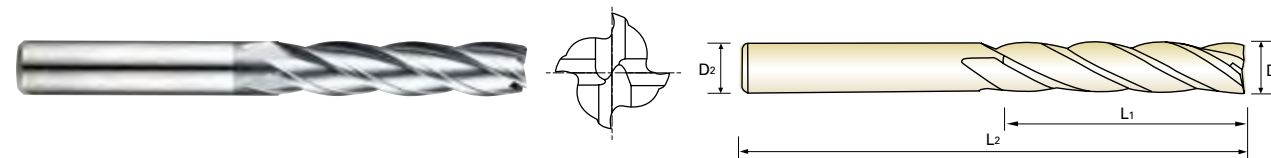
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **GYG76** SERIES  
FLAT SHANK **GYG02** SERIES

**PM60, 4 FLUTE LONG LENGTH (Center Cut)**

- PM60, 4 Schneiden, lang, Zentrumschnitt
- Revêtue YG-AICrN - PM60, 4 dents, série longue (Coupe au centre)
- Rivestita PM60, 4 TAGLIENTI SERIE LUNGA (Tagliente al centro)



PM 60
4
30°
PLAIN
FLAT
Coating
p.C600

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	-	SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut		Overall Length	
	PLAIN	FLAT	D1	D2	L1	L2	L1	L2
GYG76020	2.0	6	6	6	10	54	0.1	0.1
GYG76030	3.0	6	6	6	12	56	0.1	0.1
GYG76040	4.0	6	6	6	19	63	0.1	0.1
GYG76050	5.0	6	6	6	24	68	0.1	0.1
GYG76060	6.0	6	6	6	24	68	0.1	0.1
GYG76070	7.0	8	8	8	30	80	0.1	0.1
GYG76080	8.0	8	8	8	38	88	0.1	0.1
GYG76090	9.0	10	10	10	38	88	0.1	0.1
GYG76100	10.0	10	10	10	45	95	0.1	0.1
GYG76120	12.0	12	12	12	53	110	0.2	0.2
GYG76140	14.0	12	12	12	53	110	0.2	0.2
GYG76160	16.0	16	16	16	63	123	0.2	0.2
GYG76180	18.0	16	16	16	63	123	0.2	0.2
GYG76200	20.0	20	20	20	75	141	0.2	0.2
GYG76220	22.0	20	20	20	75	141	0.2	0.2
GYG76250	25.0	25	25	25	90	166	0.2	0.2

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

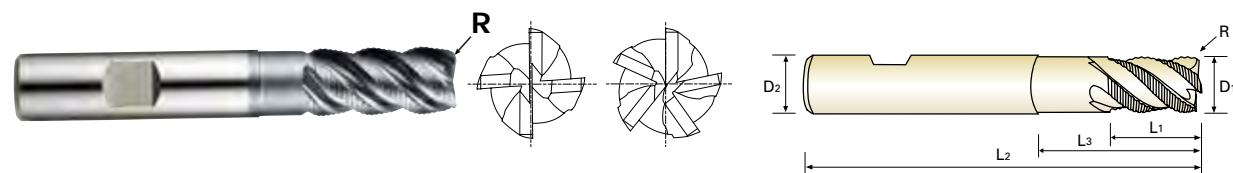
◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**PM60, MULTI FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS ROUGHING - FINE (Center Cut)**

- PM60, Mehrschneiden, mit ungleichem Drall, kurz, Eckenradius, Feinkordel-Schruppfräser, Zentrumschnitt
- Revêtue YG-AICrN - PM60, multi-dents, hélice multiple, série courte, rayonnée, ravageuse, pas fins (Coupe au centre)
- Rivestita PM60, MULTI TAGLIENTE ELICA VARIABILE SERIE CORTA TORICA PER SGROSSATURA - BOMBATO FINE (Tagliante al centro)



PM 60
4-5
44°/44.5°/45°
HR
FLAT
Y Coating
p.C602

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall length	No. of Flute
	R	D1(js12)	D2(h6)	L1	L3	L2	
GYF95060	R0.5	6.0	6	13	-	57	4
GYF95070	R0.5	7.0	10	16	-	66	4
GYF95080	R0.5	8.0	10	19	-	69	4
GYF95090	R0.5	9.0	10	19	-	69	4
GYF95100	R0.5	10.0	10	22	31	72	4
GYF95120	R0.5	12.0	12	26	37	83	4
GYF95140	R1.0	14.0	12	26	-	83	5
GYF95160	R1.0	16.0	16	32	44	92	5
GYF95180	R1.0	18.0	16	32	-	92	5
GYF95200	R1.0	20.0	20	38	54	104	5
GYF95250	R1.0	25.0	25	45	63	121	5

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$		
	Nominal-Diameter in mm		
	over 6 to 10	over 10 to 18	over 18 to 30
js12	$\pm 75$	$\pm 90$	$\pm 105$
h6	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	54	56	58	60	62	64	66	68	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

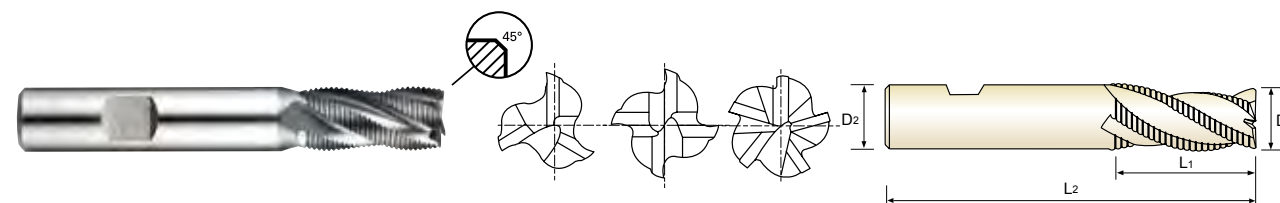
  

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○														



**PM60, MULTI FLUTE SHORT LENGTH ROUGHING - FINE (Center Cut)**

- PM60, Mehrschneiden, kurz, Feinkordel-Schruppfräser, Zentrumschnitt
- Revêtue YG-AICrN - PM60, multi-dents, série courte, ravageuse, pas fins (Coupe au centre)
- Rivestita PM60, MULTI TAGLIENTE SERIE CORTA PER SGROSSATURA - BOMBATO FINE (Tagliante al centro)



PM 60
3-5
30°
HR
FLAT
C x 45°
Y Coating
p.C603

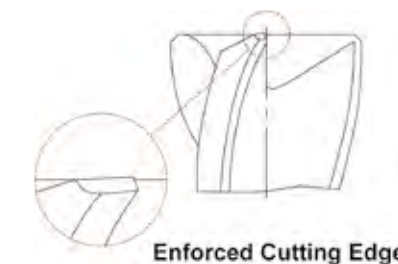
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D1(js12)	D2(h6)	L1	L2		
GYF94060	6.0	6	13	57	3	0.18
GYF94070	7.0	10	16	66	3	0.18
GYF94080	8.0	10	19	69	3	0.18
GYF94090	9.0	10	19	69	3	0.18
GYF94100	10.0	10	22	72	4	0.18
GYF94120	12.0	12	26	83	4	0.18
GYF94140	14.0	12	26	83	4	0.25
GYF94160	16.0	16	32	92	4	0.25
GYF94180	18.0	16	32	92	4	0.25
GYF94200	20.0	20	38	104	4	0.25
GYF94250	25.0	25	45	121	5	0.36

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$		
	Nominal-Diameter in mm		
	over 6 to 10	over 10 to 18	over 18 to 30
js12	$\pm 75$	$\pm 90$	$\pm 105$
h6	0 - 9	0 - 11	0 - 13



◎ : Excellent ○ : Good

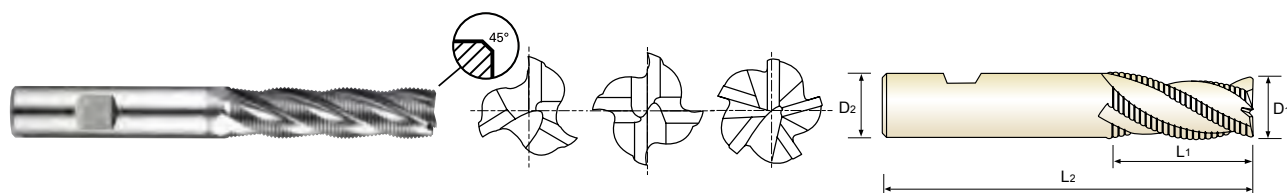
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	54	56	58	60	62	64	66	68	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○														

**PM60, MULTI FLUTE LONG LENGTH ROUGHING - FINE (Center Cut)**

- PM60, Mehrschneiden, lang, Feinkordel-Schruppfräser, Zentrumschnitt
- Revêtue YG-AICrN - PM60, multi-dents, série longue, ravageuse, pas fins (Coupe au centre)
- Rivestita PM60, MULTI TAGLIENTE SERIE LUNGA PER SGROSSATURA - BOMBATO FINE (Tagliante al centro)



PM 60 3-5 30° HR FLAT C x 45° Coating p.C603 Recommended Toolholder

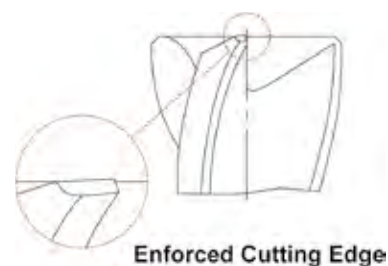
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D1(js12)	D2(h6)	L1	L2		
GYF98060	6.0	6	24	68	3	0.18
GYF98070	7.0	10	30	80	3	0.18
GYF98080	8.0	10	38	88	3	0.18
GYF98090	9.0	10	38	88	3	0.18
GYF98100	10.0	10	45	95	4	0.18
GYF98120	12.0	12	53	110	4	0.18
GYF98140	14.0	12	53	110	4	0.25
GYF98160	16.0	16	63	123	4	0.25
GYF98180	18.0	16	63	123	4	0.25
GYF98200	20.0	20	75	141	4	0.25
GYF98250	25.0	25	90	166	5	0.36

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$		
	Nominal-Diameter in mm		
	over 6 to 10	over 10 to 18	over 18 to 30
js12	$\pm 75$	$\pm 90$	$\pm 105$
h6	0 - 9	0 - 11	0 - 13



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

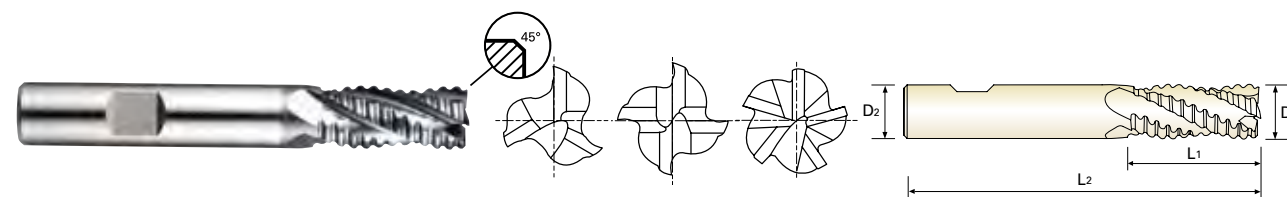
  

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**PM60, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE (Center Cut)**

- PM60, Mehrschneiden, kurz, Schrappfräser, Zentrumschnitt
- Revêtue YG-AICrN - PM60, multi-dents, série courte, ravageuse, pas grossiers (Coupe au centre)
- Rivestita PM60, MULTI TAGLIENTE SERIE CORTA PER SGROSSATURA - BOMBATO GROSSO (Tagliante al centro)



PM 60 3-5 30° NR FLAT C x 45° Coating p.C603 Recommended Toolholder

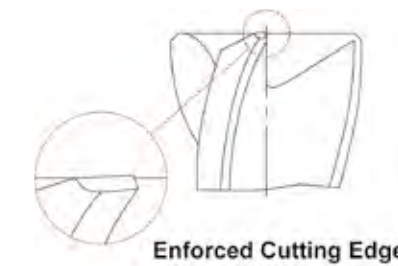
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D1(js12)	D2(h6)	L1	L2		
GYG03060	6.0	6	13	57	3	0.25
GYG03070	7.0	10	16	66	3	0.25
GYG03080	8.0	10	19	69	3	0.25
GYG03090	9.0	10	19	69	3	0.36
GYG03100	10.0	10	22	72	4	0.36
GYG03120	12.0	12	26	83	4	0.56
GYG03140	14.0	12	26	83	4	0.6
GYG03160	16.0	16	32	92	4	0.6
GYG03180	18.0	16	32	92	4	0.6
GYG03200	20.0	20	38	104	4	0.6
GYG03250	25.0	25	45	121	5	0.6

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$		
	Nominal-Diameter in mm		
	over 6 to 10	over 10 to 18	over 18 to 30
js12	$\pm 75$	$\pm 90$	$\pm 105$
h6	0 - 9	0 - 11	0 - 13



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**GYG77 , GYF97 SERIES 2 FLUTE BALL NOSE**

Vc = m/min.  
 fz = mm/tooth  
 RPM = rev./min.  
 FEED = mm/min.

**GYG72 , GYF99 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
 fz = mm/tooth  
 RPM = rev./min.  
 FEED = mm/min.

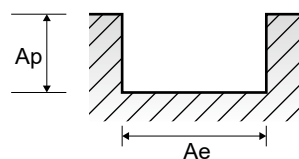
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0	
P	1	Non-alloy steel	0.5D	0.2D	Vc	83	90	100	101	104	104	103	102	90	
					fz	0.023	0.036	0.054	0.079	0.109	0.115	0.141	0.156	0.162	
					RPM	8807	7162	5305	4019	3310	2759	2049	1623	1146	
					FEED	405	516	573	635	722	634	578	506	371	
	2		Vc	66	70	79	78	79	81	78	75	70			
			fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140			
			RPM	7003	5570	4191	3104	2515	2149	1552	1194	891			
			FEED	280	357	386	416	478	417	382	334	250			
	3-4		Vc	44	45	52	54	53	54	52	44				
			fz	0.016	0.026	0.039	0.056	0.082	0.083	0.1	0.11	0.125			
			RPM	4669	3581	2759	2149	1687	1432	1074	828	560			
			FEED	149	186	215	241	277	238	215	182	140			
5	Vc	23	24	27	27	26	27	27	24						
	fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100					
	RPM	2440	1910	1432	1074	828	690	537	430	306					
	FEED	68	88	100	101	121	98	97	85	61					
6	Vc	66	70	79	78	79	81	78	75	70					
	fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140					
	RPM	7003	5570	4191	3104	2515	2149	1552	1194	891					
	FEED	280	357	386	416	478	417	382	334	250					
7	Vc	44	45	52	54	53	54	52	44						
	fz	0.016	0.026	0.039	0.056	0.082	0.083	0.1	0.11	0.125					
	RPM	4669	3581	2759	2149	1687	1432	1074	828	560					
	FEED	149	186	215	241	277	238	215	182	140					
8-9	Vc	23	24	27	27	26	27	27	24						
	fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100					
	RPM	2440	1910	1432	1074	828	690	537	430	306					
	FEED	68	88	100	101	121	98	97	85	61					
10	Vc	66	70	79	78	79	81	78	75	70					
	fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140					
	RPM	7003	5570	4191	3104	2515	2149	1552	1194	891					
	FEED	280	357	386	416	478	417	382	334	250					
11.1	Vc	23	24	27	27	26	27	27	24						
	fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100					
	RPM	2440	1910	1432	1074	828	690	537	430	306					
	FEED	68	88	100	101	121	98	97	85	61					
11.2	Vc	16	17	19	19	18	19	19	16						
	fz	0.013	0.024	0.035	0.047	0.075	0.071	0.088	0.1	0.095					
	RPM	1698	1353	1008	756	573	477	378	302	204					
	FEED	44	65	71	71	86	67	60	39						
M 14.1	Vc	25	27	30	30	28	29	30	26						
	fz	0.013	0.023	0.036	0.049	0.072	0.075	0.093	0.099	0.098					
	RPM	2653	2149	1592	1194	891	769	597	477	331					
	FEED	69	99	115	117	128	115	111	95	65					
K 15-20	Vc	66	70	79	78	79	81	78	75	70					
	fz	0.02	0.032	0.046	0.067	0.095	0.097	0.123	0.14	0.14					
	RPM	7003	5570	4191	3104	2515	2149	1552	1194	891					
	FEED	280	357	386	416	478	417	382	334	250					
H 40	Vc	16	17	19	19	18	19	19	16						
	fz	0.013	0.024	0.035	0.047	0.075	0.071	0.088	0.1	0.095					
	RPM	1698	1353	1008	756	573	477	378	302	204					
	FEED	44	65	71	71	86	67	60	39						

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	1.0D	0.5D	Vc	53	57	65	74	79	78	79	81	84	81	78	72	70	71	
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.099	0.105	0.116	0.109	0.103	
					RPM	8435	6048	5173	4711	4191	3104	2515	2149	1910	1611	1379	1146	1013	904	
					FEED	135	194	279	311	319	329	357	327	317	319	290	266	221	186	
	2		Vc	44	46	54	61	66	66	68	66	66	66	69	64	59	59	60		
			fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112			
			RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764			
			FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171			
	3-4		Vc	37	38	48	49	52	54	55	52	53	54	54	53	50	46			
			fz	0.008	0.017	0.025	0.035	0.042	0.056	0.079	0.091	0.098	0.1	0.1	0.107	0.104	0.119			
			RPM	5889	4032	3820	3119	2759	2149	1751	1379	1205	1074	955	844	723	586			
			FEED	94	137	191	218	232	241	277	251	236	215	191	181	150	139			
5	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34					
	fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105					
	RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433					
	FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91					
6	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60					
	fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112					
	RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764					
	FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171					
7	Vc	37	38	48	49	52	54	55	52	53	54	54	53	50	46					
	fz	0.008	0.017	0.025	0.035	0.042	0.056	0.079	0.091	0.098	0.1	0.1	0.107	0.104	0.119					
	RPM	5889	4032	3820	3119	2759	2149	1751	1379	1205	1074	955	844	723	586					
	FEED	94	137	191	218	232	241	277	251	236	215	191	181	150	139					
8	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34					
	fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105					
	RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433					
	FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91					
9	Vc	15	20	24	25	26	27	26	26	26	27	27	27	26	24					
	fz	0.01	0.017	0.023	0.028	0.036	0.047	0.071	0.071	0.079	0.09	0.094	0.099	0.086	0.1					
	RPM	2387	2122	1910	1592	1379	1074	828	690	591	537	477	430	376	306					
	FEED	48	72	88	89	99	101	118	98	93	97	90	85	65	61					
10	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60					
	fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112					
	RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764					
	FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171					
11.1	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34					
	fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105					
	RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433					
	FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91					
11.2	Vc	11	14	17	18	18	19	19	18	18	19	19	19	19	16					
	fz	0.01	0.018	0.024	0.029	0.036	0.047	0.072	0.071	0.077	0.088	0.096	0.1	0.083	0.095					
	RPM	1751	1485	1353	1146	955	756	605	477	409	378	336	302	275	204					
	FEED	35	53	65	66	69	71	87	68	63	67	65	60	46	39					
M 14.1	Vc	17	22	27	28	29	30	29	29	29	29	30	30	29	26					
	fz	0.01	0.018	0.024	0.028	0.036	0.047	0.071	0.071	0.08	0.091	0.094	0.101	0.083	0.098					
	RPM	2706	2334	2149	1783	1538	1194	923	769	659	577	531	477	420	331					
	FEED	54	84																	

**GYG01 SERIES 3 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	1.0D	0.5D	Vc	49	52	65	72	76	78	79	81	84	81	78	72	70	71	
					fz	0.004	0.007	0.011	0.014	0.023	0.031	0.04	0.051	0.052	0.06	0.07	0.08	0.091	0.107	
					RPM	7799	5517	5173	4584	4032	3104	2515	2149	1910	1611	1379	1146	1013	904	
					FEED	94	116	171	193	278	289	302	329	298	290	275	276	290		
					Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60	
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11	
	2	Non-alloy steel	1.0D	0.5D	RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764	
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252	
					Vc	36	38	45	49	52	54	53	54	54	54	53	50	46		
					fz	0.003	0.005	0.009	0.012	0.021	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.107	
					RPM	5730	4032	3581	3119	2759	2149	1687	1432	1205	1074	955	844	723	586	
					FEED	52	60	97	112	174	180	192	202	192	180	180	170	180	188	
3-4	Non-alloy steel	1.0D	0.5D	Vc	23	25	29	32	33	35	34	34	35	34	34	33	33	34		
				fz	0.004	0.007	0.009	0.012	0.021	0.029	0.044	0.052	0.055	0.06	0.064	0.069	0.08	0.093		
				RPM	3661	2653	2308	2037	1751	1393	1082	902	796	676	601	525	477	433		
				FEED	44	56	62	73	110	121	143	141	131	122	115	109	115	121		
				Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60		
				fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11		
5	Non-alloy steel	1.0D	0.5D	RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764		
				FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252		
				Vc	36	38	45	49	52	54	53	54	54	53	50	46				
				fz	0.003	0.005	0.009	0.012	0.021	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.107		
				RPM	5730	4032	3581	3119	2759	2149	1687	1432	1205	1074	955	844	723	586		
				FEED	52	60	97	112	174	180	192	202	192	180	180	170	180	188		
6	Non-alloy steel	1.0D	0.5D	Vc	23	25	29	32	33	35	34	34	35	34	34	33	33	34		
				fz	0.004	0.007	0.009	0.012	0.021	0.029	0.044	0.052	0.055	0.06	0.064	0.069	0.08	0.093		
				RPM	3661	2653	2308	2037	1751	1393	1082	902	796	676	601	525	477	433		
				FEED	44	56	62	73	110	121	143	141	131	122	115	109	115	121		
				Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60		
				fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11		
7	Low alloy steel	1.0D	0.5D	RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764		
				FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252		
				Vc	36	38	45	49	52	54	53	54	54	53	50	46				
				fz	0.003	0.005	0.009	0.012	0.021	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.107		
				RPM	5730	4032	3581	3119	2759	2149	1687	1432	1205	1074	955	844	723	586		
				FEED	52	60	97	112	174	180	192	202	192	180	180	170	180	188		
8	Low alloy steel	1.0D	0.5D	Vc	23	25	29	32	33	35	34	34	35	34	34	33	33	34		
				fz	0.004	0.007	0.009	0.012	0.021	0.029	0.044	0.052	0.055	0.06	0.064	0.069	0.08	0.093		
				RPM	3661	2653	2308	2037	1751	1393	1082	902	796	676	601	525	477	433		
				FEED	44	56	62	73	110	121	143	141	131	122	115	109	115	121		
				Vc	14	20	23	25	25	27	26	26	27	27	27	26	24			
				fz	0.005	0.008	0.012	0.014	0.023	0.031	0.045	0.052	0.056	0.063	0.066	0.074	0.088	0.111		
9	Low alloy steel	1.0D	0.3D	RPM	2228	2122	1830	1592	1326	1074	828	690	591	537	477	430	376	306		
				FEED	33	51	66	67	92	100	112	108	99	102	95	95	99	102		
				Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60		
				fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11		
				RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764		
				FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252		
10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	23	25	29	32	33	35	34	34	35	34	34	33	33	34		
				fz	0.004	0.007	0.009	0.012	0.021	0.029	0.044	0.052	0.055	0.06	0.064	0.069	0.08	0.093		
				RPM	3661	2653	2308	2037	1751	1393	1082	902	796	676	601	525	477	433		
				FEED	44	56	62	73	110	121	143	141	131	122	115	109	115	121		
				Vc	10	14	16	17	17	19	18	18	19	19	19	19	19	16		
				fz	0.005	0.009	0.012	0.014	0.024	0.031	0.044	0.051	0.056	0.063	0.066	0.072	0.086	0.111		
11.1	High alloyed steel, and tool steel	1.0D	0.5D	RPM	1592	1485	1273	1082	902	756	573	477	409	378	336	302	275	204		
				FEED	24	40	46	45	65	70	76	73	69	71	65	65	71	68		
				Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60		
				fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11		
				RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764		
				FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252		
11.2	High alloyed steel, and tool steel	1.0D	0.3D	Vc	10	14	16	17	17	19	18	18	19	19	19	19	16			
				fz	0.005	0.009	0.012	0.014	0.024	0.031	0.044	0.051	0.056	0.063	0.066	0.072	0.086	0.111		
				RPM	1592	1485	1273	1082	902	756	573	477	409	378	336	302	275	204		
				FEED	24	40	46	45	65	70	76	73	69	71	65	65	71	68		
				Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60		
				fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11		
M	14.1	Stainless steel	1.0D	0.5D	RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764	
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252	
					Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60	
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11	
					RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764	
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60	
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11	
					RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764	
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252	
					Vc	10	14	16	17	17	19	18	18	19	19	19	19	19	16	
					fz	0.005	0.009	0.012	0.014	0.024	0.031	0.044	0.051	0.056	0.063	0.066	0.072	0.086	0.111	
H	40	Chilled Cast Iron	1.0D	0.3D	RPM	1592	1485	1273	1082	902	756	573	477	409	378	336	302	275	204	
					FEED	24	40	46	45	65	70	76	73	69	71	65	65	71	68	



**GYG01 SERIES 3 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	0.1D	1.5D	Vc	62	66	78	89											

**GYG74 , GYF96 , GYG76 , GYG02** SERIES

**4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

**GYG52** SERIES

**4 FLUTE - SLOTTING, SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev/min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	0.1D	1.5D	Vc	69	75	80	83	88	93	87	90	95	97	102	94	87	94	
					fz	0.008	0.015	0.023	0.029	0.035	0.046	0.068	0.071	0.076	0.079	0.076	0.088	0.097	0.093	
					RPM	10982	7958	6366	5284	4669	3700	2769	2387	2160	1930	1804	1496	1259	1197	
	2		0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79	
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09	
					RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006	
	3-4		0.1D	1.5D	Vc	46	50	54	55	59	60	60	63	58	60	61	59	57	60	
					fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.086	0.088	0.093	0.09	
					RPM	7321	5305	4297	3501	3130	2387	1910	1671	1319	1194	1079	939	825	764	
	5		0.1D	1.5D	Vc	31	31	35	38	41	42	38	40	42	41	43	40	39	39	
fz		0.008			0.017	0.022	0.028	0.032	0.043	0.067	0.068	0.072	0.081	0.077	0.082	0.085	0.09			
RPM		4934			3289	2785	2419	2175	1671	1210	1061	955	816	760	637	564	497			
6	0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79			
			fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09			
			RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006			
7	0.1D	1.5D	Vc	46	50	54	55	59	60	60	63	58	60	61	59	57	60			
			fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.086	0.088	0.093	0.09			
			RPM	7321	5305	4297	3501	3130	2387	1910	1671	1319	1194	1079	939	825	764			
8	0.1D	1.5D	Vc	31	31	35	38	41	42	38	40	42	41	43	40	39	39			
			fz	0.008	0.017	0.022	0.028	0.032	0.043	0.067	0.068	0.072	0.081	0.077	0.082	0.085	0.09			
			RPM	4934	3289	2785	2419	2175	1671	1210	1061	955	816	760	637	564	497			
9	0.05D	1.5D	Vc	25	27	30	32	33	35	34	32	33	33	34	33	33	34			
			fz	0.006	0.013	0.019	0.023	0.031	0.04	0.056	0.064	0.067	0.076	0.075	0.08	0.081	0.087			
			RPM	3979	2865	2387	2037	1751	1393	1082	849	750	657	601	525	477	433			
10	0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79			
			fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09			
			RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006			
11.1	0.1D	1.5D	Vc	31	31	35	38	41	42	38	40	42	41	43	40	39	39			
			fz	0.008	0.017	0.022	0.028	0.032	0.043	0.067	0.068	0.072	0.081	0.077	0.082	0.085	0.09			
			RPM	4934	3289	2785	2419	2175	1671	1210	1061	955	816	760	637	564	497			
11.2	0.05D	1.5D	Vc	17	19	21	22	23	24	23	23	23	23	24	23	23	24			
			fz	0.006	0.013	0.019	0.024	0.031	0.04	0.057	0.065	0.068	0.076	0.074	0.081	0.081	0.088			
			RPM	2706	2016	1671	1401	1220	955	764	610	523	458	424	366	333	306			
M	14.1	Stainless steel	0.1D	1.5D	Vc	27	30	33	35	36	38	37	36	37	37	37	36	37	37	
					fz	0.006	0.013	0.019	0.023	0.031	0.039	0.056	0.063	0.067	0.075	0.076	0.08	0.08	0.088	
					RPM	4297	3183	2626	2228	1910	1512	1178	955	841	736	654	573	535	471	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79	
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09	
					RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006	
H	40	Chilled Cast Iron	0.05D	1.5D	Vc	17	19	21	22	23	24	23	23	23	23	24	23	23	24	
					fz	0.006	0.013	0.019	0.024	0.031	0.04	0.057	0.065	0.068	0.076	0.074	0.081	0.081	0.088	
					RPM	2706	2016	1671	1401	1220	955	764	610	523	458	424	366	333	306	

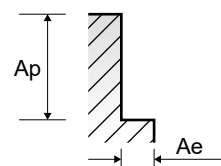
ISO	VDI 3323	Material Description	Slotting		Side Cutting		Parameter	Diameter (Ø)														
			Ae	Ap	Ae	Ap		3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0			
P	1-2	Non-alloy steel	1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77			
							fz	0.005	0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063			
							RPM	7427	5570	4456	3714	2785	2451	2042	1751	1532	1362	1225	980			
	3-4		1.0D	0.5D	0.3D	1.5D	Vc	64	63	63	64	64	70	70	70	70	70	70	70			
							fz	0.005	0.008	0.011	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063			
							RPM	6791	5013	4011	3395	2546	2228	1857	1592	1393	1238	1114	891			
	5		1.0D	0.5D	0.3D	1.5D	Vc	44	44	44	44	44	49	49	49	49	49	49	49			
							fz	0.005	0.008	0.011	0.016	0.028	0.038	0.047	0.05	0.052	0.059	0.066	0.065			
							RPM	4669	3501	2801	2334	1751	1560	1300	1114	975	867	780	624			
	6		1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77			
fz		0.005					0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063					
RPM		7427					5570	4456	3714	2785	2451	2042	1751	1532	1362	1225	980					
7	1.0D	0.5D	0.3D	1.5D	Vc	64	63	63	64	64	70	70	70	70	70	70	70					
					fz	0.005	0.008	0.011	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063					
					RPM	6791	5013	4011	3395	2546	2228	1857	1592	1393	1238	1114	891					
8	1.0D	0.5D	0.3D	1.5D	Vc	44	44	44	44	44	49	49	49	49	49	49	49					
					fz	0.005	0.008	0.011	0.016	0.028	0.038	0.047	0.05	0.052	0.059	0.066	0.065					
					RPM	4669	3501	2801	2334	1751	1560	1300	1114	975	867	780	624					
9	1.0D	0.3D	0.15D	1.5D	Vc	27	27	27	27	27	30	29	29	29	30	29	30	29				
					fz	0.004	0.007	0.01	0.014	0.024	0.032	0.04	0.041	0.044	0.05	0.056	0.054					
					RPM	2865	2149	1719	1432	1074	955	769	659	597	513	477	369					
10	1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77					
					fz	0.005	0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063					
					RPM	7427	5570	4456	3714	2785	2451	2042	1751	1532	1362	1225	980					
11.1	1.0D	0.5D	0.3D	1.5D	Vc	44	44	44	44	44	49	49	49	49	49	49	49					
					fz	0.005	0.008	0.011	0.016	0.028	0.038	0.047	0.05	0.052	0.059	0.066	0.065					
					RPM	4669	3501	2801	2334	1751	1560	1300	1114	975	867	780	624					
11.2	1.0D	0.3D	0.15D	1.5D	Vc	27	27	27	27	27	30	29	29	29	30	29	30	29				
					fz	0.004	0.007	0.01	0.014	0.024	0.032	0.04	0.041	0.044	0.05	0.056	0.054					
					RPM	2865	2149	1719	1432	1074	955	769	659	597	513	477	369					
M	14.1	Stainless steel	1.0D	0.5D	0.3D	1.5D	Vc	48	48	48	48	48	48	48	48	48	48	48	48			
							fz	0.005	0.008	0.013	0.018	0.029	0.048	0.056	0.06	0.063	0.071	0.077	0.078			
							RPM	5093	3820	3056	2546	1910	1528	1273	1091	955	849	764	611			
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77			
							fz	0.005	0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0					



**GYF95 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

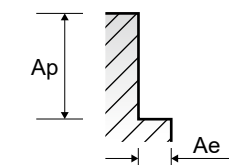
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0	
P	1	Non-alloy steel	0.5D	1.5D	Vc	76	87	86	87	89	87	85	87	90	
					fz	0.02	0.03	0.055	0.065	0.059	0.069	0.079	0.088	0.105	
					RPM	4032	3462	2737	2308	2024	1731	1503	1385	1146	
	2		Vc	60	69	68	65	66	69	72	68	68			
			fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106			
			RPM	3183	2745	2165	1724	1501	1373	1273	1082	866			
	3		Vc	43	51	47	49	48	48	50	48	47			
			fz	0.018	0.028	0.046	0.063	0.061	0.069	0.075	0.086	0.107			
			RPM	2281	2029	1496	1300	1091	955	884	764	598			
	4		Vc	43	51	47	49	48	48	50	48	47			
			fz	0.018	0.028	0.046	0.063	0.061	0.069	0.075	0.086	0.107			
			RPM	2281	2029	1496	1300	1091	955	884	764	598			
5	Vc	35	38	40	40	40	40	40	40	41					
	fz	0.02	0.03	0.045	0.061	0.057	0.066	0.073	0.081	0.1					
	RPM	1857	1512	1273	1061	909	796	707	637	522					
6	Vc	60	69	68	65	66	69	72	68	68					
	fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106					
	RPM	3183	2745	2165	1724	1501	1373	1273	1082	866					
7	Vc	43	51	47	49	48	48	50	48	47					
	fz	0.018	0.028	0.046	0.063	0.061	0.069	0.075	0.086	0.107					
	RPM	2281	2029	1496	1300	1091	955	884	764	598					
8-9	Vc	35	38	40	40	40	40	40	40	41					
	fz	0.02	0.03	0.045	0.061	0.057	0.066	0.073	0.081	0.1					
	RPM	1857	1512	1273	1061	909	796	707	637	522					
10	Vc	60	69	68	65	66	69	72	68	68					
	fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106					
	RPM	3183	2745	2165	1724	1501	1373	1273	1082	866					
11.1	Vc	35	38	40	40	40	40	40	40	41					
	fz	0.02	0.03	0.045	0.061	0.057	0.066	0.073	0.081	0.1					
	RPM	1857	1512	1273	1061	909	796	707	637	522					
11.2	Vc	25	27	28	28	28	28	28	28	28					
	fz	0.02	0.029	0.044	0.06	0.056	0.065	0.072	0.08	0.1					
	RPM	1326	1074	891	743	637	557	495	446	357					
M	14.1	Stainless steel	0.5D	1.5D	Vc	39	43	43	43	44	45	44	44		
					fz	0.019	0.03	0.045	0.064	0.059	0.069	0.075	0.084	0.104	
					RPM	2069	1711	1369	1141	1000	855	796	700	560	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	60	69	68	65	66	69	72	68		
					fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106	
					RPM	3183	2745	2165	1724	1501	1373	1273	1082	866	
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	25	27	28	28	28	28	28	28		
					fz	0.02	0.029	0.044	0.06	0.056	0.065	0.072	0.08	0.1	
					RPM	1326	1074	891	743	637	557	495	446	357	



**GYF94, GYF98, GYG03 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0	
P	1	Non-alloy steel	0.5D	1.5D	Vc	63	72	72	72	74	72	71	72	75	
					fz	0.027	0.041	0.055	0.065	0.074	0.087	0.099	0.111	0.105	
					RPM	3342	2865	2292	1910	1682	1432	1256	1146	955	
	2		Vc	50	57	57	54	55	57	61	57	57			
			fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106			
			RPM	2653	2268	1814	1432	1251	1134	1079	907	726			
	3-4		Vc	36	42	40	41	40	40	41	40	39			
			fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106			
			RPM	1910	1671	1273	1088	909	796	725	637	497			
	5		Vc	29	32	34	34	33	33	33	33	34			
			fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1			
			RPM	1538	1273	1082	902	750	657	584	525	433			
6	Vc	50	57	57	54	55	57	61	57	57					
	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106					
	RPM	2653	2268	1814	1432	1251	1134	1079	907	726					
7	Vc	36	42	40	41	40	40	41	40	39					
	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106					
	RPM	1910	1671	1273	1088	909	796	725	637	497					
8-9	Vc	29	32	34	34	33	33	33	33	34					
	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1					
	RPM	1538	1273	1082	902	750	657	584	525	433					
10	Vc	50	57	57	54	55	57	61	57	57					
	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106					
	RPM	2653	2268	1814	1432	1251	1134	1079	907	726					
11.1	Vc	29	32	34	34	33	33	33	33	34					
	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1					
	RPM	1538	1273	1082	902	750	657	584	525	433					
11.2	Vc	21	22	24	23	23	23	23	23	24					
	fz	0.028	0.04	0.045	0.06	0.071	0.082	0.091	0.101	0.1					
	RPM	1114	875	764	610	523	458	407	366	306					
M	14.1	Stainless steel	0.5D	1.5D	Vc	33	36	36	36	37	36	37	36		
					fz	0.025	0.039	0.045	0.064	0.074	0.085	0.093	0.106	0.102	
					RPM	1751	1432	1146	955	841	716	654	573	471	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	50	57	57	54	55	57	61	57		
					fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	
					RPM	2653	2268	1814	1432	1251	1134	1079	907	726	
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	21	22	24	23	23	23	23	23		
					fz	0.028	0.04	0.045	0.06	0.071	0.082	0.091	0.101	0.1	
					RPM	1114	875	764	610	523	458	407	366	306	





Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation



**HSS-PM**



# TANK-POWER END MILLS

## TANK - POWER HSS-PM - Fräser

- High Toughness for Stainless Steels, Carbon steels and Alloy Steels
- Hohe Zähigkeit, für rostfreie Stähle, Kohlenstoffstähle und legierte Stähle







UNCOATED **E9940** SERIES  
 TiAIN COATED **GA940** SERIES

**HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE**

● **HSS-PM, 2 SCHNEIDEN KURZ STIRNRADIUS**  
 ○ **FRAISES HSS-PM, 2 DENTS À BOUT HÉMISPHERIQUE, SÉRIE COURTE**  
 ◎ **2 TAGLIENTI, SERIE CORTA, HSS-PM, SEMISFERICA**

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM DIN 327 2 30° ±0.02  
 UNCOATED TiAIN p.C622-623

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	UNCOATED	TiAIN				
E9940010	GA940010	R0.5	1.0	6	2.5	47
E9940020	GA940020	R1.0	2.0	6	4	48
E9940030	GA940030	R1.5	3.0	6	5	49
E9940040	GA940040	R2.0	4.0	6	7	51
E9940050	GA940050	R2.5	5.0	6	8	52
E9940060	GA940060	R3.0	6.0	6	8	52
E9940070	GA940070	R3.5	7.0	10	10	60
E9940080	GA940080	R4.0	8.0	10	11	61
E9940090	GA940090	R4.5	9.0	10	11	61
E9940100	GA940100	R5.0	10.0	10	13	63
E9940120	GA940120	R6.0	12.0	12	16	73
E9940140	GA940140	R7.0	14.0	12	16	73
E9940160	GA940160	R8.0	16.0	16	19	79
E9940180	GA940180	R9.0	18.0	16	19	79
E9940200	GA940200	R10.0	20.0	20	22	88
E9940220	GA940220	R11.0	22.0	20	22	88
E9940250	GA940250	R12.5	25.0	25	26	102

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													



UNCOATED **E9A32** SERIES  
 TiAIN COATED **GAA32** SERIES

**HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE**

● **HSS-PM, 2 SCHNEIDEN LANG STIRNRADIUS**  
 ○ **FRAISES HSS-PM, 2 DENTS À BOUT HÉMISPHERIQUE, SÉRIE LONGUE**  
 ◎ **2 TAGLIENTI, SERIE LUNGA, HSS-PM, SEMISFERICA**

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM DIN 1889 2 30° ±0.02  
 UNCOATED TiAIN p.C622-623

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	UNCOATED	TiAIN				
E9A32020	GAA32020	R1.0	2.0	6	7	54
E9A32030	GAA32030	R1.5	3.0	6	8	56
E9A32040	GAA32040	R2.0	4.0	6	11	63
E9A32050	GAA32050	R2.5	5.0	6	13	68
E9A32060	GAA32060	R3.0	6.0	6	13	68
E9A32070	GAA32070	R3.5	7.0	10	16	80
E9A32080	GAA32080	R4.0	8.0	10	19	88
E9A32090	GAA32090	R4.5	9.0	10	19	88
E9A32100	GAA32100	R5.0	10.0	10	22	95
E9A32120	GAA32120	R6.0	12.0	12	26	110
E9A32140	GAA32140	R7.0	14.0	12	26	110
E9A32160	GAA32160	R8.0	16.0	16	32	123
E9A32180	GAA32180	R9.0	18.0	16	32	123
E9A32200	GAA32200	R10.0	20.0	20	38	141
E9A32220	GAA32220	R11.0	22.0	20	38	141
E9A32250	GAA32250	R12.5	25.0	25	45	166

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													



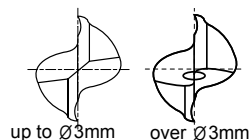
UNCOATED **E9936** SERIES

TiAIN COATED **GA936** SERIES

### HSS-PM, 2 FLUTE SHORT LENGTH

- HSS-PM, 2 SCHNEIDEN KURZ
- FRAISES HSS-PM, 2 DENTS, SÉRIE COURTE
- 2 TAGLIENTI, SERIE CORTA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ 2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult-to-cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	-	ER COLLET CHUCK	D73-116
SK SLIM CHUCK	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter	Length of Cut	Overall Length	
	UNCOATED	TiAIN				
E9936010		GA936010	e8	h6	2.5	47
E9936020		GA936020	2.0	6	4	48
E9936030		GA936030	3.0	6	5	49
E9936040		GA936040	4.0	6	7	51
E9936050		GA936050	5.0	6	8	52
E9936060		GA936060	6.0	6	8	52
E9936070		GA936070	7.0	10	10	60
E9936080		GA936080	8.0	10	11	61
E9936090		GA936090	9.0	10	11	61
E9936100		GA936100	10.0	10	13	63
E9936120		GA936120	12.0	12	16	73
E9936140		GA936140	14.0	12	16	73
E9936160		GA936160	16.0	16	19	79
E9936180		GA936180	18.0	16	19	79
E9936200		GA936200	20.0	20	22	88
E9936220		GA936220	22.0	20	22	88
E9936250		GA936250	25.0	25	26	102

#### Tolerances according to DIN 7160 & 7161

	Tolerance range in $\mu$ m				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	19	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○														



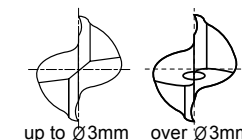
UNCOATED **E9A29** SERIES

TiAIN COATED **GAA29** SERIES

### HSS-PM, 2 FLUTE LONG LENGTH

- HSS-PM, 2 SCHNEIDEN LANG
- FRAISES HSS-PM, 2 DENTS, SÉRIE LONGUE
- 2 TAGLIENTI, SERIE LUNGA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ 2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult-to-cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	-	ER COLLET CHUCK	D73-116
SK SLIM CHUCK	-	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter	Length of Cut	Overall Length	
	UNCOATED	TiAIN				
E9A29010		GAA29010	e8	h6	3	47
E9A29020		GAA29020	2.0	6	7	51
E9A29030		GAA29030	3.0	6	8	52
E9A29040		GAA29040	4.0	6	11	55
E9A29050		GAA29050	5.0	6	13	57
E9A29060		GAA29060	6.0	6	13	57
E9A29070		GAA29070	7.0	10	16	66
E9A29080		GAA29080	8.0	10	19	69
E9A29090		GAA29090	9.0	10	19	69
E9A29100		GAA29100	10.0	10	22	72
E9A29120		GAA29120	12.0	12	26	83
E9A29140		GAA29140	14.0	12	26	83
E9A29160		GAA29160	16.0	16	32	92
E9A29180		GAA29180	18.0	16	32	92
E9A29200		GAA29200	20.0	20	38	104
E9A29220		GAA29220	22.0	20	38	104
E9A29250		GAA29250	25.0	25	45	121

#### Tolerances according to DIN 7160 & 7161

	Tolerance range in $\mu$ m				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	19	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○														





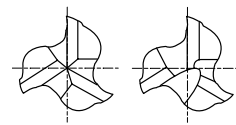
UNCOATED **E9942** SERIES  
 TiAIN COATED **GA942** SERIES

**HSS-PM, 3 FLUTE STUB LENGTH**

- HSS-PM, 3 SCHNEIDEN EXTRA KURZ
- FRAISES HSS-PM, 3 DENTS, SÉRIE EXTRA-COURTE
- 3 TAGLIENTI, SERIE EXTRA CORTA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Well balanced web design to minimize deflection and chattering.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Verstärkter Kern zur Erhöhung der Stabilität.
- ▶ 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsem.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	-	ER COLLET CHUCK	D73 - 116
SK SLIM CHUCK	-	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter	Length of Cut	Overall Length
	UNCOATED	TiAIN			
E9942010	1.0	6	2.5	47	
E9942020	2.0	6	4	48	
E9942030	3.0	6	5	49	
E9942040	4.0	6	7	51	
E9942050	5.0	6	8	52	
E9942060	6.0	6	8	52	
E9942070	7.0	10	10	60	
E9942080	8.0	10	11	61	
E9942090	9.0	10	11	61	
E9942100	10.0	10	13	63	
E9942120	12.0	12	16	73	
E9942140	14.0	12	16	73	
E9942160	16.0	16	19	79	
E9942180	18.0	16	19	79	
E9942200	20.0	20	22	88	
E9942220	22.0	20	22	88	
E9942250	25.0	25	26	102	

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in μm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	29	32	38	35	35	23	10	26	3	25	10	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○														



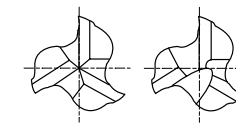
UNCOATED **E9A30** SERIES  
 TiAIN COATED **GAA30** SERIES

**HSS-PM, 3 FLUTE SHORT LENGTH**

- HSS-PM, 3 SCHNEIDEN KURZ
- FRAISES HSS-PM, 3 DENTS, SÉRIE COURTE
- 3 TAGLIENTI, SERIE CORTA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Well balanced web design to minimize deflection and chattering.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Verstärkter Kern zur Erhöhung der Stabilität.
- ▶ 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsem.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	-	ER COLLET CHUCK	D73 - 116
SK SLIM CHUCK	-	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter	Length of Cut	Overall Length
	UNCOATED	TiAIN			
E9A30010	1.0	6	3	47	
E9A30020	2.0	6	7	51	
E9A30030	3.0	6	8	52	
E9A30040	4.0	6	11	55	
E9A30050	5.0	6	13	57	
E9A30060	6.0	6	13	57	
E9A30070	7.0	10	16	66	
E9A30080	8.0	10	19	69	
E9A30090	9.0	10	19	69	
E9A30100	10.0	10	22	72	
E9A30120	12.0	12	26	83	
E9A30140	14.0	12	26	83	
E9A30160	16.0	16	32	92	
E9A30180	18.0	16	32	92	
E9A30200	20.0	20	38	104	
E9A30220	22.0	20	38	104	
E9A30250	25.0	25	45	121	

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in μm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	29	32	38	35	35	23	10	26	3	25	10	21				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34						200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend						○	○	○														



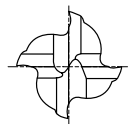
UNCOATED **E9938** SERIES  
TiAIN COATED **GA938** SERIES

**HSS-PM, 4 FLUTE SHORT LENGTH**

- HSS-PM, 4 SCHNEIDEN KURZ
- FRAISES HSS-PM, 4 DENTS, SÉRIE COURTE
- 4 TAGLIENTI, SERIE CORTA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Recommended for pocketing, cam milling, die sinking and slotting.
- ▶ Designed for high speed cutting of difficult-to-cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9938010	1.0	6	3	49
E9938020	2.0	6	7	51
E9938030	3.0	6	8	52
E9938040	4.0	6	11	55
E9938050	5.0	6	13	57
E9938060	6.0	6	13	57
E9938070	7.0	10	16	66
E9938080	8.0	10	19	69
E9938090	9.0	10	19	69
E9938100	10.0	10	22	72
E9938120	12.0	12	26	83
E9938140	14.0	12	26	83
E9938160	16.0	16	32	92
E9938180	18.0	16	32	92
E9938200	20.0	20	38	104
E9938220	22.0	20	38	104
E9938250	25.0	25	45	121

▶ Mill Diameter 1mm: Center match end teeth

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													



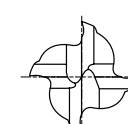
UNCOATED **E9A31** SERIES  
TiAIN COATED **GAA31** SERIES

**HSS-PM, 4 FLUTE LONG LENGTH**

- HSS-PM, 4 SCHNEIDEN LANG
- FRAISES HSS-PM, 4 DENTS, SÉRIE LONGUE
- 4 TAGLIENTI, SERIE LUNGA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Recommended for pocketing, cam milling, die sinking and slotting.
- ▶ Designed for high speed cutting of difficult-to-cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9A31020	2.0	6	10	54
E9A31030	3.0	6	12	56
E9A31040	4.0	6	19	63
E9A31050	5.0	6	24	68
E9A31060	6.0	6	24	68
E9A31070	7.0	10	30	80
E9A31080	8.0	10	38	88
E9A31090	9.0	10	38	88
E9A31100	10.0	10	45	95
E9A31120	12.0	12	53	110
E9A31140	14.0	12	53	110
E9A31160	16.0	16	63	123
E9A31180	18.0	16	63	123
E9A31200	20.0	20	75	141
E9A31220	22.0	20	75	141
E9A31250	25.0	25	90	166

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

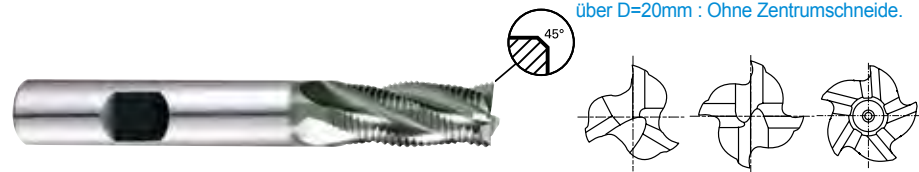
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

**HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE**

- HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
- FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS FINS, SÉRIE COURTE
- MULTI TAGL., PER SGROSSATURA, SERIE CORTA, BOMBATO FINE - HSS PM

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to Ø20 : center cut, over Ø20 : non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fällen exzellente bearbeitete Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



HSS PM, DIN 844, HR, 3-5, 30°, DIN 1835B, UNCOATED, X Coating, p.C632-633

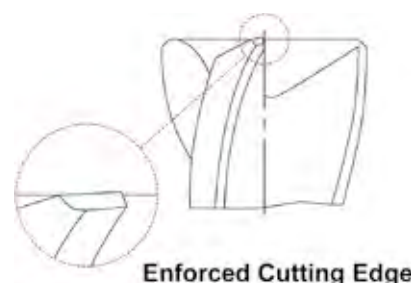
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	-	SK SLIM CHUCK	D73-116
SK SLIM CHUCK	-	ER COLLET CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
E9941060	6.0	6	13	57	3	0.18
E9941070	7.0	10	16	66	3	0.18
E9941080	8.0	10	19	69	3	0.18
E9941090	9.0	10	19	69	3	0.18
E9941100	10.0	10	22	72	4	0.18
E9941120	12.0	12	26	83	4	0.18
E9941140	14.0	12	26	83	4	0.25
E9941160	16.0	16	32	92	4	0.25
E9941180	18.0	16	32	92	4	0.25
E9941200	20.0	20	38	104	4	0.25
E9941220	22.0	20	38	104	5	0.36
E9941250	25.0	25	45	121	5	0.36

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	$\pm 50$	$\pm 60$	$\pm 75$	$\pm 90$	$\pm 105$	$\pm 125$
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	42	45	48	52	55	58	62	65	68	72	75	78	82	85
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

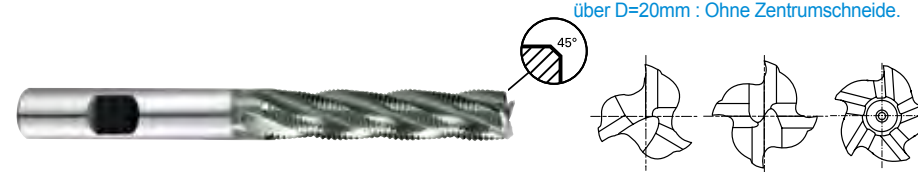


**HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE**

- HSS-PM, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN
- FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS FINS, SÉRIE LONGUE
- MULTI TAGL., PER SGROSSATURA, SERIE LUNGA, BOMBATO FINE - HSS PM

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to Ø20 : center cut, over Ø20 : non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fällen exzellente bearbeitete Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



HSS PM, DIN 844, HR, 3-5, 30°, DIN 1835B, UNCOATED, X Coating, p.C632-633

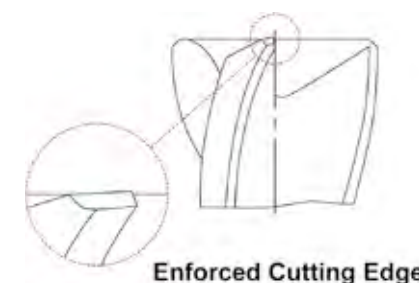
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	-	SK SLIM CHUCK	D73-116
SK SLIM CHUCK	-	ER COLLET CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
E9A35060	6.0	6	24	68	3	0.18
E9A35070	7.0	10	30	80	3	0.18
E9A35080	8.0	10	38	88	3	0.18
E9A35090	9.0	10	38	88	3	0.18
E9A35100	10.0	10	45	95	4	0.18
E9A35120	12.0	12	53	110	4	0.18
E9A35140	14.0	12	53	110	4	0.25
E9A35160	16.0	16	63	123	4	0.25
E9A35180	18.0	16	63	123	4	0.25
E9A35200	20.0	20	75	141	4	0.25
E9A35220	22.0	20	75	141	5	0.36
E9A35250	25.0	25	90	166	5	0.36

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	$\pm 50$	$\pm 60$	$\pm 75$	$\pm 90$	$\pm 105$	$\pm 125$
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	42	45	48	52	55	58	62	65	68	72	75	78	82	85
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



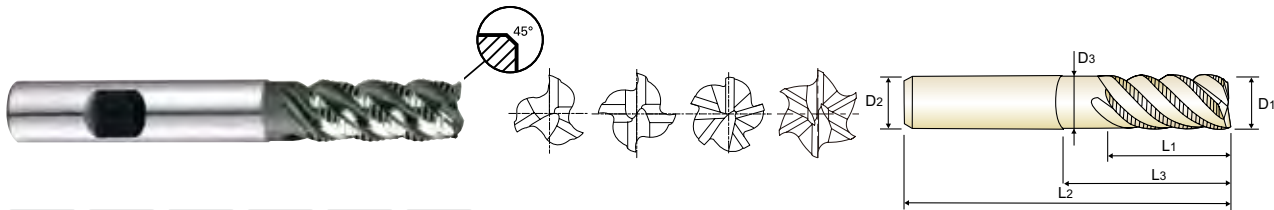


UNCOATED **E9A26** SERIES  
X-COATING **GAA26** SERIES

**HSS-PM, MULTI FLUTE 45°HELIX SHORT LENGTH ROUGHING - FINE**

- HSS-PM, MULTI SCHNEIDEN 45°RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN
- FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE HÉLICE À 45° - PAS FINS, SÉRIE COURTE
- MULTI TAGL., ELICA 45°, PER SGROS., SERIE CORTA, BOMBATO FINE - HSS PM

- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting
- ▶ Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM DIN 844 HR 3-6 45° DIN 1835B  
UNCOATED X Coating p.C634-635

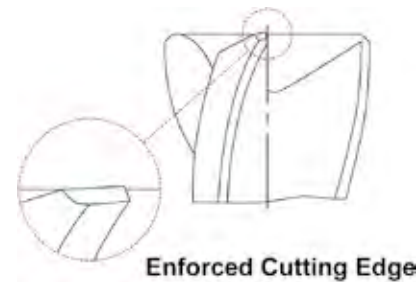
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute	Chamfer	
									UNCOATED
E9A26040	GAA26040	4.0	6	11	-	57	-	3	0.1
E9A26050	GAA26050	5.0	6	13	-	57	-	4	0.13
E9A26060	GAA26060	6.0	6	13	-	57	-	4	0.15
E9A26070	GAA26070	7.0	10	16	-	66	-	4	0.15
E9A26080	GAA26080	8.0	10	19	-	69	-	4	0.18
E9A26090	GAA26090	9.0	10	19	-	69	-	4	0.18
E9A26100	GAA26100	10.0	10	22	31	72	9.5	4	0.20
E9A26120	GAA26120	12.0	12	26	37	83	11.5	4	0.20
E9A26140	GAA26140	14.0	12	26	-	83	-	5	0.20
E9A26160	GAA26160	16.0	16	32	44	92	15	5	0.20
E9A26180	GAA26180	18.0	16	32	-	92	-	6	0.20
E9A26200	GAA26200	20.0	20	38	54	104	19	6	0.20
E9A26250	GAA26250	25.0	25	45	63	121	24	6	0.20

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	$\pm 50$	$\pm 60$	$\pm 75$	$\pm 90$	$\pm 105$	$\pm 125$
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	42	45	48	52	55	58	62	65	68	72	75	78	82	85
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

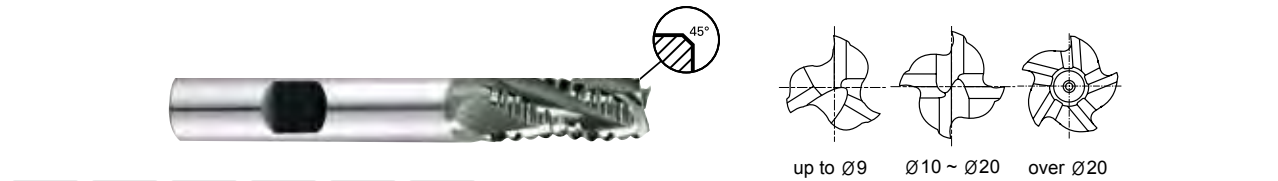


UNCOATED **E9A33** SERIES  
X-COATING **GAA33** SERIES

**HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE**

- HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB
- FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS GROSSIERS, SÉRIE COURTE
- MULTI TAGL., PER SGROS., SERIE CORTA, BOMBATO GROSSO - HSS PM

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to  $\varnothing 20$  : center cut, over  $\varnothing 20$  : non center cut
- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis  $D \leq 20\text{mm}$  : mit Zentrumschnitt, über  $D > 20\text{mm}$  : Ohne Zentrumschnitt.



HSS PM DIN 844 NR 3-5 30° DIN 1835B  
UNCOATED X Coating p.C632-633

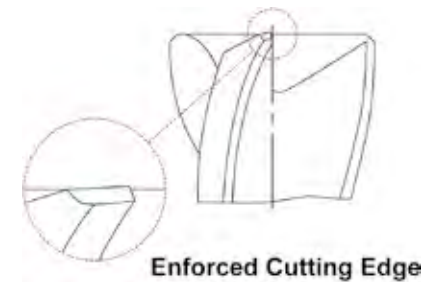
Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer	
							UNCOATED
E9A33060	GAA33060	6.0	6	13	57	3	0.25
E9A33070	GAA33070	7.0	10	16	66	3	0.25
E9A33080	GAA33080	8.0	10	19	69	3	0.25
E9A33090	GAA33090	9.0	10	19	69	3	0.36
E9A33100	GAA33100	10.0	10	22	72	4	0.36
E9A33120	GAA33120	12.0	12	26	83	4	0.5
E9A33140	GAA33140	14.0	12	26	83	4	0.55
E9A33160	GAA33160	16.0	16	32	92	4	0.55
E9A33180	GAA33180	18.0	16	32	92	4	0.55
E9A33200	GAA33200	20.0	20	38	104	4	0.55
E9A33220	GAA33220	22.0	20	38	104	5	0.55
E9A33250	GAA33250	25.0	25	45	121	5	0.55

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	$\pm 50$	$\pm 60$	$\pm 75$	$\pm 90$	$\pm 105$	$\pm 125$
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	42	45	48	52	55	58	62	65	68	72	75	78	82	85
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



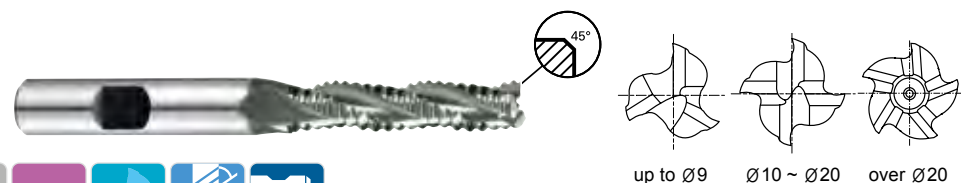
UNCOATED **E9A34** SERIES  
X-COATING **GAA34** SERIES

**HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE**

- HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB
- FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS GROSSIERS, SÉRIE LONGUE
- MULTI TAGL., PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSS PM

- Suitable for high-feed roughing milling.
- Designed to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- up to  $\varnothing 20$  : center cut, over  $\varnothing 20$  : non center cut

- Geeignet zum HSC - Schrupp - Fräsen.
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- Bis  $D \leq 20\text{mm}$  : mit Zentrumschnitt, über  $D > 20\text{mm}$  : Ohne Zentrumschnitt.



HSS PM, DIN 844, NR, 3-5, 30°, DIN 1835B, UNCOATED, X Coating, p.C632-633

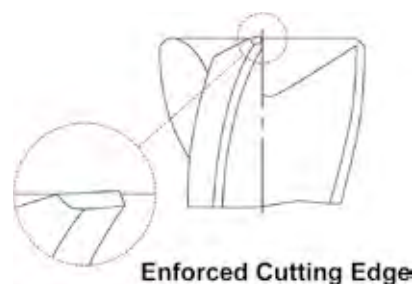
Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116
○	-	-	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
E9A34060	6.0	6	24	68	3	0.25
E9A34070	7.0	10	30	80	3	0.25
E9A34080	8.0	10	38	88	3	0.25
E9A34090	9.0	10	38	88	3	0.36
E9A34100	10.0	10	45	95	4	0.36
E9A34120	12.0	12	53	110	4	0.5
E9A34140	14.0	12	53	110	4	0.55
E9A34160	16.0	16	63	123	4	0.55
E9A34180	18.0	16	63	123	4	0.55
E9A34200	20.0	20	75	141	4	0.55
E9A34220	22.0	20	75	141	5	0.55
E9A34250	25.0	25	90	166	5	0.55

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



Enforced Cutting Edge

⊙ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○



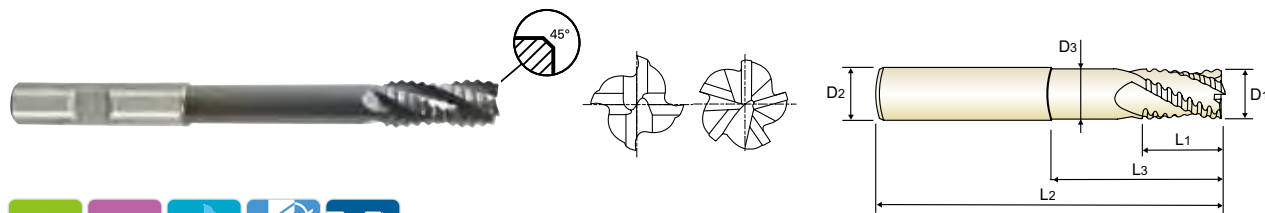
UNCOATED **E9E43** SERIES  
X-COATING **GAE43** SERIES

**HSS-PM, 4&5 FLUTE ROUGHING WITH NECK - COARSE**

- HSS-PM, 4&5 SCHNEIDEN SCHRUPFRÄSER mit ABGESETZTEM SCHAFTTETL - GROB
- FRAISES HSS-PM, 4&5-DENTS RAVAGEUSE AVEC DÉGAGEMENT - PAS GROSSIERS
- 4&5 TAGL., PER SGROSSATURA, SCARICATA - HSS PM

- High chip removal and minimizing breakages of cutting edges.
- Design to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM, NR, 4&5, 30°, DIN 1835B, UNCOATED, X Coating, p.C636-637

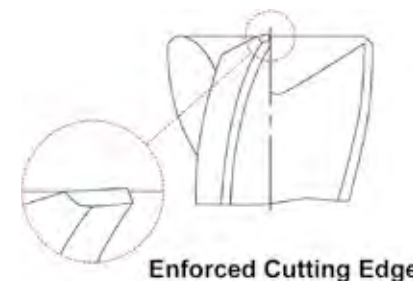
Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116
○	-	-	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute	Chamfer
E9E43100	10.0	10	22	69	110	8.5	4	0.34
E9E43120	12.0	12	26	78	125	10.5	4	0.50
E9E43160	16.0	16	32	87	138	14	4	0.55
E9E43200	20.0	20	38	108	160	18	5	0.55
E9E43250	25.0	25	45	155	216	23	5	0.55

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



Enforced Cutting Edge

⊙ : Excellent ○ : Good

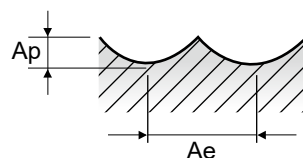
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○

**GA940 , GAA32 SERIES** 2 FLUTE BALL NOSE

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0		
P	1	Non-alloy steel	0.5D	0.2D	Vc	70	75	85	85	85	85	85	85	85	85	75
					fz	0.023	0.036	0.055	0.079	0.109	0.115	0.141	0.156	0.163		
					RPM	7427	5968	4509	3382	2706	2255	1691	1353	955		
	FEED		342	430	496	534	590	519	477	422	311					
	2		Vc	55	60	65	65	65	70	65	65	60				
			fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142				
			RPM	5836	4775	3448	2586	2069	1857	1293	1035	764				
	FEED		233	296	317	347	393	360	318	290	217					
	3-4		Vc	35	40	45	45	45	45	45	45	35				
			fz	0.016	0.027	0.039	0.056	0.082	0.083	0.101	0.11	0.122				
			RPM	3714	3183	2387	1790	1432	1194	895	716	446				
FEED	119	172	186	201	235	198	181	158	109							
5	Vc	20	20	25	20	20	20	20	25	20						
	fz	0.014	0.023	0.035	0.048	0.075	0.073	0.091	0.097	0.104						
	RPM	2122	1592	1326	796	637	531	398	398	255						
FEED	59	73	93	76	95	77	72	77	53							
6	Vc	55	60	65	65	65	70	65	65	60						
	fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142						
	RPM	5836	4775	3448	2586	2069	1857	1293	1035	764						
FEED	233	296	317	347	393	360	318	290	217							
7	Vc	35	40	45	45	45	45	45	45	35						
	fz	0.016	0.027	0.039	0.056	0.082	0.083	0.101	0.11	0.122						
	RPM	3714	3183	2387	1790	1432	1194	895	716	446						
FEED	119	172	186	201	235	198	181	158	109							
8-9	Vc	20	20	25	20	20	20	20	25	20						
	fz	0.014	0.023	0.035	0.048	0.075	0.073	0.091	0.097	0.104						
	RPM	2122	1592	1326	796	637	531	398	398	255						
FEED	59	73	93	76	95	77	72	77	53							
10	Vc	55	60	65	65	65	70	65	65	60						
	fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142						
	RPM	5836	4775	3448	2586	2069	1857	1293	1035	764						
FEED	233	296	317	347	393	360	318	290	217							
11.1	Vc	20	20	25	20	20	20	20	25	20						
	fz	0.014	0.023	0.035	0.048	0.075	0.073	0.091	0.097	0.104						
	RPM	2122	1592	1326	796	637	531	398	398	255						
FEED	59	73	93	76	95	77	72	77	53							
M 14.1	Vc	20	20	25	25	25	25	25	25	20						
	fz	0.014	0.023	0.036	0.048	0.073	0.074	0.092	0.1	0.1						
	RPM	2122	1592	1326	995	796	663	497	398	255						
FEED	59	73	95	95	116	98	92	80	51							
K 15-20	Vc	55	60	65	65	65	70	65	65	60						
	fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142						
	RPM	5836	4775	3448	2586	2069	1857	1293	1035	764						
FEED	233	296	317	347	393	360	318	290	217							

※ The FEED, in long & extra long types, should be reduced by around 50%

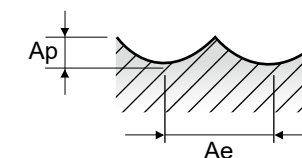


**E9940 , E9A32 SERIES** 2 FLUTE BALL NOSE

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0	
P	1	Non-alloy steel	0.5D	0.2D	Vc	45	50	55	60	55	55	55	60	50	
					fz	0.021	0.033	0.05	0.072	0.103	0.11	0.136	0.14	0.148	
					RPM	4775	3979	2918	2387	1751	1459	1094	955	637	
	FEED		201	263	292	344	361	321	298	267	188				
	2		Vc	35	40	45	45	45	45	45	45	40			
			fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13			
			RPM	3714	3183	2387	1790	1432	1194	895	716	509			
	FEED		134	185	205	218	255	220	199	172	132				
	3-4		Vc	25	25	30	30	30	30	30	30	25			
			fz	0.015	0.024	0.034	0.052	0.07	0.076	0.092	0.099	0.103			
			RPM	2653	1989	1592	1194	955	796	597	477	318			
FEED	80	95	108	124	134	121	110	95	66						
5	Vc	10	15	15	15	15	15	15	15	15					
	fz	0.013	0.023	0.034	0.046	0.068	0.069	0.083	0.094	0.086					
	RPM	1061	1194	796	597	477	398	298	239	191					
FEED	28	55	54	55	65	55	50	45	33						
6	Vc	35	40	45	45	45	45	45	45	40					
	fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13					
	RPM	3714	3183	2387	1790	1432	1194	895	716	509					
FEED	134	185	205	218	255	220	199	172	132						
7	Vc	25	25	30	30	30	30	30	30	25					
	fz	0.015	0.024	0.034	0.052	0.07	0.076	0.092	0.099	0.103					
	RPM	2653	1989	1592	1194	955	796	597	477	318					
FEED	80	95	108	124	134	121	110	95	66						
8-9	Vc	10	15	15	15	15	15	15	15	15					
	fz	0.013	0.023	0.034	0.046	0.068	0.069	0.083	0.094	0.086					
	RPM	1061	1194	796	597	477	398	298	239	191					
FEED	28	55	54	55	65	55	50	45	33						
10	Vc	35	40	45	45	45	45	45	45	40					
	fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13					
	RPM	3714	3183	2387	1790	1432	1194	895	716	509					
FEED	134	185	205	218	255	220	199	172	132						
11.1	Vc	10	15	15	15	15	15	15	15	15					
	fz	0.013	0.023	0.034	0.046	0.068	0.069	0.083	0.094	0.086					
	RPM	1061	1194	796	597	477	398	298	239	191					
FEED	28	55	54	55	65	55	50	45	33						
M 14.1	Vc	15	15	15	15	15	15	15	15	15					
	fz	0.014	0.025	0.036	0.049	0.075	0.074	0.091	0.104	0.09					
	RPM	1592	1194	796	597	477	398	298	239	191					
FEED	45	60	57	58	72	59	54	50	34						
K 15-20	Vc	35	40	45	45	45	45	45	45	40					
	fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13					
	RPM	3714	3183	2387	1790	1432	1194	895	716	509					
FEED	134	185	205	218	255	220	199	172	132						

※ The FEED, in long & extra long types, should be reduced by around 50%



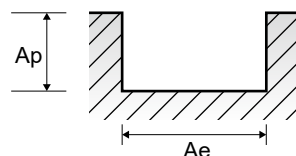


**GA936 , GAA29 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	1.0D	0.5D	Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60	
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103	
					RPM	7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764	
	2		Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50			
			fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111			
			RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637			
	3-4		Vc	30	30	40	40	45	45	45	45	45	45	45	45	40	40			
			fz	0.008	0.017	0.025	0.036	0.041	0.056	0.079	0.091	0.098	0.101	0.101	0.107	0.104	0.117			
			RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509			
	5		Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60			
			fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103			
RPM		7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764					
6	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50					
	fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111					
	RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637					
7	Vc	30	30	40	40	45	45	45	45	45	45	45	45	40	40					
	fz	0.008	0.017	0.025	0.036	0.041	0.056	0.079	0.091	0.098	0.101	0.101	0.107	0.104	0.117					
	RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509					
8	Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60					
	fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103					
	RPM	7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764					
9	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50					
	fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111					
	RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637					
10	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50					
	fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111					
	RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637					
11.1	Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60					
	fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103					
	RPM	7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	35	40	45	50	55	55	55	55	60	55	50	50			
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111	
					RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637	

※ The FEED, in long & extra long types, should be reduced by around 50%

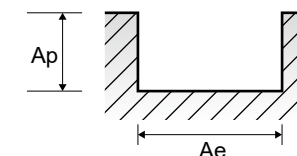


**E9936 , E9A29 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	1.0D	0.5D	Vc	30	30	35	40	45	45	45	45	45	45	45	45	40		
					fz	0.007	0.015	0.024	0.031	0.035	0.047	0.064	0.071	0.073	0.089	0.094	0.102	0.096	0.093	
					RPM	4775	3183	2785	2546	2387	1790	1432	1194	1137	895	796	637	579	509	
	2		Vc	25	25	30	35	40	40	40	40	40	40	40	40	35	35	35		
			fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099			
			RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	637	531	455	398	354	318		
	3-4		Vc	20	20	25	30	30	30	30	30	30	30	30	30	30	30	25		
			fz	0.008	0.017	0.024	0.032	0.038	0.052	0.07	0.081	0.088	0.092	0.094	0.099	0.094	0.103			
			RPM	3183	2122	1989	1910	1592	1194	955	796	637	531	455	398	354	318	289		
	5		Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20	20		
			fz	0.01	0.016	0.023	0.03	0.033	0.047	0.067	0.07	0.076	0.086	0.081	0.092	0.093	0.094			
RPM		2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255					
6	Vc	25	25	30	35	40	40	40	40	40	40	40	40	35	35	35				
	fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099					
	RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	637	531	455	398	354	318				
7	Vc	20	20	25	30	30	30	30	30	30	30	30	30	30	30	25				
	fz	0.008	0.017	0.024	0.032	0.038	0.052	0.07	0.081	0.088	0.092	0.094	0.099	0.094	0.103					
	RPM	3183	2122	1989	1910	1592	1194	955	796	637	531	455	398	354	318	289				
8	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20	20				
	fz	0.01	0.016	0.023	0.03	0.033	0.047	0.067	0.07	0.076	0.086	0.081	0.092	0.093	0.094					
	RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255					
9	Vc	10	10	15	15	15	15	15	15	15	15	15	15	15	15	15				
	fz	0.01	0.017	0.021	0.025	0.037	0.046	0.068	0.069	0.074	0.083	0.083	0.083	0.083	0.086					
	RPM	1592	1061	1194	955	796	597	477	398	341	298	265	239	217	191					
10	Vc	25	25	30	35	40	40	40	40	40	40	40	40	35	35	35				
	fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099					
	RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	637	531	455	398	354	318				
11.1	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20	20				
	fz	0.01	0.016	0.023	0.03	0.033	0.047	0.067	0.07	0.076	0.086	0.081	0.092	0.093	0.094					
	RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	25	25	30	35	40	40	40	40	40	40	35	35	35		
					fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099	
					RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	637	531	455	398	354	318

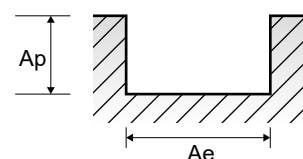
※ The FEED, in long & extra long types, should be reduced by around 50%



**GA942 , GAA30 SERIES 3 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

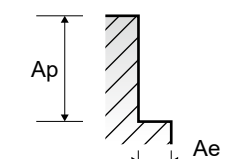
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0		
P	1	Non-alloy steel	1.0D	0.5D	Vc	40	45	55	60	65	65	65	70	70	70	65	60	60	60		
					fz	0.004	0.007	0.011	0.014	0.023	0.031	0.033	0.051	0.052	0.059	0.07	0.081	0.091	0.107		
					RPM	6366	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764		
	2		1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50	50		
					fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111		
					RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637		
	3-4		1.0D	0.5D	Vc	30	30	40	40	45	45	45	45	45	45	45	40	40	40		
					fz	0.003	0.005	0.009	0.012	0.02	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.109		
					RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509		
	5		1.0D	0.5D	Vc	20	20	25	25	25	30	30	30	30	30	30	30	30	30		
					fz	0.004	0.007	0.009	0.012	0.021	0.03	0.043	0.052	0.056	0.061	0.063	0.07	0.079	0.094		
RPM		3183			2122	1989	1592	1326	1194	955	796	682	597	531	477	434	382				
6	1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50	50				
			fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111				
			RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637				
7	1.0D	0.5D	Vc	30	30	40	40	45	45	45	45	45	45	45	40	40	40				
			fz	0.003	0.005	0.009	0.012	0.02	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.109				
			RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509				
8	1.0D	0.5D	Vc	20	20	25	25	25	30	30	30	30	30	30	30	30	30				
			fz	0.004	0.007	0.009	0.012	0.021	0.03	0.043	0.052	0.056	0.061	0.063	0.07	0.079	0.094				
			RPM	3183	2122	1989	1592	1326	1194	955	796	682	597	531	477	434	382				
9	1.0D	0.5D	Vc	10	15	20	20	20	20	20	20	20	25	25	20	20	20				
			fz	0.005	0.008	0.012	0.014	0.023	0.032	0.045	0.053	0.057	0.064	0.067	0.074	0.09	0.113				
			RPM	1592	1592	1592	1273	1061	796	637	531	455	398	442	398	289	255				
10	1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50	50				
			fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111				
			RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637				
11.1	1.0D	0.5D	Vc	20	20	25	25	25	30	30	30	30	30	30	30	30	30				
			fz	0.004	0.007	0.009	0.012	0.021	0.03	0.043	0.052	0.056	0.061	0.063	0.07	0.079	0.094				
			RPM	3183	2122	1989	1592	1326	1194	955	796	682	597	531	477	434	382				
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50			
					fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111		
					RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637		



**GA942 , GAA30 SERIES 3 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

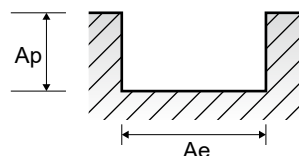
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0		
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	55	65	75	80	80	80	80	80	80	80	80	80			
					fz	0.004	0.008	0.012	0.015	0.024	0.034	0.047	0.056	0.065	0.069	0.077	0.08	0.09	0.11		
					RPM	7958	5836	5173	4775	4244	3183	2546	2122	1819	1592	1326	1273	1157	1019		
	2		0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65			
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109		
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828		
	3-4		0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50			
					fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111		
					RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637		
	5		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35		
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107		
RPM		3979			2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446				
6	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65					
			fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109				
			RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828				
7	0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50					
			fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111				
			RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637				
8	0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35				
			fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107				
			RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446				
9	0.1D	1.5D	Vc	15	20	25	25	30	30	30	30	30	30	30	30	30					
			fz	0.006	0.01	0.013	0.015	0.022	0.035	0.047	0.056	0.063	0.07	0.073	0.083	0.092	0.111				
			RPM	2387	2122	1989	1592	1592	1194	955	796	682	597	531	477	434	382				
10	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65					
			fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109				
			RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828				
11.1	0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35				
			fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107				
			RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446				
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65				
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109		
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828		



**E9942 , E9A30 SERIES 3 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

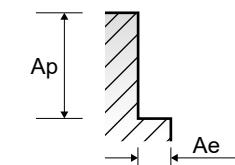
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	1.0D	0.5D	Vc	30	30	35	40	45	45	45	45	45	45	40	40	40		
					fz	0.003	0.007	0.01	0.013	0.021	0.028	0.037	0.047	0.048	0.054	0.064	0.076	0.085	0.096	
					RPM	4775	3183	2785	2546	2387	1790	1432	1194	1023	895	796	637	579	509	
	2		1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35	
					fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101	
					RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446	
	3-4		1.0D	0.5D	Vc	20	30	25	30	30	30	30	30	30	30	30	30	25	25	
					fz	0.003	0.003	0.008	0.01	0.018	0.026	0.035	0.043	0.049	0.052	0.06	0.059	0.077	0.098	
					RPM	3183	3183	1989	1910	1592	1194	955	796	682	597	531	477	434	318	
	5		1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20	
					fz	0.003	0.007	0.009	0.012	0.018	0.028	0.038	0.047	0.048	0.057	0.057	0.061	0.074	0.09	
RPM		2387			1592	1194	955	1061	796	637	531	455	398	354	318	289	255			
6	1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35			
			fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101			
			RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446			
7	1.0D	0.5D	Vc	20	30	25	30	30	30	30	30	30	30	30	30	25	25			
			fz	0.003	0.003	0.008	0.01	0.018	0.026	0.035	0.043	0.049	0.052	0.06	0.059	0.077	0.098			
			RPM	3183	3183	1989	1910	1592	1194	955	796	682	597	531	477	434	318			
8	1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20			
			fz	0.003	0.007	0.009	0.012	0.018	0.028	0.038	0.047	0.048	0.057	0.057	0.061	0.074	0.09			
			RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255			
9	1.0D	0.5D	Vc	10	10	15	15	15	15	15	15	15	15	15	15	15	15			
			fz	0.005	0.008	0.012	0.013	0.02	0.03	0.042	0.049	0.053	0.061	0.062	0.068	0.085	0.108			
			RPM	1592	1061	1194	955	796	597	477	398	341	298	265	239	217	191			
10	1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35			
			fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101			
			RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446			
11.1	1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20			
			fz	0.003	0.007	0.009	0.012	0.018	0.028	0.038	0.047	0.048	0.057	0.057	0.061	0.074	0.09			
			RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255			
K 15-20	1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35			
			fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101			
			RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446			
K 15-20	1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35			
			fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101			
			RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446			



**E9942 , E9A30 SERIES 3 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	55	65	75	80	80	80	80	80	80	80	80	80		
					fz	0.004	0.008	0.012	0.015	0.024	0.034	0.047	0.056	0.065	0.069	0.077	0.08	0.09	0.11	
					RPM	7958	5836	5173	4775	4244	3183	2546	2122	1819	1592	1326	1273	1157	1019	
	2		0.1D	1.5D	Vc	45	45	55	65	70	70	70	70	65	65	65	65	65	65	
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109	
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828	
	3-4		0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50	50	
					fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111	
					RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637	
	5		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35	
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107	
RPM		3979			2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446			
6	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65			
			fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109			
			RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828			
7	0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50	50			
			fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111			
			RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637			
8	0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35			
			fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107			
			RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446			
9	0.1D	1.5D	Vc	15	20	25	25	30	30	30	30	30	30	30	30	30	30			
			fz	0.006	0.01	0.013	0.015	0.022	0.035	0.047	0.056	0.063	0.07	0.073	0.083	0.092	0.111			
			RPM	2387	2122	1989	1592	1592	1194	955	796	682	597	531	477	434	382			
10	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65			
			fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109			
			RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828			
11.1	0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35			
			fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107			
			RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446			
K 15-20	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65			
			fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109			
			RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828			
K 15-20	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65			
			fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109			
			RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828			



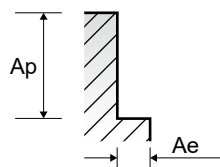


**GA938 , GAA31** SERIES **4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	0.1D	1.5D	Vc	60	60	65	70	75	80	70	75	80	80	85	80	75	80	
					fz	0.008	0.016	0.023	0.029	0.035	0.046	0.068	0.071	0.076	0.08	0.077	0.088	0.098	0.093	
					RPM	9549	6366	5173	4456	3979	3183	2228	1989	1819	1592	1503	1273	1085	1019	
	2		Vc	55	55	60	65	70	65	65	70	70	70	70	65	65	65			
			fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091			
			RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828			
	3-4		Vc	40	40	45	45	50	50	50	55	50	50	50	50	45	50			
			fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.087	0.088	0.094	0.091			
			RPM	6366	4244	3581	2865	2653	1989	1592	1459	1137	995	884	796	651	637			
	5		Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35			
			fz	0.008	0.017	0.022	0.028	0.032	0.043	0.066	0.067	0.073	0.081	0.077	0.083	0.085	0.089			
RPM		3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446					
6	Vc	55	55	60	65	70	65	65	70	70	70	70	65	65	65					
	fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091					
	RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828					
7	Vc	40	40	45	45	50	50	50	55	50	50	50	50	45	50					
	fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.087	0.088	0.094	0.091					
	RPM	6366	4244	3581	2865	2653	1989	1592	1459	1137	995	884	796	651	637					
8	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35					
	fz	0.008	0.017	0.022	0.028	0.032	0.043	0.066	0.067	0.073	0.081	0.077	0.083	0.085	0.089					
	RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446					
9	Vc	20	25	25	25	25	30	30	25	30	30	30	30	30	30					
	fz	0.006	0.013	0.019	0.024	0.031	0.04	0.056	0.064	0.067	0.075	0.075	0.08	0.081	0.087					
	RPM	3183	2653	1989	1592	1326	1194	955	663	682	597	531	477	434	382					
10	Vc	55	55	60	65	70	65	65	70	70	70	70	65	65	65					
	fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091					
	RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828					
11.1	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35					
	fz	0.008	0.017	0.022	0.028	0.032	0.043	0.066	0.067	0.073	0.081	0.077	0.083	0.085	0.089					
	RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	55	55	60	65	70	65	65	70	70	70	65	65			
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091	
					RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828	

※ The FEED, in long & extra long types, should be reduced by around 50%

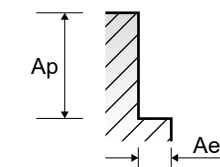


**E9938 , E9A31** SERIES **4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	0.1D	1.5D	Vc	40	40	45	45	50	55	50	50	55	55	55	55	55		
					fz	0.007	0.014	0.021	0.026	0.032	0.043	0.061	0.069	0.071	0.07	0.07	0.079	0.092	0.085	
					RPM	6366	4244	3581	2865	2653	2188	1592	1326	1251	1094	973	875	723	700	
	2		Vc	35	40	40	40	45	45	45	45	50	45	50	45	45	45			
			fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083			
			RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573			
	3-4		Vc	25	30	30	30	35	35	35	35	35	35	35	35	30	35			
			fz	0.007	0.013	0.02	0.024	0.028	0.041	0.053	0.064	0.069	0.075	0.079	0.081	0.087	0.081			
			RPM	3979	3183	2387	1910	1857	1393	1114	928	796	696	619	557	434	446			
	5		Vc	20	20	20	20	25	25	20	25	25	25	25	25	20	20			
			fz	0.007	0.014	0.02	0.024	0.029	0.042	0.058	0.063	0.066	0.075	0.07	0.076	0.078	0.085			
RPM		3183	2122	1592	1273	1326	995	637	663	568	497	442	398	289	255					
6	Vc	35	40	40	40	45	45	45	45	50	45	50	45	45	45					
	fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083					
	RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573					
7	Vc	25	30	30	30	35	35	35	35	35	35	35	35	30	35					
	fz	0.007	0.013	0.02	0.024	0.028	0.041	0.053	0.064	0.069	0.075	0.079	0.081	0.087	0.081					
	RPM	3979	3183	2387	1910	1857	1393	1114	928	796	696	619	557	434	446					
8	Vc	20	20	20	20	25	25	20	25	25	25	25	25	20	20					
	fz	0.007	0.014	0.02	0.024	0.029	0.042	0.058	0.063	0.066	0.075	0.07	0.076	0.078	0.085					
	RPM	3183	2122	1592	1273	1326	995	637	663	568	497	442	398	289	255					
9	Vc	15	15	15	20	20	20	20	20	20	20	20	20	20	20					
	fz	0.006	0.012	0.018	0.022	0.028	0.038	0.052	0.058	0.061	0.067	0.07	0.071	0.074	0.083					
	RPM	2387	1592	1194	1273	1061	796	637	531	455	398	354	318	289	255					
10	Vc	35	40	40	40	45	45	45	45	50	45	50	45	45	45					
	fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083					
	RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573					
11.1	Vc	20	20	20	20	25	25	20	25	25	25	25	25	20	20					
	fz	0.007	0.014	0.02	0.024	0.029	0.042	0.058	0.063	0.066	0.075	0.07	0.076	0.078	0.085					
	RPM	3183	2122	1592	1273	1326	995	637	663	568	497	442	398	289	255					
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	35	40	40	40	45	45	45	45	50	45	45				
					fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083	
					RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573	

※ The FEED, in long & extra long types, should be reduced by around 50%

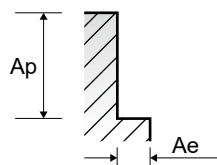


**GA941, GAA35, GAA33, GAA34 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						6.0	8.0	10.0	12.0	22.0	25.0	18.0	20.0	22.0	25.0		
P	1	Non-alloy steel	0.5D	1.5D	Vc	55	60	60	60	60	60	60	60	60	60	60	60
					fz	0.027	0.04	0.055	0.065	0.074	0.086	0.099	0.111	0.096	0.105		
					RPM	2918	2387	1910	1592	1364	1194	1061	955	868	764		
	2		Vc	40	50	45	45	45	50	50	50	45	45				
			fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105				
			RPM	2122	1989	1432	1194	1023	995	884	796	651	573				
	3-4		Vc	30	35	35	35	35	35	35	30	35					
			fz	0.024	0.038	0.046	0.064	0.076	0.087	0.094	0.108	0.098	0.105				
			RPM	1592	1393	1114	928	796	696	619	557	434	446				
	5		Vc	25	25	30	30	30	30	30	30	30					
			fz	0.027	0.04	0.045	0.061	0.071	0.082	0.092	0.102	0.09	0.1				
RPM		1326	995	955	796	682	597	531	477	434	382						
6	Vc	40	50	45	45	45	50	50	45	45							
	fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105						
	RPM	2122	1989	1432	1194	1023	995	884	796	651	573						
7	Vc	30	35	35	35	35	35	35	30	35							
	fz	0.024	0.038	0.046	0.064	0.076	0.087	0.094	0.108	0.098	0.105						
	RPM	1592	1393	1114	928	796	696	619	557	434	446						
8-9	Vc	25	25	30	30	30	30	30	30	30							
	fz	0.027	0.04	0.045	0.061	0.071	0.082	0.092	0.102	0.09	0.1						
	RPM	1326	995	955	796	682	597	531	477	434	382						
10	Vc	40	50	45	45	45	50	50	45	45							
	fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105						
	RPM	2122	1989	1432	1194	1023	995	884	796	651	573						
11.1	Vc	25	25	30	30	30	30	30	30	30							
	fz	0.027	0.04	0.045	0.061	0.071	0.082	0.092	0.102	0.09	0.1						
	RPM	1326	995	955	796	682	597	531	477	434	382						
M	14.1	Stainless steel	0.5D	1.5D	Vc	25	30	30	30	30	30	30	30	30			
					fz	0.025	0.039	0.045	0.064	0.074	0.085	0.093	0.107	0.095	0.103		
					RPM	1326	1194	955	796	682	597	531	477	434	382		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	40	50	45	45	45	50	50	45	45			
					fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105		
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573		

※ The FEED, in long & extra long types, should be reduced by around 50%

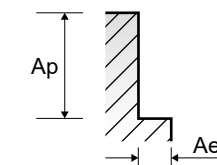


**E9941, E9A35, E9A33, E9A34 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						6.0	8.0	10.0	12.0	22.0	25.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	40	40	40	40	40	40	40	40	40
					fz	0.018	0.028	0.05	0.059	0.056	0.063	0.061	0.067	0.072	0.08
					RPM	1857	1592	1273	1061	909	796	707	637	579	509
	2		Vc	30	35	30	30	30	35	30	30	30			
			fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081		
			RPM	1592	1393	955	796	682	597	619	477	434	382		
	3-4		Vc	20	25	20	25	20	25	25	20	20			
			fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08		
			RPM	1061	995	637	663	455	497	442	398	289	255		
	5		Vc	15	20	20	20	20	20	20	20	20			
			fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076		
RPM		796	796	637	531	455	398	354	318	289	255				
6	Vc	30	35	30	30	30	35	30	30	30					
	fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081				
	RPM	1592	1393	955	796	682	597	619	477	434	382				
7	Vc	20	25	20	25	20	25	25	20	20					
	fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08				
	RPM	1061	995	637	663	455	497	442	398	289	255				
8-9	Vc	15	20	20	20	20	20	20	20	20					
	fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076				
	RPM	796	796	637	531	455	398	354	318	289	255				
10	Vc	30	35	30	30	30	35	30	30	30					
	fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081				
	RPM	1592	1393	955	796	682	597	619	477	434	382				
11.1	Vc	15	20	20	20	20	20	20	20	20					
	fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076				
	RPM	796	796	637	531	455	398	354	318	289	255				
M	14.1	Stainless steel	0.5D	1.5D	Vc	20	20	20	20	20	20	20	20	20	
					fz	0.02	0.03	0.045	0.065	0.06	0.069	0.064	0.073	0.081	0.086
					RPM	1061	796	637	531	455	398	354	318	289	255
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382

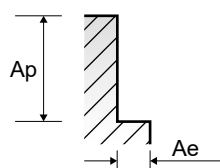
※ The FEED, in long & extra long types, should be reduced by around 50%



**GAA26 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

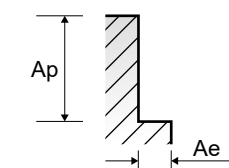
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0		
P	1	Non-alloy steel	0.5D	1.5D	Vc	55	60	60	60	60	60	60	60	60	60	60	60
					fz	0.021	0.03	0.055	0.065	0.059	0.069	0.066	0.074	0.08	0.088		
					RPM	2918	2387	1910	1592	1364	1194	1061	955	868	764		
	2		Vc	40	50	45	45	45	50	50	50	45	45				
			fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088				
			RPM	2122	1989	1432	1194	1023	995	884	796	651	573				
	3-4		Vc	30	35	35	35	35	35	35	30	35					
			fz	0.018	0.029	0.046	0.064	0.061	0.07	0.063	0.072	0.082	0.087				
			RPM	1592	1393	1114	928	796	696	619	557	434	446				
	5		Vc	25	25	30	30	30	30	30	30	30	30				
			fz	0.02	0.03	0.045	0.061	0.057	0.065	0.061	0.068	0.075	0.083				
RPM		1326	995	955	796	682	597	531	477	434	382						
6	Vc	40	50	45	45	50	50	50	45	45							
	fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088						
	RPM	2122	1989	1432	1194	1023	995	884	796	651	573						
7	Vc	30	35	35	35	35	35	35	30	35							
	fz	0.018	0.029	0.046	0.064	0.061	0.07	0.063	0.072	0.082	0.087						
	RPM	1592	1393	1114	928	796	696	619	557	434	446						
8-9	Vc	25	25	30	30	30	30	30	30	30	30						
	fz	0.02	0.03	0.045	0.061	0.057	0.065	0.061	0.068	0.075	0.083						
	RPM	1326	995	955	796	682	597	531	477	434	382						
10	Vc	40	50	45	45	50	50	50	45	45							
	fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088						
	RPM	2122	1989	1432	1194	1023	995	884	796	651	573						
11.1	Vc	25	25	30	30	30	30	30	30	30	30						
	fz	0.02	0.03	0.045	0.061	0.057	0.065	0.061	0.068	0.075	0.083						
	RPM	1326	995	955	796	682	597	531	477	434	382						
M	14.1	Stainless steel	0.5D	1.5D	Vc	25	30	30	30	30	30	30	30	30	30		
					fz	0.019	0.029	0.045	0.064	0.059	0.068	0.062	0.071	0.079	0.085		
					RPM	1326	1194	955	796	682	597	531	477	434	382		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	40	50	45	45	50	50	50	45	45			
					fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088		
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	40	50	45	45	50	50	50	45	45			
					fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088		
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573		



**E9A26 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	40	40	40	40	40	40	40	40	40	40
					fz	0.018	0.028	0.05	0.059	0.056	0.063	0.061	0.067	0.072	0.08	
					RPM	1857	1592	1273	1061	909	796	707	637	579	509	
	2		Vc	30	35	30	30	30	30	35	30	30	30			
			fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081			
			RPM	1592	1393	955	796	682	597	619	477	434	382			
	3-4		Vc	20	25	20	25	20	25	25	25	20	20			
			fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08			
			RPM	1061	995	637	663	455	497	442	398	289	255			
	5		Vc	15	20	20	20	20	20	20	20	20	20			
			fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076			
RPM		796	796	637	531	455	398	354	318	289	255					
6	Vc	30	35	30	30	30	30	35	30	30	30					
	fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081					
	RPM	1592	1393	955	796	682	597	619	477	434	382					
7	Vc	20	25	20	25	20	25	25	25	20	20					
	fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08					
	RPM	1061	995	637	663	455	497	442	398	289	255					
8-9	Vc	15	20	20	20	20	20	20	20	20	20					
	fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076					
	RPM	796	796	637	531	455	398	354	318	289	255					
10	Vc	30	35	30	30	30	30	35	30	30	30					
	fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081					
	RPM	1592	1393	955	796	682	597	619	477	434	382					
11.1	Vc	15	20	20	20	20	20	20	20	20	20					
	fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076					
	RPM	796	796	637	531	455	398	354	318	289	255					
M	14.1	Stainless steel	0.5D	1.5D	Vc	20	20	20	20	20	20	20	20	20	20	
					fz	0.02	0.03	0.045	0.065	0.06	0.069	0.064	0.073	0.081	0.086	
					RPM	1061	796	637	531	455	398	354	318	289	255	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	30	35	30	30	30	30	30	30	30	30	
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081	
					RPM	1592	1393	955	796	682	597	619	477	434	382	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	30	35	30	30	30	30	30	30	30	30	
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081	
					RPM	1592	1393	955	796	682	597	619	477	434	382	

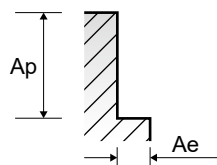




**E9E43 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

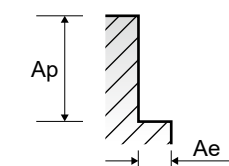
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	41	41	41	41	41
					fz	0.042	0.05	0.067	0.085	0.081
					RPM	1305	1088	816	653	522
					FEED	219	218	219	222	211
	2		0.5D	1.5D	Vc	32	32	32	32	32
					fz	0.041	0.053	0.068	0.086	0.083
					RPM	1019	849	637	509	407
	3-4		0.5D	1.5D	Vc	23	23	23	23	23
					fz	0.037	0.05	0.067	0.083	0.082
					RPM	732	610	458	366	293
5	0.5D	1.5D	Vc	19	19	19	19	19		
			fz	0.035	0.048	0.064	0.079	0.079		
			RPM	605	504	378	302	242		
6	0.5D	1.5D	Vc	32	32	32	32	32		
			fz	0.041	0.053	0.068	0.086	0.083		
			RPM	1019	849	637	509	407		
7	0.5D	1.5D	Vc	23	23	23	23	23		
			fz	0.037	0.05	0.067	0.083	0.082		
			RPM	732	610	458	366	293		
8	0.5D	1.5D	Vc	19	19	19	19	19		
			fz	0.035	0.048	0.064	0.079	0.079		
			RPM	605	504	378	302	242		
9	0.5D	1.5D	Vc	19	19	19	19	19		
			fz	0.035	0.048	0.064	0.079	0.079		
			RPM	605	504	378	302	242		
10	0.5D	1.5D	Vc	32	32	32	32	32		
			fz	0.041	0.053	0.068	0.086	0.083		
			RPM	1019	849	637	509	407		
11.1	0.5D	1.5D	Vc	19	19	19	19	19		
			fz	0.035	0.048	0.064	0.079	0.079		
			RPM	605	504	378	302	242		
M	14.1	Stainless steel	0.5D	1.5D	Vc	21	21	21	21	21
					fz	0.038	0.058	0.074	0.095	0.089
					RPM	668	557	418	334	267
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	32	32	32	32	32
					fz	0.041	0.053	0.068	0.086	0.083
					RPM	1019	849	637	509	407
			0.5D	1.5D	Vc	167	180	173	175	169
					fz					
					RPM					



**GAE43 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	60	60	60	60	60
					fz	0.047	0.055	0.074	0.094	0.09
					RPM	1910	1592	1194	955	764
					FEED	359	350	353	359	344
	2		0.5D	1.5D	Vc	47	47	47	47	47
					fz	0.045	0.058	0.074	0.092	0.09
					RPM	1496	1247	935	748	598
	3-4		0.5D	1.5D	Vc	33	33	33	33	33
					fz	0.039	0.054	0.074	0.092	0.088
					RPM	1050	875	657	525	420
5	0.5D	1.5D	Vc	28	28	28	28	28		
			fz	0.038	0.052	0.07	0.088	0.086		
			RPM	891	743	557	446	357		
6	0.5D	1.5D	Vc	47	47	47	47	47		
			fz	0.045	0.058	0.074	0.092	0.09		
			RPM	1496	1247	935	748	598		
7	0.5D	1.5D	Vc	33	33	33	33	33		
			fz	0.039	0.054	0.074	0.092	0.088		
			RPM	1050	875	657	525	420		
8-9	0.5D	1.5D	Vc	28	28	28	28	28		
			fz	0.038	0.052	0.07	0.088	0.086		
			RPM	891	743	557	446	357		
10	0.5D	1.5D	Vc	47	47	47	47	47		
			fz	0.045	0.058	0.074	0.092	0.09		
			RPM	1496	1247	935	748	598		
11.1	0.5D	High alloyed steel, and tool steel	1.5D	Vc	28	28	28	28	28	
				fz	0.038	0.052	0.07	0.088	0.086	
				RPM	891	743	557	446	357	
M	14.1	Stainless steel	0.5D	1.5D	Vc	30	30	30	30	30
					fz	0.038	0.055	0.073	0.091	0.087
					RPM	955	796	597	477	382
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	47	47	47	47	47
					fz	0.045	0.058	0.074	0.092	0.09
					RPM	1496	1247	935	748	598
			0.5D	1.5D	Vc	269	289	277	275	269
					fz					
					RPM					





Global Cutting Tool Leader **YG-1**



# MILLING



Leading Through Innovation



**HSS**

# **GENERAL HSS END MILLS HSS SCHAFTFRÄSER**

- General Purpose / Coating Available
- Allgemeine Anwendung / Beschichtung verfügbar





SELECTION GUIDE



MILLING TOOLS

SERIES	E2535	E2492	EL612	E2570
FLUTE	2	2	1	2
HELIX ANGLE	30°	30°	≈ 30°	≈ 30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	SQUARE	SQUARE
SIZE MIN	R1.0	R1.0	D3.0	D1.0
SIZE MAX	R16.0	R15.0	D10.0	D40.0
PAGE	C643	C644	C645	C646

# GENERAL HSS END MILLS

General Purpose, Non-coated, Any Coating Available

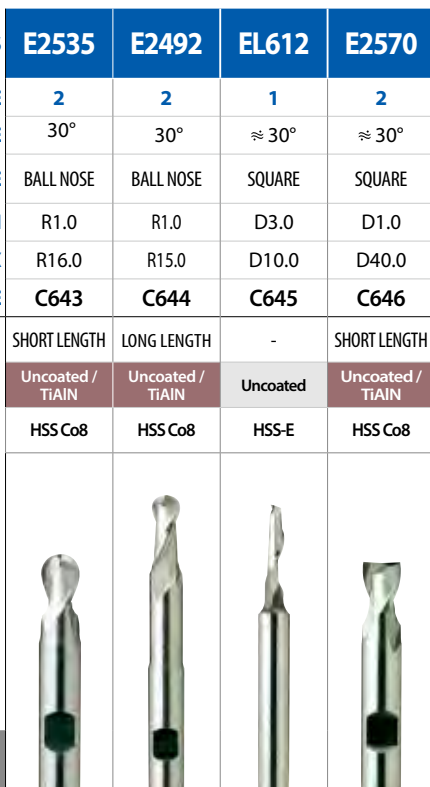


Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C673

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
P	1	Non-alloy steel	About 0.15% C Annealed	125	
	2		About 0.45% C Annealed	190	13
	3		About 0.45% C Quenched & Tempered	250	25
	4		About 0.75% C Annealed	270	28
	5	About 0.75% C Quenched & Tempered	300	32	
	6	Low alloy steel	Annealed	180	10
	7		Quenched & Tempered	275	29
	8		Quenched & Tempered	300	32
	9		Quenched & Tempered	350	38
	10		High alloyed steel, and tool steel	Annealed	200
	11	Quenched & Tempered	325	35	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15
	13		Martensitic Quenched & Tempered	240	23
	14	Austenitic	180	10	
K	15	Grey cast iron	Pearlitic / ferritic	180	10
	16		Pearlitic (Martensitic)	260	26
	17	Nodular cast iron	Ferritic	160	3
	18		Pearlitic	250	25
	19		Ferritic	130	
20	Malleable cast iron	Pearlitic	230	21	
N	21	Aluminum-wrought alloy	Not Curable	60	
	22		Curable Hardened	100	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	
	24		≤ 12% Si, Curable Hardened	90	
	25		> 12% Si, Not Curable	130	
	26	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90	
	27	Non Metallic Materials	Cutting Alloys, PB>1%	110	
	28		CuSn, lead-free copper and electrolytic copper	100	
	29		Duroplastic, Fiber Reinforced Plastic		
30		Rubber, Wood, etc.			
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15
	32		Cured	280	30
	33		Annealed	250	25
	34		Ni or Co Based Cured	350	38
	35	Cast	320	34	
	36	Titanium Alloys	Pure Titanium	400 Rm	
37	Alpha + Beta Alloys Hardened		1050 Rm		
H	38	Hardened steel	Hardened	550	55
	39		Hardened	630	60
	40	Chilled Cast Iron	Cast	400	42
	41	Hardened Cast Iron	Hardened	550	55



E2571	E2510	E2464	E2509	E2572	E2573	E2516	E2553	E2SET553	E2554	E2574	E2595
2	2	2	2	3	3	3	3	3	3	4	4
≈ 30°	30°	42°	42°	≈ 30°	≈ 30°	30°	30°	30°	30°	≈ 30°	≈ 30°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
D1.5	D2.5	D1.0	D2.0	D1.5	D1.0	D2.0	D1.0	D2.0	D1.5	D2.0	D2.0
D40.0	D40.0	D32.0	D20.0	D32.0	D40.0	D40.0	D20.0	D10.0	D10.0	D20.0	D25.0
C649	C651	C653	C654	C655	C656	C658	C660	C661	C662	C663	C664
LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH	LONG LENGTH	STUB LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH THROW AWAY	THROW AWAY SET	LONG LENGTH THROW AWAY	SHORT LENGTH	SHORT LENGTH CENTER CUTTING
Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN
HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8



SELECTION GUIDE



MILLING TOOLS

SERIES	E2597	E2753	E2762	E2755	E2751	E2752
FLUTE	4	Multi Flute	Multi Flute	3	Multi Flute	Multi Flute
HELIX ANGLE	45°	30°	30°	37°	30°	30°
SIZE MIN	D2.0	D6.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	D20.0	D40.0	D40.0	D30.0	D50.0	D40.0
PAGE	C665	C666	C667	C668	C669	C671

HSS

GENERAL HSS END MILLS

General Purpose, Non-coated, Any Coating Available

⊙: Excellent ○: Good

Recommended cutting conditions : p. C673

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search



ISO	VDI 3323	Material Description	HB	HRc	E2597	E2753	E2762	E2755	E2751	E2752
P	1	Non-alloy steel	125		⊙	⊙	⊙	⊙	⊙	⊙
	2		190	13	⊙	⊙	⊙	⊙	⊙	⊙
	3		250	25	⊙	⊙	⊙	○	⊙	⊙
	4		270	28	⊙	⊙	⊙	○	⊙	⊙
	5		300	32	⊙	⊙	⊙	○	⊙	⊙
	6	180	10	⊙	⊙	⊙	⊙	⊙	⊙	
	7	275	29	⊙	⊙	⊙	○	⊙	⊙	
	8	300	32	⊙	⊙	⊙	○	⊙	⊙	
	9	350	38	○	○	○	○	○	○	
	10	High alloyed steel, and tool steel	200	15	⊙	⊙	⊙	⊙	⊙	⊙
	11	325	35	○	○	○	○	○	○	
M	12	Stainless steel	200	15						
	13		240	23						
	14		180	10						
K	15	Grey cast iron	180	10						
	16		260	26						
	17	Nodular cast iron	160	3						
	18		250	25						
	19		130							
20	Malleable cast iron	230	21							
N	21	Aluminum-wrought alloy	60		○	○	○	⊙	○	○
	22		100		○	○	○	⊙	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	⊙	○	○
	24		90		○	○	○	⊙	○	○
	25		130		○	○	○	○	○	○
	26		110							
	27	Copper and Copper Alloys (Bronze / Brass)	90							
	28		100							
	29	Non Metallic Materials								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
36	Titanium Alloys	400 Rm								
37		1050 Rm								
H	38	Hardened steel	550	55						
	39		630	60						
	40	Hardened Cast Iron	400	42						
	41		550	55						



FLAT SHANK E2535 SERIES

FLAT SHANK EQ535 SERIES

HSSCo8, 2 FLUTE SHORT LENGTH BALL NOSE

- HSSCo8, 2 SCHNEIDEN KURZ STIRNRADIUS
- Fraise HSSCo8, 2 dents, hémisphérique, courte
- 2 TAGLIENTI, SEMISFERICA, SERIE CORTA - HSSCo8



HSS Co8 DIN 327 2 30° ±0.02 R UNCOATED TiAlN

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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length	
						UNCOATED
E2535020	EQ535020	R1.0	2.0	6	4	48
E2535025	EQ535025	R1.25	2.5	6	5	49
E2535030	EQ535030	R1.5	3.0	6	5	49
E2535035	EQ535035	R1.75	3.5	6	6	50
E2535040	EQ535040	R2.0	4.0	6	7	51
E2535045	EQ535045	R2.25	4.5	6	7	51
E2535050	EQ535050	R2.5	5.0	6	8	52
E2535055	EQ535055	R2.75	5.5	6	8	52
E2535060	EQ535060	R3.0	6.0	6	8	52
E2535070	EQ535070	R3.5	7.0	10	10	60
E2535080	EQ535080	R4.0	8.0	10	11	61
E2535090	EQ535090	R4.5	9.0	10	11	61
E2535100	EQ535100	R5.0	10.0	10	13	63
E2535110	EQ535110	R5.5	11.0	12	13	70
E2535120	EQ535120	R6.0	12.0	12	16	73
E2535130	EQ535130	R6.5	13.0	12	16	73
E2535140	EQ535140	R7.0	14.0	12	16	73
E2535150	EQ535150	R7.5	15.0	12	16	73
E2535160	EQ535160	R8.0	16.0	16	19	79
E2535170	EQ535170	R8.5	17.0	16	19	79
E2535180	EQ535180	R9.0	18.0	16	19	79
E2535190	EQ535190	R9.5	19.0	16	19	79
E2535923	EQ535923	R10.0	20.0	16	22	82
E2535200	EQ535200	R10.0	20.0	20	22	88
E2535220	EQ535220	R11.0	22.0	20	22	88
E2535922	EQ535922	R11.0	22.0	25	22	98
E2535240	EQ535240	R12.0	24.0	25	26	102
E2535250	EQ535250	R12.5	25.0	25	26	102
E2535260	EQ535260	R13.0	26.0	25	26	102
E2535280	EQ535280	R14.0	28.0	25	26	102
E2535300	EQ535300	R15.0	30.0	25	26	102
E2535320	EQ535320	R16.0	32.0	32	32	112

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

▶Other shank design on your request.  
▶TiN and TiCN Coatings are available on your request.

⊙: Excellent ○: Good

ISO	P									M				K							
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	⊙	○	○	○	○	○	○	○	○	○	○	○

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	15	30	25	38	34	15	90	100			200	260	250	350	320	400 Rm	1050 Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	260	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	○	○	○



FLAT SHANK **E2492** SERIES  
FLAT SHANK **EQ492** SERIES

**HSSCo8, 2 FLUTE LONG LENGTH BALL NOSE**

- HSSCo8, 2 SCHNEIDEN LANG STIRNRADIUS
- Fraise HSSCo8, 2 dents, hémisphérique, longue
- 2 TAGLIENTI, SEMISFERICA, SERIE LUNGA - HSSCo8



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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length	
						UNCOATED
E2492020	EQ492020	R1.0	2.0	6	7	54
E2492030	EQ492030	R1.5	3.0	6	8	56
E2492040	EQ492040	R2.0	4.0	6	11	63
E2492050	EQ492050	R2.5	5.0	6	13	68
E2492060	EQ492060	R3.0	6.0	6	13	68
E2492070	EQ492070	R3.5	7.0	10	16	80
E2492080	EQ492080	R4.0	8.0	10	19	88
E2492090	EQ492090	R4.5	9.0	10	19	88
E2492100	EQ492100	R5.0	10.0	10	22	95
E2492110	EQ492110	R5.5	11.0	12	22	102
E2492120	EQ492120	R6.0	12.0	12	26	110
E2492130	EQ492130	R6.5	13.0	12	26	110
E2492140	EQ492140	R7.0	14.0	12	26	110
E2492150	EQ492150	R7.5	15.0	12	26	110
E2492160	EQ492160	R8.0	16.0	16	32	123
E2492170	EQ492170	R8.5	17.0	16	32	123
E2492180	EQ492180	R9.0	18.0	16	32	123
E2492190	EQ492190	R9.5	19.0	16	32	123
E2492200	EQ492200	R10.0	20.0	20	38	141
E2492220	EQ492220	R11.0	22.0	20	38	141
E2492240	EQ492240	R12.0	24.0	25	45	166
E2492250	EQ492250	R12.5	25.0	25	45	166
E2492260	EQ492260	R13.0	26.0	25	45	166
E2492280	EQ492280	R14.0	28.0	25	45	166
E2492300	EQ492300	R15.0	30.0	25	45	166

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **EL612** SERIES

**HSS-E, 1 FLUTE for ALUMINUM**

- HSS-E, 1 SCHNEIDEN für ALUMINIUM
- Fraise HSS-E, 1 dent pour aluminium
- 1 TAGLIENTE - HSS-E

for ALUMINIUM für ALUMINIUM

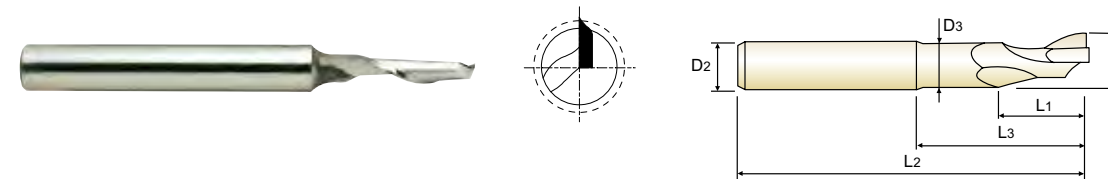


p.C675

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	js14	h6		
EL612030	3.0	8	12	60
EL612040	4.0	8	12	60
EL612050	5.0	8	12	60
EL612060	6.0	8	14	60
EL612070	7.0	8	14	60
EL612080	8.0	8	14	80
EL612090	9.0	8	14	80
EL612100	10.0	8	14	80



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
UNCOATED	D1(js14)	D2(h6)	L1	L3	L2	L2
EL612904	5.0	8	18	35	80	4.8
EL612909	5.0	8	40	-	100	-
EL612932	8.0	8	14	68	120	7.5

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in μm					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js14	±125	±150	±180	±215	±260	±310
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





FLAT SHANK **E2570** SERIES  
FLAT SHANK **EQ570** SERIES

**HSSCo8, 2 FLUTE SHORT LENGTH**

- HSSCo8, 2 SCHNEIDEN KURZ
- Fraise HSSCo8, 2 dents, courte
- 2 TAGLIENTI, SERIE CORTA - HSSCo8



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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER D118-137		POWER MILLING CHUCK D161-176	
		ER COLLET CHUCK D73-116	
		SK SLIM CHUCK D183-201	

Unit : mm

EDP No.	Mill Diameter		Shank Diameter	Length of Cut	Overall Length
	UNCOATED	TiAlN			
E2570010	EQ570010	1.0	6	2.5	47
E2570015	EQ570015	1.5	6	3	47
E2570020	EQ570020	2.0	6	4	48
E2570025	EQ570025	2.5	6	5	49
E2570028	EQ570028	2.8	6	5	49
E2570030	EQ570030	3.0	6	5	49
E2570035	EQ570035	3.5	6	6	50
E2570038	EQ570038	3.8	6	7	51
E2570040	EQ570040	4.0	6	7	51
E2570045	EQ570045	4.5	6	7	51
E2570048	EQ570048	4.8	6	8	52
E2570050	EQ570050	5.0	6	8	52
E2570055	EQ570055	5.5	6	8	52
E2570957	EQ570957	5.8	6	8	52
E2570060	EQ570060	6.0	6	8	52
E2570065	EQ570065	6.5	10	10	60
E2570967	EQ570967	6.8	10	10	60
E2570070	EQ570070	7.0	10	10	60
E2570075	EQ570075	7.5	10	10	60
E2570977	EQ570977	7.8	10	11	61
E2570080	EQ570080	8.0	10	11	61
E2570085	EQ570085	8.5	10	11	61
E2570087	EQ570087	8.7	10	11	61
E2570090	EQ570090	9.0	10	11	61

**Tolerances according to DIN 7160 & 7161**

- ▶ Other shank design on your request. ▶ NEXT PAGE
- ▶ TiN and TiCN Coatings are available on your request.

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
<b>e8</b>	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
<b>h6</b>	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

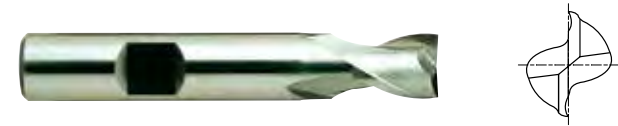
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2570** SERIES  
FLAT SHANK **EQ570** SERIES

**HSSCo8, 2 FLUTE SHORT LENGTH**

- HSSCo8, 2 SCHNEIDEN KURZ
- Fraise HSSCo8, 2 dents, courte
- 2 TAGLIENTI, SERIE CORTA - HSSCo8



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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER D118-137		POWER MILLING CHUCK D161-176	
		ER COLLET CHUCK D73-116	
		SK SLIM CHUCK D183-201	

Unit : mm

EDP No.	Mill Diameter		Shank Diameter	Length of Cut	Overall Length
	UNCOATED	TiAlN			
E2570095	EQ570095	9.5	10	11	61
E2570097	EQ570097	9.7	10	13	63
E2570100	EQ570100	10.0	10	13	63
E2570105	EQ570105	10.5	12	13	70
E2570107	EQ570107	10.7	12	13	70
E2570110	EQ570110	11.0	12	13	70
E2570115	EQ570115	11.5	12	13	70
E2570117	EQ570117	11.7	12	16	73
E2570120	EQ570120	12.0	12	16	73
E2570125	EQ570125	12.5	12	16	73
E2570127	EQ570127	12.7	12	16	73
E2570130	EQ570130	13.0	12	16	73
E2570135	EQ570135	13.5	12	16	73
E2570137	EQ570137	13.7	12	16	73
E2570140	EQ570140	14.0	12	16	73
E2570147	EQ570147	14.7	12	16	73
E2570150	EQ570150	15.0	12	16	73
E2570157	EQ570157	15.7	16	19	79
E2570160	EQ570160	16.0	16	19	79
E2570167	EQ570167	16.7	16	19	79
E2570170	EQ570170	17.0	16	19	79
E2570177	EQ570177	17.7	16	19	79
E2570180	EQ570180	18.0	16	19	79
E2570190	EQ570190	19.0	16	19	79

**Tolerances according to DIN 7160 & 7161**

- ▶ Other shank design on your request. ▶ NEXT PAGE
- ▶ TiN and TiCN Coatings are available on your request.

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
<b>e8</b>	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
<b>h6</b>	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





FLAT SHANK **E2571** SERIES  
FLAT SHANK **EQ571** SERIES

**HSSCo8, 2 FLUTE LONG LENGTH**

- HSSCo8, 2 SCHNEIDEN LANG
- Fraise HSSCo8, 2 dents, longue
- 2 TAGLIENTI, SERIE LUNGA - HSSCo8



HSS Co8  
DIN 844  
2  
30°  
DIN 1835B  
UNCOATED  
TiAlN  
p.C676-679

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut	Overall Length
	UNCOATED	TiAlN	e8	h6		
E2571180	EQ571180	18.0	16	32	92	
E2571200	EQ571200	20.0	20	38	104	
E2571220	EQ571220	22.0	20	38	104	
E2571240	EQ571240	24.0	25	45	121	
E2571250	EQ571250	25.0	25	45	121	
E2571260	EQ571260	26.0	25	45	121	
E2571270	EQ571270	27.0	25	45	121	
E2571280	EQ571280	28.0	25	45	121	
E2571300	EQ571300	30.0	25	45	121	
E2571320	EQ571320	32.0	32	53	133	
E2571400	EQ571400	40.0	40	63	155	

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2510** SERIES  
FLAT SHANK **EQ510** SERIES

**HSSCo8, 2 FLUTE EXTRA LONG LENGTH**

- HSSCo8, 2 SCHNEIDEN EXTRA LANG
- Fraise HSSCo8, 2 dents, extra-longue
- 2 TAGLIENTI, SERIE EXTRA LUNGA - HSSCo8



HSS Co8  
DIN 844  
2  
30°  
DIN 1835B  
UNCOATED  
TiAlN  
p.C676-679

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut	Overall Length
	UNCOATED	TiAlN	e8	h6		
E2510025	EQ510025	2.5	6	8	56	
E2510030	EQ510030	3.0	6	8	56	
E2510035	EQ510035	3.5	6	10	59	
E2510040	EQ510040	4.0	6	11	63	
E2510045	EQ510045	4.5	6	11	63	
E2510050	EQ510050	5.0	6	13	68	
E2510055	EQ510055	5.5	6	13	68	
E2510060	EQ510060	6.0	6	13	68	
E2510065	EQ510065	6.5	10	16	80	
E2510070	EQ510070	7.0	10	16	80	
E2510080	EQ510080	8.0	10	19	88	
E2510085	EQ510085	8.5	10	19	88	
E2510090	EQ510090	9.0	10	19	88	
E2510100	EQ510100	10.0	10	22	95	
E2510120	EQ510120	12.0	12	26	110	
E2510140	EQ510140	14.0	12	26	110	
E2510160	EQ510160	16.0	16	32	123	
E2510180	EQ510180	18.0	16	32	123	
E2510200	EQ510200	20.0	20	38	141	
E2510220	EQ510220	22.0	20	38	141	
E2510240	EQ510240	24.0	25	45	166	
E2510250	EQ510250	25.0	25	45	166	
E2510260	EQ510260	26.0	25	45	166	
E2510280	EQ510280	28.0	25	45	166	
E2510300	EQ510300	30.0	25	45	166	
E2510320	EQ510320	32.0	32	53	186	
E2510360	EQ510360	36.0	32	53	186	
E2510400	EQ510400	40.0	32	63	207	
E2510940	EQ510940	40.0	40	63	217	

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎









FLAT SHANK **E2509** SERIES

**HSSCo8, 2 FLUTE 42° HELIX LONG LENGTH for ALUMINUM**

- HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM
- Fraise HSSCo8, 2 dents, hélice 42°, pour aluminium, longue
- 2 TAGLIENTI, ELICA 42°, SERIE LUNGA - HSSCo8

for ALUMINIUM  
für ALUMINIUM



HSS Co8 DIN 844 2 42° DIN 1835B UNCOATED p.C675

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED				
E2509020	2.0	6	10	54
E2509030	3.0	6	12	56
E2509040	4.0	6	19	63
E2509050	5.0	6	24	68
E2509060	6.0	6	24	68
E2509070	7.0	10	30	80
E2509080	8.0	10	38	88
E2509090	9.0	10	38	88
E2509100	10.0	10	45	95
E2509110	11.0	12	45	102
E2509120	12.0	12	53	110
E2509130	13.0	12	53	110
E2509140	14.0	12	53	110
E2509150	15.0	12	53	110
E2509160	16.0	16	63	123
E2509180	18.0	16	63	123
E2509200	20.0	20	75	141

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
<b>e8</b>	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
<b>h6</b>	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



FLAT SHANK **E2572** SERIES  
FLAT SHANK **EQ572** SERIES

**HSSCo8, 3 FLUTE STUB LENGTH**

- HSSCo8, 3 SCHNEIDEN EXTRA KURZ
- Fraise HSSCo8, 3 dents, extra-courte
- 3 TAGLIENTI. SERIE EXTRA CORTA - HSSCo8



HSS Co8 DIN 327 3 30° DIN 1835B UNCOATED TiAlN p.C680-687

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED				
E2572015	1.5	6	3	47
E2572020	2.0	6	4	48
E2572025	2.5	6	5	49
E2572030	3.0	6	5	49
E2572035	3.5	6	6	50
E2572040	4.0	6	7	51
E2572045	4.5	6	7	51
E2572050	5.0	6	8	52
E2572055	5.5	6	8	52
E2572060	6.0	6	8	52
E2572065	6.5	10	10	60
E2572070	7.0	10	10	60
E2572075	7.5	10	10	60
E2572080	8.0	10	11	61
E2572085	8.5	10	11	61
E2572100	10.0	10	13	63
E2572120	12.0	12	16	73
E2572140	14.0	12	16	73
E2572150	15.0	12	16	73
E2572160	16.0	16	19	79
E2572180	18.0	16	19	79
E2572200	20.0	20	22	88
E2572220	22.0	20	22	88
E2572240	24.0	25	26	102
E2572250	25.0	25	26	102
E2572260	26.0	25	26	102
E2572280	28.0	25	26	102
E2572300	30.0	25	26	102
E2572320	32.0	32	32	112

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
<b>e8</b>	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
<b>h6</b>	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



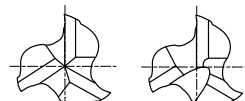


FLAT SHANK **E2573** SERIES

FLAT SHANK **EQ573** SERIES

**HSSCo8, 3 FLUTE SHORT LENGTH**

- HSSCo8, 3 SCHNEIDEN KURZ
- Fraise HSSCo8, 3 dents, courte
- 3 TAGLIENTI, SERIE CORTA - HSSCo8



Under Ø3mm Ø3mm or above



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER D118-137		POWER MILLING CHUCK D161-176	
		ER COLLET CHUCK D73-116	
		SK SLIM CHUCK D183-201	

Unit : mm

EDP No.	Mill Diameter	Shank Diameter		Length of Cut	Overall Length
		e8	h6		
UNCOATED	TiAlN				
E2573010	EQ573010	1.0	6	3	47
E2573015	EQ573015	1.5	6	7	51
E2573020	EQ573020	2.0	6	7	51
E2573025	EQ573025	2.5	6	8	52
E2573030	EQ573030	3.0	6	8	52
E2573035	EQ573035	3.5	6	10	54
E2573040	EQ573040	4.0	6	11	55
E2573045	EQ573045	4.5	6	11	55
E2573050	EQ573050	5.0	6	13	57
E2573055	EQ573055	5.5	6	13	57
E2573060	EQ573060	6.0	6	13	57
E2573065	EQ573065	6.5	10	16	66
E2573070	EQ573070	7.0	10	16	66
E2573075	EQ573075	7.5	10	16	66
E2573080	EQ573080	8.0	10	19	69
E2573085	EQ573085	8.5	10	19	69
E2573090	EQ573090	9.0	10	19	69
E2573095	EQ573095	9.5	10	19	69
E2573100	EQ573100	10.0	10	22	72
E2573120	EQ573120	12.0	12	26	83
E2573140	EQ573140	14.0	12	26	83
E2573150	EQ573150	15.0	12	26	83
E2573160	EQ573160	16.0	16	32	92
E2573180	EQ573180	18.0	16	32	92

**Tolerances according to DIN 7160 & 7161**

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.
- ▶ NEXT PAGE

	Tolerance range in µm					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

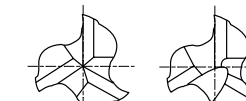


FLAT SHANK **E2573** SERIES

FLAT SHANK **EQ573** SERIES

**HSSCo8, 3 FLUTE SHORT LENGTH**

- HSSCo8, 3 SCHNEIDEN KURZ
- Fraise HSSCo8, 3 dents, courte
- 3 TAGLIENTI, SERIE CORTA - HSSCo8



Under Ø3mm Ø3mm or above



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER D118-137		POWER MILLING CHUCK D161-176	
		ER COLLET CHUCK D73-116	
		SK SLIM CHUCK D183-201	

Unit : mm

EDP No.	Mill Diameter	Shank Diameter		Length of Cut	Overall Length
		e8	h6		
UNCOATED	TiAlN				
E2573200	EQ573200	20.0	20	38	104
E2573220	EQ573220	22.0	20	38	104
E2573240	EQ573240	24.0	25	45	121
E2573250	EQ573250	25.0	25	45	121
E2573260	EQ573260	26.0	25	45	121
E2573280	EQ573280	28.0	25	45	121
E2573300	EQ573300	30.0	25	45	121
E2573320	EQ573320	32.0	32	53	133
E2573400	EQ573400	40.0	40	63	155

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in µm					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

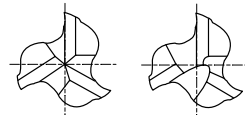




FLAT SHANK **E2516** SERIES  
FLAT SHANK **EQ516** SERIES

**HSSCo8, 3 FLUTE LONG LENGTH**

● **HSSCo8, 3 SCHNEIDEN LANG**  
● **Fraise HSSCo8, 3 dents, longue**  
● **3 TAGLIENTI, SERIE LUNGA - HSSCo8**



Up to Ø2.5mm Over Ø2.5mm



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter		Length of Cut	Overall Length
		e8	h6		
UNCOATED	TiAlN	e8	h6		
E2516020	EQ516020	2.0	6	10	54
E2516025	EQ516025	2.5	6	12	56
E2516030	EQ516030	3.0	6	12	56
E2516035	EQ516035	3.5	6	15	59
E2516040	EQ516040	4.0	6	19	63
E2516045	EQ516045	4.5	6	19	63
E2516050	EQ516050	5.0	6	24	68
E2516055	EQ516055	5.5	6	24	68
E2516060	EQ516060	6.0	6	24	68
E2516070	EQ516070	7.0	10	30	80
E2516075	EQ516075	7.5	10	30	80
E2516080	EQ516080	8.0	10	38	88
E2516090	EQ516090	9.0	10	38	88
E2516100	EQ516100	10.0	10	45	95
E2516110	EQ516110	11.0	12	45	102
E2516120	EQ516120	12.0	12	53	110
E2516130	EQ516130	13.0	12	53	110
E2516140	EQ516140	14.0	12	53	110
E2516150	EQ516150	15.0	12	53	110
E2516160	EQ516160	16.0	16	63	123
E2516170	EQ516170	17.0	16	63	123
E2516180	EQ516180	18.0	16	63	123
E2516190	EQ516190	19.0	16	63	123
E2516901	EQ516901	20.0	16	75	135

**Tolerances according to DIN 7160 & 7161**

▶ Other shank design on your request. ▶ NEXT PAGE  
▶ TiN and TiCN Coatings are available on your request.

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

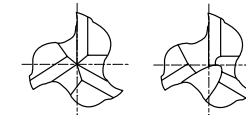
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2516** SERIES  
FLAT SHANK **EQ516** SERIES

**HSSCo8, 3 FLUTE LONG LENGTH**

● **HSSCo8, 3 SCHNEIDEN LANG**  
● **Fraise HSSCo8, 3 dents, longue**  
● **3 TAGLIENTI, SERIE LUNGA - HSSCo8**



Up to Ø2.5mm Over Ø2.5mm



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter		Length of Cut	Overall Length
		e8	h6		
UNCOATED	TiAlN	e8	h6		
E2516200	EQ516200	20.0	20	75	141
E2516220	EQ516220	22.0	20	75	141
E2516240	EQ516240	24.0	25	90	166
E2516250	EQ516250	25.0	25	90	166
E2516260	EQ516260	26.0	25	90	166
E2516280	EQ516280	28.0	25	90	166
E2516300	EQ516300	30.0	25	90	166
E2516320	EQ516320	32.0	32	106	186
E2516350	EQ516350	35.0	32	106	186
E2516360	EQ516360	36.0	32	106	186
E2516400	EQ516400	40.0	40	125	217

▶ Other shank design on your request.  
▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

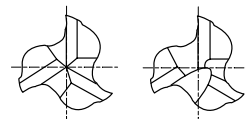
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2553** SERIES  
FLAT SHANK **EQ553** SERIES

**HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY**

● **HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER**  
 ( ) **Fraise HSSCo8, 3 dents à jeter, courte**  
 ( ) **3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8**



Up to Ø10mm Over Ø10mm



p.C680-687

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
					UNCOATED
E2553010	EQ553010	1.0	6	2	34
E2553013	EQ553013	1.3	6	3	34
E2553015	EQ553015	1.5	6	3	34
E2553018	EQ553018	1.8	6	3	34
E2553020	EQ553020	2.0	6	4	35
E2553023	EQ553023	2.3	6	4	35
E2553025	EQ553025	2.5	6	5	36
E2553028	EQ553028	2.8	6	5	36
E2553030	EQ553030	3.0	6	5	36
E2553033	EQ553033	3.3	6	6	37
E2553035	EQ553035	3.5	6	6	37
E2553038	EQ553038	3.8	6	7	38
E2553040	EQ553040	4.0	6	7	38
E2553043	EQ553043	4.3	6	7	38
E2553045	EQ553045	4.5	6	7	38
E2553048	EQ553048	4.8	6	8	39
E2553050	EQ553050	5.0	6	8	39
E2553053	EQ553053	5.3	6	8	39
E2553055	EQ553055	5.5	6	8	39
E2553957	EQ553957	5.8	6	8	39
E2553060	EQ553060	6.0	6	8	39
E2553065	EQ553065	6.5	8	10	42
E2553070	EQ553070	7.0	8	10	42
E2553075	EQ553075	7.5	8	10	42

► TiN and TiCN Coatings are available on your request.

► NEXT PAGE

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14	-20	-25	-32	-40	-50
	-28	-38	-47	-59	-73	-89
h6	0	0	0	0	0	0
	-6	-8	-9	-11	-13	-16

◎ : Excellent ○ : Good

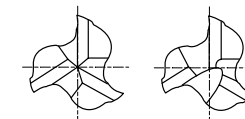
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2553** SERIES  
FLAT SHANK **EQ553** SERIES

**HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY**

● **HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER**  
 ( ) **Fraise HSSCo8, 3 dents à jeter, courte**  
 ( ) **3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8**



Up to Ø10mm Over Ø10mm



p.C680-687

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
					UNCOATED
E2553080	EQ553080	8.0	8	11	43
E2553085	EQ553085	8.5	10	11	48
E2553090	EQ553090	9.0	10	11	48
E2553095	EQ553095	9.5	10	11	48
E2553100	EQ553100	10.0	10	13	50
E2553120	EQ553120	12.0	12	16	58
E2553160	EQ553160	16.0	16	19	64
E2553200	EQ553200	20.0	20	22	78

► TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	-14	-20	-25	-32	-40	-50
	-28	-38	-47	-59	-73	-89
h6	0	0	0	0	0	0
	-6	-8	-9	-11	-13	-16

**SET ORDERING No.:**  
**E2SET553**  
 \* 12PCS. SET  
 SHORT LENGTH  
 - 2PCS. OF EACH SIZE  
 2, 3, 4, 5, 6mm (C3FSC)  
 - 1PC. OF EACH SIZE  
 8, 10mm (C3FSC)

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2554** SERIES  
FLAT SHANK **EQ554** SERIES

**HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY**

- HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER
- Fraise HSSCo8, 3 dents à jeter, longue
- 3 TAGLIENTI, SERIE LUNGA, NON RIAFFILABILE - HSSCo8



p.C680-687

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E2554015	EQ554015	1.5	6	35
E2554020	EQ554020	2.0	6	38
E2554025	EQ554025	2.5	6	39
E2554030	EQ554030	3.0	6	39
E2554035	EQ554035	3.5	6	41
E2554040	EQ554040	4.0	6	42
E2554045	EQ554045	4.5	6	42
E2554050	EQ554050	5.0	6	44
E2554055	EQ554055	5.5	6	44
E2554060	EQ554060	6.0	6	44
E2554065	EQ554065	6.5	8	48
E2554070	EQ554070	7.0	8	48
E2554075	EQ554075	7.5	8	48
E2554080	EQ554080	8.0	8	51
E2554085	EQ554085	8.5	10	56
E2554090	EQ554090	9.0	10	56
E2554095	EQ554095	9.5	10	56
E2554100	EQ554100	10.0	10	59

► TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu$ m					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
<b>e8</b>	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
<b>h6</b>	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**C662** phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

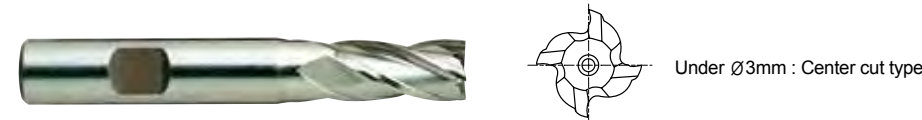
YG-1 CO., LTD.



FLAT SHANK **E2574** SERIES  
FLAT SHANK **EQ574** SERIES

**HSSCo8, 4 FLUTE SHORT LENGTH**

- HSSCo8, 4&6 SCHNEIDEN KURZ
- Fraise HSSCo8, 4&6 dents, courte
- HSSCo8, 4&6 TAGLIENTI, SERIE CORTA



p.C688-691

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
E2574020	EQ574020	2.0	6	51	4
E2574025	EQ574025	2.5	6	52	4
E2574030	EQ574030	3.0	6	52	4
E2574035	EQ574035	3.5	6	54	4
E2574040	EQ574040	4.0	6	55	4
E2574050	EQ574050	5.0	6	57	4
E2574060	EQ574060	6.0	6	57	4
E2574070	EQ574070	7.0	10	66	4
E2574080	EQ574080	8.0	10	69	4
E2574090	EQ574090	9.0	10	69	4
E2574100	EQ574100	10.0	10	72	4
E2574110	EQ574110	11.0	12	79	4
E2574120	EQ574120	12.0	12	83	4
E2574130	EQ574130	13.0	12	83	4
E2574140	EQ574140	14.0	12	83	4
E2574150	EQ574150	15.0	12	83	4
E2574160	EQ574160	16.0	16	92	4
E2574170	EQ574170	17.0	16	92	4
E2574180	EQ574180	18.0	16	92	4
E2574190	EQ574190	19.0	16	92	4
E2574200	EQ574200	20.0	20	104	4

► Other shank design on your request.  
► TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ + 0.04	h6

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	75	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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**C663**







FLAT SHANK **E2595** SERIES  
 FLAT SHANK **EQ595** SERIES

**HSSCo8, 4 FLUTE SHORT LENGTH - CENTER CUTTING**

- HSSCo8, 4&6 SCHNEIDEN KURZ
- Fraise HSSCo8, 4&6 dents, coupe au centre, courte
- 4 - 6 TAGLIENTI, SERIE CORTA, TAGLIENTE AL CENTRO - HSSCo8



HSS Co8 DIN 844 4 30° UNCOATED TiAlN p.C696-699

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E2595020	2.0	6	7	51
E2595030	3.0	6	8	52
E2595040	4.0	6	11	55
E2595050	5.0	6	13	57
E2595060	6.0	6	13	57
E2595070	7.0	10	16	66
E2595080	8.0	10	19	69
E2595090	9.0	10	19	69
E2595100	10.0	10	22	72
E2595110	11.0	12	22	79
E2595120	12.0	12	26	83
E2595130	13.0	12	26	83
E2595140	14.0	12	26	83
E2595150	15.0	12	26	83
E2595160	16.0	16	32	92
E2595170	17.0	16	32	92
E2595180	18.0	16	32	92
E2595190	19.0	16	32	92
E2595920	20.0	16	38	98
E2595200	20.0	20	38	104
E2595220	22.0	20	38	104
E2595250	25.0	25	45	121

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ + 0.04	h6

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



FLAT SHANK **E2597** SERIES  
 FLAT SHANK **EQ597** SERIES

**HSSCo8, 4 FLUTE LONG LENGTH - CENTER CUTTING**

- HSSCo8, 4&6 SCHNEIDEN LANG
- Fraise HSSCo8, 4&6 dents, coupe au centre, longue
- 4&6 TAGLIENTI, SERIE LUNGA, TAGLIENTE AL CENTRO - HSSCo8



HSS Co8 DIN 844 4 30° UNCOATED TiAlN p.C688-691

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E2597020	2.0	6	10	54
E2597025	2.5	6	12	56
E2597030	3.0	6	12	56
E2597035	3.5	6	15	59
E2597040	4.0	6	19	63
E2597045	4.5	6	19	63
E2597050	5.0	6	24	68
E2597055	5.5	6	24	68
E2597060	6.0	6	24	68
E2597070	7.0	10	30	80
E2597080	8.0	10	38	88
E2597090	9.0	10	38	88
E2597100	10.0	10	45	95
E2597110	11.0	12	45	102
E2597120	12.0	12	53	110
E2597130	13.0	12	53	110
E2597140	14.0	12	53	110
E2597150	15.0	12	53	110
E2597160	16.0	16	63	123
E2597170	17.0	16	63	123
E2597180	18.0	16	63	123
E2597190	19.0	16	63	123
E2597200	20.0	20	75	141

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ + 0.04
over Ø6	0 ~ + 0.05

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

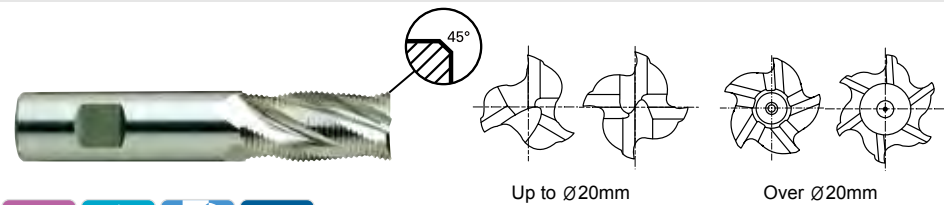
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



FLAT SHANK **E2753** SERIES  
FLAT SHANK **EQ753** SERIES

**HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE**

- HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
- Fraise HSSCo8, multi-dents ébauche, pas fin, courte
- MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO FINE - HSSCo8



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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

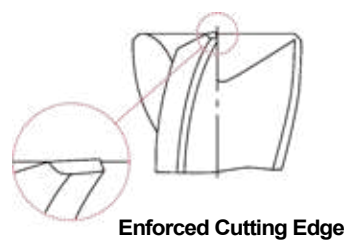
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer	
							UNCOATED
E2753060	EQ753060	6.0	6	13	57	3	0.18
E2753070	EQ753070	7.0	10	16	66	3	0.18
E2753080	EQ753080	8.0	10	19	69	3	0.18
E2753090	EQ753090	9.0	10	19	69	3	0.18
E2753100	EQ753100	10.0	10	22	72	4	0.18
E2753110	EQ753110	11.0	12	22	79	4	0.18
E2753120	EQ753120	12.0	12	26	83	4	0.18
E2753130	EQ753130	13.0	12	26	83	4	0.18
E2753140	EQ753140	14.0	12	26	83	4	0.25
E2753150	EQ753150	15.0	12	26	83	4	0.25
E2753160	EQ753160	16.0	16	32	92	4	0.25
E2753180	EQ753180	18.0	16	32	92	4	0.25
E2753200	EQ753200	20.0	20	38	104	4	0.25
E2753250	EQ753250	25.0	25	45	121	5	0.36
E2753280	EQ753280	28.0	25	45	121	6	0.36
E2753300	EQ753300	30.0	25	45	121	6	0.36
E2753320	EQ753320	32.0	32	53	133	6	0.51
E2753350	EQ753350	35.0	32	53	133	6	0.51
E2753400	EQ753400	40.0	32	63	155	6	0.56

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	$\pm 50$	$\pm 60$	$\pm 75$	$\pm 90$	$\pm 105$	$\pm 125$
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



Enforced Cutting Edge

◎ : Excellent ○ : Good

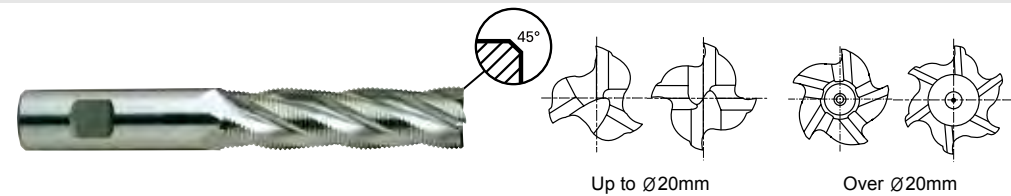
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	3	25	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2762** SERIES  
FLAT SHANK **EQ762** SERIES

**HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - FINE**

- HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN
- Fraise HSSCo8, multi-dents ébauche, pas fin, longue
- MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO FINE - HSSCo8



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Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

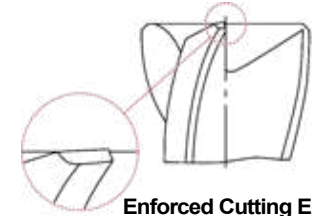
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer	
							UNCOATED
E2762060	EQ762060	6.0	6	24	68	3	0.18
E2762070	EQ762070	7.0	10	30	80	3	0.18
E2762080	EQ762080	8.0	10	38	88	3	0.18
E2762090	EQ762090	9.0	10	38	88	3	0.18
E2762100	EQ762100	10.0	10	45	95	4	0.18
E2762110	EQ762110	11.0	12	45	102	4	0.18
E2762120	EQ762120	12.0	12	53	110	4	0.18
E2762130	EQ762130	13.0	12	53	110	4	0.18
E2762140	EQ762140	14.0	12	53	110	4	0.25
E2762150	EQ762150	15.0	12	53	110	4	0.25
E2762160	EQ762160	16.0	16	63	123	4	0.25
E2762170	EQ762170	17.0	16	63	123	4	0.25
E2762180	EQ762180	18.0	16	63	123	4	0.25
E2762190	EQ762190	19.0	16	63	123	4	0.25
E2762200	EQ762200	20.0	20	75	141	4	0.25
E2762220	EQ762220	22.0	20	75	141	5	0.36
E2762240	EQ762240	24.0	25	90	166	5	0.36
E2762250	EQ762250	25.0	25	90	166	5	0.36
E2762260	EQ762260	26.0	25	90	166	6	0.36
E2762280	EQ762280	28.0	25	90	166	6	0.36
E2762300	EQ762300	30.0	25	90	166	6	0.36
E2762320	EQ762320	32.0	32	106	186	6	0.51
E2762350	EQ762350	35.0	32	106	186	6	0.51
E2762360	EQ762360	36.0	32	106	186	6	0.56
E2762380	EQ762380	38.0	32	125	217	6	0.56
E2762400	EQ762400	40.0	32	125	217	6	0.56
E2762940	EQ762940	40.0	40	125	217	6	0.56

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	$\pm 50$	$\pm 60$	$\pm 75$	$\pm 90$	$\pm 105$	$\pm 125$
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	38	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	3	25	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





FLAT SHANK **E2755** SERIES

**HSSCo8, 3 FLUTE 37° HELIX SHORT LENGTH ROUGHING for ALUMINUM**

- HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE KURZ SCHRUPPFÄRÄSER für ALUMINIUM
- Fraise HSSCo8, 3 dents, ébauche pour aluminium, hélice 37°, courte
- 3 TAGLIENTI, ELICA 37°, PER SGROSSATURA, SERIE CORTA - HSSCo8

for ALUMINIUM  
für ALUMINIUM



HSS Co8
DIN 844
WR
3
37°
DIN 1835B

C x 45°
UNCOATED
TiAIN

p.C700-701

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

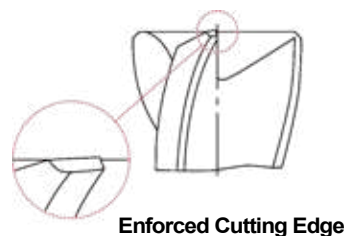
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
UNCOATED	js12	h6			
E2755060	6.0	6	13	57	0.51
E2755080	8.0	10	19	69	0.51
E2755100	10.0	10	22	72	0.60
E2755120	12.0	12	26	83	0.74
E2755140	14.0	12	26	83	0.94
E2755160	16.0	16	32	92	0.94
E2755180	18.0	16	32	92	0.94
E2755200	20.0	20	38	104	0.94
E2755220	22.0	20	38	104	0.94
E2755250	25.0	25	45	121	0.94
E2755300	30.0	25	45	121	1.23

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	○	○	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

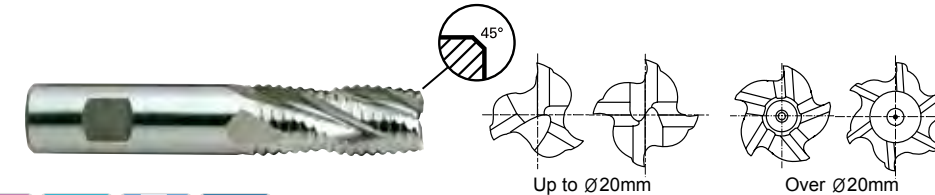
ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



FLAT SHANK **E2751** SERIES  
FLAT SHANK **EQ751** SERIES

**HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE**

- HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFÄRÄSER - GROB
- Fraise HSSCo8, multi-dents ébauche, pas grossier, courte
- MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO GROSSO - HSSCo8



HSS Co8
DIN 844
NR
3-6
30°
DIN 1835B

~Ø20
Ø22-
C x 45°
UNCOATED
TiAIN

p.C692-695

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

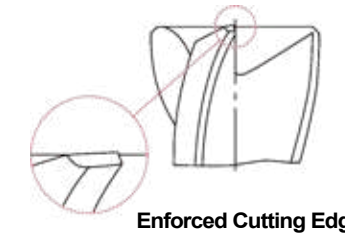
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TiAIN	js12	h6			
E2751060	EQ751060	6.0	6	13	57	3
E2751070	EQ751070	7.0	10	16	66	3
E2751080	EQ751080	8.0	10	19	69	3
E2751090	EQ751090	9.0	10	19	69	3
E2751095	EQ751095	9.5	10	19	69	3
E2751100	EQ751100	10.0	10	22	72	4
E2751110	EQ751110	11.0	12	22	79	4
E2751120	EQ751120	12.0	12	26	83	4
E2751125	EQ751125	12.5	12	26	83	4
E2751130	EQ751130	13.0	12	26	83	4
E2751140	EQ751140	14.0	12	26	83	4
E2751145	EQ751145	14.5	12	26	83	4
E2751150	EQ751150	15.0	12	26	83	4
E2751160	EQ751160	16.0	16	32	92	4
E2751170	EQ751170	17.0	16	32	92	4
E2751180	EQ751180	18.0	16	32	92	4
E2751190	EQ751190	19.0	16	32	92	4
E2751200	EQ751200	20.0	20	38	104	4
E2751901	EQ751901	20.0	16	38	98	4
E2751220	EQ751220	22.0	20	38	104	5

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

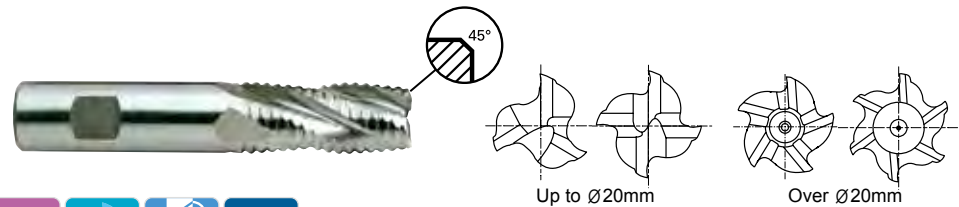




FLAT SHANK **E2751** SERIES  
FLAT SHANK **EQ751** SERIES

**HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE**

● **HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB**  
 ( ) **Fraise HSSCo8, multi-dents ébauche, pas grossier, courte**  
 ( ) **MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO GROSSO - HSSCo8**



p.C692-695

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

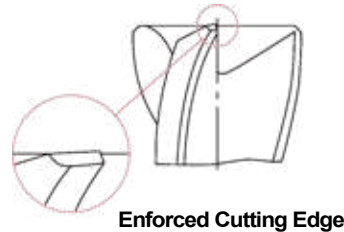
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer	
							UNCOATED
E2751240	EQ751240	24.0	25	45	121	5	0.55
E2751250	EQ751250	25.0	25	45	121	5	0.55
E2751260	EQ751260	26.0	25	45	121	6	0.55
E2751280	EQ751280	28.0	25	45	121	6	0.70
E2751300	EQ751300	30.0	25	45	121	6	0.70
E2751320	EQ751320	32.0	32	53	133	6	0.70
E2751340	EQ751340	34.0	32	53	133	6	0.70
E2751350	EQ751350	35.0	32	53	133	6	0.70
E2751360	EQ751360	36.0	32	53	133	6	0.70
E2751380	EQ751380	38.0	32	63	155	6	0.70
E2751938	EQ751938	38.0	40	63	155	6	0.70
E2751400	EQ751400	40.0	32	63	155	6	0.88
E2751940	EQ751940	40.0	40	63	155	6	0.88
E2751450	EQ751450	45.0	32	63	143	6	0.88
E2751500	EQ751500	50.0	50	75	177	6	0.88

▶ Other shank design on your request.  
 ▶ TiN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu$ m					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0	0	0	0	0	0
	-6	-8	-9	-11	-13	-16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**C670** phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

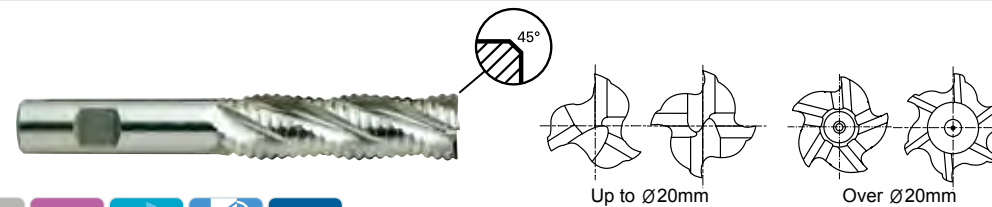
YG-1 CO., LTD.



FLAT SHANK **E2752** SERIES  
FLAT SHANK **EQ752** SERIES

**HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE**

● **HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - GROB**  
 ( ) **Fraise HSSCo8, multi-dents ébauche, pas grossier, longue**  
 ( ) **MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSSCo8**



p.C692-695

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

Unit : mm

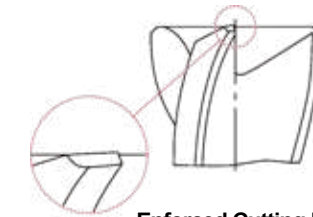
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer	
							UNCOATED
E2752060	EQ752060	6.0	6	24	68	3	0.25
E2752070	EQ752070	7.0	10	30	80	3	0.25
E2752080	EQ752080	8.0	10	38	88	3	0.25
E2752090	EQ752090	9.0	10	38	88	3	0.34
E2752100	EQ752100	10.0	10	45	95	4	0.34
E2752110	EQ752110	11.0	12	45	102	4	0.50
E2752120	EQ752120	12.0	12	53	110	4	0.50
E2752130	EQ752130	13.0	12	53	110	4	0.50
E2752140	EQ752140	14.0	12	53	110	4	0.55
E2752150	EQ752150	15.0	12	53	110	4	0.55
E2752160	EQ752160	16.0	16	63	123	4	0.55
E2752170	EQ752170	17.0	16	63	123	4	0.55
E2752180	EQ752180	18.0	16	63	123	4	0.55
E2752190	EQ752190	19.0	16	63	123	4	0.55
E2752200	EQ752200	20.0	20	75	141	4	0.55
E2752901	EQ752901	20.0	16	75	135	4	0.55
E2752220	EQ752220	22.0	20	75	141	5	0.55
E2752902	EQ752902	22.0	25	75	151	5	0.55

▶ Other shank design on your request.  
 ▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu$ m					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0	0	0	0	0	0
	-6	-8	-9	-11	-13	-16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**C671** phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

YG-1 CO., LTD.

YG-1 CO., LTD.

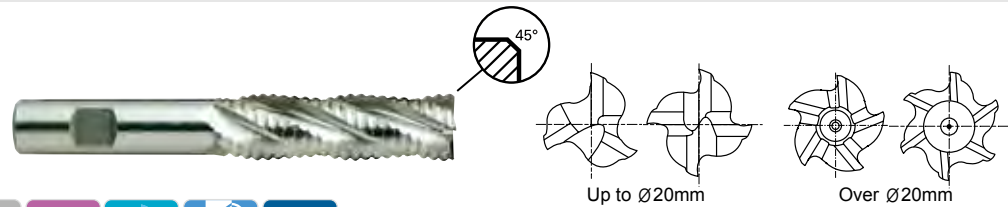


FLAT SHANK **E2752** SERIES

FLAT SHANK **EQ752** SERIES

**HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE**

- HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - GROB
- Fraise HSSCo8, multi-dents ébauche, pas grossier, longue
- MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSSCo8



p.C692-695

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118-137	POWER MILLING CHUCK	D161-176
		ER COLLET CHUCK	D73-116
		SK SLIM CHUCK	D183-201

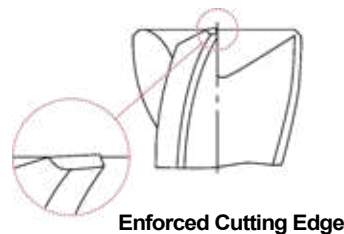
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
E2752240	24.0	25	90	166	5	0.55
E2752250	25.0	25	90	166	5	0.55
E2752260	26.0	25	90	166	6	0.55
E2752280	28.0	25	90	166	6	0.70
E2752300	30.0	25	90	166	6	0.70
E2752320	32.0	32	106	186	6	0.70
E2752350	35.0	32	106	186	6	0.70
E2752360	36.0	32	106	186	6	0.70
E2752380	38.0	32	125	217	6	0.70
E2752938	38.0	40	125	217	6	0.70
E2752400	40.0	32	125	217	6	0.88
E2752940	40.0	40	125	217	6	0.88

- Other shank design on your request.
- TIN and TiCN Coatings are available on your request.

**Tolerances according to DIN 7160 & 7161**

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	$\pm 50$	$\pm 60$	$\pm 75$	$\pm 90$	$\pm 105$	$\pm 125$
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



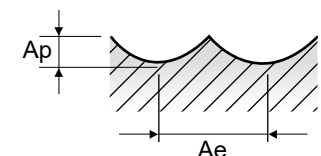
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2535, E2492** SERIES 2 FLUTE BALL NOSE

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0		
P	1	Non-alloy steel	0.7D	0.3D	Vc	40	40	40	40	40	40	40	40	40	40	40
					fz	0.011	0.018	0.031	0.05	0.069	0.085	0.094	0.117	0.13		
					RPM	4244	3183	2122	1592	1273	1061	796	637	509		
	2		0.7D	0.3D	Vc	30	30	30	30	30	30	30	30	30	30	30
					fz	0.01	0.017	0.026	0.044	0.06	0.066	0.083	0.085	0.088		
					RPM	3183	2387	1592	1194	955	796	597	477	382		
	3-4		0.7D	0.3D	Vc	20	20	20	20	20	15	20	20	20	15	
					fz	0.008	0.013	0.023	0.036	0.054	0.061	0.079	0.083	0.091		
					RPM	2122	1592	1061	796	637	398	398	318	191		
	5		0.7D	0.3D	Vc	15	15	15	15	15	10	15	15	15	15	
					fz	0.007	0.013	0.018	0.03	0.044	0.055	0.07	0.088	0.094		
RPM		1592			1194	796	597	477	265	298	239	191				
6	0.7D	0.3D	Vc	30	30	30	30	30	30	30	30	30	30			
			fz	0.01	0.017	0.026	0.044	0.06	0.066	0.083	0.085	0.088				
			RPM	3183	2387	1592	1194	955	796	597	477	382				
7	0.7D	0.3D	Vc	20	20	20	20	20	15	20	20	15				
			fz	0.008	0.013	0.023	0.036	0.054	0.061	0.079	0.083	0.091				
			RPM	2122	1592	1061	796	637	398	398	318	191				
8-9	0.7D	0.3D	Vc	15	15	15	15	15	10	15	15	15				
			fz	0.007	0.013	0.018	0.03	0.044	0.055	0.07	0.088	0.094				
			RPM	1592	1194	796	597	477	265	298	239	191				
10	0.7D	0.3D	Vc	30	30	30	30	30	30	30	30	30	30			
			fz	0.01	0.017	0.026	0.044	0.06	0.066	0.083	0.085	0.088				
			RPM	3183	2387	1592	1194	955	796	597	477	382				
11.1	0.7D	0.3D	Vc	15	15	15	15	15	10	15	15	15				
			fz	0.007	0.013	0.018	0.03	0.044	0.055	0.07	0.088	0.094				
			RPM	1592	1194	796	597	477	265	298	239	191				
N	21-22	Aluminum-wrought alloy	0.7D	0.3D	Vc	105	100	105	100	100	95	100	100	100		
					fz	0.01	0.016	0.025	0.044	0.056	0.068	0.075	0.088	0.096		
					RPM	11141	7958	5570	3979	3183	2520	1989	1592	1273		
23-24	Aluminum-cast, alloyed	0.7D	0.3D	Vc	68	65	68	65	65	62	65	65	65			
				fz	0.01	0.016	0.025	0.044	0.056	0.068	0.075	0.088	0.096			
				RPM	7215	5173	3608	2586	2069	1645	1293	1035	828			
					FEED	144	166	180	228	232	224	194	182	159		

※The FEED, in long & extra long types, should be reduced by around 50%





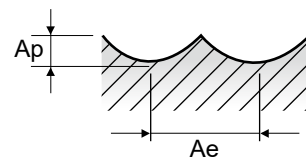
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**EQ535, EQ492 SERIES** 2 FLUTE BALL NOSE TIAN COATED

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0	
P	1	Non-alloy steel	0.7D	0.3D	Vc	60	55	60	55	55	55	55	55	55	55
					fz	0.011	0.018	0.031	0.05	0.069	0.086	0.095	0.115	0.129	
					RPM	6366	4377	3183	2188	1751	1459	1094	875	700	
					FEED	140	158	197	219	242	251	208	201	181	
	2		Vc	45	40	45	45	45	40	45	45	45			
			fz	0.011	0.016	0.026	0.043	0.061	0.066	0.082	0.086	0.091			
			RPM	4775	3183	2387	1790	1432	1061	895	716	573			
	3-4		Vc	25	25	25	25	25	25	25	25	25			
			fz	0.007	0.013	0.023	0.035	0.053	0.058	0.075	0.088	0.092			
			RPM	2653	1989	1326	995	796	663	497	398	318			
	5		Vc	20	20	20	20	15	15	20	20	15			
fz		0.008	0.013	0.018	0.029	0.045	0.056	0.071	0.083	0.1					
RPM		2122	1592	1061	796	477	398	398	318	191					
6	Vc	45	40	45	45	45	40	45	45	45					
	fz	0.011	0.016	0.026	0.043	0.061	0.066	0.082	0.086	0.091					
	RPM	4775	3183	2387	1790	1432	1061	895	716	573					
7	Vc	25	25	25	25	25	25	25	25	25					
	fz	0.007	0.013	0.023	0.035	0.053	0.058	0.075	0.088	0.092					
	RPM	2653	1989	1326	995	796	663	497	398	318					
8-9	Vc	20	20	20	20	15	15	20	20	15					
	fz	0.008	0.013	0.018	0.029	0.045	0.056	0.071	0.083	0.1					
	RPM	2122	1592	1061	796	477	398	398	318	191					
10	Vc	45	40	45	45	45	40	45	45	45					
	fz	0.011	0.016	0.026	0.043	0.061	0.066	0.082	0.086	0.091					
	RPM	4775	3183	2387	1790	1432	1061	895	716	573					
11.1	Vc	20	20	20	20	15	15	20	20	15					
	fz	0.008	0.013	0.018	0.029	0.045	0.056	0.071	0.083	0.1					
	RPM	2122	1592	1061	796	477	398	398	318	191					
N	21-22	Aluminum-wrought alloy	0.7D	0.3D	Vc	145	140	150	140	140	130	140	140		
					fz	0.01	0.016	0.025	0.044	0.056	0.068	0.075	0.087	0.097	
	RPM		15385	11141	7958	5570	4456	3448	2785	2228	1783				
	FEED		308	357	398	490	499	469	418	388	346				
	23-24		Aluminum-cast, alloyed	Vc	94	91	98	91	91	85	91	91			
fz		0.01		0.016	0.025	0.044	0.056	0.068	0.075	0.087	0.097				
RPM		9974		7242	5199	3621	2897	2255	1810	1448	1159				
FEED	199	232	260	319	324	307	272	252	225						

※The FEED, in long & extra long types, should be reduced by around 50%

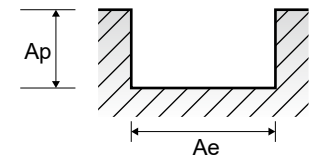


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**EL612 SERIES** 1 FLUTE - SLOTTING

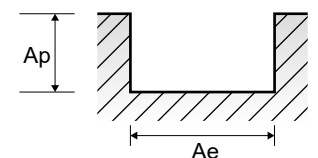
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						3.0	4.0	5.0	6.0	7.0	8.0	10.0
N	21-22	Aluminum-wrought alloy	1.0D	0.5D (~Ø:0.2D)	Vc	188	226	220	207	220	214	220
					fz	0.055	0.053	0.054	0.055	0.055	0.053	0.054
					RPM	19947	17985	14006	10982	10004	8515	7003
					FEED	1097	953	756	604	550	451	378
23-24	Aluminum-cast, alloyed	1.0D	0.5D (~Ø:0.2D)	Vc	122	147	143	135	143	139	143	
				fz	0.055	0.053	0.054	0.055	0.055	0.053	0.054	
				RPM	12945	11698	9104	7162	6503	5531	4552	
				FEED	712	620	492	394	358	293	246	



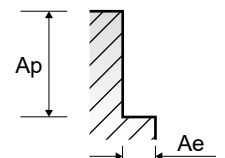
**E2464, E2509 SERIES** 2 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	75	130	150	155	190	155	175	130	145	
					fz	0.035	0.05	0.071	0.12	0.12	0.177	0.177	0.283	0.283	
					RPM	7958	6897	5968	4934	5040	3524	3482	2299	2308	
					FEED	557	690	848	1184	1210	1248	1232	1301	1306	
23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	49	85	98	101	124	101	114	85	94		
				fz	0.035	0.05	0.071	0.12	0.12	0.177	0.177	0.283	0.283		
				RPM	5199	4509	3899	3215	3289	2296	2268	1503	1496		
				FEED	364	451	554	772	789	813	803	851	847		



**E2464, E2509 SERIES** 2 FLUTE - SITE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	
N	21-22	Aluminum-wrought alloy	Ø3~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	75	130	150	155	190	155	175	130	145	
					fz	0.046	0.064	0.092	0.15	0.15	0.229	0.229	0.37	0.37	
					RPM	7958	6897	5968	4934	5040	3524	3482	2299	2308	
					FEED	732	883	1098	1480	1512	1614	1595	1701	1708	
23-24	Aluminum-cast, alloyed	Ø3~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	49	85	98	101	124	101	114	85	94		
				fz	0.046	0.064	0.092	0.15	0.15	0.229	0.229	0.37	0.37		
				RPM	5199	4509	3899	3215	3289	2296	2268	1503	1496		
				FEED	478	577	717	964	987	1052	1039	1112	1107		





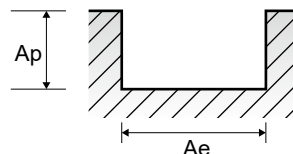
**E2570, E2571, E2510 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	35	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.061
					RPM	5570	3714	2785	2228	1857	1393	1114	928
	2		1.0D	0.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.003	0.007	0.013	0.019	0.025	0.041	0.05	0.063
					RPM	4775	3183	2387	1910	1592	1194	955	796
	3-4		1.0D	0.5D	Vc	25	25	25	25	25	25	25	25
					fz	0.004	0.008	0.013	0.019	0.025	0.039	0.05	0.063
					RPM	3979	2653	1989	1592	1326	995	796	663
	5		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.003	0.006	0.014	0.019	0.025	0.04	0.05	0.063
RPM		2387			1592	1194	955	796	597	477	398		
6	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30		
			fz	0.003	0.007	0.013	0.019	0.025	0.041	0.05	0.063		
			RPM	4775	3183	2387	1910	1592	1194	955	796		
7	1.0D	0.5D	Vc	25	25	25	25	25	25	25	25		
			fz	0.004	0.008	0.013	0.019	0.025	0.039	0.05	0.063		
			RPM	3979	2653	1989	1592	1326	995	796	663		
8-9	1.0D	0.5D	Vc	15	15	15	15	15	15	15	15		
			fz	0.003	0.006	0.014	0.019	0.025	0.04	0.05	0.063		
			RPM	2387	1592	1194	955	796	597	477	398		
10	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30		
			fz	0.003	0.007	0.013	0.019	0.025	0.041	0.05	0.063		
			RPM	4775	3183	2387	1910	1592	1194	955	796		
11.1	1.0D	0.5D	Vc	15	15	15	15	15	15	15	15		
			fz	0.003	0.006	0.014	0.019	0.025	0.04	0.05	0.063		
			RPM	2387	1592	1194	955	796	597	477	398		
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	75	105	100	100	105	100	95	95
					fz	0.007	0.011	0.018	0.025	0.028	0.049	0.065	0.076
					RPM	11937	11141	7958	6366	5570	3979	3024	2520
23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	49	68	65	65	68	65	62	62	
				fz	0.007	0.011	0.018	0.025	0.028	0.049	0.065	0.076	
				RPM	7799	7215	5173	4138	3608	2586	1974	1645	
FEED	109	159	186	207	202	253	257	250					

※The FEED, in long & extra long types, should be reduced by around 50%

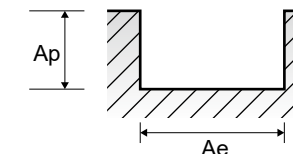
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**E2570, E2571, E2510 SERIES 2 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)										
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35
	fz	0.069	0.079	0.079	0.089	0.1	0.1	0.1	0.1	0.1	0.097	0.107
	RPM	796	696	619	557	506	446	398	371	348	309	279
2	Vc	30	30	30	30	30	30	30	30	30	30	30
	fz	0.064	0.08	0.09	0.1	0.1	0.1	0.097	0.098	0.1	0.098	0.1
	RPM	682	597	531	477	434	382	341	318	298	265	239
3-4	Vc	25	25	25	25	25	25	25	25	25	25	25
	fz	0.071	0.078	0.088	0.088	0.1	0.097	0.098	0.1	0.102	0.1	0.111
	RPM	568	497	442	398	362	318	284	265	199	221	199
5	Vc	15	15	15	15	15	15	15	15	15	15	15
	fz	0.071	0.08	0.09	0.102	0.102	0.097	0.094	0.094	0.107	0.104	0.114
	RPM	341	298	265	239	217	191	171	159	149	133	119
6	Vc	30	30	30	30	30	30	30	30	30	30	30
	fz	0.064	0.08	0.09	0.1	0.1	0.1	0.097	0.098	0.1	0.114	0.114
	RPM	682	597	531	477	434	382	341	318	298	265	239
7	Vc	25	25	25	25	25	25	25	25	25	25	25
	fz	0.071	0.078	0.088	0.088	0.1	0.097	0.098	0.1	0.102	0.1	0.111
	RPM	568	497	442	398	362	318	284	265	199	221	199
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15
	fz	0.071	0.08	0.09	0.102	0.102	0.097	0.094	0.094	0.107	0.104	0.114
	RPM	341	298	265	239	217	191	171	159	149	133	119
10	Vc	30	30	30	30	30	30	30	30	30	30	30
	fz	0.064	0.08	0.09	0.1	0.1	0.1	0.097	0.098	0.1	0.114	0.114
	RPM	682	597	531	477	434	382	341	318	298	265	239
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15
	fz	0.071	0.08	0.09	0.102	0.102	0.097	0.094	0.094	0.107	0.104	0.114
	RPM	341	298	265	239	217	191	171	159	149	133	119
21-22	Vc	95	100	100	100	95	95	95	95	105	100	100
	fz	0.08	0.088	0.097	0.1	0.107	0.117	0.123	0.123	0.12	0.122	0.125
	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	884	796
23-24	Vc	62	65	65	65	62	62	62	62	68	65	65
	fz	0.08	0.088	0.097	0.1	0.107	0.117	0.123	0.123	0.12	0.122	0.125
	RPM	1410	1293	1149	1035	897	789	705	722	647	575	517
FEED	226	228	223	207	192	185	173	177	155	140	129	



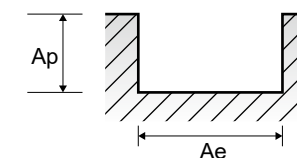
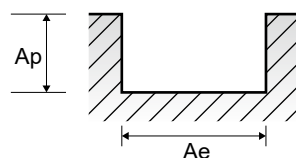
**EQ570, EQ571, EQ510 SERIES** 2 FLUTE TiAlN COATED - **SLOTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	50	45	50	50	45	50	50	45
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.062
					RPM	7958	4775	3979	3183	2387	1989	1592	1194
	2		Vc	40	40	40	40	40	40	40	40		
			fz	0.003	0.007	0.012	0.02	0.024	0.04	0.05	0.064		
			RPM	6366	4244	3183	2546	2122	1592	1273	1061		
	3-4		Vc	35	35	30	35	30	30	35	35		
			fz	0.004	0.008	0.013	0.019	0.025	0.04	0.05	0.061		
			RPM	5570	3714	2387	2228	1592	1194	1114	928		
	5		Vc	20	20	20	20	20	20	20	20		
			fz	0.003	0.007	0.013	0.02	0.025	0.041	0.05	0.064		
RPM		3183	2122	1592	1273	1061	796	637	531				
6	Vc	40	40	40	40	40	40	40	40				
	fz	0.003	0.007	0.012	0.02	0.024	0.04	0.05	0.064				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
7	Vc	35	35	30	35	30	30	35	35				
	fz	0.004	0.008	0.013	0.019	0.025	0.04	0.05	0.061				
	RPM	5570	3714	2387	2228	1592	1194	1114	928				
8-9	Vc	20	20	20	20	20	20	20	20				
	fz	0.003	0.007	0.013	0.02	0.025	0.041	0.05	0.064				
	RPM	3183	2122	1592	1273	1061	796	637	531				
10	Vc	40	40	40	40	40	40	40	40				
	fz	0.003	0.007	0.012	0.02	0.024	0.04	0.05	0.064				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
11.1	Vc	20	20	20	20	20	20	20	20				
	fz	0.003	0.007	0.013	0.02	0.025	0.041	0.05	0.064				
	RPM	3183	2122	1592	1273	1061	796	637	531				
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	105	145	140	140	150	140	135	130
					fz	0.007	0.011	0.018	0.025	0.028	0.049	0.064	0.076
					RPM	16711	15385	11141	8913	7958	5570	4297	3448
23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	68	94	91	91	98	91	88	85	
				fz	0.007	0.011	0.018	0.025	0.028	0.049	0.064	0.076	
				RPM	10823	9974	7242	5793	5199	3621	2801	2255	

※The FEED, in long & extra long types, should be reduced by around 50%

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**EQ570, EQ571, EQ510 SERIES** 2 FLUTE TiAlN COATED - **SLOTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)										
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50
	fz	0.07	0.078	0.078	0.088	0.1	0.096	0.1	0.1	0.1	0.094	0.106
	RPM	1137	995	884	796	723	637	568	477	442	442	398
2	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.063	0.078	0.089	0.096	0.096	0.1	0.1	0.094	0.094	0.1	0.117
	RPM	1023	796	707	637	651	573	512	424	398	354	318
3-4	Vc	35	35	30	35	35	35	35	30	30	35	30
	fz	0.069	0.077	0.091	0.091	0.1	0.094	0.094	0.1	0.108	0.092	0.11
	RPM	796	696	531	557	506	446	398	371	298	309	239
5	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.07	0.081	0.093	0.108	0.108	0.1	0.1	0.1	0.1	0.117	0.117
	RPM	455	398	354	318	289	255	227	199	133	159	159
6	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.063	0.078	0.089	0.096	0.096	0.1	0.1	0.094	0.094	0.1	0.117
	RPM	1023	796	707	637	651	573	512	424	398	354	318
7	Vc	35	35	30	35	35	35	35	30	30	35	30
	fz	0.069	0.077	0.091	0.091	0.1	0.094	0.094	0.1	0.108	0.092	0.11
	RPM	796	696	531	557	506	446	398	371	298	309	239
8-9	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.07	0.081	0.093	0.108	0.108	0.1	0.1	0.1	0.1	0.117	0.117
	RPM	455	398	354	318	289	255	227	199	133	159	159
10	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.063	0.078	0.089	0.096	0.096	0.1	0.1	0.094	0.094	0.1	0.117
	RPM	1023	796	707	637	651	573	512	424	398	354	318
11.1	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.07	0.081	0.093	0.108	0.108	0.1	0.1	0.1	0.1	0.117	0.117
	RPM	455	398	354	318	289	255	227	199	133	159	159
21-22	Vc	135	140	140	140	135	135	135	145	140	140	140
	fz	0.079	0.088	0.098	0.1	0.108	0.115	0.123	0.123	0.12	0.124	0.127
	RPM	3069	2785	2476	2228	1953	1719	1535	1538	1393	1238	1114
23-24	Vc	88	91	91	91	88	88	88	94	91	91	91
	fz	0.079	0.088	0.098	0.1	0.108	0.115	0.123	0.123	0.12	0.124	0.127
	RPM	2001	1810	1609	1448	1273	1120	1000	997	905	805	724

**E2572, E2573, E2516, E2553, E2554** SERIES

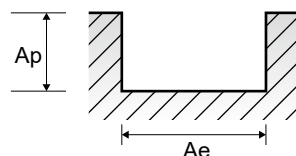
**3 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
P	1	Non-alloy steel	1.0D	0.5D	Vc	35	35	35	35	35	35	35	35	35
					fz	0.002	0.005	0.007	0.012	0.015	0.021	0.027	0.037	
					RPM	5570	3714	2785	2228	1857	1393	1114	928	
	2		1.0D	0.5D	Vc	30	30	30	30	30	30	30	30	30
					fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033	
					RPM	4775	3183	2387	1910	1592	1194	955	796	
	3-4		1.0D	0.5D	Vc	25	25	25	25	25	25	25	25	25
					fz	0.002	0.003	0.006	0.008	0.011	0.019	0.023	0.029	
					RPM	3979	2653	1989	1592	1326	995	796	663	
	5		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15	15
					fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029	
RPM		2387			1592	1194	955	796	597	477	398			
6	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30	30		
			fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033			
			RPM	4775	3183	2387	1910	1592	1194	955	796			
7	1.0D	0.5D	Vc	25	25	25	25	25	25	25	25	25		
			fz	0.002	0.003	0.006	0.008	0.011	0.019	0.023	0.029			
			RPM	3979	2653	1989	1592	1326	995	796	663			
8-9	1.0D	0.5D	Vc	15	15	15	15	15	15	15	15	15		
			fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029			
			RPM	2387	1592	1194	955	796	597	477	398			
10	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30	30		
			fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033			
			RPM	4775	3183	2387	1910	1592	1194	955	796			
11.1	1.0D	0.5D	Vc	15	15	15	15	15	15	15	15	15		
			fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029			
			RPM	2387	1592	1194	955	796	597	477	398			
21-22	1.0D	0.5D	Vc	75	105	100	100	105	100	95	95	95		
			fz	0.003	0.005	0.008	0.011	0.013	0.022	0.029	0.035			
			RPM	11937	11141	7958	6366	5570	3979	3024	2520			
23-24	1.0D	0.5D	Vc	49	68	65	65	68	65	62	62	62		
			fz	0.003	0.005	0.008	0.011	0.013	0.022	0.029	0.035			
			RPM	7799	7215	5173	4138	3608	2586	1974	1645			
FEED						70	108	124	137	141	171	172	173	

※The FEED, in long & extra long types, should be reduced by around 50%

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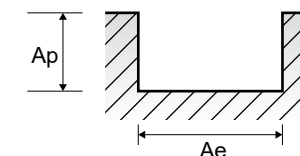


**E2572, E2573, E2516, E2553, E2554** SERIES

**3 FLUTE - SLOTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)												
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0	
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.042	0.048	0.048	0.054	0.06	0.059	0.058	0.057	0.057	0.057	0.059	0.065	
	RPM	796	696	619	557	506	446	398	371	348	318	309	279	
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061	
	RPM	682	597	531	477	434	382	341	318	298	273	265	239	
3-4	Vc	25	25	25	25	25	25	25	25	25	25	25	25	
	fz	0.033	0.037	0.042	0.042	0.048	0.043	0.042	0.04	0.045	0.04	0.042	0.046	
	RPM	568	497	442	398	362	318	284	265	199	227	221	199	
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045	
	RPM	341	298	265	239	217	191	171	159	149	136	133	119	
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061	
	RPM	682	597	531	477	434	382	341	318	298	273	265	239	
7	Vc	25	25	25	25	25	25	25	25	25	25	25	25	
	fz	0.033	0.037	0.042	0.042	0.048	0.043	0.042	0.04	0.045	0.04	0.042	0.046	
	RPM	568	497	442	398	362	318	284	265	199	227	221	199	
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045	
	RPM	341	298	265	239	217	191	171	159	149	136	133	119	
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061	
	RPM	682	597	531	477	434	382	341	318	298	273	265	239	
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045	
	RPM	341	298	265	239	217	191	171	159	149	136	133	119	
21-22	Vc	95	100	100	100	95	95	95	105	100	105	100	100	
	fz	0.036	0.04	0.044	0.046	0.048	0.053	0.055	0.055	0.053	0.053	0.056	0.054	
	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	955	884	796	
23-24	Vc	62	65	65	65	62	62	62	68	65	68	65	65	
	fz	0.036	0.04	0.044	0.046	0.048	0.053	0.055	0.055	0.053	0.053	0.056	0.054	
	RPM	1410	1293	1149	1035	897	789	705	722	647	618	575	517	
FEED		152	155	152	143	129	126	116	119	103	98	97	84	







**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2572, E2573, E2516, E2553, E2554 SERIES**

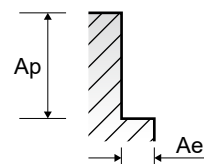
**3 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
P	1	Non-alloy steel	0.1D	1.5D	Vc	35	35	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.061	
					RPM	5570	3714	2785	2228	1857	1393	1114	928	
	2		Vc	30	30	30	30	30	30	30	30	30	30	
			fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056			
			RPM	4775	3183	2387	1910	1592	1194	955	796			
	3-4		Vc	25	25	25	25	25	25	25	25	25	25	
			fz	0.003	0.006	0.009	0.014	0.018	0.03	0.038	0.048			
			RPM	3979	2653	1989	1592	1326	995	796	663			
	5		Vc	15	15	15	15	15	15	15	15	15	15	
			fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046			
RPM		2387	1592	1194	955	796	597	477	398					
6	Vc	30	30	30	30	30	30	30	30	30	30			
	fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056					
	RPM	4775	3183	2387	1910	1592	1194	955	796					
7	Vc	25	25	25	25	25	25	25	25	25	25			
	fz	0.003	0.006	0.009	0.014	0.018	0.03	0.038	0.048					
	RPM	3979	2653	1989	1592	1326	995	796	663					
8-9	Vc	15	15	15	15	15	15	15	15	15	15			
	fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046					
	RPM	2387	1592	1194	955	796	597	477	398					
10	Vc	30	30	30	30	30	30	30	30	30	30			
	fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056					
	RPM	4775	3183	2387	1910	1592	1194	955	796					
11.1	Vc	15	15	15	15	15	15	15	15	15	15			
	fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046					
	RPM	2387	1592	1194	955	796	597	477	398					
21-22	Vc	75	105	100	100	105	100	95	95	100	100			
	fz	0.005	0.008	0.014	0.019	0.021	0.037	0.048	0.057					
	RPM	11937	11141	7958	6366	5570	3979	3024	2520					
23-24	Vc	49	68	65	65	68	65	62	62	65	65			
	fz	0.005	0.008	0.014	0.019	0.021	0.037	0.048	0.057					
	RPM	7799	7215	5173	4138	3608	2586	1974	1645					
					FEED	117	173	217	236	227	287	284	281	

※The FEED, in long & extra long types, should be reduced by around 50%

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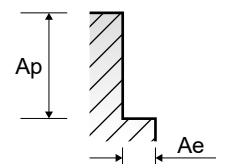
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2572, E2573, E2516, E2553, E2554 SERIES**

**3 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)											
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.069	0.079	0.079	0.089	0.1	0.1	0.1	0.1	0.1	0.099	0.097	0.107
	RPM	796	696	619	557	506	446	398	371	348	318	309	279
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
3-4	Vc	25	25	25	25	25	25	25	25	25	25	25	25
	fz	0.054	0.059	0.067	0.067	0.076	0.076	0.071	0.073	0.076	0.071	0.075	0.083
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
7	Vc	25	25	25	25	25	25	25	25	25	25	25	25
	fz	0.054	0.059	0.067	0.067	0.076	0.076	0.071	0.073	0.076	0.071	0.075	0.083
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
21-22	Vc	95	100	100	100	95	95	95	95	105	100	100	100
	fz	0.061	0.067	0.074	0.075	0.081	0.089	0.091	0.091	0.09	0.091	0.093	0.092
	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	955	884	796
23-24	Vc	62	65	65	65	62	62	62	62	68	65	65	65
	fz	0.061	0.067	0.074	0.075	0.081	0.089	0.091	0.091	0.09	0.091	0.093	0.092
	RPM	1410	1293	1149	1035	897	789	705	722	647	618	575	517



EQ572, EQ573, EQ516, EQ553, EQ554 SERIES

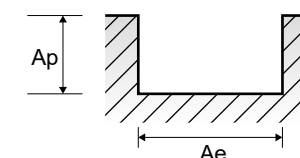
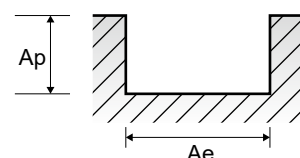
3 FLUTE TiAlN COATED - SLOTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	50	45	50	50	45	50	45	50
					fz	0.002	0.005	0.007	0.012	0.015	0.021	0.028	0.036
					RPM	7958	4775	3979	3183	2387	1989	1432	1326
	2		Vc	40	40	40	40	40	40	40	40		
			fz	0.002	0.004	0.006	0.01	0.014	0.022	0.028	0.033		
			RPM	6366	4244	3183	2546	2122	1592	1273	1061		
	3-4		Vc	35	35	30	35	30	35	35	35		
			fz	0.002	0.003	0.005	0.008	0.011	0.018	0.023	0.028		
			RPM	5570	3714	2387	2228	1592	1393	1114	928		
	5		Vc	20	20	20	20	20	20	20	20		
			fz	0.002	0.003	0.007	0.008	0.011	0.017	0.021	0.03		
RPM		3183	2122	1592	1273	1061	796	637	531				
6	Vc	40	40	40	40	40	40	40	40				
	fz	0.002	0.004	0.006	0.01	0.014	0.022	0.028	0.033				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
7	Vc	35	35	30	35	30	35	35	35				
	fz	0.002	0.003	0.005	0.008	0.011	0.018	0.023	0.028				
	RPM	5570	3714	2387	2228	1592	1393	1114	928				
8-9	Vc	20	20	20	20	20	20	20	20				
	fz	0.002	0.003	0.007	0.008	0.011	0.017	0.021	0.03				
	RPM	3183	2122	1592	1273	1061	796	637	531				
10	Vc	40	40	40	40	40	40	40	40				
	fz	0.002	0.004	0.006	0.01	0.014	0.022	0.028	0.033				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
11.1	Vc	20	20	20	20	20	20	20	20				
	fz	0.002	0.003	0.007	0.008	0.011	0.017	0.021	0.03				
	RPM	3183	2122	1592	1273	1061	796	637	531				
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	105	145	140	140	145	140	135	130
					fz	0.003	0.005	0.008	0.011	0.012	0.021	0.029	0.034
					RPM	16711	15385	11141	8913	7692	5570	4297	3448
23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	68	94	91	91	94	91	88	85	
				fz	0.003	0.005	0.008	0.011	0.012	0.021	0.029	0.034	
				RPM	10823	9974	7242	5793	4987	3621	2801	2255	

※The FEED, in long & extra long types, should be reduced by around 50%

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EQ572, EQ573, EQ516, EQ553, EQ554 SERIES

3 FLUTE TiAlN COATED - SLOTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)											
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50	50
	fz	0.042	0.048	0.047	0.053	0.06	0.058	0.06	0.058	0.059	0.058	0.064	0.064
	RPM	1137	995	884	796	723	637	568	477	497	455	442	398
	FEED	143	143	125	127	130	111	102	83	87	80	77	76
2	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.034	0.043	0.048	0.053	0.053	0.054	0.051	0.054	0.056	0.056	0.052	0.059
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	104	103	102	101	104	93	78	69	67	61	55	56
3-4	Vc	35	30	30	35	35	35	35	30	30	30	30	30
	fz	0.032	0.037	0.042	0.042	0.048	0.043	0.043	0.038	0.043	0.04	0.042	0.047
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
	FEED	76	66	67	70	73	57	51	42	38	33	33	34
5	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.034	0.034	0.038	0.043	0.043	0.04	0.045	0.045	0.05	0.046	0.039	0.044
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	46	41	40	41	37	31	29	30	25	21	21	21
6	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.034	0.043	0.048	0.053	0.053	0.054	0.051	0.054	0.056	0.056	0.052	0.059
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	104	103	102	101	104	93	78	69	67	61	55	56
7	Vc	35	30	30	35	35	35	35	30	30	30	30	30
	fz	0.032	0.037	0.042	0.042	0.048	0.043	0.043	0.038	0.043	0.04	0.042	0.047
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
	FEED	76	66	67	70	73	57	51	42	38	33	33	34
8-9	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.034	0.034	0.038	0.043	0.043	0.04	0.045	0.045	0.05	0.046	0.039	0.044
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	46	41	40	41	37	31	29	30	25	21	21	21
10	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.034	0.043	0.048	0.053	0.053	0.054	0.051	0.054	0.056	0.056	0.052	0.059
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	104	103	102	101	104	93	78	69	67	61	55	56
11.1	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.034	0.034	0.038	0.043	0.043	0.04	0.045	0.045	0.05	0.046	0.039	0.044
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	46	41	40	41	37	31	29	30	25	21	21	21
21-22	Vc	135	140	140	140	135	135	130	140	140	145	140	140
	fz	0.037	0.04	0.045	0.047	0.048	0.053	0.056	0.054	0.055	0.055	0.056	0.055
	RPM	3069	2785	2476	2228	1953	1719	1478	1485	1393	1319	1238	1114
	FEED	341	334	334	314	281	273	248	250	226	218	208	184
23-24	Vc	88	91	91	91	88	88	85	91	91	94	91	91
	fz	0.037	0.04	0.045	0.047	0.048	0.053	0.056	0.056	0.054	0.055	0.056	0.055
	RPM	2001	1810	1609	1448	1273	1120	966	966	905	855	805	724
	FEED	222	217	217	204	183	178	162	162	147	141	135	119

EQ572, EQ573, EQ516, EQ553, EQ554 SERIES

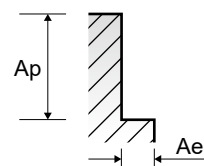
3 FLUTE TiAlN COATED - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	45	50	50	45	50	45	50
					fz	0.004	0.007	0.012	0.02	0.025	0.035	0.047	0.059
					RPM	7958	4775	3979	3183	2387	1989	1432	1326
	2		Vc	40	40	40	40	40	40	40	40		
			fz	0.003	0.006	0.011	0.017	0.023	0.038	0.044	0.058		
			RPM	6366	4244	3183	2546	2122	1592	1273	1061		
	3-4		Vc	35	35	30	35	30	35	35	35		
			fz	0.003	0.006	0.009	0.014	0.018	0.028	0.038	0.047		
			RPM	5570	3714	2387	2228	1592	1393	1114	928		
	5		Vc	20	20	20	20	20	20	20	20		
			fz	0.002	0.005	0.009	0.013	0.018	0.03	0.037	0.045		
RPM		3183	2122	1592	1273	1061	796	637	531				
6	Vc	40	40	40	40	40	40	40	40				
	fz	0.003	0.006	0.011	0.017	0.023	0.038	0.044	0.058				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
7	Vc	35	35	30	35	30	35	35	35				
	fz	0.003	0.006	0.009	0.014	0.018	0.028	0.038	0.047				
	RPM	5570	3714	2387	2228	1592	1393	1114	928				
8-9	Vc	20	20	20	20	20	20	20	20				
	fz	0.002	0.005	0.009	0.013	0.018	0.03	0.037	0.045				
	RPM	3183	2122	1592	1273	1061	796	637	531				
10	Vc	40	40	40	40	40	40	40	40				
	fz	0.003	0.006	0.011	0.017	0.023	0.038	0.044	0.058				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
11.1	Vc	20	20	20	20	20	20	20	20				
	fz	0.002	0.005	0.009	0.013	0.018	0.03	0.037	0.045				
	RPM	3183	2122	1592	1273	1061	796	637	531				
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	105	145	140	140	145	140	135	130
					fz	0.005	0.008	0.014	0.019	0.021	0.037	0.049	0.057
					RPM	16711	15385	11141	8913	7692	5570	4297	3448
23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	68	94	91	91	94	88	85	85	
				fz	0.005	0.008	0.014	0.019	0.021	0.037	0.049	0.057	
				RPM	10823	9974	7242	5793	4987	3621	2801	2255	

※The FEED, in long & extra long types, should be reduced by around 50%

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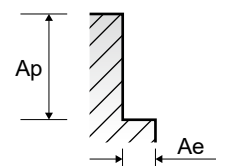


EQ572, EQ573, EQ516, EQ553, EQ554 SERIES

3 FLUTE TiAlN COATED - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)											
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50	50
	fz	0.07	0.078	0.08	0.09	0.1	0.101	0.101	0.099	0.099	0.096	0.097	0.107
	RPM	1137	995	884	796	723	637	568	477	497	455	442	398
2	Vc	45	40	40	40	45	45	40	40	40	40	40	40
	fz	0.058	0.073	0.081	0.09	0.09	0.092	0.088	0.085	0.09	0.088	0.086	0.097
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
3-4	Vc	35	30	30	35	35	35	35	35	30	30	30	30
	fz	0.053	0.058	0.065	0.065	0.075	0.07	0.073	0.071	0.075	0.075	0.077	0.087
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
5	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.051	0.06	0.067	0.075	0.075	0.067	0.061	0.061	0.067	0.065	0.069	0.078
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
6	Vc	45	40	40	40	45	45	40	40	40	40	40	40
	fz	0.058	0.073	0.081	0.09	0.09	0.092	0.088	0.085	0.09	0.088	0.086	0.097
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
7	Vc	35	30	30	35	35	35	35	35	30	30	30	30
	fz	0.053	0.058	0.065	0.065	0.075	0.07	0.073	0.071	0.075	0.075	0.077	0.087
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
8-9	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.051	0.06	0.067	0.075	0.075	0.067	0.061	0.061	0.067	0.065	0.069	0.078
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
10	Vc	45	40	40	40	45	45	40	40	40	40	40	40
	fz	0.058	0.073	0.081	0.09	0.09	0.092	0.088	0.085	0.09	0.088	0.086	0.097
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
11.1	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.051	0.06	0.067	0.075	0.075	0.067	0.061	0.061	0.067	0.065	0.069	0.078
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
21-22	Vc	135	140	140	140	135	135	130	140	140	145	140	140
	fz	0.06	0.067	0.075	0.076	0.082	0.088	0.093	0.09	0.092	0.093	0.093	0.094
	RPM	3069	2785	2476	2228	1953	1719	1478	1485	1393	1319	1238	1114
23-24	Vc	88	91	91	91	88	88	85	91	91	94	91	91
	fz	0.06	0.067	0.075	0.076	0.082	0.088	0.093	0.093	0.09	0.092	0.093	0.094
	RPM	2001	1810	1609	1448	1273	1120	966	966	905	855	805	724







**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

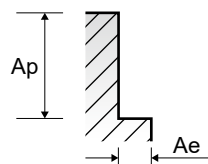
**E2574, E2597 SERIES** 4 FLUTE - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						2.0	3.0	4.0	5.0	6.0	8.0	10.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045
					RPM	5570	3714	2785	2228	1857	1393	1114
	2		0.1D	1.5D	Vc	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044
					RPM	4775	3183	2387	1910	1592	1194	955
	3-4		0.1D	1.5D	Vc	25	25	25	25	25	25	25
					fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038
					RPM	3979	2653	1989	1592	1326	995	796
	5		0.1D	1.5D	Vc	15	15	15	15	15	15	15
					fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036
RPM		2387			1592	1194	955	796	597	477		
6	0.1D	1.5D	Vc	30	30	30	30	30	30	30		
			fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044		
			RPM	4775	3183	2387	1910	1592	1194	955		
7	0.1D	1.5D	Vc	25	25	25	25	25	25	25		
			fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038		
			RPM	3979	2653	1989	1592	1326	995	796		
8-9	0.1D	1.5D	Vc	15	15	15	15	15	15	15		
			fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036		
			RPM	2387	1592	1194	955	796	597	477		
10	0.1D	1.5D	Vc	30	30	30	30	30	30	30		
			fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044		
			RPM	4775	3183	2387	1910	1592	1194	955		
11.1	0.1D	1.5D	Vc	15	15	15	15	15	15	15		
			fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036		
			RPM	2387	1592	1194	955	796	597	477		
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	75	105	100	100	105	100	95
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	11937	11141	7958	6366	5570	3979	3024
23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	49	68	65	65	68	65	62	
				fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048	
				RPM	7799	7215	5173	4138	3608	2586	1974	
FEED	156	260	290	314	303	372	379					

※The FEED, in long & extra long types, should be reduced by around 50%

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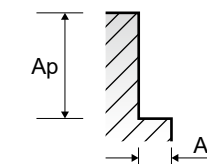


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2574, E2597 SERIES** 4 FLUTE - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)												
		12.0	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0	
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.061	0.069	0.079	0.079	0.089	0.067	0.067	0.067	0.067	0.067	0.065	0.071	
	RPM	928	796	696	619	557	506	446	398	371	348	309	279	
	FEED	227	220	220	196	198	204	179	160	149	140	121	119	
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.056	0.057	0.071	0.08	0.089	0.059	0.06	0.06	0.059	0.06	0.06	0.068	
	RPM	796	682	597	531	477	434	382	341	318	298	265	239	
	FEED	178	156	170	170	170	154	138	123	113	107	95	97	
3-4	Vc	25	25	25	25	25	25	25	25	25	25	25	25	
	fz	0.048	0.054	0.058	0.066	0.066	0.05	0.048	0.048	0.05	0.049	0.05	0.056	
	RPM	663	568	497	442	398	362	318	284	265	199	221	199	
	FEED	127	123	115	117	105	109	92	82	80	58	66	67	
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.047	0.054	0.058	0.065	0.074	0.049	0.046	0.047	0.047	0.054	0.049	0.053	
	RPM	398	341	298	265	239	217	191	171	159	149	133	119	
	FEED	75	74	69	69	71	64	53	48	45	48	39	38	
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.056	0.057	0.071	0.08	0.089	0.059	0.06	0.06	0.059	0.06	0.06	0.068	
	RPM	796	682	597	531	477	434	382	341	318	298	265	239	
	FEED	178	156	170	170	170	154	138	123	113	107	95	97	
7	Vc	25	25	25	25	25	25	25	25	25	25	25	25	
	fz	0.048	0.054	0.058	0.066	0.066	0.05	0.048	0.048	0.05	0.049	0.05	0.056	
	RPM	663	568	497	442	398	362	318	284	265	199	221	199	
	FEED	127	123	115	117	105	109	92	82	80	58	66	67	
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.047	0.054	0.058	0.065	0.074	0.049	0.046	0.047	0.047	0.054	0.049	0.053	
	RPM	398	341	298	265	239	217	191	171	159	149	133	119	
	FEED	75	74	69	69	71	64	53	48	45	48	39	38	
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.056	0.057	0.071	0.08	0.089	0.059	0.06	0.06	0.059	0.06	0.06	0.068	
	RPM	796	682	597	531	477	434	382	341	318	298	265	239	
	FEED	178	156	170	170	170	154	138	123	113	107	95	97	
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.047	0.054	0.058	0.065	0.074	0.049	0.046	0.047	0.047	0.054	0.049	0.053	
	RPM	398	341	298	265	239	217	191	171	159	149	133	119	
	FEED	75	74	69	69	71	64	53	48	45	48	39	38	
21-22	Vc	95	95	100	100	100	95	95	95	105	100	100	100	
	fz	0.057	0.06	0.066	0.074	0.075	0.054	0.058	0.061	0.06	0.061	0.063	0.063	
	RPM	2520	2160	1989	1768	1592	1375	1210	1080	1114	995	884	796	
	FEED	575	518	525	523	477	445	421	395	408	358	324	301	
23-24	Vc	62	62	65	65	65	62	62	62	68	65	65	65	
	fz	0.057	0.06	0.066	0.074	0.075	0.054	0.058	0.061	0.06	0.061	0.063	0.063	
	RPM	1645	1410	1293	1149	1035	897	789	705	722	647	575	517	
	FEED	375	338	341	340	310	291	275	258	264	233	210	196	





**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

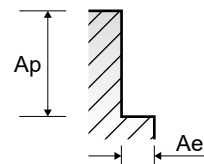
**EQ574, EQ597 SERIES** 4 FLUTE TiAlN COATED - **SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	45	50	50	45	50	50	45
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.062
					RPM	7958	4775	3979	3183	2387	1989	1592	1194
	2		Vc	40	40	40	40	40	40	40	40		
			fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045	0.057		
			RPM	6366	4244	3183	2546	2122	1592	1273	1061		
	3-4		Vc	35	35	30	35	30	35	35	35		
			fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039	0.047		
			RPM	5570	3714	2387	2228	1592	1194	1114	928		
	5		Vc	20	20	20	20	20	20	20	20		
			fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035	0.048		
RPM		3183	2122	1592	1273	1061	796	637	531				
6	Vc	40	40	40	40	40	40	40	40				
	fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045	0.057				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
7	Vc	35	35	30	35	30	35	35	35				
	fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039	0.047				
	RPM	5570	3714	2387	2228	1592	1194	1114	928				
8-9	Vc	20	20	20	20	20	20	20	20				
	fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035	0.048				
	RPM	3183	2122	1592	1273	1061	796	637	531				
10	Vc	40	40	40	40	40	40	40	40				
	fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045	0.057				
	RPM	6366	4244	3183	2546	2122	1592	1273	1061				
11.1	Vc	20	20	20	20	20	20	20	20				
	fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035	0.048				
	RPM	3183	2122	1592	1273	1061	796	637	531				
21-22	Vc	105	145	140	140	150	140	135	130				
	fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048	0.057				
	RPM	16711	15385	11141	8913	7958	5570	4297	3448				
23-24	Vc	68	94	91	91	98	91	88	85				
	fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048	0.057				
	RPM	10823	9974	7242	5793	5199	3621	2801	2255				
					FEED	216	359	406	440	437	521	538	514

※ The FEED, in long & extra long types, should be reduced by around 50%

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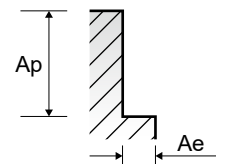


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**EQ574, EQ597 SERIES** 4 FLUTE TiAlN COATED - **SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)										
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50
	fz	0.07	0.078	0.078	0.088	0.067	0.064	0.068	0.065	0.065	0.063	0.071
	RPM	1137	995	884	796	723	637	568	477	497	442	398
2	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.056	0.07	0.08	0.087	0.058	0.062	0.058	0.057	0.058	0.06	0.069
	RPM	1023	796	707	637	651	573	512	424	398	354	318
3-4	Vc	35	35	30	35	35	35	35	30	30	30	30
	fz	0.053	0.056	0.066	0.066	0.048	0.046	0.046	0.05	0.05	0.047	0.057
	RPM	796	696	531	557	506	446	398	371	298	309	239
5	Vc	20	20	20	20	20	20	20	20	15	20	20
	fz	0.053	0.056	0.064	0.075	0.05	0.047	0.054	0.054	0.054	0.056	0.056
	RPM	455	398	354	318	289	255	227	199	133	159	
6	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.056	0.07	0.08	0.087	0.058	0.062	0.058	0.057	0.058	0.06	0.069
	RPM	1023	796	707	637	651	573	512	424	398	354	318
7	Vc	35	35	30	35	35	35	35	30	30	30	30
	fz	0.053	0.056	0.066	0.066	0.048	0.046	0.046	0.05	0.05	0.047	0.057
	RPM	796	696	531	557	506	446	398	371	298	309	239
8-9	Vc	20	20	20	20	20	20	20	20	15	20	20
	fz	0.053	0.056	0.064	0.075	0.05	0.047	0.054	0.054	0.054	0.056	0.056
	RPM	455	398	354	318	289	255	227	199	133	159	
10	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.056	0.07	0.08	0.087	0.058	0.062	0.058	0.057	0.058	0.06	0.069
	RPM	1023	796	707	637	651	573	512	424	398	354	318
11.1	Vc	20	20	20	20	20	20	20	20	15	20	20
	fz	0.053	0.056	0.064	0.075	0.05	0.047	0.054	0.054	0.054	0.056	0.056
	RPM	455	398	354	318	289	255	227	199	133	159	
21-22	Vc	135	140	140	140	135	135	135	145	140	140	140
	fz	0.06	0.066	0.074	0.074	0.054	0.058	0.06	0.06	0.06	0.061	0.064
	RPM	3069	2785	2476	2228	1953	1719	1535	1393	1238	1114	
23-24	Vc	88	91	91	91	88	88	88	94	91	91	91
	fz	0.06	0.066	0.074	0.074	0.054	0.058	0.06	0.06	0.06	0.061	0.064
	RPM	2001	1810	1609	1448	1273	1120	1000	997	905	805	724
					FEED	480	478	476	429	413	390	360





**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOLHENE SCHNEIDPARAMETER**

**E2753, E2762, E2751, E2752** SERIES

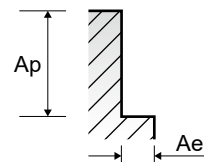
**MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	14.0	16.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	35	35	35	35	35
					fz	0.015	0.025	0.034	0.05	0.056	0.064
					RPM	1857	1393	1114	928	796	696
	FEED		84	104	152	186	178	178			
	2		Vc	30	30	30	30	30	30		
			fz	0.013	0.023	0.033	0.044	0.05	0.063		
			RPM	1592	1194	955	796	682	597		
	FEED		62	82	126	140	136	150			
	3-4		Vc	25	25	25	25	25	25		
			fz	0.015	0.024	0.034	0.044	0.049	0.061		
			RPM	1326	995	796	663	568	497		
FEED	60	72	108	117	111	121					
5	Vc	15	15	15	15	15	15				
	fz	0.013	0.021	0.033	0.044	0.05	0.063				
	RPM	796	597	477	398	341	298				
FEED	31	38	63	70	68	75					
6	Vc	30	30	30	30	30	30				
	fz	0.013	0.023	0.033	0.044	0.05	0.063				
	RPM	1592	1194	955	796	682	597				
FEED	62	82	126	140	136	150					
7	Vc	25	25	25	25	25	25				
	fz	0.015	0.024	0.034	0.044	0.049	0.061				
	RPM	1326	995	796	663	568	497				
FEED	60	72	108	117	111	121					
8-9	Vc	15	15	15	15	15	15				
	fz	0.013	0.021	0.033	0.044	0.05	0.063				
	RPM	796	597	477	398	341	298				
FEED	31	38	63	70	68	75					
10	Vc	30	30	30	30	30	30				
	fz	0.013	0.023	0.033	0.044	0.05	0.063				
	RPM	1592	1194	955	796	682	597				
FEED	62	82	126	140	136	150					
11.1	Vc	15	15	15	15	15	15				
	fz	0.013	0.021	0.033	0.044	0.05	0.063				
	RPM	796	597	477	398	341	298				
FEED	31	38	63	70	68	75					
21-22	Vc	85	80	80	75	80	80				
	fz	0.015	0.025	0.035	0.05	0.058	0.07				
	RPM	4509	3183	2546	1989	1819	1592				
FEED	203	239	357	398	422	446					
23-24	Vc	55	52	52	49	52	52				
	fz	0.015	0.025	0.035	0.05	0.058	0.07				
	RPM	2918	2069	1655	1300	1182	1035				
FEED	131	155	232	260	274	290					

※ The FEED, in long & extra long types, should be reduced by around 50%

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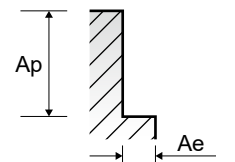
**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOLHENE SCHNEIDPARAMETER**

**E2753, E2762, E2751, E2752** SERIES

**MULTI FLUTE ROUGHING - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)									
		18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0	50.0
1	Vc	35	35	35	35	35	35	35	35	35	35
	fz	0.071	0.08	0.088	0.098	0.088	0.1	0.1	0.113	0.119	0.152
	RPM	619	557	506	446	398	371	348	309	279	223
	FEED	176	178	223	218	210	223	209	210	199	203
2	Vc	30	30	30	30	30	30	30	30	30	30
	fz	0.07	0.078	0.076	0.085	0.076	0.086	0.095	0.107	0.114	0.157
	RPM	531	477	434	382	341	318	298	265	239	191
	FEED	149	149	165	162	156	164	170	170	163	180
3-4	Vc	25	25	25	25	25	25	25	25	25	25
	fz	0.069	0.069	0.08	0.09	0.077	0.087	0.098	0.108	0.111	0.146
	RPM	442	398	362	318	284	265	199	221	199	159
	FEED	122	110	145	143	131	138	117	143	132	139
5	Vc	15	15	15	15	15	15	15	15	15	15
	fz	0.07	0.08	0.077	0.094	0.089	0.089	0.101	0.118	0.121	0.148
	RPM	265	239	217	191	171	159	149	133	119	95
	FEED	74	76	84	90	91	85	90	94	87	85
6	Vc	30	30	30	30	30	30	30	30	30	30
	fz	0.07	0.078	0.076	0.085	0.076	0.086	0.095	0.107	0.114	0.157
	RPM	531	477	434	382	341	318	298	265	239	191
	FEED	149	149	165	162	156	164	170	170	163	180
7	Vc	25	25	25	25	25	25	25	25	25	25
	fz	0.069	0.069	0.08	0.09	0.077	0.087	0.098	0.108	0.111	0.146
	RPM	442	398	362	318	284	265	199	221	199	159
	FEED	122	110	145	143	131	138	117	143	132	139
8-9	Vc	15	15	15	15	15	15	15	15	15	15
	fz	0.07	0.08	0.077	0.094	0.089	0.089	0.101	0.118	0.121	0.148
	RPM	265	239	217	191	171	159	149	133	119	95
	FEED	74	76	84	90	91	85	90	94	87	85
10	Vc	30	30	30	30	30	30	30	30	30	30
	fz	0.07	0.078	0.076	0.085	0.076	0.086	0.095	0.107	0.114	0.157
	RPM	531	477	434	382	341	318	298	265	239	191
	FEED	149	149	165	162	156	164	170	170	163	180
11.1	Vc	15	15	15	15	15	15	15	15	15	15
	fz	0.07	0.08	0.077	0.094	0.089	0.089	0.101	0.118	0.121	0.148
	RPM	265	239	217	191	171	159	149	133	119	95
	FEED	74	76	84	90	91	85	90	94	87	85
21-22	Vc	80	75	75	80	80	85	80	80	80	80
	fz	0.084	0.104	0.085	0.09	0.094	0.098	0.104	0.112	0.119	0.123
	RPM	1415	1194	1085	1019	909	902	796	707	637	509
	FEED	475	497	461	458	513	530	497	475	455	376
23-24	Vc	52	49	49	52	52	55	52	52	52	52
	fz	0.084	0.104	0.085	0.09	0.094	0.098	0.104	0.112	0.119	0.123
	RPM	920	780	709	662	591	584	517	460	414	331
	FEED	309	324	301	298	333	343	323	309	295	244





EQ753, EQ762, EQ751, EQ752 SERIES

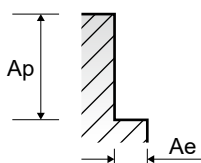
MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	14.0	16.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	45	50	50	45	50	50
					fz	0.015	0.025	0.034	0.05	0.057	0.063
					RPM	2387	1989	1592	1194	1137	995
	FEED		107	149	216	239	259	251			
	2		Vc	40	40	40	40	45	40		
			fz	0.013	0.023	0.034	0.044	0.049	0.061		
			RPM	2122	1592	1273	1061	1023	796		
	FEED		83	110	173	187	201	194			
	3-4		Vc	30	30	35	35	35	35		
			fz	0.015	0.024	0.035	0.043	0.048	0.06		
			RPM	1592	1194	1114	928	796	696		
FEED	72	86	156	160	153	167					
5	Vc	20	20	20	20	20	20				
	fz	0.012	0.021	0.033	0.045	0.05	0.063				
	RPM	1061	796	637	531	455	398				
FEED	38	50	84	95	91	100					
6	Vc	40	40	40	40	45	40				
	fz	0.013	0.023	0.034	0.044	0.049	0.061				
	RPM	2122	1592	1273	1061	1023	796				
FEED	83	110	173	187	201	194					
7	Vc	30	30	35	35	35	35				
	fz	0.015	0.024	0.035	0.043	0.048	0.06				
	RPM	1592	1194	1114	928	796	696				
FEED	72	86	156	160	153	167					
8-9	Vc	20	20	20	20	20	20				
	fz	0.012	0.021	0.033	0.045	0.05	0.063				
	RPM	1061	796	637	531	455	398				
FEED	38	50	84	95	91	100					
10	Vc	40	40	40	40	45	40				
	fz	0.013	0.023	0.034	0.044	0.049	0.061				
	RPM	2122	1592	1273	1061	1023	796				
FEED	83	110	173	187	201	194					
11.1	Vc	20	20	20	20	20	20				
	fz	0.012	0.021	0.033	0.045	0.05	0.063				
	RPM	1061	796	637	531	455	398				
FEED	38	50	84	95	91	100					
21-22	Vc	120	110	110	105	110	115				
	fz	0.015	0.025	0.035	0.05	0.059	0.07				
	RPM	6366	4377	3501	2785	2501	2288				
FEED	286	328	490	557	590	641					
23-24	Vc	78	72	72	68	72	75				
	fz	0.015	0.025	0.035	0.05	0.059	0.07				
	RPM	4138	2865	2292	1804	1637	1492				
FEED	186	215	321	361	386	418					

※ The FEED, in long & extra long types, should be reduced by around 50%

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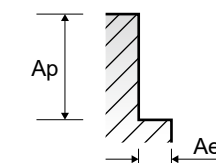


EQ753, EQ762, EQ751, EQ752 SERIES

MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)									
		18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0	50.0
1	Vc	50	50	50	50	50	45	50	50	50	45
	fz	0.069	0.078	0.089	0.095	0.089	0.098	0.098	0.109	0.117	0.156
	RPM	884	796	723	637	568	477	497	442	398	286
FEED	244	248	322	302	304	281	292	289	279	268	
2	Vc	40	40	45	45	45	40	40	40	40	40
	fz	0.07	0.075	0.074	0.087	0.075	0.083	0.094	0.107	0.117	0.16
	RPM	707	637	651	573	512	424	398	354	318	255
FEED	198	191	241	249	230	211	224	227	223	244	
3-4	Vc	30	35	35	35	35	35	30	35	30	35
	fz	0.07	0.07	0.078	0.087	0.075	0.086	0.1	0.1	0.113	0.148
	RPM	531	557	506	446	398	371	298	309	239	223
FEED	149	156	197	194	179	192	179	186	162	198	
5	Vc	20	20	20	20	20	20	20	20	15	20
	fz	0.071	0.083	0.08	0.096	0.091	0.091	0.1	0.118	0.141	0.153
	RPM	354	318	289	255	227	212	199	177	119	127
FEED	100	106	116	122	124	116	119	125	101	117	
6	Vc	40	40	45	45	45	40	40	40	40	40
	fz	0.07	0.075	0.074	0.087	0.075	0.083	0.094	0.107	0.117	0.16
	RPM	707	637	651	573	512	424	398	354	318	255
FEED	198	191	241	249	230	211	224	227	223	244	
7	Vc	30	35	35	35	35	35	30	35	30	35
	fz	0.07	0.07	0.078	0.087	0.075	0.086	0.1	0.1	0.113	0.148
	RPM	531	557	506	446	398	371	298	309	239	223
FEED	149	156	197	194	179	192	179	186	162	198	
8-9	Vc	20	20	20	20	20	20	20	20	15	20
	fz	0.071	0.083	0.08	0.096	0.091	0.091	0.1	0.118	0.141	0.153
	RPM	354	318	289	255	227	212	199	177	119	127
FEED	100	106	116	122	124	116	119	125	101	117	
10	Vc	40	40	45	45	45	40	40	40	40	40
	fz	0.07	0.075	0.074	0.087	0.075	0.083	0.094	0.107	0.117	0.16
	RPM	707	637	651	573	512	424	398	354	318	255
FEED	198	191	241	249	230	211	224	227	223	244	
11.1	Vc	20	20	20	20	20	20	20	20	15	20
	fz	0.071	0.083	0.08	0.096	0.091	0.091	0.1	0.118	0.141	0.153
	RPM	354	318	289	255	227	212	199	177	119	127
FEED	100	106	116	122	124	116	119	125	101	117	
21-22	Vc	110	105	105	110	110	120	110	115	115	110
	fz	0.085	0.103	0.085	0.09	0.095	0.099	0.106	0.11	0.117	0.124
	RPM	1945	1671	1519	1401	1251	1273	1094	1017	915	700
FEED	661	689	646	630	713	756	696	671	642	521	
23-24	Vc	72	68	68	72	72	78	72	75	75	72
	fz	0.085	0.103	0.085	0.09	0.095	0.099	0.106	0.11	0.117	0.124
	RPM	1273	1082	984	917	819	828	716	663	597	458
FEED	433	446	418	413	467	492	456	438	419	341	





**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

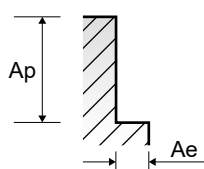
**E2595 SERIES 4FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						2.0	3.0	4.0	5.0	6.0	8.0	10.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045
					RPM	5570	3714	2785	2228	1857	1393	1114
	2		Vc	30	30	30	30	30	30	30		
			fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044		
			RPM	4775	3183	2387	1910	1592	1194	955		
	3-4		Vc	25	25	25	25	25	25	25		
			fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038		
			RPM	3979	2653	1989	1592	1326	995	796		
	5		Vc	15	15	15	15	15	15	15		
			fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036		
RPM		2387	1592	1194	955	796	597	477				
6	Vc	30	30	30	30	30	30	30				
	fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044				
	RPM	4775	3183	2387	1910	1592	1194	955				
7	Vc	25	25	25	25	25	25	25				
	fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038				
	RPM	3979	2653	1989	1592	1326	995	796				
8-9	Vc	15	15	15	15	15	15	15				
	fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036				
	RPM	2387	1592	1194	955	796	597	477				
10	Vc	30	30	30	30	30	30	30				
	fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044				
	RPM	4775	3183	2387	1910	1592	1194	955				
11.1	Vc	15	15	15	15	15	15	15				
	fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036				
	RPM	2387	1592	1194	955	796	597	477				
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	75	105	100	100	105	100	95
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	11937	11141	7958	6366	5570	3979	3024
23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	49	68	65	65	68	65	62	
				fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048	
				RPM	7799	7215	5173	4138	3608	2586	1974	

※ The FEED, in long & extra long types, should be reduced by around 50%

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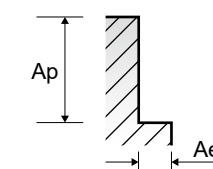


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2595 SERIES 4 FLUTE - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)												
		12.0	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0	
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.061	0.069	0.079	0.079	0.089	0.1	0.1	0.067	0.067	0.067	0.065	0.071	
	RPM	928	796	696	619	557	506	446	398	371	348	309	279	
	FEED	227	220	220	196	198	203	178	160	149	140	121	119	
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.056	0.057	0.071	0.08	0.089	0.089	0.091	0.06	0.059	0.06	0.06	0.068	
	RPM	796	682	597	531	477	434	382	341	318	298	265	239	
	FEED	178	156	170	170	170	155	139	123	113	107	95	97	
3-4	Vc	25	25	25	25	25	25	25	25	25	25	25	25	
	fz	0.048	0.054	0.058	0.066	0.066	0.075	0.073	0.048	0.05	0.049	0.05	0.056	
	RPM	663	568	497	442	398	362	318	284	265	199	221	199	
	FEED	127	123	115	117	105	109	93	82	80	58	66	67	
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.047	0.054	0.058	0.065	0.074	0.074	0.069	0.047	0.047	0.054	0.049	0.053	
	RPM	398	341	298	265	239	217	191	171	159	149	133	119	
	FEED	75	74	69	69	71	64	53	48	45	48	39	38	
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.056	0.057	0.071	0.08	0.089	0.089	0.091	0.06	0.059	0.06	0.06	0.068	
	RPM	796	682	597	531	477	434	382	341	318	298	265	239	
	FEED	178	156	170	170	170	155	139	123	113	107	95	97	
7	Vc	25	25	25	25	25	25	25	25	25	25	25	25	
	fz	0.048	0.054	0.058	0.066	0.066	0.075	0.073	0.048	0.05	0.049	0.05	0.056	
	RPM	663	568	497	442	398	362	318	284	265	199	221	199	
	FEED	127	123	115	117	105	109	93	82	80	58	66	67	
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.047	0.054	0.058	0.065	0.074	0.074	0.069	0.047	0.047	0.054	0.049	0.053	
	RPM	398	341	298	265	239	217	191	171	159	149	133	119	
	FEED	75	74	69	69	71	64	53	48	45	48	39	38	
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30	
	fz	0.056	0.057	0.071	0.08	0.089	0.089	0.091	0.06	0.059	0.06	0.06	0.068	
	RPM	796	682	597	531	477	434	382	341	318	298	265	239	
	FEED	178	156	170	170	170	155	139	123	113	107	95	97	
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15	
	fz	0.047	0.054	0.058	0.065	0.074	0.074	0.069	0.047	0.047	0.054	0.049	0.053	
	RPM	398	341	298	265	239	217	191	171	159	149	133	119	
	FEED	75	74	69	69	71	64	53	48	45	48	39	38	
21-22	Vc	95	95	100	100	100	95	95	95	105	100	100	100	
	fz	0.057	0.06	0.066	0.074	0.075	0.08	0.088	0.061	0.06	0.06	0.061	0.06	
	RPM	2520	2160	1989	1768	1592	1375	1210	1080	1114	995	884	796	
	FEED	575	518	525	523	477	440	426	395	408	358	324	286	
23-24	Vc	62	62	65	65	65	62	62	62	68	65	65	65	
	fz	0.057	0.06	0.066	0.074	0.075	0.08	0.088	0.061	0.06	0.06	0.061	0.06	
	RPM	1645	1410	1293	1149	1035	897	789	705	722	647	575	517	
	FEED	375	338	341	340	310	287	278	258	264	233	210	186	





**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

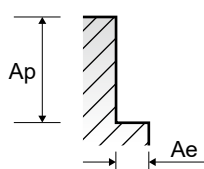
**EQ595 SERIES 4 FLUTE TiAlN COATED - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						2.0	3.0	4.0	5.0	6.0	8.0	10.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	45	50	50	45	50	50
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045
					RPM	7958	4775	3979	3183	2387	1989	1592
	2		0.1D	1.5D	Vc	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045
					RPM	6366	4244	3183	2546	2122	1592	1273
	3-4		0.1D	1.5D	Vc	35	35	30	35	30	30	35
					fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039
					RPM	5570	3714	2387	2228	1592	1194	1114
	5		0.1D	1.5D	Vc	20	20	20	20	20	20	20
					fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035
RPM		3183			2122	1592	1273	1061	796	637		
6	0.1D	1.5D	Vc	40	40	40	40	40	40	40		
			fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045		
			RPM	6366	4244	3183	2546	2122	1592	1273		
7	0.1D	1.5D	Vc	35	35	30	35	30	30	35		
			fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039		
			RPM	5570	3714	2387	2228	1592	1194	1114		
8-9	0.1D	1.5D	Vc	20	20	20	20	20	20	20		
			fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035		
			RPM	3183	2122	1592	1273	1061	796	637		
10	0.1D	1.5D	Vc	40	40	40	40	40	40	40		
			fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045		
			RPM	6366	4244	3183	2546	2122	1592	1273		
11.1	0.1D	1.5D	Vc	20	20	20	20	20	20	20		
			fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035		
			RPM	3183	2122	1592	1273	1061	796	637		
21-22	0.1D	1.5D	Vc	105	145	140	140	150	140	135		
			fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048		
			RPM	16711	15385	11141	8913	7958	5570	4297		
23-24	0.1D	1.5D	Vc	68	94	91	91	98	91	88		
			fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048		
			RPM	10823	9974	7242	5793	5199	3621	2801		

※ The FEED, in long & extra long types, should be reduced by around 50%

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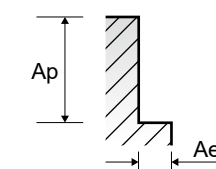


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**EQ595 SERIES 4 FLUTE TiAlN COATED - SIDE CUTTING**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)											
		12.0	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	45	50	50	50	50	50	50	50	45	50	50	50
	fz	0.062	0.07	0.078	0.078	0.088	0.1	0.096	0.068	0.065	0.065	0.063	0.071
	RPM	1194	1137	995	884	796	723	637	568	477	497	442	398
	FEED	296	318	310	276	280	289	244	232	186	194	167	170
2	Vc	40	45	40	40	40	45	45	45	40	40	40	40
	fz	0.057	0.056	0.07	0.08	0.087	0.087	0.093	0.058	0.057	0.058	0.06	0.069
	RPM	1061	1023	796	707	637	651	573	512	424	398	354	318
	FEED	242	229	223	226	222	227	213	178	145	138	127	132
3-4	Vc	35	35	35	30	35	35	35	35	30	35	30	30
	fz	0.047	0.053	0.056	0.066	0.066	0.073	0.069	0.046	0.05	0.05	0.047	0.057
	RPM	928	796	696	531	557	506	446	398	371	298	309	239
	FEED	175	169	156	140	147	148	123	110	111	90	87	82
5	Vc	20	20	20	20	20	20	20	20	20	20	15	20
	fz	0.048	0.053	0.056	0.064	0.075	0.075	0.07	0.054	0.054	0.054	0.056	0.056
	RPM	531	455	398	354	318	289	255	227	212	199	133	159
	FEED	102	96	89	91	95	87	71	74	69	64	45	53
6	Vc	40	45	40	40	40	45	45	45	40	40	40	40
	fz	0.057	0.056	0.07	0.08	0.087	0.087	0.093	0.058	0.057	0.058	0.06	0.069
	RPM	1061	1023	796	707	637	651	573	512	424	398	354	318
	FEED	242	229	223	226	222	227	213	178	145	138	127	132
7	Vc	35	35	35	30	35	35	35	35	30	35	30	30
	fz	0.047	0.053	0.056	0.066	0.066	0.073	0.069	0.046	0.05	0.05	0.047	0.057
	RPM	928	796	696	531	557	506	446	398	371	298	309	239
	FEED	175	169	156	140	147	148	123	110	111	90	87	82
8-9	Vc	20	20	20	20	20	20	20	20	20	20	15	20
	fz	0.048	0.053	0.056	0.064	0.075	0.075	0.07	0.054	0.054	0.054	0.056	0.056
	RPM	531	455	398	354	318	289	255	227	212	199	133	159
	FEED	102	96	89	91	95	87	71	74	69	64	45	53
10	Vc	40	45	40	40	40	45	45	45	40	40	40	40
	fz	0.057	0.056	0.07	0.08	0.087	0.087	0.093	0.058	0.057	0.058	0.06	0.069
	RPM	1061	1023	796	707	637	651	573	512	424	398	354	318
	FEED	242	229	223	226	222	227	213	178	145	138	127	132
11.1	Vc	20	20	20	20	20	20	20	20	20	20	15	20
	fz	0.048	0.053	0.056	0.064	0.075	0.075	0.07	0.054	0.054	0.054	0.056	0.056
	RPM	531	455	398	354	318	289	255	227	212	199	133	159
	FEED	102	96	89	91	95	87	71	74	69	64	45	53
21-22	Vc	130	135	140	140	140	135	135	135	145	140	140	140
	fz	0.057	0.06	0.066	0.074	0.074	0.081	0.087	0.06	0.06	0.06	0.061	0.064
	RPM	3448	3069	2785	2476	2228	1953	1719	1535	1538	1393	1238	1114
	FEED	786	737	735	733	660	633	598	552	554	501	453	428
23-24	Vc	85	88	91	91	91	88	88	88	94	91	91	91
	fz	0.057	0.06	0.066	0.074	0.074	0.081	0.087	0.06	0.06	0.06	0.061	0.064
	RPM	2255	2001	1810	1609	1448	1273	1120	1000	997	905	805	724
	FEED	514	480	478	476	429	413	390	360	359	326	294	278







**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

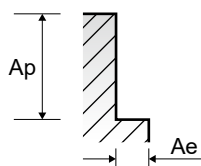
**E2755 SERIES** 3 FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)			
						6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	35	35	35
					fz	0.015	0.025	0.045	0.067
					RPM	1857	1393	1114	928
	FEED		84	104	150	187			
	2		Vc	30	30	30	30		
			fz	0.013	0.023	0.044	0.058		
			RPM	1592	1194	955	796		
	FEED		62	82	126	138			
	3-4		Vc	25	25	25	25		
			fz	0.015	0.024	0.046	0.058		
			RPM	1326	995	796	663		
FEED	60	72	110	115					
5	Vc	15	15	15	15				
	fz	0.013	0.021	0.044	0.058				
	RPM	796	597	477	398				
FEED	31	38	63	69					
6	Vc	30	30	30	30				
	fz	0.013	0.023	0.044	0.058				
	RPM	1592	1194	955	796				
FEED	62	82	126	138					
7	Vc	25	25	25	25				
	fz	0.015	0.024	0.046	0.058				
	RPM	1326	995	796	663				
FEED	60	72	110	115					
8-9	Vc	15	15	15	15				
	fz	0.013	0.021	0.044	0.058				
	RPM	796	597	477	398				
FEED	31	38	63	69					
10	Vc	30	30	30	30				
	fz	0.013	0.023	0.044	0.058				
	RPM	1592	1194	955	796				
FEED	62	82	126	138					
11.1	Vc	15	15	15	15				
	fz	0.013	0.021	0.044	0.058				
	RPM	796	597	477	398				
FEED	31	38	63	69					
21-22	Vc	85	80	80	75				
	fz	0.015	0.025	0.047	0.067				
	RPM	4509	3183	2546	1989				
FEED	203	239	359	400					
23-24	Vc	55	52	52	49				
	fz	0.015	0.025	0.047	0.067				
	RPM	2918	2069	1655	1300				
FEED	131	155	233	261					

※ The FEED, in long & extra long types, should be reduced by around 50%

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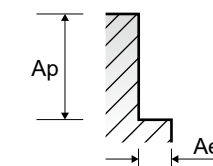


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2755 SERIES** 3 FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)						
		14.0	16.0	18.0	20.0	22.0	25.0	30.0
1	Vc	35	35	35	35	35	35	35
	fz	0.075	0.086	0.095	0.107	0.147	0.163	0.2
	RPM	796	696	619	557	506	446	371
	FEED	179	180	176	179	223	218	223
2	Vc	30	30	30	30	30	30	30
	fz	0.067	0.083	0.093	0.104	0.126	0.142	0.172
	RPM	682	597	531	477	434	382	318
	FEED	137	149	148	149	164	163	164
3-4	Vc	25	25	25	25	25	25	25
	fz	0.065	0.081	0.092	0.092	0.133	0.151	0.173
	RPM	568	497	442	398	362	318	265
	FEED	111	121	122	110	144	144	138
5	Vc	15	15	15	15	15	15	15
	fz	0.067	0.083	0.093	0.106	0.129	0.157	0.177
	RPM	341	298	265	239	217	191	159
	FEED	69	74	74	76	84	90	85
6	Vc	30	30	30	30	30	30	30
	fz	0.067	0.083	0.093	0.104	0.126	0.142	0.172
	RPM	682	597	531	477	434	382	318
	FEED	137	149	148	149	164	163	164
7	Vc	25	25	25	25	25	25	25
	fz	0.065	0.081	0.092	0.092	0.133	0.151	0.173
	RPM	568	497	442	398	362	318	265
	FEED	111	121	122	110	144	144	138
8-9	Vc	15	15	15	15	15	15	15
	fz	0.067	0.083	0.093	0.106	0.129	0.157	0.177
	RPM	341	298	265	239	217	191	159
	FEED	69	74	74	76	84	90	85
10	Vc	30	30	30	30	30	30	30
	fz	0.067	0.083	0.093	0.104	0.126	0.142	0.172
	RPM	682	597	531	477	434	382	318
	FEED	137	149	148	149	164	163	164
11.1	Vc	15	15	15	15	15	15	15
	fz	0.067	0.083	0.093	0.106	0.129	0.157	0.177
	RPM	341	298	265	239	217	191	159
	FEED	69	74	74	76	84	90	85
21-22	Vc	80	80	80	75	75	80	85
	fz	0.078	0.094	0.112	0.139	0.142	0.15	0.196
	RPM	1819	1592	1415	1194	1085	1019	902
	FEED	426	449	475	498	462	458	530
23-24	Vc	52	52	52	49	49	52	55
	fz	0.078	0.094	0.112	0.139	0.142	0.15	0.196
	RPM	1182	1035	920	780	709	662	584
	FEED	277	292	309	325	302	298	343

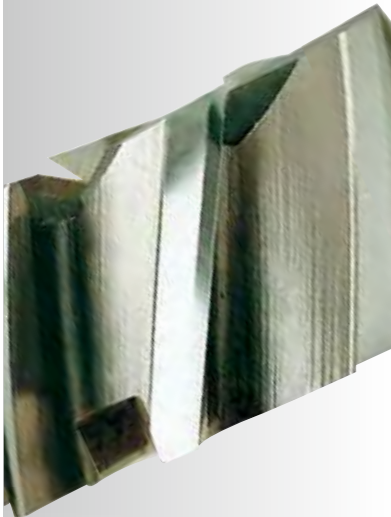




Global Cutting Tool Leader **YG-1**



# MILLING



**HSS**

# MILLING CUTTERS

## HSS Fräser

- General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% cobalt) Corner Rounding, Shell End Mills
- Allgemeine Arbeiten. Verfügbare Schwalbenschwanz, Passfedernut, T-Nut, Scheibenfräser, Scheibenfräser und HSS (8% Kobalt) Eckenverrundung, Walzenstirnfräser







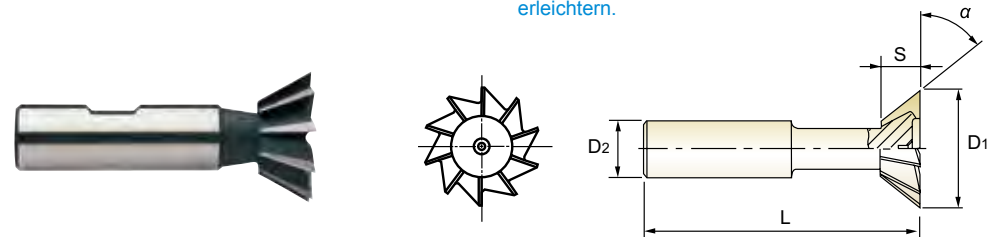
PLAIN SHANK **ML012, ML022** SERIES  
 FLAT SHANK **ML112, ML122** SERIES

**HSS-E, DOVETAIL CUTTERS TYPE "A", "C", "E"**

- HSS-E, WINKELFRÄSER FORM "A", "C", "E"
- Fraise HSS-E pour queue d'aronde Type "A", "C", "E"
- FRESE AD ANGOLO DIVERGENTE TIPO "A", "C", "E"

▶ Recommended for use in place of arbor and threaded hole type cutters to reduce set time and facilitate handling.

▶ Empfohlen zur Nutzung anstelle von Arbor and threaded hole type Cutters um Montierzeit zu verkürzen und Handhabung zu erleichtern.

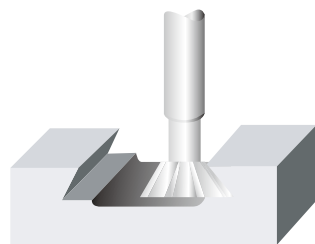


Unit : mm

EDP No.		Cutter Diameter	Width of Face	Divergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D1(js16)	S(js14)	$\alpha(\pm 15^\circ)$	D2(h6)	L(js18)	Z
ML01201601	ML11201601	16.0	4	45°	12	60	6
ML01202001	ML11202001	20.0	5	45°	12	63	6
ML01202201	ML11202201	22.0	6	45°	12	67	6
ML01202501	ML11202501	25.0	6.3	45°	16	67	8
ML01202801	ML11202801	28.0	7.5	45°	16	67	8
ML01203201	ML11203201	32.0	8	45°	16	71	10
ML01203801	ML11203801	38.0	10	45°	16	80	12
ML02201601	ML12201601	16.0	6.3	60°	12	60	6
ML02202001	ML12202001	20.0	8	60°	12	63	6
ML02202201	ML12202201	22.0	9	60°	12	67	6
ML02202501	ML12202501	25.0	10	60°	16	67	8
ML02202801	ML12202801	28.0	11	60°	16	67	8
ML02203201	ML12203201	32.0	12.5	60°	16	71	10
ML02203801	ML12203801	38.0	16	60°	16	80	12
ML02204001	ML12204001	40.0	13	60°	25	85	12
ML02205001	ML12205001	50.0	16	60°	25	100	16

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm						
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120
Tolerance range in mm							
js16	± 0.375	± 0.45	± 0.55	± 0.65	± 0.80	± 0.95	± 1.10
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in $\mu\text{m}$							
h6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19	0 - 22



◎ : Excellent ○ : Good

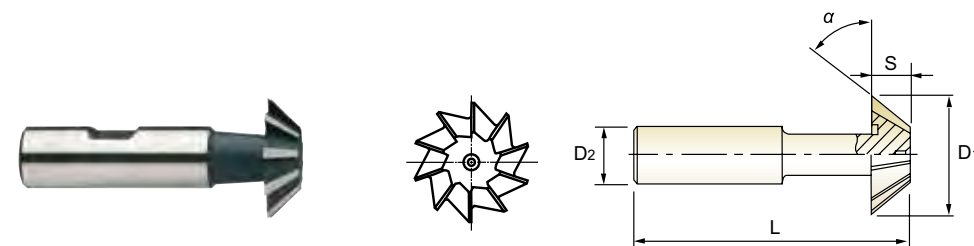
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **ML032, ML042** SERIES  
 FLAT SHANK **ML132, ML142** SERIES

**HSS-E, DOVETAIL CUTTERS TYPE "B", "D", "F"**

- HSS-E, WINKELFRÄSER FORM "B", "D", "F"
- Fraise HSS-E pour queue d'aronde Type "B", "D", "F"
- FRESE AD ANGOLO CONVERGENTE TIPO "B", "D", "F"

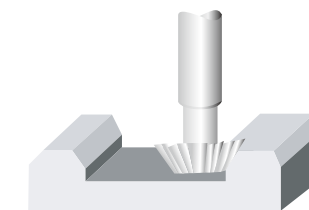


Unit : mm

EDP No.		Cutter Diameter	Width of Face	Divergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D1(js16)	S(js14)	$\alpha(\pm 15^\circ)$	D2(h6)	L(js18)	Z
ML03201601	ML13201601	16.0	4	45°	12	60	6
ML03202001	ML13202001	20.0	5	45°	12	63	6
ML03202201	ML13202201	22.0	6	45°	12	67	6
ML03202501	ML13202501	25.0	6.3	45°	16	67	8
ML03202801	ML13202801	28.0	7.5	45°	16	67	8
ML03203201	ML13203201	32.0	8	45°	16	71	10
ML03203801	ML13203801	38.0	10	45°	16	80	12
ML04201601	ML14201601	16.0	6.3	60°	12	60	6
ML04202001	ML14202001	20.0	8	60°	12	63	6
ML04202201	ML14202201	22.0	9	60°	12	67	6
ML04202501	ML14202501	25.0	10	60°	16	67	8
ML04202801	ML14202801	28.0	11	60°	16	67	8
ML04203201	ML14203201	32.0	12.5	60°	16	71	10
ML04203801	ML14203801	38.0	16	60°	16	80	12

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm						
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120
Tolerance range in mm							
js16	± 0.375	± 0.45	± 0.55	± 0.65	± 0.80	± 0.95	± 1.10
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in $\mu\text{m}$							
h6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19	0 - 22



◎ : Excellent ○ : Good

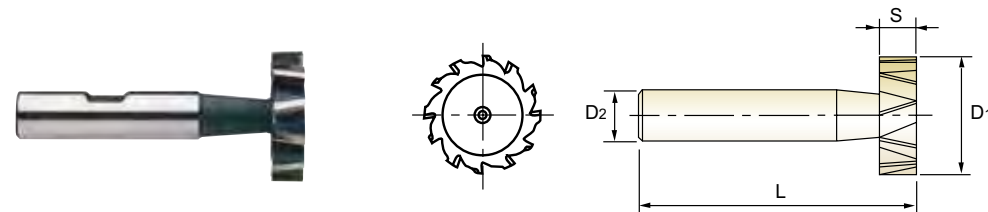
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



PLAIN SHANK **ML062** SERIES  
 FLAT SHANK **ML162** SERIES

**HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE "B", "D", "F"**

- HSS-E, SCHLITZFRÄSER FORM "B", "D", "F"
- Fraise HSS-E WOODRUFF Type "B", "D", "F"
- FRESE PER CHIAVETTE WOODRUFF TIPO "B", "D", "F"



HSS-E DIN 850 N 10~12° DIN 1835A DIN 1835B UNCOATED p.C728

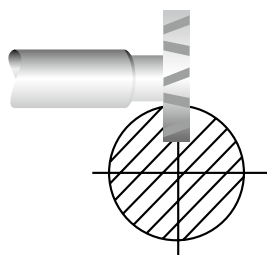
Unit : mm

EDP No.	Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth	
						PLAIN
ML06210E01	ML16210E01	10.5	2	6	50	8
ML06210E02	ML16210E02	10.5	2.5	6	50	8
ML06210E03	ML16210E03	10.5	3	6	50	8
ML06213E01	ML16213E01	13.5	2	10	56	8
ML06213E02	ML16213E02	13.5	2.5	10	56	8
ML06213E03	ML16213E03	13.5	3	10	56	8
ML06213E04	ML16213E04	13.5	4	10	56	8
ML06216E01	ML16216E01	16.5	2.5	10	56	8
ML06216E02	ML16216E02	16.5	3	10	56	8
ML06216E03	ML16216E03	16.5	4	10	56	8
ML06216E04	ML16216E04	16.5	5	10	56	8
ML06219E01	ML16219E01	19.5	3	10	56	8
ML06219E02	ML16219E02	19.5	4	10	63	8
ML06219E03	ML16219E03	19.5	5	10	63	8
ML06219E04	ML16219E04	19.5	6	10	63	8
ML06222E01	ML16222E01	22.5	4	10	63	10
ML06222E02	ML16222E02	22.5	5	10	63	10
ML06222E03	ML16222E03	22.5	6	10	63	10
ML06222E04	ML16222E04	22.5	8	10	63	10
ML06225E01	ML16225E01	25.5	5	10	63	10

**Tolerances according to DIN 7160 & 7161**

Nominal-Diameter in mm

	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80
Tolerance range in mm							
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in μm							
h11	0	0	0	0	0	0	0
e8	-60	-75	-90	-110	-130	-160	-190
h6	-14	-20	-25	-32	-40	-50	-60
	-28	-38	-47	-59	-73	-89	-106
h6	0	0	0	0	0	0	0
	-6	-8	-9	-11	-13	-16	-19



⊙ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○

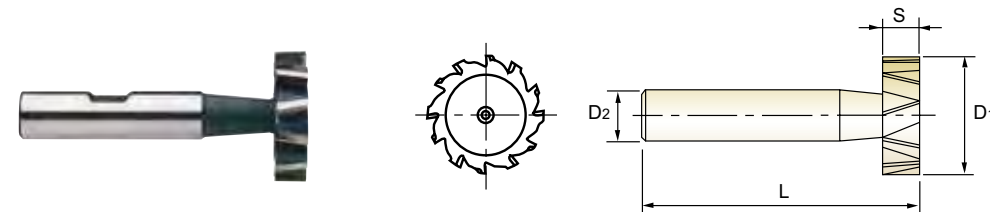
ISO	N										S				H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PLAIN SHANK **ML062** SERIES  
 FLAT SHANK **ML162** SERIES

**HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE "B", "D", "F"**

- HSS-E, SCHLITZFRÄSER FORM "B", "D", "F"
- Fraise HSS-E WOODRUFF Type "B", "D", "F"
- FRESE PER CHIAVETTE WOODRUFF TIPO "B", "D", "F"



HSS-E DIN 850 N 10~12° DIN 1835A DIN 1835B UNCOATED p.C728

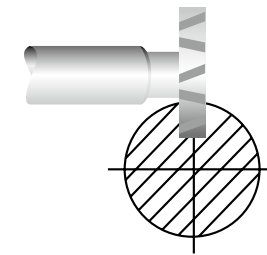
Unit : mm

EDP No.	Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth	
						PLAIN
ML06225E02	ML16225E02	25.5	6	10	63	10
ML06225E03	ML16225E03	25.5	7	10	63	10
ML06225E04	ML16225E04	25.5	8	10	63	10
ML06228E01	ML16228E01	28.5	5	10	63	10
ML06228E02	ML16228E02	28.5	6	10	63	10
ML06228E03	ML16228E03	28.5	7	10	63	10
ML06228E04	ML16228E04	28.5	8	10	63	10
ML06228E05	ML16228E05	28.5	10	12	71	10
ML06232E01	ML16232E01	32.5	5	12	71	12
ML06232E02	ML16232E02	32.5	6	12	71	12
ML06232E03	ML16232E03	32.5	7	12	71	12
ML06232E04	ML16232E04	32.5	8	12	71	12
ML06232E05	ML16232E05	32.5	10	12	71	12
ML06238E01	ML16238E01	38.5	7	12	71	12
ML06238E02	ML16238E02	38.5	8	12	71	12
ML06238E03	ML16238E03	38.5	9	12	71	12
ML06238E04	ML16238E04	38.5	10	12	71	12
ML06245E01	ML16245E01	45.5	10	12	71	14

**Tolerances according to DIN 7160 & 7161**

Nominal-Diameter in mm

	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80
Tolerance range in mm							
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in μm							
h11	0	0	0	0	0	0	0
e8	-60	-75	-90	-110	-130	-160	-190
h6	-14	-20	-25	-32	-40	-50	-60
	-28	-38	-47	-59	-73	-89	-106
h6	0	0	0	0	0	0	0
	-6	-8	-9	-11	-13	-16	-19



⊙ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○

ISO	N										S				H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



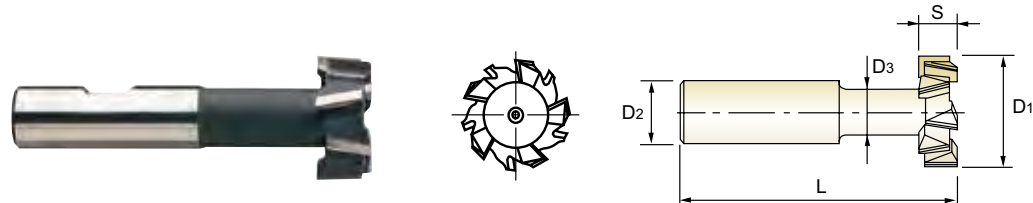


PLAIN SHANK **ML072** SERIES

FLAT SHANK **ML172** SERIES

**HSS-E, T-SLOT CUTTERS TYPE "AA", "AB", "AD"**

- HSS-E, SCHAFERFRÄSER FÜR T-NUTEN FORM "AA", "AB", "AD"
- Fraise HSS-E pour rainure en "T" Type "AA", "AB", "AD"
- FRESE PER SCANALATURE A T - DENTI ALTERNATI



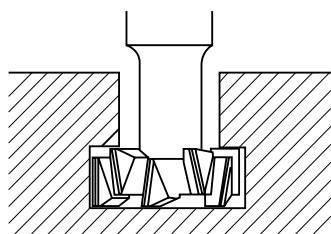
HSS-E DIN 851 N 10° DIN 1835A DIN 1835B UNCOATED p.C729

EDP No.		Cutter Diameter	Width of Face	Shank Diameter	Neck Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D1(d11)	S(d11)	D2(h6)	D3(h12)	L(js18)	Z
ML07212E01	ML17212E01	12.5	6	10	5	57	6
ML07201601	ML17201601	16.0	8	10	6.5	62	6
ML07201801	ML17201801	18.0	8	12	8	70	6
ML07201901	ML17201901	19.0	9	12	8	71	6
ML07202101	ML17202101	21.0	9	12	10	74	6
ML07202201	ML17202201	22.0	10	12	10	75	6
ML07202501	ML17202501	25.0	11	16	12	82	6
ML07202801	ML17202801	28.0	12	16	13	83	6
ML07203201	ML17203201	32.0	14	16	15	90	8
ML07203601	ML17203601	36.0	16	25	17	103	8
ML07204001	ML17204001	40.0	18	25	19	108	8

Unit : mm

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm						
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120
Tolerance range in mm							
h12	0 -0.12	0 -0.15	0 -0.18	0 -0.21	0 -0.25	0 -0.30	0 -0.35
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in µm							
d11	-30 -105	-40 -130	-50 -160	-65 -195	-80 -240	-100 -290	-120 -340
h6	0 -8	0 -9	0 -11	0 -13	0 -16	0 -19	0 -22



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**C710** phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

YG-1 CO., LTD.



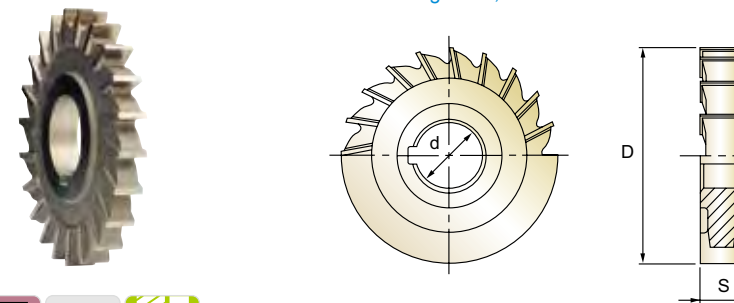
STRAIGHT TEETH **ML092** SERIES

**HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH**

- HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT
- Fraise HSS-E 3 Tailles, denture droite
- FRESE A DISCO A TRE TAGLI - DENTI DRITTI

► The tools are used for general purpose side and straddle milling where deep cut is not required.

► Diese Werkzeuge werden bei allgemeinen Seiten-und Breitfräsen eingesetzt, wo Tiefschnitte nicht vorkommen.



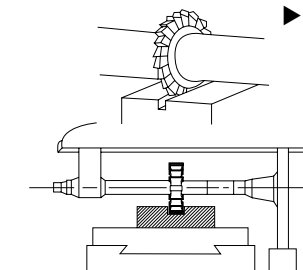
HSS-E DIN 885-B H UNCOATED p.C730

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D1(js14)	S(k11)	d(H7)	Z
ML09205001	50.0	4	16	18
ML09205002	50.0	5	16	18
ML09205003	50.0	6	16	18
ML09205004	50.0	8	16	16
ML09205005	50.0	10	16	16
ML09206301	63.0	5	22	22
ML09206302	63.0	6	22	22
ML09206303	63.0	8	22	20
ML09206304	63.0	10	22	20
ML09206305	63.0	12	22	20
ML09208001	80.0	6	22	24
ML09208002	80.0	8	22	24
ML09208003	80.0	10	22	24
ML09208004	80.0	12	22	20
ML09208005	80.0	6	27	24
ML09208006	80.0	8	27	24
ML09208007	80.0	10	27	24
ML09208008	80.0	12	27	20
ML09210001	100.0	6	27	26
ML09210002	100.0	8	27	26

Unit : mm

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm						
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120
Tolerance range in mm							
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435
Tolerance range in µm							
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**C711** phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

YG-1 CO., LTD.

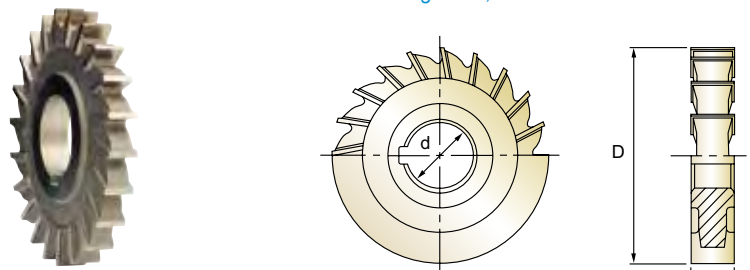
YG-1 CO., LTD.

**HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH**

- HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT
- Fraise HSS-E 3 Tailles, denture droite
- FRESE A DISCO A TRE TAGLI - DENTI DRITTI

▶ The tools are used for general purpose side and straddle milling where deep cut is not required.

▶ Diese Werkzeuge werden bei allgemeinen Seiten-und Breitfräsen eingesetzt, wo Tiefschnitte nicht vorkommen.

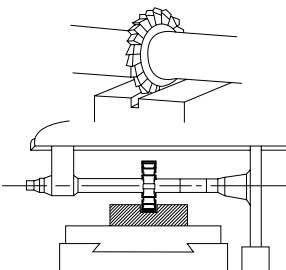


Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML09210003	100.0	10	27	22
ML09210004	100.0	6	32	26
ML09210005	100.0	8	32	26
ML09210006	100.0	10	32	22
ML09210007	100.0	12	32	22
ML09212501	125.0	8	32	30
ML09212502	125.0	10	32	30
ML09212503	125.0	12	32	24

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm							
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120	over 120 to 180
Tolerance range in mm								
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50
Tolerance range in µm								
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0	+250 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0	+40 0



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

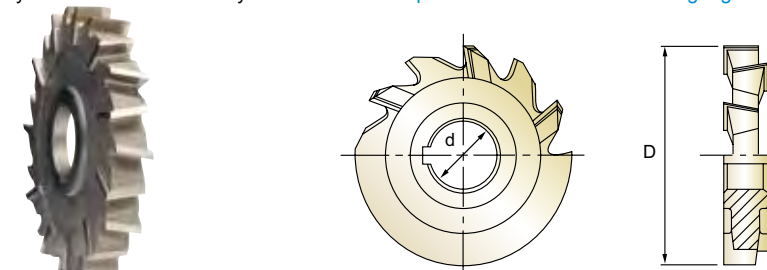


**HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH**

- HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
- Fraise HSS-E 3 Tailles, denture alternée
- FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.

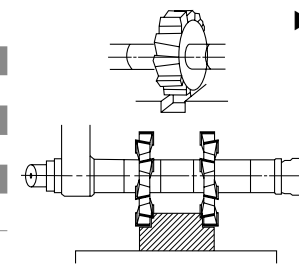


Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10205001	50.0	3	16	14
ML10205002	50.0	4	16	14
ML10205003	50.0	5	16	14
ML10205004	50.0	6	16	14
ML10205005	50.0	7	16	14
ML10205006	50.0	8	16	14
ML10205007	50.0	9	16	14
ML10205008	50.0	10	16	14
ML10206301	63.0	3	22	16
ML10206302	63.0	4	22	16
ML10206303	63.0	5	22	16
ML10206304	63.0	6	22	16
ML10206305	63.0	7	22	16
ML10206306	63.0	8	22	16
ML10206307	63.0	9	22	16
ML10206308	63.0	10	22	16
ML10206309	63.0	12	22	16
ML10206310	63.0	14	22	16
ML10206311	63.0	16	22	16
ML10206312	63.0	18	22	16

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm								
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120	over 120 to 180	over 180 to 250
Tolerance range in mm									
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
Tolerance range in µm									
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0	+250 0	+290 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0	+40 0	+46 0



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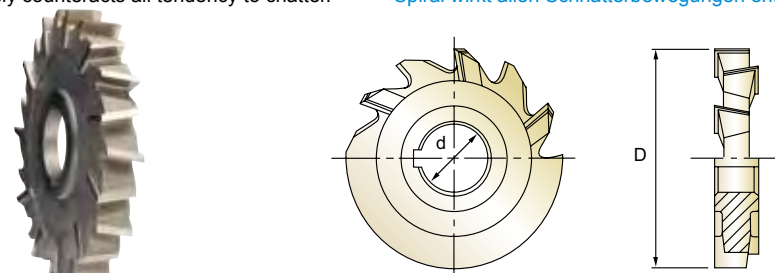
◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH**

- HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
- Fraise HSS-E 3 Tailles, denture alternée
- FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.   
 ▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.



Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10208001	80.0	3	22	18
ML10208002	80.0	4	22	18
ML10208003	80.0	5	22	18
ML10208004	80.0	6	22	18
ML10208005	80.0	7	22	18
ML10208006	80.0	8	22	18
ML10208007	80.0	9	22	18
ML10208008	80.0	10	22	18
ML10208009	80.0	12	22	18
ML10208010	80.0	14	22	18
ML10208011	80.0	16	22	18
ML10208012	80.0	18	22	18
ML10208013	80.0	20	22	18
ML10208014	80.0	4	27	18
ML10208015	80.0	5	27	18
ML10208016	80.0	6	27	18
ML10208017	80.0	7	27	18
ML10208018	80.0	8	27	18
ML10208019	80.0	9	27	18
ML10208020	80.0	10	27	18

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm								
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120	over 120 to 180	over 180 to 250
	Tolerance range in mm								
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
Tolerance range in μm									
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0	+250 0	+290 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0	+40 0	+46 0

◎ : Excellent ○ : Good

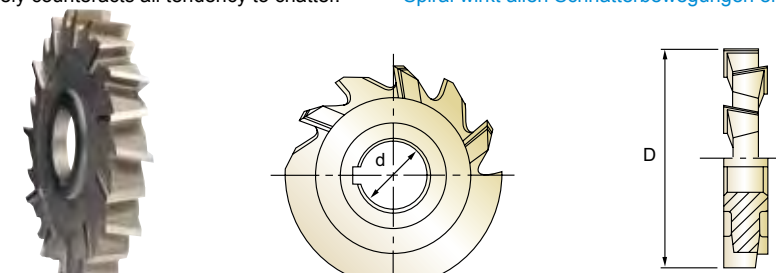
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH**

- HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
- Fraise HSS-E 3 Tailles, denture alternée
- FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.   
 ▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.



Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10208021	80.0	12	27	18
ML10208022	80.0	14	27	18
ML10208023	80.0	16	27	18
ML10208024	80.0	18	27	18
ML10208025	80.0	20	27	18
ML10210001	100.0	3	27	20
ML10210002	100.0	4	27	20
ML10210003	100.0	5	27	20
ML10210004	100.0	6	27	20
ML10210005	100.0	7	27	20
ML10210006	100.0	8	27	20
ML10210007	100.0	9	27	20
ML10210008	100.0	10	27	20
ML10210009	100.0	12	27	20
ML10210010	100.0	14	27	20
ML10210011	100.0	15	27	20
ML10210012	100.0	16	27	20
ML10210013	100.0	18	27	20
ML10210014	100.0	20	27	20
ML10210015	100.0	4	32	20

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm								
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120	over 120 to 180	over 180 to 250
	Tolerance range in mm								
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
Tolerance range in μm									
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0	+250 0	+290 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0	+40 0	+46 0

◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

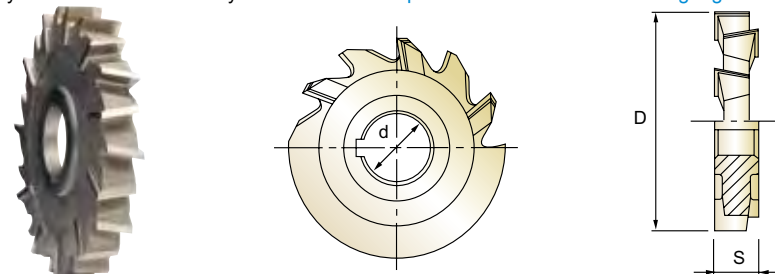


**HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH**

- HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
- Fraise HSS-E 3 Tailles, denture alternée
- FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.

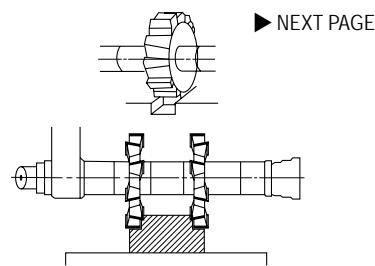


Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10210016	100.0	5	32	20
ML10210017	100.0	6	32	20
ML10210018	100.0	7	32	20
ML10210019	100.0	8	32	20
ML10210020	100.0	9	32	20
ML10210021	100.0	10	32	20
ML10210022	100.0	12	32	20
ML10210023	100.0	14	32	20
ML10210024	100.0	15	32	20
ML10210025	100.0	16	32	20
ML10210026	100.0	18	32	20
ML10210027	100.0	20	32	20
ML10212501	125.0	5	32	22
ML10212502	125.0	6	32	22
ML10212503	125.0	8	32	22
ML10212504	125.0	10	32	22
ML10212505	125.0	12	32	22
ML10212506	125.0	14	32	22
ML10212507	125.0	16	32	22
ML10212508	125.0	18	32	22

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm								
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120	over 120 to 180	over 180 to 250
Tolerance range in mm									
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
Tolerance range in μm									
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0	+250 0	+290 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0	+40 0	+46 0



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

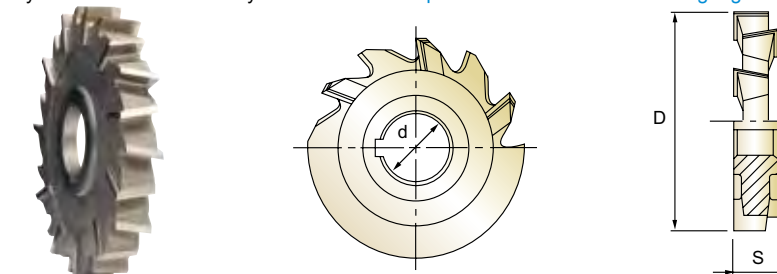


**HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH**

- HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
- Fraise HSS-E 3 Tailles, denture alternée
- FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.

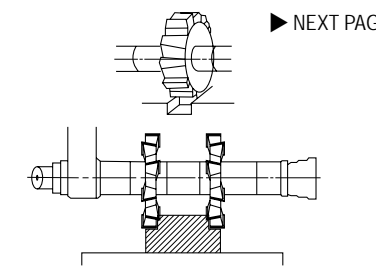


Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10212509	125.0	20	32	22
ML10216001	160.0	6	32	26
ML10216002	160.0	8	32	26
ML10216003	160.0	10	32	26
ML10216004	160.0	12	32	26
ML10216005	160.0	14	32	26
ML10216006	160.0	16	32	26
ML10216007	160.0	18	32	26
ML10216008	160.0	20	32	26
ML10216009	160.0	6	40	26
ML10216010	160.0	8	40	26
ML10216011	160.0	10	40	26
ML10216012	160.0	12	40	26
ML10216013	160.0	14	40	26
ML10216014	160.0	16	40	26
ML10216015	160.0	18	40	26
ML10216016	160.0	20	40	26
ML10220001	200.0	10	40	30
ML10220002	200.0	12	40	30
ML10220003	200.0	14	40	30

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm								
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120	over 120 to 180	over 180 to 250
Tolerance range in mm									
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
Tolerance range in μm									
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0	+250 0	+290 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0	+40 0	+46 0



◎ : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

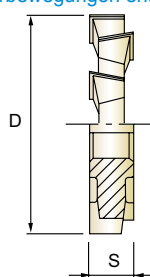
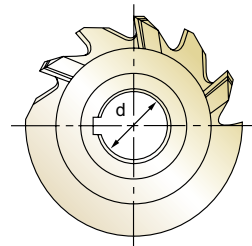


STAGGERED TEETH **ML102** SERIES

**HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH**

- HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
- Fraise HSS-E 3 Tailles, denture alternée
- FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.   
 ▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.

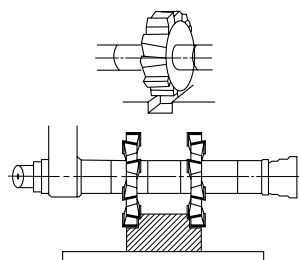


HSS-E DIN 885-A H UNCOATED p.C731

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10220004	200.0	16	40	30
ML10220005	200.0	18	40	30
ML10220006	200.0	20	40	30
ML10220007	200.0	22	40	30
ML10220008	200.0	25	40	30

**Tolerances according to DIN 7160 & 7161**

	Nominal-Diameter in mm								
	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50	over 50 to 80	over 80 to 120	over 120 to 180	over 180 to 250
Tolerance range in mm									
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
Tolerance range in μm									
k11	+75 0	+90 0	+110 0	+130 0	+160 0	+190 0	+220 0	+250 0	+290 0
H7	+12 0	+15 0	+18 0	+21 0	+25 0	+30 0	+35 0	+40 0	+46 0



◎ : Excellent ○ : Good

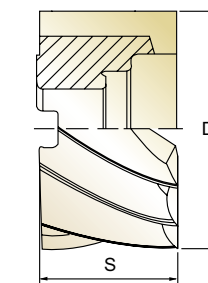
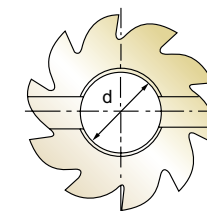
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	



**E2675** SERIES

**HSSCo8, MULTI FLUTE SHELL END MILL**

- HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER
- Fraise HSSCo8, multi-dents trou lisse
- FRESA CILINDRICA FRONTALE, MULTI TAGLIENTE



HSS Co8 DIN 841 N 6-10 30° UNCOATED p.C732

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	Z
E2675300	30.0	30	● 13	6
E2675350	35.0	35	● 16	6
E2675400	40.0	20	● 16	8
E2675402	40.0	40	● 16	8
E2675500	50.0	25	22	8
E2675502	50.0	50	22	8
E2675600	60.0	30	27	8
E2675601	60.0	60	27	8
E2675750	75.0	35	27	10
E2675751	75.0	75	27	10
E2675900	90.0	35	27	10
E2675902	110.0	35	32	10

● Tolerance of Internal Diameter = +0.018 ~ 0  
▶ TIN-COATING, TICN-COATING & TiAIN-COATING is available on your request.

HSS Co8 DIN 1880 N 8-14 30° UNCOATED p.C732

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	Z
E2675401	40.0	32	● 16	8
E2675501	50.0	36	22	8
E2675630	63.0	40	27	8
E2675800	80.0	45	27	10
E2675901	100.0	50	32	10
E2675903	125.0	56	40	12
E2675904	160.0	63	50	14

● Tolerance of Internal Diameter = +0.018 ~ 0  
▶ TIN-COATING, TICN-COATING & TiAIN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

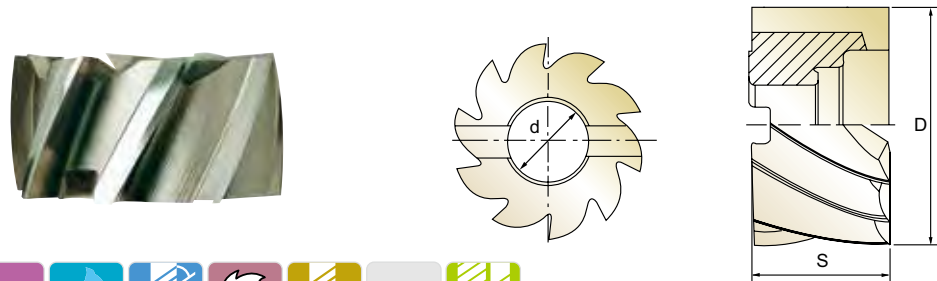
◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	



**HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINIUM**

- HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM
- Fraise HSSCo8, multi-dents trou lisse pour aluminium
- FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER ALLUMINIO



HSS Co8 DIN 841 W 4&6 42° UNCOATED p.C732

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2676300	30.0	30	● 13	4
E2676400	40.0	20	● 16	4
E2676402	40.0	40	● 16	4
E2676500	50.0	25	22	6
E2676502	50.0	50	22	6
E2676600	60.0	30	27	6
E2676601	60.0	60	27	6
E2676750	75.0	75	27	6

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TICN-COATING & TiAIN-COATING is available on your request.

HSS Co8 DIN 1880 W 4&6 42° UNCOATED p.C732

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2676401	40.0	32	● 16	4
E2676501	50.0	36	22	6
E2676630	63.0	40	27	6
E2676800	80.0	45	27	6
E2676901	100.0	50	32	6

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TICN-COATING & TiAIN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

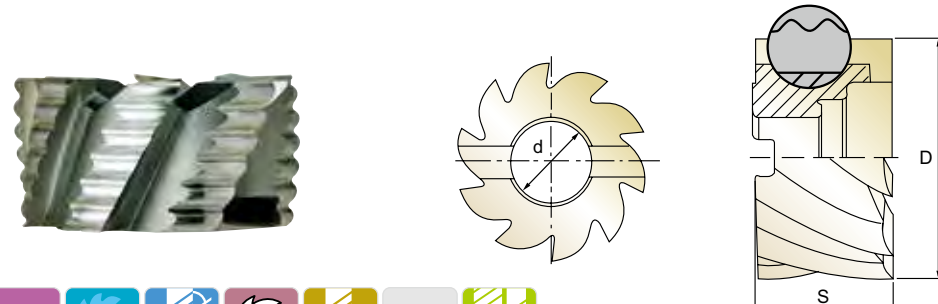
◎ : Excellent ○ : Good

ISO Material Description	P										M				K										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HRc	13	25	28	32	38	42	48	52	58	63	68	73	78	83	88	93	98	103	108	113	118	123	128	133	138
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230					
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



**HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - COARSE**

- HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - GROBES
- Fraise HSSCo8, multi-dents trou lisse, ébauche, pas grossier
- FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER SGROSSATURA



HSS Co8 DIN 841 NR 6-12 30° UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2677401	40.0	40	● 16	6
E2677501	50.0	50	22	8
E2677600	60.0	30	27	8
E2677601	60.0	60	27	8
E2677750	75.0	35	27	10
E2677751	75.0	75	27	10
E2677900	90.0	35	27	10
E2677902	110.0	35	32	12

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TICN-COATING & TiAIN-COATING is available on your request.

HSS Co8 DIN 1880 NR 6-12 30° UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2677400	40.0	32	● 16	6
E2677500	50.0	36	22	8
E2677630	63.0	40	27	8
E2677800	80.0	45	27	10
E2677901	100.0	50	32	10
E2677903	125.0	56	40	12
E2677904	160.0	63	50	12

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TICN-COATING & TiAIN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

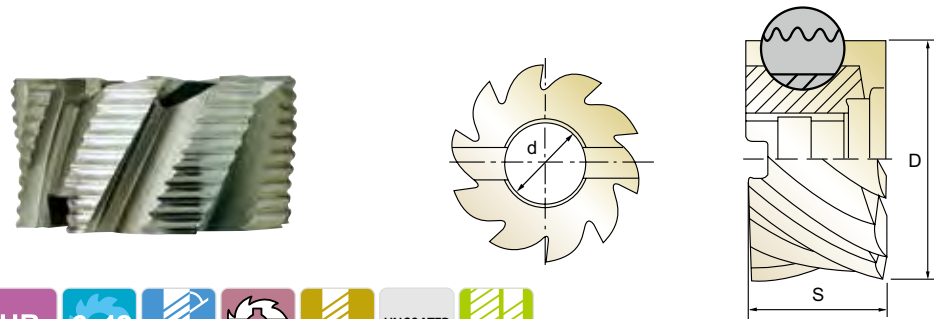
◎ : Excellent ○ : Good

ISO Material Description	P										M				K										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron			Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HRc	13	25	28	32	38	42	48	52	58	63	68	73	78	83	88	93	98	103	108	113	118	123	128	133	138
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230					
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - FINE**

- HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - FEINES
- Fraise HSSCo8, multi-dents trou lisse, ébauche, pas fin
- FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER SGROSSATURA



HSS Co8 DIN 841 HR 6-12 30° UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2678401	40.0	40	● 16	6
E2678501	50.0	50	22	8
E2678600	60.0	30	27	8
E2678601	60.0	60	27	8
E2678750	75.0	35	27	10
E2678751	75.0	75	27	10
E2678900	90.0	35	27	10
E2678902	110.0	35	32	12

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.

HSS Co8 DIN 1880 HR 6-12 30° UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2678400	40.0	32	● 16	6
E2678500	50.0	36	22	8
E2678630	63.0	40	27	8
E2678800	80.0	45	27	10
E2678901	100.0	50	32	10
E2678903	125.0	56	40	12
E2678904	160.0	63	50	12

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+0.25 -0.15	+0.5 -0	+0.02 -0

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

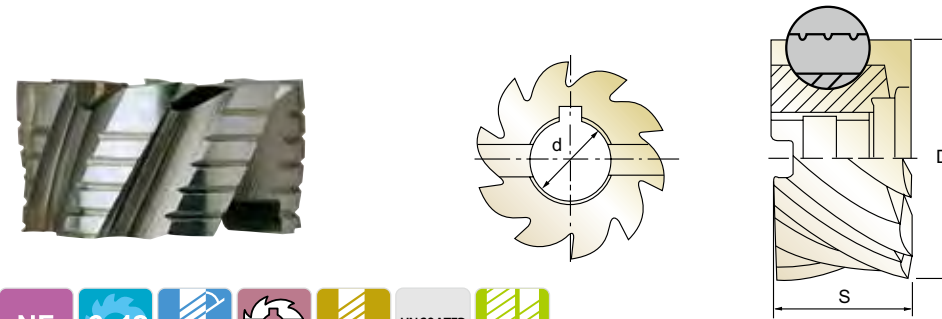
  

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



**HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL**

- HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER
- Fraise HSSCo8, multi-dents trou lisse, ébauche et finition
- FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, SEMI FINITURA



HSS Co8 DIN 841 NF 6-12 30° UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2679401	40.0	40	● 16	6
E2679501	50.0	50	22	8
E2679600	60.0	30	27	8
E2679601	60.0	60	27	8
E2679750	75.0	35	27	10
E2679751	75.0	75	27	10
E2679900	90.0	35	27	10
E2679902	110.0	35	32	12

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.

HSS Co8 DIN 1880 NF 6-12 30° UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2679400	40.0	32	● 16	6
E2679500	50.0	36	22	8
E2679630	63.0	40	27	8
E2679800	80.0	45	27	10
E2679901	100.0	50	32	10
E2679903	125.0	56	40	12
E2679904	160.0	63	50	12

- Tolerance of Internal Diameter = +0.018 ~ 0
- ▶ TIN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+0.25 -0.15	+0.5 -0	+0.02 -0

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**ML012, ML112, ML022, ML122** SERIES

**MULTI FLUTE DOVETAIL CUTTERS TYPE 'A', 'C', 'E'**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)						
				16.0	20.0	25.0	32.0	40.0	50.0	63.0
P	1	Non-alloy steel	Vc	30	30	30	30	30	30	30
			fz	0.03	0.037	0.026	0.042	0.043	0.03	0.031
			RPM	597	477	382	298	239	191	152
	FEED		107	106	79	125	123	92	75	
	2		Vc	15	15	15	15	15	15	15
			fz	0.031	0.036	0.031	0.041	0.043	0.026	0.031
			RPM	298	239	191	149	119	95	76
	FEED		56	52	47	61	62	40	38	
	3-4		Vc	10	10	10	10	10	10	10
			fz	0.031	0.035	0.028	0.04	0.042	0.03	0.033
			RPM	199	159	127	99	80	64	51
FEED	37	33	29	40	40	31	27			
5	Vc	10	10	10	10	10	10	10		
	fz	0.021	0.02	0.02	0.02	0.022	0.02	0.023		
	RPM	199	159	127	99	80	64	51		
FEED	25	19	20	20	21	20	19			
6	Vc	15	15	15	15	15	15	15		
	fz	0.031	0.036	0.031	0.041	0.043	0.026	0.031		
	RPM	298	239	191	149	119	95	76		
FEED	56	52	47	61	62	40	38			
7	Vc	10	10	10	10	10	10	10		
	fz	0.031	0.035	0.028	0.04	0.042	0.03	0.033		
	RPM	199	159	127	99	80	64	51		
FEED	37	33	29	40	40	31	27			
8-9	Vc	10	10	10	10	10	10	10		
	fz	0.021	0.02	0.02	0.02	0.022	0.02	0.023		
	RPM	199	159	127	99	80	64	51		
FEED	25	19	20	20	21	20	19			
10	Vc	15	15	15	15	15	15	15		
	fz	0.031	0.036	0.031	0.041	0.043	0.026	0.031		
	RPM	298	239	191	149	119	95	76		
FEED	56	52	47	61	62	40	38			
11.1	Vc	10	10	10	10	10	10	10		
	fz	0.021	0.02	0.02	0.02	0.022	0.02	0.023		
	RPM	199	159	127	99	80	64	51		
FEED	25	19	20	20	21	20	19			
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	95	85	90	90	95	90	
			fz	0.03	0.04	0.029	0.041	0.042	0.03	0.033
			RPM	1890	1353	1146	895	756	541	455
			FEED	340	325	266	367	381	260	240



**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**ML032, ML132, ML042, ML142** SERIES

**MULTI FLUTE DOVETAIL CUTTERS TYPE 'B', 'D', 'F'**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)			
				16.0	20.0	25.0	32.0
P	1	Non-alloy steel	Vc	30	30	30	30
			fz	0.03	0.037	0.026	0.042
			RPM	597	477	382	298
	FEED		107	106	79	125	
	2		Vc	15	15	15	15
			fz	0.031	0.036	0.031	0.041
			RPM	298	239	191	149
	FEED		56	52	47	61	
	3-4		Vc	10	10	10	10
			fz	0.031	0.035	0.028	0.04
			RPM	199	159	127	99
FEED	37	33	29	40			
5	Vc	10	10	10	10		
	fz	0.021	0.02	0.02	0.02		
	RPM	199	159	127	99		
FEED	25	19	20	20			
6	Vc	15	15	15	15		
	fz	0.031	0.036	0.031	0.041		
	RPM	298	239	191	149		
FEED	56	52	47	61			
7	Vc	10	10	10	10		
	fz	0.031	0.035	0.028	0.04		
	RPM	199	159	127	99		
FEED	37	33	29	40			
8-9	Vc	10	10	10	10		
	fz	0.021	0.02	0.02	0.02		
	RPM	199	159	127	99		
FEED	25	19	20	20			
10	Vc	15	15	15	15		
	fz	0.031	0.036	0.031	0.041		
	RPM	298	239	191	149		
FEED	56	52	47	61			
11.1	Vc	10	10	10	10		
	fz	0.021	0.02	0.02	0.02		
	RPM	199	159	127	99		
FEED	25	19	20	20			
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	95	85	90	90
			fz	0.03	0.04	0.029	0.041
			RPM	1890	1353	1146	895
			FEED	340	325	266	367





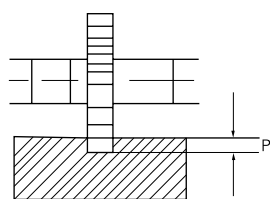


**ML092** SERIES

MULTI FLUTES SIDE AND FACE MILLING CUTTERS WITH STRAIGHT TEETH

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)				
				50.0	63.0	80.0	100.0	125.0
P	1	Non-alloy steel	Vc	25	25	25	25	25
			fz	0.045	0.058	0.06	0.063	0.066
			RPM	159	126	99	80	64
			FEED	129	161	143	130	126
	2	Non-alloy steel	Vc	20	20	20	20	20
			fz	0.04	0.036	0.041	0.038	0.05
			RPM	127	101	80	64	51
	3-4	Non-alloy steel	Vc	15	15	15	15	15
			fz	0.034	0.031	0.033	0.034	0.042
			RPM	95	76	60	48	38
5	Non-alloy steel	Vc	10	10	10	10	10	
		fz	0.031	0.029	0.03	0.03	0.036	
		RPM	64	51	40	32	25	
6	Low alloy steel	Vc	20	20	20	20	20	
		fz	0.04	0.036	0.041	0.038	0.05	
		RPM	127	101	80	64	51	
7	Low alloy steel	Vc	15	15	15	15	15	
		fz	0.034	0.031	0.033	0.034	0.042	
		RPM	95	76	60	48	38	
8-9	Low alloy steel	Vc	10	10	10	10	10	
		fz	0.031	0.029	0.03	0.03	0.036	
		RPM	64	51	40	32	25	
10	High alloyed steel, and tool steel	Vc	20	20	20	20	20	
		fz	0.04	0.036	0.041	0.038	0.05	
		RPM	127	101	80	64	51	
11.1	High alloyed steel, and tool steel	Vc	10	10	10	10	10	
		fz	0.031	0.029	0.03	0.03	0.036	
		RPM	64	51	40	32	25	
N	21~25 Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	100	100	100	100	100	
		fz	0.018	0.023	0.026	0.024	0.033	
		RPM	637	505	398	318	255	



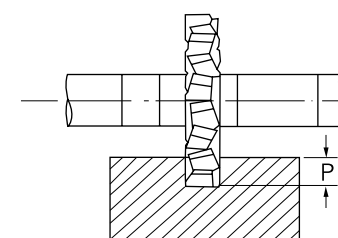
MILLING DEPTH P = WIDTH OF FACES

**ML102** SERIES

MULTI FLUTE SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)						
				50.0	63.0	80.0	100.0	125.0	160.0	200.0
P	1	Non-alloy steel	Vc	25	25	25	25	25	25	25
			fz	0.058	0.08	0.081	0.081	0.072	0.081	0.079
			RPM	159	126	99	80	64	50	40
			FEED	129	162	145	129	101	105	94
	2	Non-alloy steel	Vc	20	20	20	20	20	20	
			fz	0.053	0.052	0.055	0.05	0.055	0.05	0.048
			RPM	127	101	80	64	51	40	32
	3-4	Non-alloy steel	Vc	15	15	15	15	15	15	
			fz	0.044	0.043	0.044	0.044	0.045	0.044	0.041
			RPM	95	76	60	48	38	30	24
5	Non-alloy steel	Vc	10	10	10	10	10	10		
		fz	0.039	0.04	0.04	0.039	0.039	0.04	0.039	
		RPM	64	51	40	32	25	20	16	
6	Low alloy steel	Vc	20	20	20	20	20	20		
		fz	0.053	0.052	0.055	0.05	0.055	0.05	0.048	
		RPM	127	101	80	64	51	40	32	
7	Low alloy steel	Vc	15	15	15	15	15	15		
		fz	0.044	0.043	0.044	0.044	0.045	0.044	0.041	
		RPM	95	76	60	48	38	30	24	
8-9	Low alloy steel	Vc	10	10	10	10	10	10		
		fz	0.039	0.04	0.04	0.039	0.039	0.04	0.039	
		RPM	64	51	40	32	25	20	16	
10	High alloyed steel, and tool steel	Vc	20	20	20	20	20	20		
		fz	0.053	0.052	0.055	0.05	0.055	0.05	0.048	
		RPM	127	101	80	64	51	40	32	
11.1	High alloyed steel, and tool steel	Vc	10	10	10	10	10	10		
		fz	0.039	0.04	0.04	0.039	0.039	0.04	0.039	
		RPM	64	51	40	32	25	20	16	
N	21~25 Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	100	100	100	100	100	100		
		fz	0.023	0.031	0.035	0.031	0.036	0.029	0.031	
		RPM	637	505	398	318	255	199	159	



MILLING DEPTH P = WIDTH OF FACES

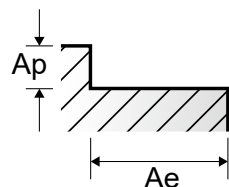


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2675 SERIES MULTI FLUTE SHELL END MILL**

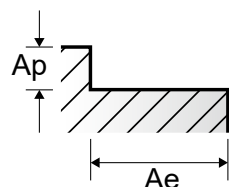
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						40.0	50.0	63.0	80.0	100.0	125.0	160.0
P	1-2	Non-alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.07	0.078	0.092	0.1	0.115	0.12	0.131
					RPM	239	191	152	119	95	76	60
	FEED		134	119	112	119	110	110	109			
	3-4		Vc	25	25	25	25	25	25	30		
			fz	0.075	0.077	0.091	0.1	0.119	0.113	0.119		
			RPM	199	159	126	99	80	64	60		
	FEED		119	98	92	99	95	86	99			
	5		Vc	20	20	20	20	20	20	20		
			fz	0.071	0.078	0.09	0.094	0.117	0.108	0.116		
			RPM	159	127	101	80	64	51	40		
FEED	90	79	73	75	74	66	65					
6	Vc	30	30	30	30	30	30	30				
	fz	0.07	0.078	0.092	0.1	0.115	0.12	0.131				
	RPM	239	191	152	119	95	76	60				
FEED	134	119	112	119	110	110	109					
7	Vc	25	25	25	25	25	25	30				
	fz	0.075	0.077	0.091	0.1	0.119	0.113	0.119				
	RPM	199	159	126	99	80	64	60				
FEED	119	98	92	99	95	86	99					
8	Vc	20	20	20	20	20	20	20				
	fz	0.071	0.078	0.09	0.094	0.117	0.108	0.116				
	RPM	159	127	101	80	64	51	40				
FEED	90	79	73	75	74	66	65					
9	Vc	10	10	10	10	10	10	10				
	fz	0.078	0.08	0.1	0.1	0.117	0.146	0.125				
	RPM	80	64	51	40	32	25	20				
FEED	50	41	40	40	37	45	35					
10	Vc	30	30	30	30	30	30	30				
	fz	0.07	0.078	0.092	0.1	0.115	0.12	0.131				
	RPM	239	191	152	119	95	76	60				
FEED	134	119	112	119	110	110	109					
11.1	Vc	20	20	20	20	20	20	20				
	fz	0.071	0.078	0.09	0.094	0.117	0.108	0.116				
	RPM	159	127	101	80	64	51	40				
FEED	90	79	73	75	74	66	65					



**E2676 SERIES MULTI FLUTE SHELL END MILL for ALUMINUM**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						30.0	40.0	50.0	60.0	63.0	75.0	80.0
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.75D	0.25D	Vc	100	105	95	95	95	105	100
					fz	0.05	0.06	0.069	0.1	0.115	0.13	0.128
					RPM	1061	836	605	504	480	446	398
					FEED	212	201	250	302	331	348	306

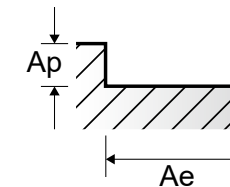


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2677, E2678 SERIES MULTI FLUTE ROUGHING SHELL END MILL**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						40.0	50.0	63.0	80.0	100.0	125.0	160.0
P	1-2	Non-alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
	FEED		99	119	112	119	110	110	110			
	3-4		Vc	25	25	25	25	25	30			
			fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139		
			RPM	199	159	126	99	80	64	60		
	FEED		85	98	92	99	95	86	100			
	5		Vc	20	20	20	20	20	20			
			fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135		
			RPM	159	127	101	80	64	51	40		
FEED	68	79	73	75	74	66	64					
6	Vc	30	30	30	30	30	30					
	fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153				
	RPM	239	191	152	119	95	76	60				
FEED	99	119	112	119	110	110	110					
7	Vc	25	25	25	25	25	30					
	fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139				
	RPM	199	159	126	99	80	64	60				
FEED	85	98	92	99	95	86	100					
8	Vc	20	20	20	20	20	20					
	fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135				
	RPM	159	127	101	80	64	51	40				
FEED	68	79	73	75	74	66	64					
9	Vc	10	10	10	10	10	10					
	fz	0.073	0.08	0.1	0.1	0.117	0.146	0.146				
	RPM	80	64	51	40	32	25	20				
FEED	35	41	40	40	37	45	35					
10	Vc	30	30	30	30	30	30					
	fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153				
	RPM	239	191	152	119	95	76	60				
FEED	99	119	112	119	110	110	110					
11.1	Vc	20	20	20	20	20	20					
	fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135				
	RPM	159	127	101	80	64	51	40				
FEED	68	79	73	75	74	66	64					



**E2679 SERIES MULTI FLUTE ROUGHING & FINISHING SHELL END MILL**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						40.0	50.0	63.0	80.0	100.0	125.0	160.0
P	1-2	Non-alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
	FEED		99	119	112	119	110	110	110			
	3-4		Vc	25	25	25	25	25	30			
			fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139		
			RPM	199	159	126	99	80	64	60		
	FEED		85	98	92	99	95	86	100			
	5		Vc	20	20	20	20	20	20			
			fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135		
			RPM	159	127	101	80	64	51	40		
FEED	68	79	73	75	74	66	64					
6	Vc	30	30	30	30	30	30					
	fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153				
	RPM	239	191	152	119	95	76	60				
FEED	99	119	112	119	110	110	110					
7	Vc	25	25	25	25	25	30					
	fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139				
	RPM	199	159	126	99	80	64	60				
FEED	85	98	92	99	95	86	100					
8	Vc	20	20	20	20	20	20					
	fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135				
	RPM	159	127	101	80	64	51	40				
FEED	68	79	73	75	74	66	64					
9	Vc	10	10	10	10	10	10					
	fz	0.073	0.08	0.1	0.1	0.117	0.146	0.146				
	RPM	80	64	51	40	32	25	20				
FEED	35	41	40	40	37	45	35					
10	Vc	30	30	30	30	30	30					
	fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153				
	RPM	239	191	152	119	95	76	60				
FEED	99	119	112	119	110	110	110					
11.1	Vc	20	20	20	20	20	20					
	fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135				
	RPM	159	127	101	80	64	51	40				
FEED	68	79	73	75	74	66	64					





**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**E2498** SERIES

**4 FLUTE CORNER ROUNDING CUTTERS**

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)											
				8.0	9.0	10.0	11.0	12.0	14.0	16.0	20.0	24.0	28.0	34.0	48.0
P	1	Non-alloy steel	Vc	20	20	20	20	20	20	20	20	20	20	20	20
			fz	0.017	0.022	0.02	0.021	0.021	0.025	0.029	0.032	0.038	0.042	0.049	0.058
			RPM	796	707	637	579	531	455	398	318	265	227	187	133
	FEED		54	62	51	49	45	45	46	41	40	38	37	31	
	Vc		15	15	15	15	15	15	15	15	15	15	15	15	
	fz		0.015	0.016	0.016	0.019	0.019	0.023	0.029	0.033	0.039	0.04	0.048	0.053	
	RPM	597	531	477	434	398	341	298	239	199	171	140	99		
	FEED	36	34	31	33	30	31	35	32	31	27	27	21		
	3-4	Vc	10	10	10	10	10	10	10	10	10	10	10	10	
		fz	0.018	0.023	0.02	0.024	0.024	0.023	0.03	0.034	0.04	0.05	0.048	0.05	
		RPM	398	354	318	289	265	227	199	159	133	114	94	66	
	FEED	29	33	25	28	25	21	24	22	21	23	18	13		
6	Vc	15	15	15	15	15	15	15	15	15	15	15	15		
	fz	0.015	0.016	0.016	0.019	0.019	0.023	0.029	0.033	0.039	0.04	0.048	0.053		
	RPM	597	531	477	434	398	341	298	239	199	171	140	99		
FEED	36	34	31	33	30	31	35	32	31	27	27	21			
7-8	Vc	10	10	10	10	10	10	10	10	10	10	10	10		
	fz	0.018	0.023	0.02	0.024	0.024	0.023	0.03	0.034	0.04	0.05	0.048	0.05		
	RPM	398	354	318	289	265	227	199	159	133	114	94	66		
FEED	29	33	25	28	25	21	24	22	21	23	18	13			
10	Vc	15	15	15	15	15	15	15	15	15	15	15	15		
	fz	0.015	0.016	0.016	0.019	0.019	0.023	0.029	0.033	0.039	0.04	0.048	0.053		
	RPM	597	531	477	434	398	341	298	239	199	171	140	99		
FEED	36	34	31	33	30	31	35	32	31	27	27	21			
11.1	Vc	10	10	10	10	10	10	10	10	10	10	10	10		
	fz	0.018	0.023	0.02	0.024	0.024	0.023	0.03	0.034	0.04	0.05	0.048	0.05		
	RPM	398	354	318	289	265	227	199	159	133	114	94	66		
FEED	29	33	25	28	25	21	24	22	21	23	18	13			
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	90	80	90	85	90	90	80	90	90	85	85	90
			fz	0.018	0.021	0.02	0.023	0.022	0.025	0.031	0.034	0.038	0.045	0.05	0.058
			RPM	3581	2829	2865	2460	2387	2046	1592	1432	1194	966	796	597
			FEED	258	238	229	226	210	205	197	195	181	174	159	138





Leading Through Innovation



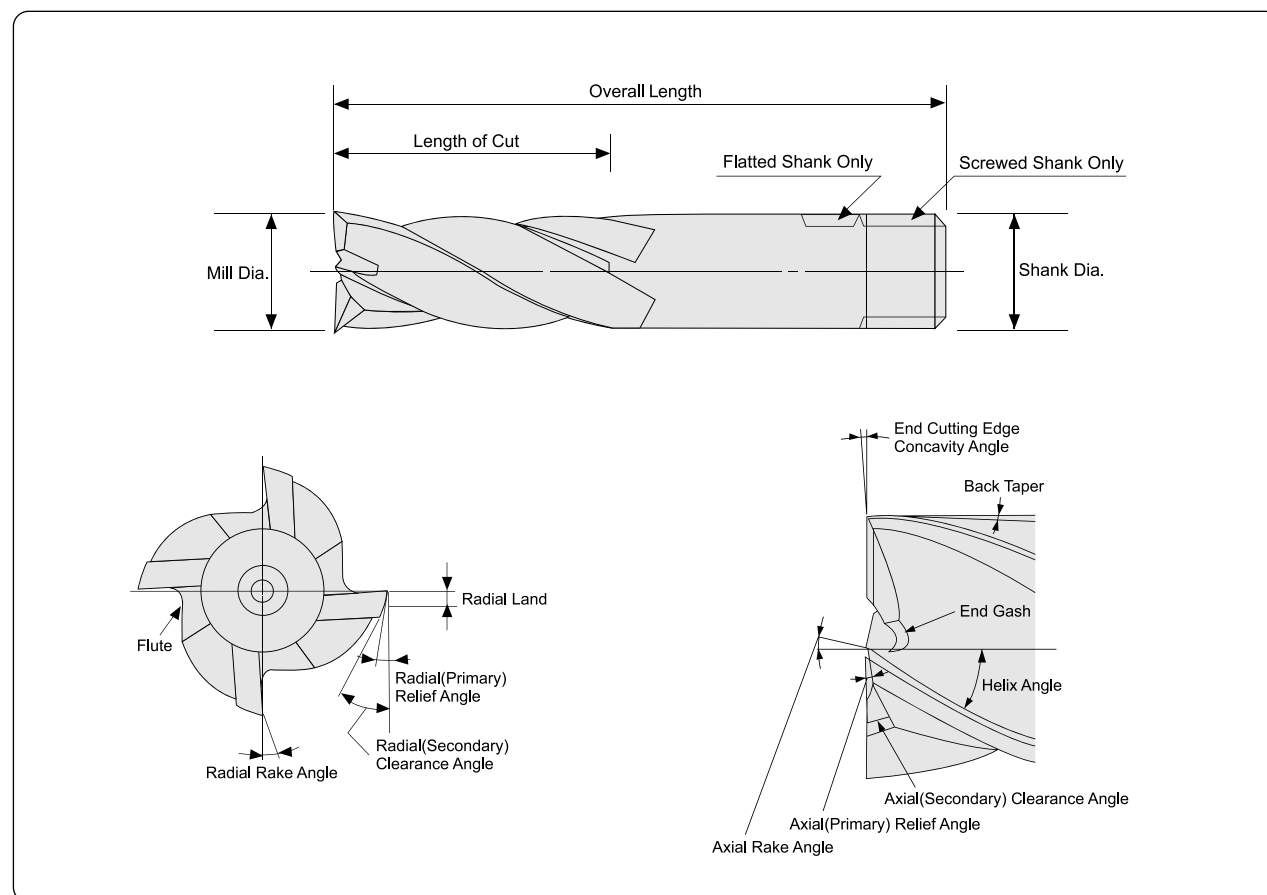
# TECHNICAL DATA

## TECHNISCHE DATEN

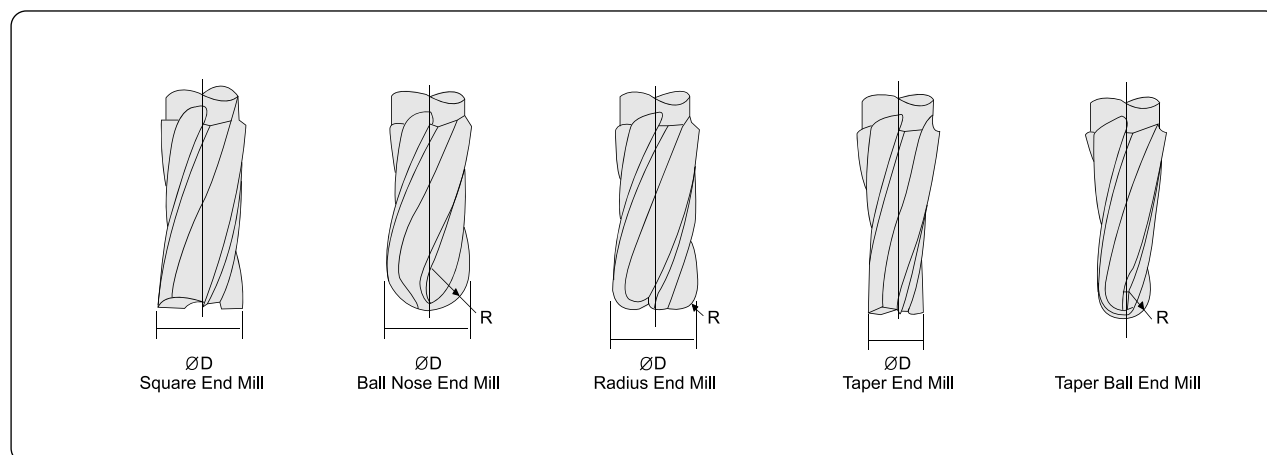




## 1 NAMES OF END MILL PARTS ERLÄUTERUNG DER FRÄSERTEILE



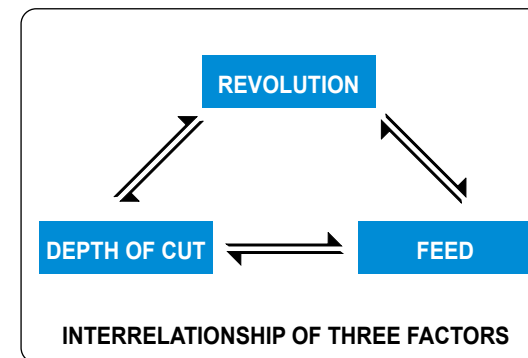
## 2 TYPES OF END MILL FRÄSERTYPEN



Speed, feed and depth of cut are the most important factors to consider for best results in milling. Improper feeds and speeds often cause low production, poor work quality and unnecessary damage to the cutter.

This section covers the basic principles of speed and feed selection for milling cutters and end mills. It will serve as a guide in setting-up new milling jobs.

Geschwindigkeit, Vorschub und Schnitttiefe sind die wichtigsten Faktoren, um das beste Fräsergebnis zu erzielen. Ungeeignete Vorschübe und Geschwindigkeiten verursachen oft niedrige Produktivität, schlechte Bearbeitungsqualität und unnötige Beschädigung des Fräasers. Dieser Abschnitt beinhaltet die Basisprinzipien von Geschwindigkeit- und Vorschubauswahl für Fräser und Scheibenfräser. Dieser Abschnitt sollte als ein Setting-up-Führer neuer Fräsaufgaben dienen.



## 3 SPEEDS GESCHWINDIGKEIT

In milling, SPEED is measured in peripheral feet per minute.(revolution per minute times cutter circumference in feet) This is frequently referred to as "peripheral speed" "cutting speed" or "surface speed".

Beim Fräsen, Geschwindigkeit ist gemessen in Bogenlänge pro Minute. Dies wird oft als 'peripheral speed', 'cutting speed' oder 'surface speed' bezeichnet.

Revolutions per Minute  
Umdrehung pro Minute

$$N = \frac{1000V}{\pi D}$$

V : Cutting Speed(m/min) / Schneidgeschwindigkeit

D : Diameter of Tool(mm) / Werkzeugdurchmesser

N : Revolution per minute(rev/min) / Umdrehung pro Minute

$\pi$ : 3.1416

They will have to be tempered to suit the conditions ON THE JOB. For example:

Dies muß der jeweiligen Aufgabe angepaßt werden. Zum Beispiel:

### Use Lower Speed Ranges for Niedrig Geschwindigkeitsbereiche für

Hard materials / Hartes Material  
Tough materials / Rauhes Material  
Abrasive materials / Abrasives Material  
Heavy cuts / Heavy cut  
Minimum tool wear / Minimale Werkzeugabnutzung  
Maximum cutter life / Maximale Standzeit

### Use Higher Speed Ranges for Hohe Geschwindigkeitsbereiche für

Softer materials / Weiches Material  
Better finishes / Bessere Oberflächengüte  
Smaller diameter cutters / Kleinere Fräserdurchmesser  
Light cuts / Light cut  
Frail work pieces or set-ups / Zerbrechliche Stücke oder Set-up  
Hand feed operations / Handarbeit  
Maximum production rates / Maximale Produktivität  
Non-metallics / Nichtmetallische Werkstoffe

## 4 FEEDS VORSCHUB

Feed is usually measured in millimeters per minute. It is the product of feed per tooth times revolution per minute times the number of teeth in the cutter. Due to variations in cutter sizes, numbers of teeth and revolutions per minute, all feed rates should be calculated from feed per tooth. Feed per tooth is the basis of all feed rates per minute, whether the cutters are large or small, fine or coarse tooth, and are run at high or low peripheral speed. Because feed per tooth affects chip thickness. It is a very important factor in cutter life.

Highest possible feed per tooth will usually give longer cutter life between grinds and greater production per grind. Excessive feeds may over load the cutter teeth and cause breakage or chipping of the cutting edges. The following factors should be kept in mind when using the recommended starting feed per tooth.

Vorschub wird meist in Millimeter pro Minute gemessen. Er ist das Produkt von Vorschub pro Zahn, Umdrehung pro Minute oder der Anzahl der Zähne am Werkzeug. Aufgrund der Variationen in Fräsergrößen, Anzahl der Zähne und Umdrehungen pro Minute, Vorschübe sollten mit Vorschub pro Zahn gerechnet werden. Vorschub pro Zahn ist die Basis für alle Vorschubraten pro Minute unabhängig davon, ob die Fräser groß, klein, mit Fein- oder Grobgewinde und mit hoher- oder niedriger Bogengeschwindigkeit arbeiten. Vorschub pro Zahn beeinflusst Spandicke, was für ein Werkzeug ein sehr wichtiger Faktor ist. Höchstmöglicher Vorschub pro Zahn verursacht meist längeres Werkzeugleben zwischen Abnutzung und Produktivität pro Abnutzung. Exzessiver Vorschub dagegen wird den Werkzeugzahn überbelasten und Beschädigungen oder Abbröckelungen von Schneidkanten verursachen. Bei der Nutzung von empfohlenen Vorschüben pro Zahn sollten folgende Faktoren berücksichtigt werden.



Feed in millimeters per Minute / *Vorschub in Millimeter pro Minute*

$$F.M = F.R. \times R.P.M$$

F.R. : Feed per Revolutions in millimeters / *Vorschub pro Umdrehungen pro Minute*

R.P.M. : Revolutions per Minutes / *Umdrehungen pro Minute*

The following factors should be kept in mind when using the recommended stating feed per tooth.

*Die folgenden Faktoren sind beim Einsatz der Vorschübe pro Zahn zu berücksichtigen.*

**Use Higher Feeds For**

*Höherer Vorschub für*

Heavy, roughing cuts / *Heavy cut, Schruppfräsen*  
Rigid set-ups / *Robustes Werkstück*  
Easy-to-machine work materials / *Leicht fräsbares Material*  
Rugged cutters / *Robuster Fräser*  
Slab milling cuts / *Scheibenfräsen*  
Low tensile strength materials / *Material von niedriger Zugfestigkeit*  
Coarse tooth cutters / *Grobgewinde-Fräser*  
Abrasive materials / *Abrasives Material*

**Use Lower Feeds For**

*Niedrigerer Vorschub für*

Light, and finishing cuts / *Light cut, Finishing cut*  
Frail set-ups / *Zerbrechliches Material*  
Hard to machine work materials / *Schwer fräsbares Material*  
Frail and small cutters / *Dünne, kleine Fräser*  
Deep slots / *Tiefnuten*  
High tensile strength materials / *Material von hoher Zugfestigkeit*  
Fine tooth cutters / *Feingewinde-Fräser*

**SPEED AND FEED CALCULATIONS**  
**FOR MILLING CUTTERS AND OTHER ROTATING TOOLS**

TO FIND	HAVING	FORMULA
Surface(or Periphery) Speed in meter per Minute=S.P.M.	Diameter of Tool in millimeters =D Revolutions per Minute =R.P.M.	$V = \frac{D \times 3.1416 \times R.P.M.}{1000}$
Revolutions per Minute=R.P.M.	Surface Speed in meter per Minute =S.P.M Diameter of Tool in millimeters =D	$R.P.M. = \frac{V \times 1000}{D \times 3.1416}$
Feed per Revolution in millimeters-F.R.	Feed in millimeters per Minute =F.M. Revolution per Minute =R.P.M.	$F.R. = \frac{F.M.}{R.P.M.}$
Feed in millimeters per Minute-F.M.	Feed per Revolution in millimeters =F.R. Revolution per Minute =R.P.M.	$F.M. = F.R. \times R.P.M.$
Number of Cutting Teeth per Minute=T.M.	Number of Teeth in Tool =T Revolution per Minute =R.P.M.	$T.M = T \times R.P.M.$
Feed per tooth=F.T.	Number of Teeth in Tool =T Feed per Revolution in millimeters =R.P.M.	$F.T. = \frac{F.R.}{T}$
Feed per Tooth=F.T.	Number of Teeth in Tool =T Feed in millimeters per Minute =F.M. Speed in Revolution per Minute =R.P.M.	$F.T. = \frac{F.M.}{T \times R.P.M.}$

**5 CASE OF RESHARPENING**  
**NACHSCHLEIFFÄLLE**

When the product finish become worse, the cutting edge must get dulled, chips become smaller and the cutting sound gets louder. In such cases, a end mill must be resharpened. The following are the damages of end mills when the resharpening is required.

*Wenn die Schneidkante abstumpft, verschlechtert sich die Bearbeitungsqualität, Span wird kürzer und das Fräsergeräusch wird lauter. In solchen Fällen muß der Fräser nachgeschliffen werden. Folgend sind Beschädigungen an Fräser, die das Nachschleifen nötig machen.*

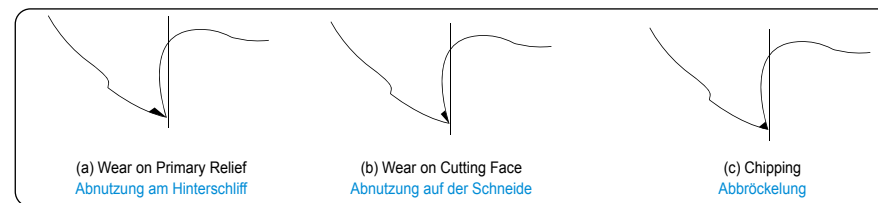


Fig. 1. Damages of Cutting Edge

**6 SHARPEN AT PREDETERMINED WEAR LAND**  
**SCHLEIFEN BEI VORBESTIMMTEN ABNUTZUNGSFLÄCHEN**

Cutters should be sharpened as soon as the wear land(Fig. 2.) reaches a predetermined width. This width should permit sharpening without excessive loss of tool life. it may vary from a few hundreds to some tenth of a millimeter, depending on the type of cutter and the finish required on the product. This method is used on production runs where uneven amounts of stock is removed or where the material varies in machinability. It is also used on small quantity product lots.

*Fräser sollten nachgeschliffen werden, so bald die Abnutzungsfläche die vorbestimmte Breite erreicht. Diese Breite sollte ein Schleifen ohne exzessive Verlust der Werkzeuglebensdauer ermöglichen. Sie variiert, in Abhängigkeit von Werkzeugtypen und benötigtem Finish, von Hunderstel bis einigen Zehntel Millimeter. Diese Methode wird in Prozeßen angewandt, in denen variierende Mengen von Werkstoffen abgefräst oder Materialien verschiedener Fräsbarkeiten bearbeitet werden. Ebenso in Produktionen kleiner Losgrößen.*

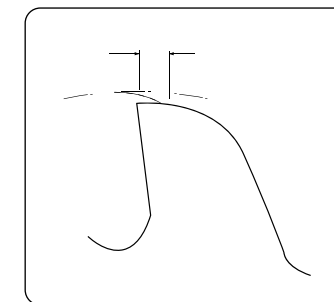


Fig. 2. Wear Land

**7 RESHARPENING PERIPHERAL CUTTING EDGE**  
**NACHSCHLEIFEN VON PERIPHER-SCHNEIDKANTEN**

**1 RESHARPENING PERIPHERAL CUTTING EDGE**  
*Nachschleifen von Primärschneide*

The geometry of relief angle in an end mill consist of three methods as shown in Fig.3 concave, flat, and eccentric. Recently, most end mills have the eccentric relief(eccentric sharpening). In this method, since the relief is formed an eccentric are surface in cylindrical grinding method, the roughness of the finished surface of the relief improves and the strength of cutting edge increase at the same time.(Fig.4) As a result, the tool life is improved.

*Die Geometrie von Hinterschliffwinkel in einem Fräser hat, wie in Fig. 3 gezeigt, 3 verschiedene Variationen : Konkav, Flach und Exzentrisch. In letzter Zeit, die meisten Fräser haben die exzentrische Form. In dieser Methode verbessern sich Oberflächengüte der bearbeiteten Fläche und die Stärke der Schneidkanten gleichzeitig, was eine Verlängerung der Werkzeuglebensdauer zur Folge hat.*

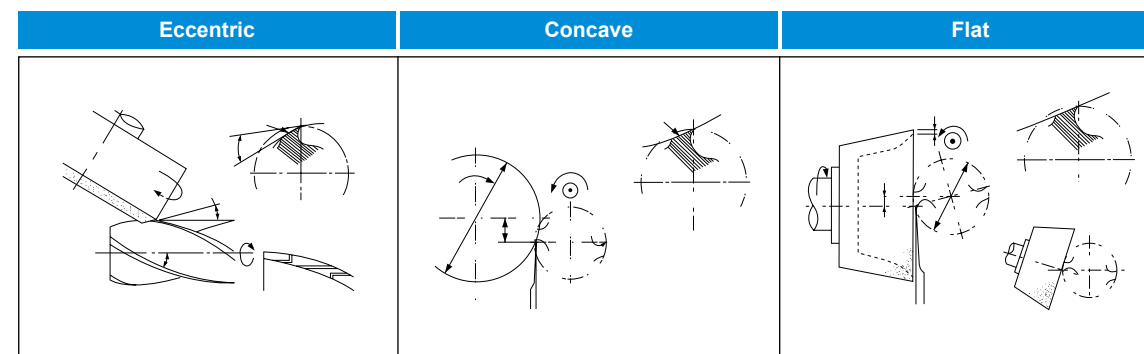


Fig. 3. Three Types of Primary Relief

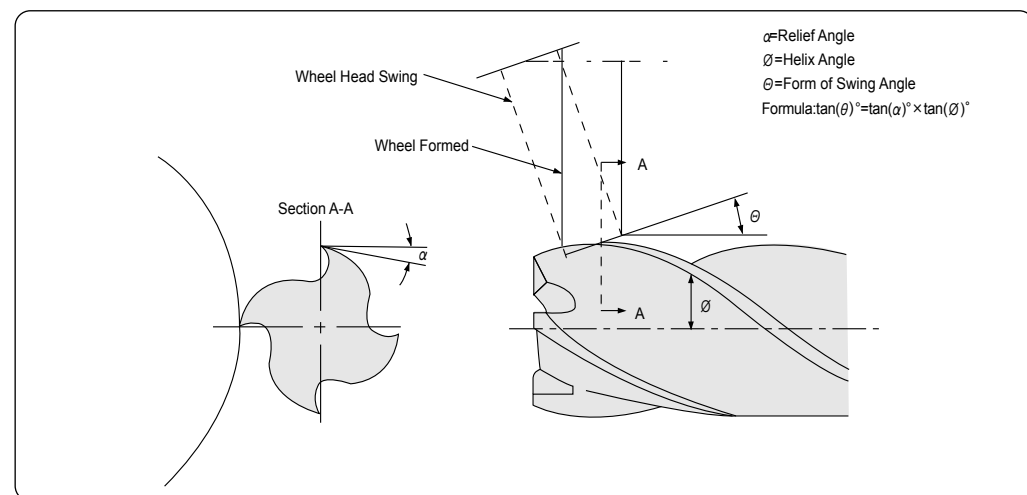


Fig. 4. Tothing of Eccentric Relief Angle

**2 ANGLE OF WHEEL INCLINATION**  
**Winkel der Radneigung.**

Eccentric relief is produced with a plain wheel positioned with its axis parallel or at a slight angle with the cutter axis. The degree of relief is varied by changing the angle of wheel inclination.

Exzentrischer Hinterschliff wird mit einer, mit der eigenen Achse zur Fräsachse parallelen oder nur geringfügig geneigten Schleifscheibe produziert. Das Grad des Hinterschliffs variiert mit dem Einstellwinkel der Schleifscheiben Einstellung.

**Table 1. RECOMMENDED RELIEF ON END MILLS**

Mill Diameter (mm)	Eccentric relief indicator drop for relief Angles shown		Checking Distance	Wheel Angles(Deg.) $\theta$			Radial Relief Angles( $\alpha$ 1)	Clearance Angles( $\alpha$ 2)
	Min.	Max.		15° Helix	30° Helix	60° Helix		
-	-	-	-	*Angle	*Angle	*Angle	*Angle	*Angle
3.0	0.100	0.130	0.40	4° 24'	9° 25'	26° 28'	16° 02'	25°
6.0	0.090	0.125	0.50	3° 18'	7° 05'	20° 25'	12° 08'	25°
12.0	0.100	0.135	0.65	2° 46'	5° 46'	17° 23'	10° 15'	25°
25.0	0.095	0.140	0.80	2° 15'	4° 15'	14° 16'	8° 21'	25°
40.0	0.085	0.125	0.80	2° 01'	4° 33'	12° 48'	7° 29'	25°
50.0	0.085	0.125	0.80	2° 01'	4° 33'	12° 48'	7° 29'	25°

The actual at the radial relief angle is normally kept within the range shown but may be varied to suit the cutter material, the work material and the operating conditions.

Die Freiwinkel sind normalerweise in den angegebenen Maßen, sie schwanken je nach Werkzeug, Werkstück und den Einsatzbedingungen

\* Angle is calculated from the basic mean at the radical angle.

Der Winkel wird von der Hauptschneide zum Radialwinkel gemessen.

**8 RESHARPENING END TEETH**  
**NACHSCHLEIFEN DES ENDZAHNS**

The three necessary operations and one option feature, along with setup suggestions are shown in Fig.5 A to D in each drawing, the shaded area indicates the surface being ground.

Die drei nötigen Operationen und eine Option werden, zusammen mit einem Rüstvorschlagn, in Bild 5 A bis D gezeigt. Die dunklen Flächen zeigen Bereiche an, die nachgeschliffen werden.

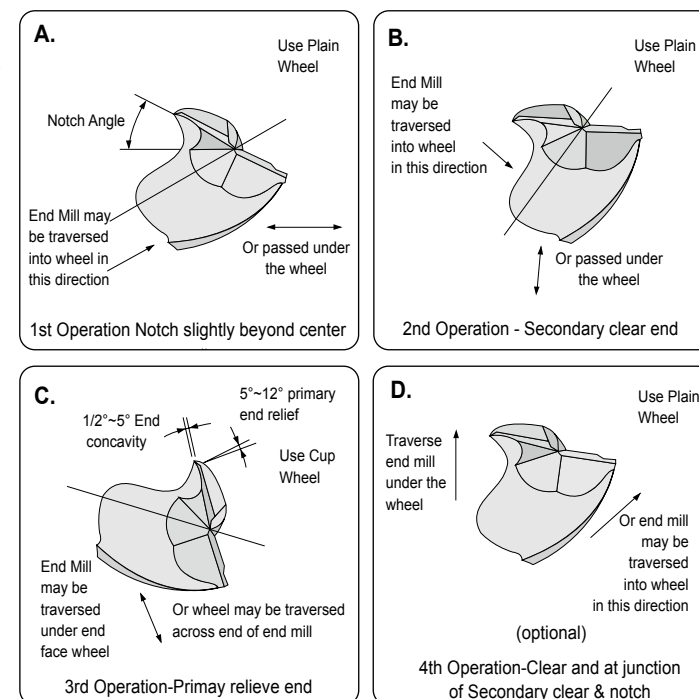


Fig 5. PROCEDURE FOR SHARPENING END OF 2 FLUTE SQUARE END MILLS

**9 INSPECTION**  
**INSPEKTION**

The inspection is calculated by using the formula shown in Table1.  
Procedure To Check Radial Relief Angles With Indicators.

Die Inspektion wird aufgrund der Formel aus der Tabelle 1 durchgeführt.  
Prozedur, um mit Indikator radialen Hinterschliffwinkel zu messen.

1. Mount the cutter to rotate freely with no end movement.
2. Adjust the sharp pointed indicator to bear at the very tip of the cutting edge, pointing in a radial line, shown in Fig.6
3. Roll the cutter the tabulated amount gives under "checking distance" using the second indicator as control.
4. Consult chart for amount of drop for the particular diameter and relief angle.

1. Fräser so montieren, daß er frei rotiert ohne sich seitlich zu bewegen.
2. Indikator so justieren, daß der Stab, in radiale Richtung zeigend, am äußersten Rand der Schneidkante angelegt ist (Bild 6).
3. Den Fräser um tabellierte 'Checking distance' rollen. Einen zweiten Indikator zur Kontrolle einsetzen.
4. Um den 'Drop' für den gemessenen Durchmesser und Hinterschliffwinkel zu erhalten, Chart konsultieren.

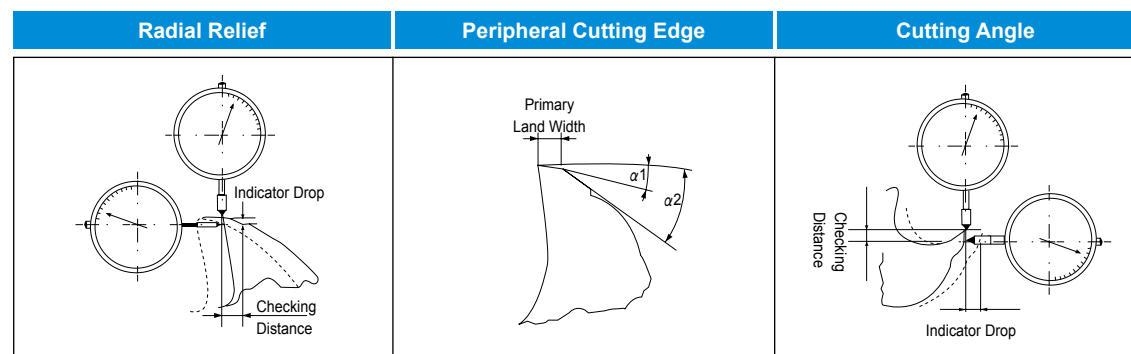


Fig. 6. Indicator Set-Up for Checking


**10 TROUBLE SHOOTING IN MILLING  
PROBLEMLÖSUNG BEI FRÄSEN**

Trouble Problem	Occurrences of trouble Aufreten des Problems	Countermeasures Gegenmaßnahmen
Breaking of tool Werkzeugbruch	<ul style="list-style-type: none"> <li>At time of engaging with work material Beim Eintritt in das Werkstück</li> <li>When ending cut Beim Austritt aus dem Werkstück</li> </ul>	<ol style="list-style-type: none"> <li>Decrease feed rate. / Vermindern von Vorschub</li> <li>Decrease projection amount / Schnitttiefe verringern</li> <li>Shorten cutting edge length to required minimum limit Eingriffslänge reduzieren</li> </ol>
	<ul style="list-style-type: none"> <li>During normal cutting Während des Fräsens</li> </ul>	<ol style="list-style-type: none"> <li>Decrease feed rate / Vorschub mindern</li> <li>Control wear → replace tool early Abnutzung kontrollieren - Werkzeug frühzeitig ersetzen</li> <li>Replace chuck or collet / Chuck oder Collet ersetzen</li> <li>Decrease projection amount / Schnitttiefe verringern</li> <li>Carry out honing / Nachschleifen</li> <li>If 4 flute, reduce to 2 flute(clogging of chipping) Wenn 4 Schneiden, zu 2 Schneiden verkleinern</li> <li>If dry cutting change to wet cutting utilize cutting fluid. In case of wet cutting flow oil supplied from the front, change to from rear angle of side top. Use ample with rate. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlfüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten</li> </ol>
	<ul style="list-style-type: none"> <li>When changing direction of feed Wenn Vorschubrichtung geändert wird</li> </ul>	<ol style="list-style-type: none"> <li>Utilize circular interpolation(in case of NC machine) or temporarily stop feed(Dowellling) Circular interpolation benutzen(bei NC-Maschinen) oder Vorschub vorübergehend stoppen.</li> <li>Reduce feed rate before and after change of directions Vor und nach dem Richtungswechsel den Vorschub mindern</li> <li>Replace chuck or collect / Chuck oder Collet ersetzen,</li> </ol>
Fracture of cutting edge Beschädigung der Schneidkante	<ul style="list-style-type: none"> <li>Fracture of corners Eckenbruch</li> </ul>	<ol style="list-style-type: none"> <li>Carry out chamfering or nose with hand lapper. Mit Handlapper eine Abschrägung durchführen.</li> <li>Down cut → Up cut / Down cut → Up cut</li> </ol>
	<ul style="list-style-type: none"> <li>Fracture at boundary of depth of cut Beschädigung an der Schneidtiefgrenze</li> </ul>	<ol style="list-style-type: none"> <li>Down cut → Up cut / Down cut → Up cut</li> <li>Reduce cutting speed / Schneidgeschwindigkeit mindern</li> </ol>
	<ul style="list-style-type: none"> <li>Chipping at center part or overall Abbröckelung an der Hauptschneide oder überall</li> </ul>	<ol style="list-style-type: none"> <li>Carry out honing. Or enlarge. / Nachschleifen oder erweitern</li> <li>Change number of rotation(in case machine vibrates) Drehzahl ändern(wenn Maschine vibriert).</li> <li>Increase cutting speed / Fräsgeschwindigkeit erhöhen.</li> <li>In ease of squeaking noise during cutting, increase feed. Wenn quitschendes Fräsgeräusch zu vernehmen, Vorschub erhöhen.</li> <li>If dry cutting use cutting fluid or blow air. Wenn Trockenfräsen, Kühlfüssigkeit oder Luft zuführen</li> <li>Replace chuck or collet / Chuck oder Collet austauschen.</li> <li>Reduce cutting speed / Fräsgeschwindigkeit reduzieren.</li> </ol>
	<ul style="list-style-type: none"> <li>Large fracturing of cutting edge Größere Beschädigung an Schneidkanten</li> </ul>	<ol style="list-style-type: none"> <li>Decrease feed rate / Vorschub mindern.</li> <li>If 4 flute reduce to 2 flute Wenn 4 Schneiden, zu 2 Schneiden wechseln.</li> <li>Carry out honing. Or enlarge / Nachschleifen oder erweitern.</li> <li>Replace chuck or collet / Chuck oder Collet austauschen.</li> <li>Reduce cutting speed / Fräsgeschwindigkeit mindern.</li> <li>If dry cutting, change to wet cutting. In case oil supply in wet cutting is from the front, change to rear at an angle or from side top. Use ample supply. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlfüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten.</li> </ol>



Trouble Problem	Occurrences of trouble Aufreten des Problems	Countermeasures Gegenmaßnahmen
Rapid tool wear Zu schnelle Werkzeugabnutzung		<ol style="list-style-type: none"> <li>Reduce cutting speed / Fräsgeschwindigkeit mindern</li> <li>Up cut → Down cut / Up cut - Down cut</li> <li>Increase feed / Vorschub erhöhen</li> <li>Utilize wet cutting or air / Naßfräsen oder Kühlluft zuführen.</li> <li>If reground tool, improve surface roughness of flank. Beim Nachschleifen, die Oberflächenrauheit der Hauptfreiflächen verbessern.</li> </ol>
Inferior finished surface Ungenügende Bearbeitungsoberfläche	<ul style="list-style-type: none"> <li>Surface is good but rough Oberfläche ist gut aber rauh</li> </ul>	<ol style="list-style-type: none"> <li>Decrease feed / Vorschub mindern</li> <li>In case using 2 flute, increase to 4 flute Wenn 2 Schneiden, zu 4 Schneiden wechseln</li> </ol>
	<ul style="list-style-type: none"> <li>Small chip welding Kleine Partikelverschweißung</li> </ul>	<ol style="list-style-type: none"> <li>Increase cutting speed / Fräsgeschwindigkeit erhöhen</li> <li>Utilize wet cutting air blow(ample supply) Naßfräsen und Luftzufuhr (reichlich)</li> <li>Carry out fine honing / Feinschliff durchführen</li> <li>Up cut → Down cut / Up cut → Down cut</li> <li>Increase feed or enlarge finish allowance Vorschub erhöhen oder Bearbeitungstoleranz erhöhen</li> </ol>
	<ul style="list-style-type: none"> <li>With transverse streaks Mit Querstreifen</li> </ul>	<ol style="list-style-type: none"> <li>Carry out fine honing / Feinschliff durchführen</li> <li>Use water insoluble cutting fluid Wasserunlösliche Kühlfüssigkeit benutzen.</li> <li>Down cut → Up cut / Down cut → Up cut</li> </ol>
	<ul style="list-style-type: none"> <li>Signs of excessive cutting Zeichen exzessiven Fräsens</li> </ul>	<ol style="list-style-type: none"> <li>Reduce finishing depth of cut / Frästiefe reduzieren.</li> <li>Increase cutting speed / Fräsgeschwindigkeit erhöhen.</li> <li>Reduce feed / Vorschub mindern</li> </ol>
Poor machining accuracy Geringe Genauigkeit der Maschine	<ul style="list-style-type: none"> <li>Finish dimensions are on minus side Bearbeitungsmaße auf der Minusseite</li> </ul>	<ol style="list-style-type: none"> <li>Up cut → Down cut / Up cut → Down cut</li> <li>Reduce finishing depth of cut / Schlichttiefe verringern reduzieren.</li> <li>Replace chuck or collet / Chuck oder Collet austauschen.</li> <li>Reduce projection amount / Projektionsgröße reduzieren.</li> <li>Increase cutting speed / Fräsgeschwindigkeit reduzieren.</li> </ol>
	<ul style="list-style-type: none"> <li>Poor perpendicularity Ungenauer Winkel</li> </ul>	<ol style="list-style-type: none"> <li>Reduce finishing depth of cut / Finishing-tiefe reduzieren.</li> <li>Replace chuck or collet / Chuck oder Collet austauschen.</li> <li>Reduce projection amount / Projektionsgröße mindern</li> <li>Increase cutting speed / Fräsgeschwindigkeit erhöhen.</li> <li>2Flute → 4 Flute / 2 Schneiden → 4 Schneiden</li> <li>Reduce feed / Vorschub mindern.</li> <li>Check wear rate → Replace tool Verschleiß überprüfen → Werkzeug austauschen.</li> </ol>
Chattering Rattern		<ol style="list-style-type: none"> <li>Increase feed rate(in case over 0.05 mm/Zahn, try reducing) Vorschub erhöhen(wenn über 0.05mm/Tooth Vorschub reduzieren).</li> <li>Change cutting speed / Fräsgeschwindigkeit ändern.</li> <li>Replace chuck or collet / Chuck oder Collet austauschen.</li> <li>Reduce projection amount / Projektionsgröße reduzieren.</li> <li>Use 2 flute cutter for rough cutting and 4 flute for finishing 2 Schneiden Fräser zum Schrappen und 4 für Finishing einsetzen.</li> <li>Down cut → Up cut / Down cut → Up cut</li> </ol>





**11 COMPARISON CHART SCALE FOR HARDNESS  
VERGLEICHSTABELLE FÜR HÄRTESKALEN**

Rockwell Hardness C Scale 150kg Brale (HRC)	Diamond Pyramid Hardness Number, Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm <sup>2</sup>
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520

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E2752	C671	EIB04	C492	G9B82	C523
E2753	C666	EIB86	C488	G9B83	C525
E2755	C668	EIB87	C484	G9B84	C526
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E5909	C460	G8A01	C119	G9F45	C562
E5910	C458	G8A02	C120	G9F46	C562
E5930	C461	G8A28	C96	G9G44	C530
E5E39	C469	G8A36	C107	G9G45	C535
E5E40	C469	G8A37	C112	G9G46	C543
E5E47	C463	G8A38	C98	G9G47	C545
E5E48	C464	G8A39	C114	G9G48	C549
E5E49	C466	G8A45	C115	G9G49	C551
E5E50	C467	G8A46	C91	G9G50	C553
E5E51	C462	G8A47	C111	G9G51	C558
E5H22	C450	G8A50	C110	G9H73	C559
E5H23	C451	G8A52	C109	G9H74	C559
E5H24	C444	G8A53	C99	G9H75	C560
E5H25	C447	G8A54	C95	G9H76	C560
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E9938	C614	G8A60	C102	GA938	C614
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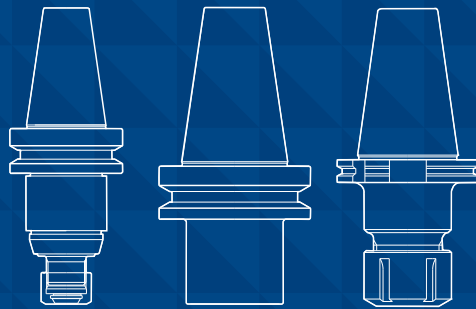
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CUTTING TOOLS



# TOOLING SYSTEM

**YG** YG-1 CO., LTD.





# HYDRAULIC CHUCK

- HYDRAULIK SPANNFUTTER
- MANDRIN HYDRAULIQUE
- MANDRINI IDRAULICI
- PORTAHERRAMIENTAS HIDRAULICO

Standard of Tools	DIN 69871-SK	DIN 69871-SK	DIN 69871-SK
Description	TOOL PRESETTING TYPE	POWER E HYDRO	SLIM
Page	D19	D20	D21
		<b>NEW</b>	

DIN 69871-SK	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK
ULTRA SHORT	MOLD & DIE	TOOL PRESETTING TYPE	POWER E HYDRO	SLIM
D22	D23	D24	D25	D26 - 28
			<b>NEW</b>	

DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT
MOLD & DIE	TOOL PRESETTING TYPE	SLIM	POWER E HYDRO	MOLD & DIE
D29	D30, D35	D31 - 32 / D37 - 38	D33, D36	D34, D40
			<b>NEW</b>	

JIS B6339/MAS 403-BT	DIN 69871-SK& DIN 228-MTB	HYDRAULIC CHUCK SET	TEST PIECE	COLLET
ULTRA SHORT	For GRINDER			REDUCTION SLEEVE
D39	D41	D42	D42	D43 - 46
		<b>NEW</b>	<b>NEW</b>	

※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

## Guide Line to Icons

Standard of Tools	Taper Accuracy	G Value	RPM	Run-Out	Coolant System	
Collet	Bolt	Spanner	TapAdapter	ER Nut	ER Spanner	Parts

# SHRINK FIT HOLDER

- SCHRUMPFUTTER
- MANDRIN DE FRETAGE
- MADRINI PER CALLETAMENTO A CALDO
- PORTAHERRAMIENTAS DE COMPRESION POR CALOR

Standard of Tools	DIN 69871-SK	DIN 69871-SK	DIN 69871-SK
Description	EXTRA SLIM		COOLANT CHANNEL
Page	D50	D51 - 52	D53
	<b>NEW</b>		<b>NEW</b>

DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK
REINFORCED	EXTRA SLIM		COOLANT CHANNEL	REINFORCED
D54	D55	D56 - 58	D59	D60
<b>NEW</b>	<b>NEW</b>		<b>NEW</b>	

JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/MAS403-BT	ISO 25
	COOLANT CHANNEL	EXTRA SLIM	REINFORCED	
D61 - 62 / D65 - 66	D63, D67	D64	D68	D69
	<b>NEW</b>	<b>NEW</b>	<b>NEW</b>	

EXTENSION	SHRINK FIT HEATING MACHINE
D70 - 71	D72

※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

# ER COLLET CHUCK

- FRÄSERSPANNFUTTER - ER
- MANDRIN À PINCES - ER
- MANDRINO PORTA PINZE - ER
- PORTAPINZAS - ER

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description			
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ISO 20/25	DIN 228-MTA	DIN 228-MTB	STRAIGHT-K	NC
SLIM				CNC LATHE
D94	D95	D96	D97 - 100	D101

BRIDGEPORT-R8	GOST 25827-93	ER COLLET	SEALED ER COLLET	TAP ER COLLET	ER NUT, SEALING DISC&SPANNER
D101	D102	D103 - 105	D106 - 107	D108 - 109	D110 - 115

# END MILL HOLDER & SIDE LOCK ARBOR

- FRÄERFUTTER UND FLÄHENSPANNFUTTER
- MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
- MANDRINI PORTA FRESA TIPO WELDON
- PORTAFRESAS Y EJES DE SUJECCION LATERAL

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description	EMH	EMH	EMH & SLA
Page	D118 - 122	D123 - 126	D127 - 131

DIN 69871-SK	JIS B6339/ MAS 403-BT	GOST 25827-93	JIS B6339/ MAS 403-BT&CBT	JIS B6339/MAS 403-BT	PARTS
EMH	EMH	EMH	SLA	SLB	EMH & SLA
D132	D132	D133	D134 - 135	D136	D137

# SHELL MILL ARBOR

- AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
- MANDRIN PORTE-FRAISES
- MANDRINO CON TRASCINAMENTO FISSO
- PORTA FRESAS

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description	SMA	SMA	SMA
Page	D140 - 142	D143 - 145	D146 - 151

GOST 25827-93	PARTS	DIN 69871-SK	DIN69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
SMA		CMA	CMA	CMA
D152	D153 - 154	D155	D156	D157 - 158

DIN 2080-ISO	PARTS
CMA	
D159	D160

# POWER MILLING CHUCK

- FRÄSERSPANNFUTTER
- MANDRIN PORTE FRAISE
- MANDRINI PORTA FRESA
- PORTAHERRAMIENTAS PARA FRESADO

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description			
Page	D164 - 165	D166 - 167	D168 - 171

DIN 228-MTA/MTB	BRIDGEPORT-R8	STANDARD SET	Q.C SET	COLLET&SPANNER
D172	D173	D174	D175	D176

※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

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# MORSE TAPER ARBOR

- EINSATZHÜLSEN FÜR MORSEKEGEL
- DOUILLES DE RÉDUCTION CÔNE MORSE
- MANDRINO RIDUZIONE CONO MORSE
- REDUCTORES A MORSE

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT
Description			MTA & MTB
Page	D178	D178	D179-180
			

ANSI B5.18-NT	GOST 25827-93
	MTA
D180	D181
	

# SK SLIM CHUCK

- SK SCHLANKE FUTTER
- MANDRIN TYPE SK MINCE
- SK MANDRINI SOTTILI
- PORTAHERRAMIENTAS SK EJE REDUCIDO

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description			
Page	D184 - 187	D188 - 190	D191 - 196
			

ISO 20/25	STRAIGHT-K	COLLET&NUT
D197	D198	D199 - 201
		

# SYNCHRO TAPPING CHUCK


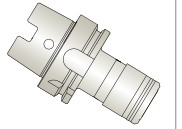

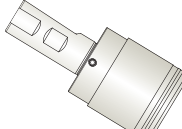
- SYNCHRO GEWINDESCHNEIDFUTTER
- SYNCHRO TARAUDER
- SINCRO MANDRINI PER MASCHIATURA
- SINCRO PORTAMACHOS

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS403-BT
Description	SYTER	SYTER	SYTER
Page	D204	D205	D206
			

STRAIGHT-K	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	STRAIGHT-K
SYTER	SYTC	SYTC	SYTC
D207	D208	D209	D210
			

# ONE STEP TAPPING CHUCK

- GEWINDE-SCHNELLWECHSELFUTTER
- MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE
- PORTAMASCHI A CAMBIO RAPIDO
- MANDRINO DE CAMBIO RÁPIDO CON ROSCA

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT	STRAIGHT-K
Description				
Page	D212	D212	D213	D213
	<b>NEW</b> 	<b>NEW</b> 	<b>NEW</b> 	<b>NEW</b> 

# TAPPING ER CHUCK

- ER - GEWINDESCHNEIDFUTTER
- MANDRIN DE TARAUDAGE PINCE ER
- MANDRINI PORTAPINZA ER PER MASCHIATURA
- PORTAPINZAS ER PARA MACHOS

Standard of Tools	DIN 69871-SK	DIN 69893/ISO 12164-1-HSK	JIS B6339/MAS 403-BT&CBT
Description			
Page	D217	D218	D219 - 220
			

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## TAPPING CHUCK

- GEWINDESCHNEID - SCHNELLWECHSELFUTTER
- TARAUDER À CHANGEMENT RAPIDE
- MANDRINO PER MASCHIARE
- PORTAMACHOS DE CAMBIO RAPIDO

Standard of Tools	DIN 69871-SK	DIN 69893/ISO 12164-1-HSK	JIS B6339/MAS 403-BT
Description			
Page	D222	D223	D224
			

STRAIGHT-K	DIN 228-MTA	TAP ADAPTER
D225	D226	D227 - 228
		

## FACE MILL ARBOR

- AUFNAHMEDORN FÜR MESSERKÖPFE
- MANDRIN PORTE FRAISE À ALÉSAGE
- SISTEMA PORTA FRESE FRONTALE
- SISTEMA PARA PLATOS DE PLACAS

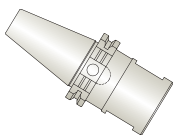
Standard of Tools	JIS B6339/MAS 403-BT&CBT	DIN 69893/ISO 12164-1-HSK	ANSI B5.18-NT
Description	FMA	FMA	FMA
Page	D230 - 231	D232	D233
			

DIN 228-MTA	JIS B6339/MAS 403-BT&CBT	JIS B6339/MAS 403-BT&CBT	DIN 69893/ISO 12164-1-HSK	PARTS
FMA	FMB	FMC	FMC	
D233	D234 - 235	D236 - 237	D238	D239
				

## COPY MILL ARBOR & INDEXABLE DRILL HOLDER

- WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE
- MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE
- MANDRINO PER FRESE MODULARI FILETTATE
- PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA & WERKZEUGHALTER FÜR VOLLBOHRER
- MANDRIN POUR FORETS À PLAQUETTES
- MANDRINO PER PUNTE A INSERTI
- SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO

Standard of Tools	DIN 69871-SK	DIN 69893/ISO 12164-HSK	JIS B6339/MAS 403-BT
Description			
Page	D242	D243	D244
	<b>NEW</b> 	<b>NEW</b> 	<b>NEW</b> 

DIN 69871-SK	DIN 69893/ISO 12164-HSK	JIS B6339/MAS 403-BT
D245	D245	D246
<b>NEW</b> 	<b>NEW</b> 	<b>NEW</b> 

## NC DRILL CHUCK & OTHER TOOL HOLDERS

- NC - BOHRFUTTER UND ANDERE WERKZEUGHALTER
- MANDRIN DE PERÇAGE NC ET D'AUTRES PORTE-OUTIL
- NC MANDRINI PORTA PUNTE E ALTRI PORTAUTENSILI
- PORTABROCAS PARA BROCAS NC Y OTRA PORTAHERRAMIENTAS

Standard of Tools	DIN69871-SK	JIS B6339/MAS 403-BT&CBT	DIN 69893/ISO 12164-1-HSK
Description	NPU	NPU	NPU
Page	D249	D250 - 251	D252
	<b>NEW</b> 		

STRAIGHT-K	JIS B6339/MAS 403-BT	JIS B6339/MAS 403-BT	DIN 69871-SK	DIN 69893/ISO 12164-1-HSK
	SCA	JTA	BLANK BAR	BLANK BAR
D252	D253	D254	D255	D 255
				

JIS B6339/MAS 403-BT	DIN 69871-SK	DIN 69893/ISO 12164-1-HSK	JIS B6339/MAS 403-BT
BLANK BAR	TEST BAR	TEST BAR	TEST BAR
D255	D256	D256	D256
	<b>NEW</b> 	<b>NEW</b> 	<b>NEW</b> 

※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.


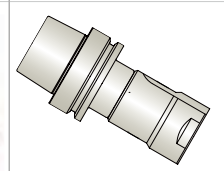




※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

# BORING SYSTEM

- AUSBOHRSYSTEM
- SYSTÈME D'ALÉSAGE
- SISTEMA DI BARENATURA
- SISTEMAS DE MANDRINADO

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-HSK	JIS B6339/ MAS 403-BT
Description	FINE SMALL : BAH	FINE SMALL : BAH	FINE SMALL : BAH
Page	D261	D262	D263
			

FINE BORING HEAD	JIS B6339/ MAS 403-BT	DIN 69871-SK	EXTENSION & REDUCTION	JIS B6339/ MAS 403-BT
SMALL BORE	SMALL BORE : SAS	SMALL BORE : SAS	SMALL BORE	FINE BIG : FBH & PARTS
D264	D265	D266	D267 - 268	D269 - 270
				

DIN 69871-SK	DIN 69893/ ISO 12164-HSK	JIS B6339/ MAS 403-BT	TWIN HEAD & INSERT HOLDER	STRAIGHT-ST	DIN 69871-SK
TWIN SMALL : TBH	TWIN SMALL : TBH	TWIN SMALL : TBH	SMALL BORE	TWIN TBH	TWIN BIG : TBH
D271	D272	D273	D274	D275	D276
					

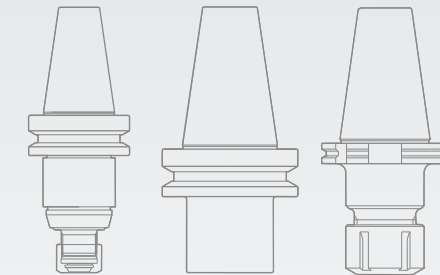
JIS B6339/ MAS 403-BT	JIS B6339-BT / DIN 69871-SK	JIS B6339/MAS 403-BT	STRAIGHT-ST	JIS B6339/ MAS 403-BT	SQUARE BITE
TWIN BIG : TBH	TWIN SAS & PARTS	MICRO BCA	MICRO BCA & PARTS	SQUARE BSA & BSB	
D277	D278 - 279	D280 - 281	D282 - 285	D286 - 287	D288
					

# ACCESSORY & OTHERS

PULL STUD BOLT & SPANNER	TOOL CLAMP	HEIGHT PRESETTER	COOLANT TUBE & SPANNER
D290 - 291	D292	D292	D293
			



Global Cutting Tool Leader **YG-1**



# TOOLING SYSTEM

※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

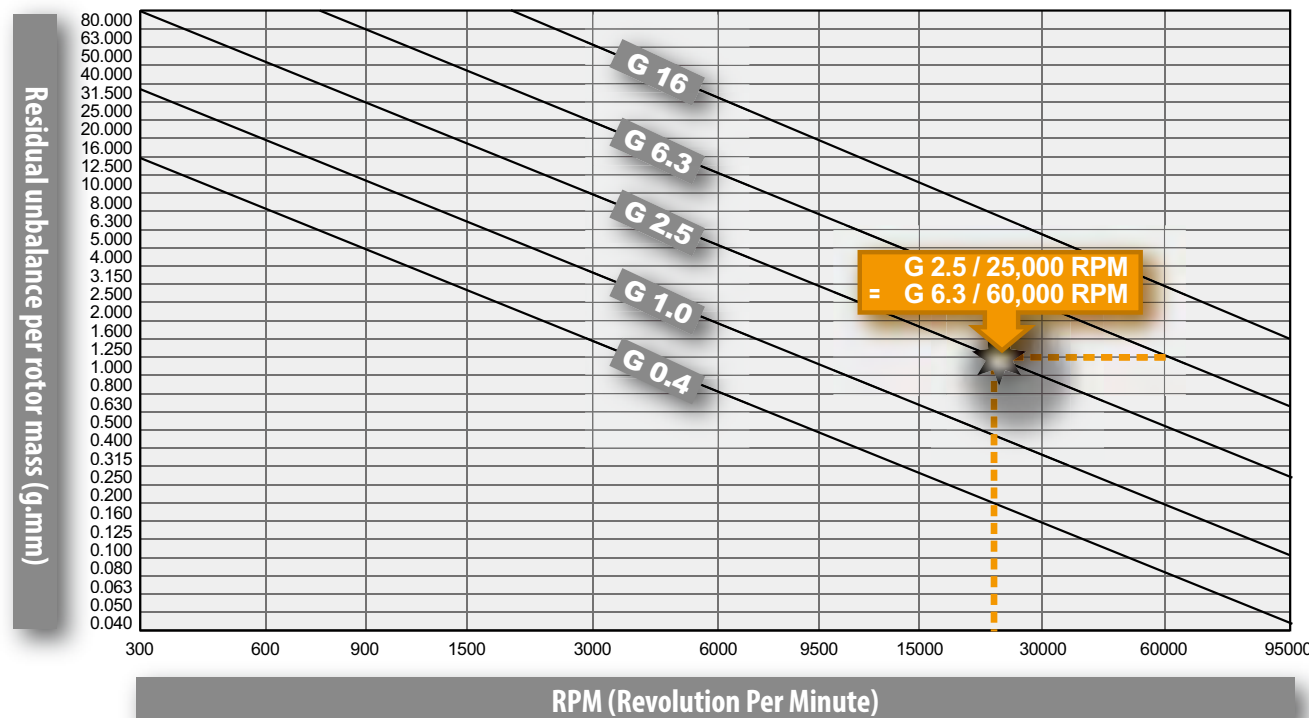


### Definition of Balancing and Unbalancing

If the rotor(tool holder) is rotated around the axis, centrifugal forces generate in all parts. If these centrifugal forces are distributed symmetrically against the rotation axis, the centrifugal forces generating in the opposite direction are offset by one another, resulting in no forces to the rotation axis eventually. Therefore bearings are not vibrated. In this case tool holder is in the balanced state. On the contrary, if centrifugal forces are distributed asymmetrically against the rotation axis, or if the force of one part is greater than that of the opposite part, the forces equivalent to differences are added to the rotation axis, causing the rotor(tool holder) to vibrate. The imbalance of distribution of rotor mass is called "Unbalance". In other words, "Unbalance" is mass existing unevenly in the rotor(tool holder).

### Balancing Grade Quality According To ISO 1940

(DIN ISO 1940)



#### Calculation of G

$$\frac{G \times m}{RPM} \times 9549 = U$$

**G** : Balancing grade or circumference speed

**m** : Rotor(Holder) weight ⇒ Unit : kg

**9549** : Conversion constant

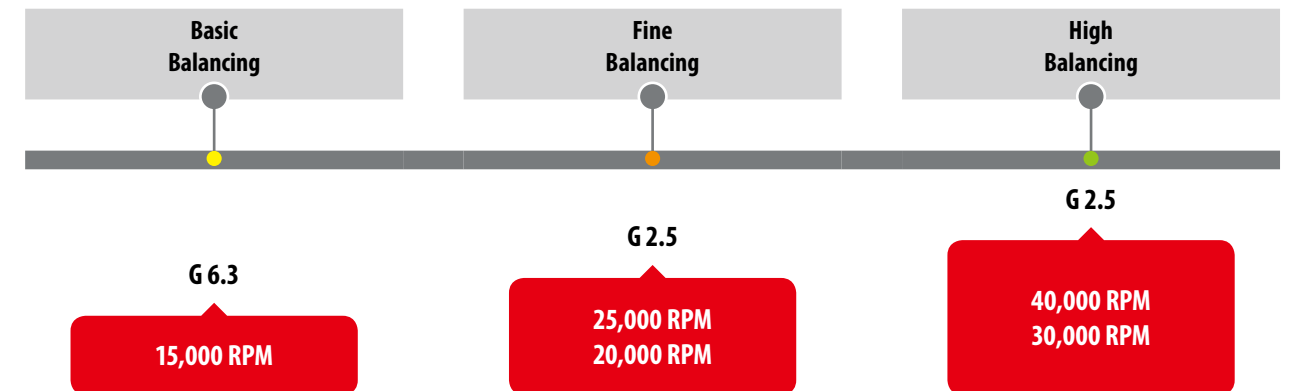
**U** : Degree of unbalance (Permissible unbalance) ⇒ Unit : g.mm

**RPM** : Revolutions Per Minute

### Merits of Balanced Machining

Recently, rotating machines are more sophisticated and operated at High-Speed with the technical advance. Also, they require more efficiency and more stable functions which are stricter conditions than ever before. In High-Speed machining, one of the largest factors which degrade performance of machines is chattering. It causes workers to suffer displeasure, noise, and fatigue which are main problems affecting productivity. Balancing of the rotor(tool holder) is the essential and effective factor in order to prevent vibration of the machine. It is widely recognized as the indispensable process in manufacturing rotation machinery. YG-1 manufactures tool holders with various balancing grades meeting the needs of users.

### YG-1 Balancing Grade Standard



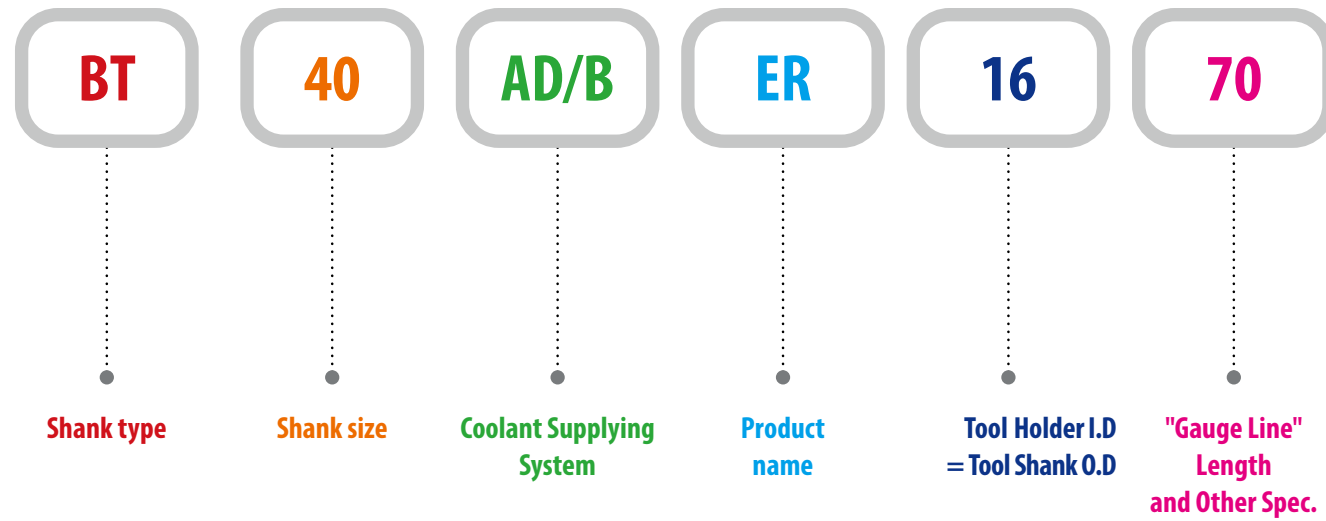
### YG-1 Balancing Specification (for Balancing Design Products)

PRODUCT	SHANK	GRADE	RPM
HYDRAULIC CHUCK	BT/CBT 30/40/50 SK 30/40/50 HSK 32/40/50/63/80/100	G 2.5	25,000
SHRINK FIT HOLDER	BT/CBT 30/40/50 SK 30/40/50 HSK 25/32/40/50/63/80/100 ISO 25	G 2.5	25,000
OTHER CHUCKS & TOOL HOLDERS	BT/CBT 30/40/50 SK 30/40/50 HSK 25/32/40/50/63/80/100 ISO 20/25	G 6.3 G 2.5	15,000 25,000

\*HIGHER BALANCING GRADE PRODUCT COULD BE SUPPLIED UPON CUSTOMER'S REQUEST.



## Model Numbering System



## Surface Finish



## YG-1 TOOLING SYSTEM

# HYDRAULIC CHUCK

- HYDRAULIK SPANNFUTTER
- MANDRIN HYDRAULIQUE
- MANDRINI IDRAULICI
- PORTAHERRAMIENTAS HIDRAULICO



DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

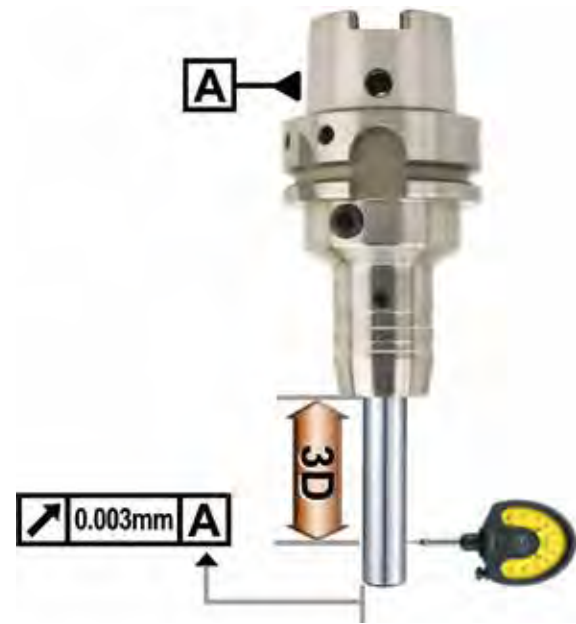
JIS B6339/MAS 403-BT

HYDRAULIC CHUCK (FOR GRINDER)

HYDRAULIC CHUCK SET

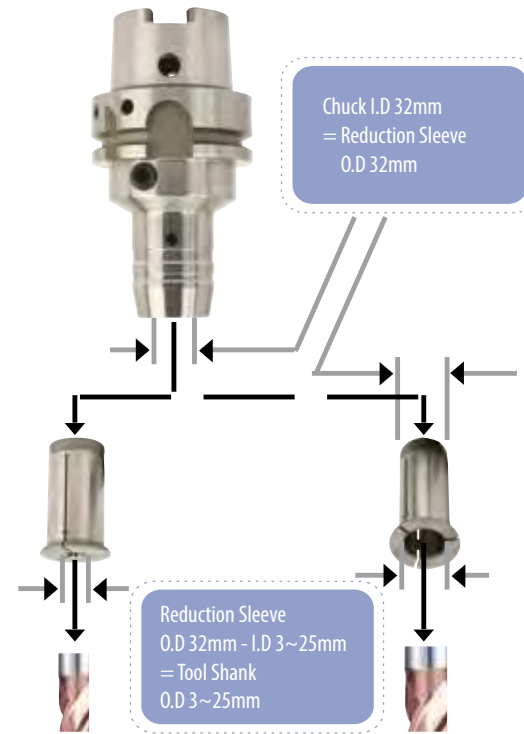
ACCESSORY

**High precision T.I.R. :  $\leq 0.003\text{mm}$  (Without Reduction Sleeve)**



• Less than 0.003mm T.I.R. => Suitable for High-Speed precision machining

**Flexible use of cutting tools by using of reduction sleeves**



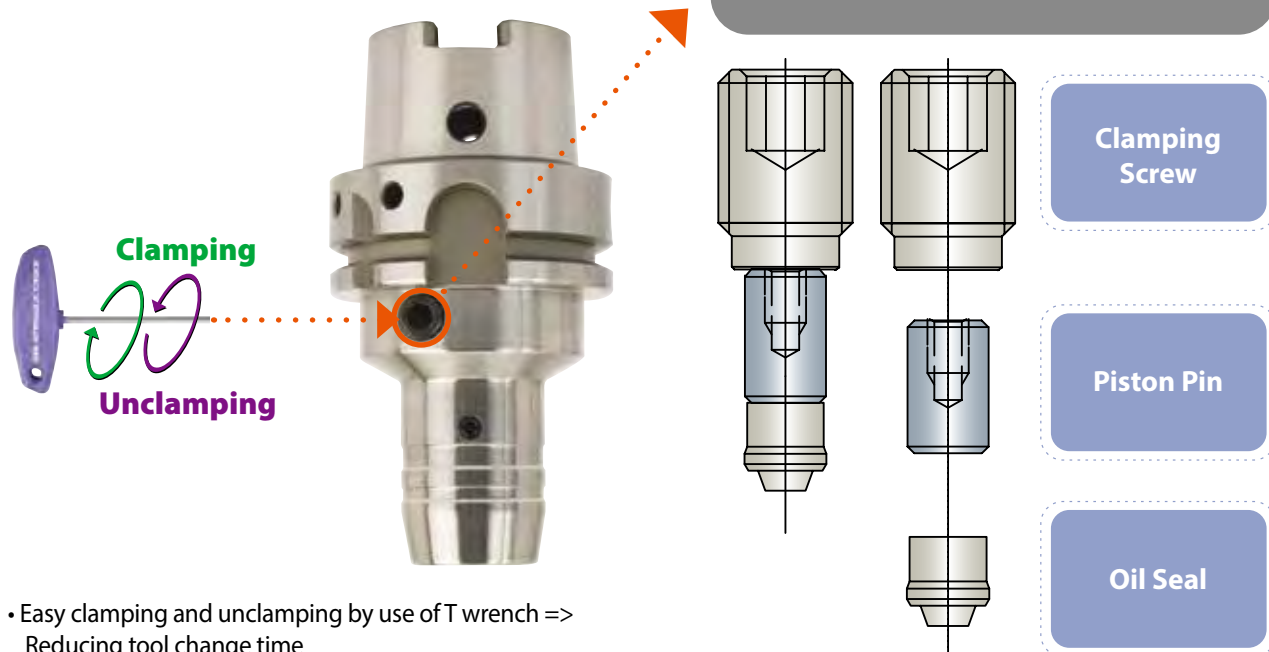
**Strong Torque Power**

Hydraulic Chuck I.D(mm)	Tool Shank O.D(mm)	Applicable RPM	Minimum Clamping Depth (mm)		Min. Torque Power (Nm)	
			Slim	Power E Hydro	Slim	Power E Hydro
6	6	40,000	27		16	
8	8	40,000	27		23	
10	10	40,000	32		45	
12	12	40,000	37	41	90	110
14	14	40,000	37		110	
16	16	40,000	42		185	
18	18	40,000	42		240	
20	20	40,000	42	48	330	520
25	25	25,000	48		400	
32	32	25,000	55	57	650	900

• Tool Holder I.D Tolerance : H6 • Operating Temperature : 20~25°C • Maximum pressure of coolant oil : 80bar

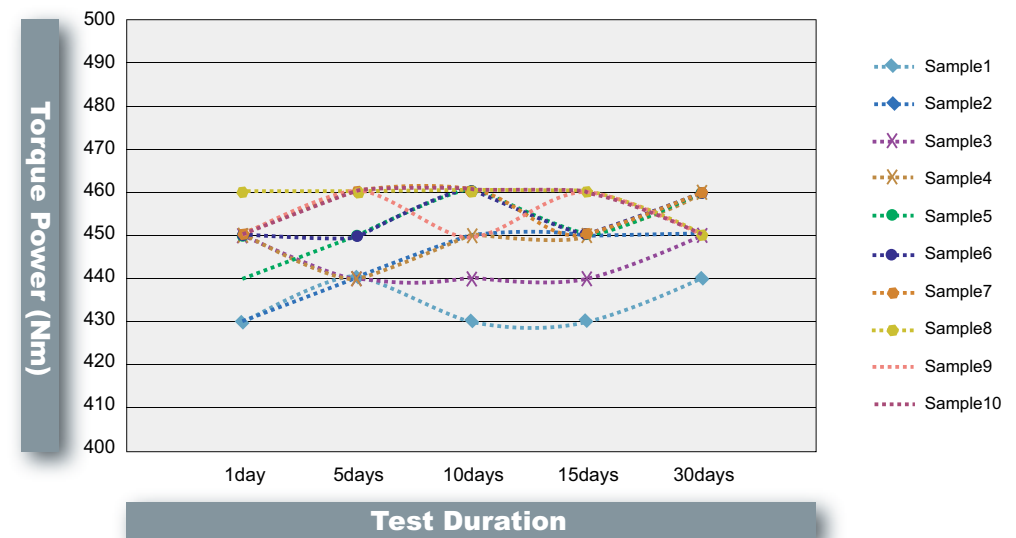


**Easy Tool Change**



• Easy clamping and unclamping by use of T wrench => Reducing tool change time

**Test of Torque Power and Hydraulic Oil Leakage**



• Test Model : BT40AD/B-HC20-90  
• No oil leakage for long period => Maintaining stable torque power

## HYDRAULIC CHUCK

### Radial tool length pre-setting type

- Easy to adjust pre-setting length of cutting tool (Saving time to pre-set cutting tool to one fifth compared with conventional Hydraulic Chuck)
- Precise adjustment of cutting tool length
- Designed to separate tool length adjustment screw from clamping screw



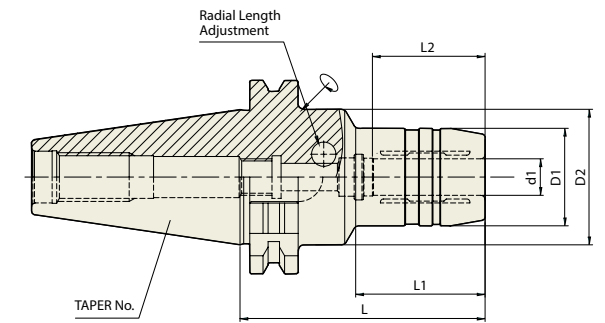
Adjustable range of cutting tool length : 0~10mm

APPLICATION		
<p><b>Milling</b></p>	<p><b>High-Speed Cutting</b></p>	<p><b>Fine Drilling</b></p>
<p><b>Reaming</b></p>	<p><b>Tapping &amp; Thread Milling</b></p>	<p><b>Chamfering</b></p>

### HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type)

DIN 69871-SK

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)  
 MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)  
 MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)  
 PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)



Collet  
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	SK30AD/B-HCR12-85	P2770001	12	32	44.5	85	40	37	0.90
	SK30AD/B-HCR20-85	P2770003	20	44	-	85	-	42	1.00
40	SK40AD/B-HCR12-80.5	P2554018	12	32	49.5	80.5	31.5	37	1.50
	SK40AD/B-HCR20-80.5	P2554019	20	42	49.5	80.5	34	42	1.60
50	SK40AD/B-HCR32-110	P2770004	32	63	80	110	50	55	2.20
	SK50AD/B-HCR12-80.5	P2770005	12	32	49.5	80.5	35	37	3.90
	SK50AD/B-HCR20-80.5	P2770006	20	42	44.5	80.5	44	42	4.00
	SK50AD/B-HCR32-100	P2770002	32	60	-	100	-	55	4.70

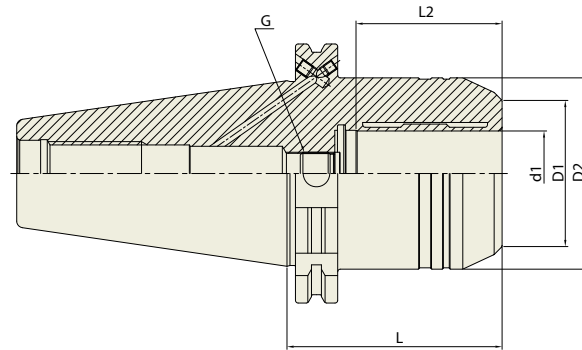
► CAT(ANSI B5.50) taper and Inch type products are available.



**HYDRAULIC CHUCK (Power E Hydro)**

DIN 69871-SK

HYDRAULIK SPANNFUTTER (POWER E HYDRO)  
 MANDRIN HYDRAULIQUE (POWER E HYDRO)  
 MANDRINI IDRAULICI (POWER E HYDRO)  
 PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)



Collet  
Refer to page 43-46

Unit : mm

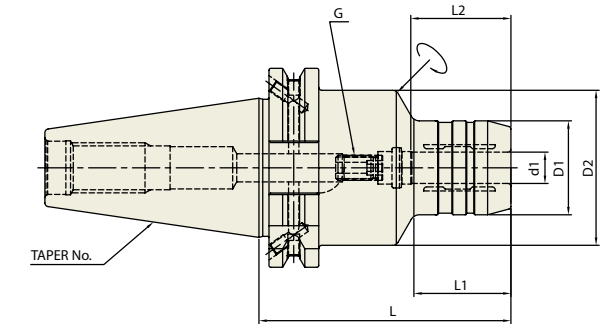
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
40	SK40AD/B-HC12P-50	P2776651P	12	32	42	50	41	M8x1.0	1.00
	SK40AD/B-HC20P-64.5	P2534001P	20	38	49.5	64.5	48	M8x1.0	1.20
50	SK50AD/B-HC20P-64.5	P2756010P	20	38	49.5	64.5	48	M8x1.0	2.80
	SK50AD/B-HC32P-81	P2534002P	32	58.5	72	81	57	M8x1.0	3.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**HYDRAULIC CHUCK (SLIM)**

DIN 69871-SK

HYDRAULIK SPANNFUTTER (SCHLANK)  
 MANDRIN HYDRAULIQUE (MINCE)  
 MANDRINI IDRAULICI (SOTTILE)  
 PORTAHERRAMIENTAS HIDRAULICO (DELGADO)



Collet  
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
30	SK30AD/B-HC6-70	P2770101	6	26	45	70	20	27	M5x0.8	0.65
	SK30AD/B-HC8-70	P2770110	8	28	45	70	20	27	M6x1.0	0.65
	SK30AD/B-HC10-75	P2770102	10	30	45	75	21	32	M8x1.0	0.73
	SK30AD/B-HC12-85	P2770111	12	32	45	85	40	37	M10x1.0	0.80
	SK30AD/B-HC14-85	P2770112	14	34	45	85	22	37	M10x1.0	0.80
	SK30AD/B-HC16-90	P2770113	16	38	45	90	50	42	M6x1.0	0.90
	SK30AD/B-HC18-90	P2770114	18	40	45	90	50	42	M10x1.0	0.90
	SK30AD/B-HC20-90	P2770115	20	42	45	90	50	42	M6x1.0	0.90
40	SK40AD/B-HC6-80.5	P2554017	6	26	49.5	80.5	30	27	M5x0.8	1.31
	SK40AD/B-HC6-110	P2554016	6	26	49.5	110	29.5	27	M5x0.8	1.76
	SK40AD/B-HC8-80.5	P2554025	8	28	49.5	80.5	30	27	M6x1.0	1.34
	SK40AD/B-HC8-110	P2770117	8	28	49.5	110	30	27	M6x1.0	1.76
	SK40AD/B-HC10-80.5	P2554004	10	30	49.5	80.5	31	32	M8x1.0	1.34
	SK40AD/B-HC10-110	P2554009	10	30	49.5	110	31	32	M8x1.0	1.76
	SK40AD/B-HC12-80.5	P2554011	12	32	49.5	80.5	31.5	37	M10x1.0	1.34
	SK40AD/B-HC12-110	P2554010	12	32	49.5	110	31.5	37	M10x1.0	1.76
	SK40AD/B-HC16-80.5	P2554013	16	38	49.5	80.5	33	42	M12x1.0	1.34
	SK40AD/B-HC16-110	P2554012	16	38	49.5	110	33	42	M12x1.0	1.76
	SK40AD/B-HC20-80.5	P2554015	20	42	49.5	80.5	34	42	M16x1.0	1.35
	SK40AD/B-HC20-110	P2554014	20	42	49.5	110	34	42	M16x1.0	1.78
50	SK40AD/B-HC25-80.5	P2770103	25	55	66	80.5	22	48	M16x1.0	1.75
	SK40AD/B-HC32-110	P2770126	32	63	80	80.5	25.5	55	M16x1.0	2.60
	SK50AD/B-HC6-80.5	P2770104	6	26	49.5	80.5	30	27	M5x0.8	3.00
	SK50AD/B-HC8-80.5	P2770116	8	28	49.5	80.5	30	27	M6x1.0	3.00
	SK50AD/B-HC10-80.5	P2770106	10	30	49.5	80.5	32	32	M8x1.0	3.00
	SK50AD/B-HC12-80.5	P2770118	12	32	49.5	80.5	35	37	M10x1.0	3.05
	SK50AD/B-HC16-80.5	P2770108	16	38	49.5	80.5	40	42	M12x1.0	3.10
SK50AD/B-HC20-80.5	P2770119	20	42	49.5	80.5	40	42	M16x1.0	3.15	

▶ CAT(ANSI B5.50) taper and Inch type products are available.

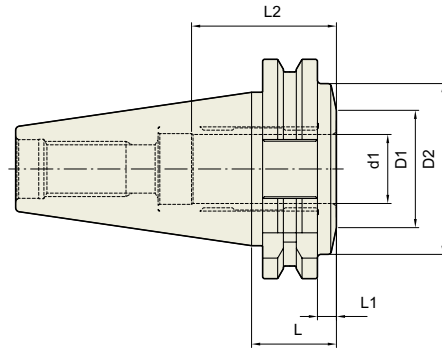
**YG HYDRAULIC CHUCK**

**HC**

**HYDRAULIC CHUCK (ULTRA SHORT)**

**DIN 69871-SK**

HYDRAULIK SPANNFUTTER (KURZ)  
MANDRIN HYDRAULIQUE (COURT)  
MANDRINI IDRAULICI (CORTO)  
PORTAHERRAMIENTAS HIDRAULICO (CORTO)



Collet  
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	SK40-HC20-24.6	P2770120	20	34	49.5	24.6	5.5	42	-	0.81
50	SK50-HC32-30.9	P2770121	32	44.5	70.5	30.9	11.85	55	-	2.63

► CAT(ANSI B5.50) taper and Inch type products are available.

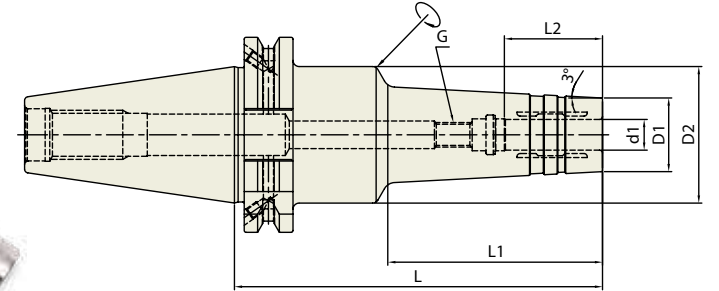
**YG HYDRAULIC CHUCK**

**HMC**

**HYDRAULIC CHUCK (For MOLD and DIE)**

**DIN 69871-SK**

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU  
MANDRIN HYDRAULIQUE POUR MOULISTE  
MANDRINI IDRAULICI PER STAMPAGGIO  
PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES



Collet  
Refer to page 43-46

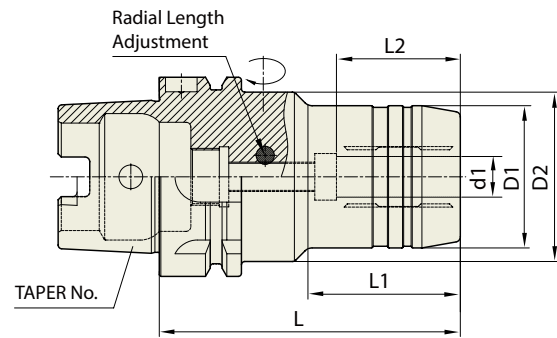
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	SK40AD/B-HMC6-120	P2770701	6	20	49.5	120	70	27	M5×0.8	1.40
	SK40AD/B-HMC6-150	P2770702	6	20	49.5	150	100	27	M5×0.8	1.65
	SK40AD/B-HMC8-120	P2770703	8	22	49.5	120	70	27	M6×1.0	1.40
	SK40AD/B-HMC8-150	P2770704	8	22	49.5	150	100	27	M6×1.0	1.65
	SK40AD/B-HMC10-120	P2770705	10	24	44.5	120	70	32	M8×1.0	1.40
	SK40AD/B-HMC10-150	P2770706	10	24	44.5	150	100	32	M8×1.0	1.65
	SK40AD/B-HMC12-120	P2770707	12	25	44.5	120	70	37	M10×1.0	1.40
	SK40AD/B-HMC12-150	P2770708	12	25	44.5	150	100	37	M10×1.0	1.65
	SK40AD/B-HMC16-120	P2770709	16	32	49.5	120	70	42	M12×1.0	1.45
	SK40AD/B-HMC16-150	P2770710	16	32	49.5	150	100	42	M12×1.0	1.70
50	SK40AD/B-HMC20-120	P2770711	20	34	49.5	120	70	42	M16×1.0	1.50
	SK40AD/B-HMC20-150	P2770712	20	34	49.5	150	100	42	M16×1.0	1.70
	SK50AD/B-HMC6-150	P2770713	6	20	44.5	150	100	27	M5×0.8	4.50
	SK50AD/B-HMC8-150	P2770714	8	22	44.5	150	100	27	M6×1.0	4.50
	SK50AD/B-HMC10-150	P2770715	10	24	44.5	150	100	32	M8×1.0	4.50
	SK50AD/B-HMC12-150	P2770716	12	25	44.5	150	100	37	M10×1.0	4.50
	SK50AD/B-HMC16-150	P2770717	16	32	44.5	150	100	42	M12×1.0	4.70
	SK50AD/B-HMC20-150	P2770718	20	34	44.5	150	100	42	M16×1.0	5.00

► CAT(ANSI B5.50) taper and Inch type products are available.

**HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type)** **DIN 69893/ ISO 12164-1-HSK FORM A**

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)  
 MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)  
 MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)  
 PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)



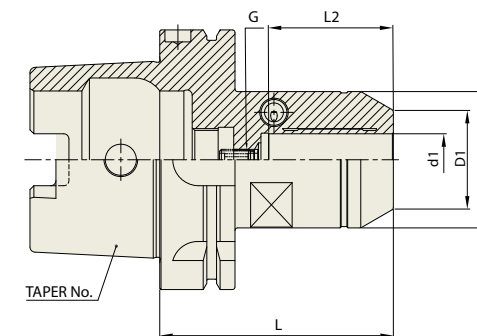
Collet Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
40A	HSK40A-HCR6-80	P2770210	6	26	34	80	36	27	0.55
	HSK40A-HCR8-80	P2770211	8	28	34	80	36	27	0.55
	HSK40A-HCR10-85	P2770212	10	30	34	85	43	32	0.65
	HSK40A-HCR12-90	P2770213	12	32	34	90	48	37	0.70
50A	HSK50A-HCR6-80	P2770214	6	26	40	80	35	27	0.70
	HSK50A-HCR8-80	P2770215	8	28	40	80	36	27	0.70
	HSK50A-HCR10-85	P2770216	10	30	40	85	38	32	0.73
	HSK50A-HCR12-90	P2770217	12	32	40	90	40	37	0.80
	HSK50A-HCR14-90	P2770218	14	34	40	90	40	37	0.80
	HSK50A-HCR16-95	P2770219	16	38	53	95	36.5	42	1.00
63A	HSK50A-HCR18-95	P2770220	18	40	57	95	36.5	42	1.00
	HSK50A-HCR20-100	P2770221	20	42	60	100	39	42	1.10
	HSK63A-HCR6-80	P2770205	6	26	50	80	33	27	0.96
	HSK63A-HCR8-80	P2770206	8	28	50	80	33	27	0.98
	HSK63A-HCR10-85	P2770207	10	30	50	85	38	32	1.04
	HSK63A-HCR12-90	P2567011	12	32	50	90	40	37	1.06
	HSK63A-HCR14-90	P2770202	14	34	50	90	46	37	1.08
	HSK63A-HCR16-95	P2770209	16	38	50	95	51	42	1.18
	HSK63A-HCR18-95	P2770203	18	40	50	95	52	42	1.20
	HSK63A-HCR20-100	P2567012	20	42	50	100	51	42	1.22
100A	HSK63A-HCR25-120	P2770204	25	57	63	120	54.5	48	2.20
	HSK63A-HCR32-125	P2770201	32	64	75	125	57.5	55	2.60
	HSK100A-HCR6-85	P2770222	6	26	63	85	33	27	3.60
	HSK100A-HCR8-85	P2770223	8	28	63	85	33	27	3.60
	HSK100A-HCR10-90	P2770224	10	30	63	90	36	32	3.80
	HSK100A-HCR12-95	P2770225	12	32	63	95	40	37	3.80
	HSK100A-HCR14-95	P2770226	14	34	63	95	41	37	3.80
	HSK100A-HCR16-100	P2770227	16	38	63	100	46	42	3.90
	HSK100A-HCR18-100	P2770228	18	40	63	100	46	42	3.90
	HSK100A-HCR20-105	P2770229	20	42	75	105	51	42	4.20
	HSK100A-HCR25-115	P2770230	25	57	75	115	55.5	48	4.40
	HSK100A-HCR32-120	P2770231	32	64	75	120	63.5	55	4.60

**HYDRAULIC CHUCK (POWER E HYDRO)** **DIN 69893/ ISO 12164-1-HSK FORM A**

HYDRAULIK SPANNFUTTER (POWER E HYDRO)  
 MANDRIN HYDRAULIQUE (POWER E HYDRO)  
 MANDRINI IDRAULICI (POWER E HYDRO)  
 PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)



Collet Refer to page 43-46

Unit : mm

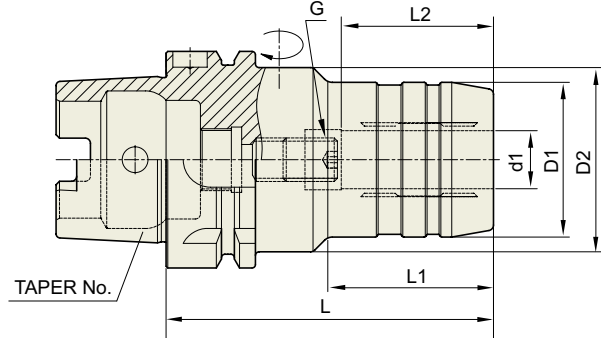
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
63A	HSK63A-HC12P-80	P2770302P	12	32	42	80	41	M8x1.0	1.20
	HSK63A-HC20P-80	P2770301P	20	38	52.5	80	48	M8x1.0	1.30
100A	HSK100A-HC20P-90	P2770303P	20	38	52.5	90	48	M8x1.0	2.80
	HSK100A-HC32P-100	P2770304P	32	58.5	72	100	57	M8x1.0	3.70



**HYDRAULIC CHUCK (SLIM)**

HYDRAULIK SPANNFUTTER (SCHLANK)  
MANDRIN HYDRAULIQUE (MINCE)  
MANDRINI IDRAULICI (SOTTILE)  
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

**DIN 69893/  
ISO 12164-1-HSK FORM A**



Collet Refer to page 43-46

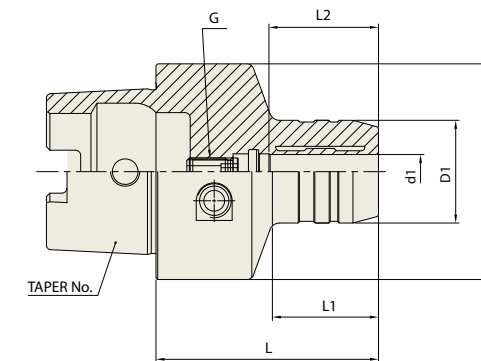
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
32A	HSK32A-HC6-80	P2770413	6	26	40	80	29	27	M5x0.8	0.30
	HSK32A-HC8-80	P2770414	8	28	40	80	29	27	M6x1.0	0.30
	HSK32A-HC10-85	P2770415	10	30	40	85	35	32	M6x1.0	0.30
	HSK32A-HC12-90	P2770416	12	32	40	90	40	37	M6x1.0	0.30
40A	HSK40A-HC6-70	P2770401	6	26	34	70	36	27	M5x0.8	0.50
	HSK40A-HC8-70	P2770402	8	28	34	70	36	27	M6x1.0	0.50
	HSK40A-HC10-75	P2770403	10	30	34	75	42	32	M6x1.0	0.60
50A	HSK40A-HC12-80	P2770417	12	32	34	80	48	37	M6x1.0	0.65
	HSK50A-HC6-70	P2770404	6	26	40	70	28	27	M5x0.8	0.65
	HSK50A-HC8-70	P2770405	8	28	40	70	28	27	M6x1.0	0.65
50A	HSK50A-HC10-75	P2770406	10	30	40	75	34	32	M8x1.0	0.70
	HSK50A-HC12-85	P2770407	12	32	40	85	44	37	M10x1.0	0.75
	HSK50A-HC14-85	P2770408	14	34	40	85	43	37	M10x1.0	0.75
	HSK50A-HC16-90	P2770409	16	38	53	90	30	42	M12x1.0	0.90
	HSK50A-HC18-90	P2770418	18	40	57	90	30	42	M12x1.0	0.90
	HSK50A-HC20-90	P2770419	20	42	60	90	29	42	M16x1.0	1.00
63A	HSK63A-HC6-70	P2567001	6	26	50	70	24	27	M5x0.8	0.53
	HSK63A-HC8-70	P2567002	8	28	50	70	25	27	M6x1.0	0.55
	HSK63A-HC10-80	P2567003	10	30	50	80	35	32	M8x1.0	1.00
	HSK63A-HC12-85	P2567004	12	32	50	85	40	37	M10x1.0	1.03
	HSK63A-HC14-85	P2567005	14	34	50	85	40	37	M10x1.0	1.05
	HSK63A-HC16-90	P2567006	16	38	50	90	46	42	M12x1.0	1.15
	HSK63A-HC18-90	P2567007	18	40	50	90	47	42	M12x1.0	1.15
	HSK63A-HC20-90	P2567008	20	42	50	90	48	42	M16x1.0	1.20
80A	HSK63A-HC25-120	P2567009	25	57	63	120	59	48	M16x1.0	2.20
	HSK63A-HC32-125	P2567010	32	64	75	125	63	55	M16x1.0	2.40
	HSK80A-HC12-85	P2770462	12	32	50	85	40	37	M10x1.0	1.60
	HSK80A-HC20-95	P2770463	20	42	50	95	52	42	M16x1.0	1.80
	HSK80A-HC32-125	P2770464	32	64	75	125	63	55	M16x1.0	3.30
100A	HSK100A-HC6-75	P2770420	6	26	50	75	26	27	M5x0.8	3.20
	HSK100A-HC8-75	P2770421	8	28	50	75	26	27	M6x1.0	3.20
	HSK100A-HC10-90	P2770422	10	30	50	90	42	32	M8x1.0	3.40
	HSK100A-HC12-95	P2770410	12	32	50	95	47	37	M10x1.0	3.40
	HSK100A-HC14-95	P2770423	14	34	50	95	47	37	M10x1.0	3.40
	HSK100A-HC16-100	P2770411	16	38	50	100	53	42	M12x1.0	3.50
	HSK100A-HC18-100	P2770424	18	40	50	100	53	42	M12x1.0	3.60
	HSK100A-HC20-105	P2757010	20	42	50	105	59	42	M16x1.0	4.00
	HSK100A-HC25-110	P2770412	25	57	63	110	62	48	M16x1.0	4.20
	HSK100A-HC32-110	P2757020	32	64	75	110	62	55	M16x1.0	4.30

**HYDRAULIC CHUCK (SLIM)**

HYDRAULIK SPANNFUTTER (SCHLANK)  
MANDRIN HYDRAULIQUE (MINCE)  
MANDRINI IDRAULICI (SOTTILE)  
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

**DIN 69893/  
ISO 12164-1-HSK FORM C**



Collet Refer to page 43-46

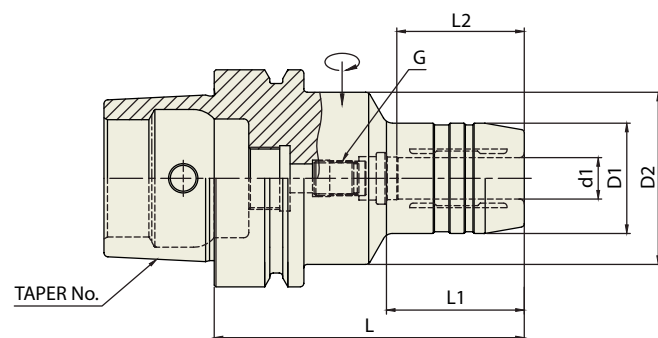
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
32C	HSK32C-HC6-65	P2770425	6	26	32	65	30	27	M5x0.8	0.30
	HSK32C-HC8-70	P2770426	8	28	32	70	34	27	M6x1.0	0.30
	HSK32C-HC10-75	P2770427	10	30	32	75	39	32	M6x1.0	0.30
	HSK32C-HC12-80	P2770428	12	32	32	80	-	37	M6x1.0	0.30
40C	HSK40C-HC6-60	P2770429	6	26	40	60	36	27	M5x0.8	0.55
	HSK40C-HC8-60	P2770430	8	28	40	60	36	27	M6x1.0	0.55
	HSK40C-HC10-65	P2770431	10	30	40	65	41	32	M6x1.0	0.65
50C	HSK40C-HC12-70	P2770432	12	32	40	70	47	37	M6x1.0	0.70
	HSK50C-HC6-60	P2770433	6	26	50	60	30	27	M5x0.8	0.65
	HSK50C-HC8-60	P2770434	8	28	50	60	30	27	M6x1.0	0.65
50C	HSK50C-HC10-65	P2770435	10	30	50	65	35	32	M8x1.0	0.70
	HSK50C-HC12-75	P2770436	12	32	50	75	44	37	M10x1.0	0.75
	HSK50C-HC14-75	P2770437	14	34	50	75	46	37	M10x1.0	0.75
	HSK50C-HC16-80	P2770438	16	38	50	80	51	42	M12x1.0	0.90
	HSK50C-HC18-80	P2770439	18	40	50	80	51	42	M12x1.0	0.90
	HSK50C-HC20-80	P2770440	20	42	50	80	48	42	M16x1.0	1.00
63C	HSK63C-HC6-60	P2770441	6	26	63	60	25	27	M5x0.8	0.96
	HSK63C-HC8-60	P2770442	8	28	63	60	25	27	M6x1.0	0.98
	HSK63C-HC10-65	P2770443	10	30	63	65	31	32	M8x1.0	1.04
	HSK63C-HC12-75	P2770444	12	32	63	75	41	37	M10x1.0	1.06
	HSK63C-HC14-75	P2770445	14	34	63	75	40	37	M10x1.0	1.08
	HSK63C-HC16-80	P2770446	16	38	63	80	48	42	M12x1.0	1.18
	HSK63C-HC18-80	P2770447	18	40	63	80	47	42	M12x1.0	1.20
	HSK63C-HC20-80	P2770448	20	42	63	80	49	42	M16x1.0	1.22
	HSK63C-HC25-95	P2770449	25	57	63	95	63	48	M16x1.0	2.20
	HSK63C-HC32-100	P2770450	32	63	63	100	-	55	M16x1.0	2.60

**HYDRAULIC CHUCK (SLIM)**

HYDRAULIK SPANNFUTTER (SCHLANK)  
MANDRIN HYDRAULIQUE (MINCE)  
MANDRINI IDRAULICI (SOTTILE)  
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

DIN 69893/  
ISO 12164-1-HSK FORM E & F



Collet  
Refer to page 43-46

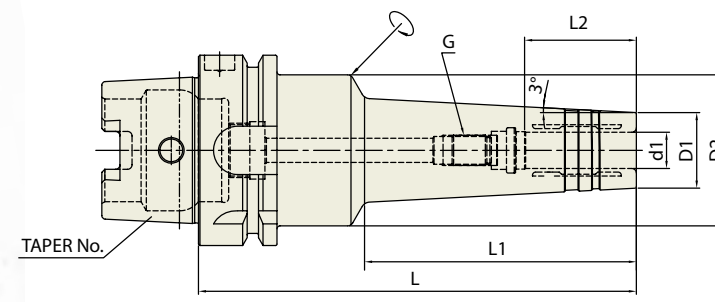
Unit : mm

TAPER No	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40E	HSK40E-HC6-70	P2770451	6	26	34	70	36	27	M5x0.8	0.55
	HSK40E-HC8-70	P2770452	8	28	34	70	36	27	M6x1.0	0.55
	HSK40E-HC10-75	P2770453	10	30	34	75	42	32	M6x1.0	0.65
	HSK40E-HC12-80	P2770454	12	32	34	80	48	37	M6x1.0	0.70
50E	HSK50E-HC6-70	P2770455	6	26	40	70	28	27	M5x0.8	0.65
	HSK50E-HC8-70	P2770456	8	28	40	70	28	27	M6x1.0	0.65
	HSK50E-HC10-75	P2770457	10	30	40	75	34	32	M8x1.0	0.70
	HSK50E-HC12-85	P2770458	12	32	40	85	44	37	M10x1.0	0.75
	HSK50E-HC16-90	P2770459	16	38	53	90	30	42	M12x1.0	0.90
63F	HSK63F-HC20-85	P2770461	20	42	50	85	46	42	M12x1.0	1.20

**HYDRAULIC CHUCK (For MOLD and DIE)**

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU  
MANDRIN HYDRAULIQUE POUR MOULISTE  
MANDRINI IDRAULICI PER STAMPAGGIO  
PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES

DIN 69893/  
ISO 12164-1-HSK FORM A



Collet  
Refer to page 43-46

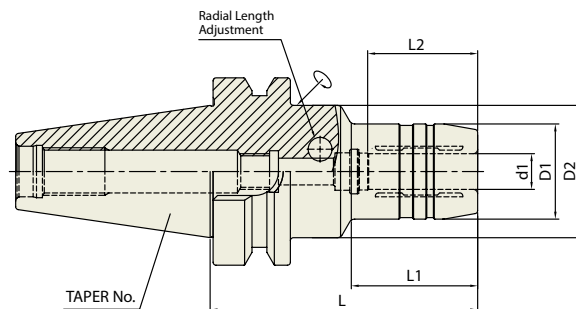
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
63A	HSK63A-HMC6-145	P2770801	6	20	50	145	90	27	M5x0.8	1.40
	HSK63A-HMC8-145	P2770802	8	22	50	145	90	27	M6x1.0	1.40
	HSK63A-HMC10-145	P2770803	10	24	50	145	90	32	M8x1.0	1.40
	HSK63A-HMC12-145	P2770804	12	25	50	145	90	37	M10x1.0	1.40
	HSK63A-HMC16-145	P2770805	16	32	50	145	90	42	M12x1.0	1.45
	HSK63A-HMC20-145	P2770806	20	34	50	145	90	42	M16x1.0	1.50
100A	HSK100A-HMC6-150	P2770812	6	20	50	150	90	27	M5x0.8	4.50
	HSK100A-HMC8-150	P2770807	8	22	50	150	90	27	M6x1.0	4.50
	HSK100A-HMC10-150	P2770808	10	24	50	150	90	32	M8x1.0	4.50
	HSK100A-HMC12-150	P2770809	12	25	50	150	90	37	M10x1.0	4.50
	HSK100A-HMC16-150	P2770810	16	32	50	150	90	42	M12x1.0	4.70
	HSK100A-HMC20-150	P2770811	20	34	50	150	90	42	M16x1.0	5.00

**HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type)**

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)  
 MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)  
 MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)  
 PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)

**CBT (BT DUAL CONTACT)**



Collet Refer to page 43-46

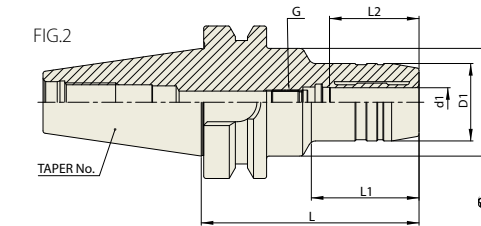
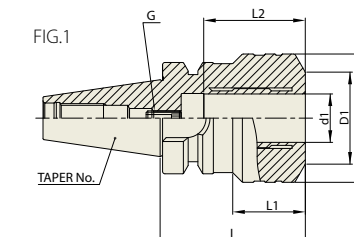
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	CBT30-HCR12-85	P2770551	12	32	44.5	85	40	37	0.90
	CBT30-HCR20-85	P2770552	20	44	44	85	-	42	1.00
40	CBT40-HCR12-90	P2770553	12	32	44.5	90	42.5	37	1.50
	CBT40-HCR20-90	P2770554	20	42	44.5	90	47.5	42	1.60
	CBT40-HCR32-105	P2770555	32	60	60	105	-	55	2.20
50	CBT50-HCR12-95	P2770556	12	32	44.5	95	34	37	3.90
	CBT50-HCR20-100	P2770557	20	42	44.5	100	44	42	4.00
	CBT50-HCR32-115	P2770558	32	60	60	115	-	55	4.10

**HYDRAULIC CHUCK (SLIM)**

HYDRAULIK SPANNFUTTER (SCHLANK)  
 MANDRIN HYDRAULIQUE (MINCE)  
 MANDRINI IDRAULICI (SOTTILE)  
 PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

**CBT (BT DUAL CONTACT)**



Collet Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	FIG.	WEIGHT (kg)	
30	CBT30-HC6-45	P2770559	6	46	46	45	-	27	M5x0.8	1	1.50	
	CBT30-HC8-45	P2770560	8	46	46	45	-	27	M6x1.0	1	1.50	
	CBT30-HC10-45	P2770561	10	46	46	45	-	32	M8x1.0	1	1.50	
	CBT30-HC12-45	P2770562	12	46	46	45	-	37	M10x1.0	1	1.50	
	CBT30-HC16-45	P2770563	16	46	46	45	-	42	M10x1.0	1	1.50	
	CBT30-HC20-60	P2770564	20	53	53	60	-	42	M10x1.0	1	2.10	
	CBT30-HC6-70	P2770503	6	26	44.5	70	29.5	27	M5x0.8	2	0.65	
	CBT30-HC8-70	P2770504	8	28	44.5	70	30	27	M6x1.0	2	0.65	
	CBT30-HC10-75	P2770505	10	30	44.5	75	31	32	M8x1.0	2	0.73	
	CBT30-HC12-85	P2770506	12	32	45	85	45	37	M10x1.0	2	0.80	
	CBT30-HC14-85	P2770507	14	34	45	85	45	37	M10x1.0	2	0.80	
	CBT30-HC16-90	P2770508	16	38	45	90	50	42	M10x1.0	2	0.90	
	CBT30-HC18-90	P2770509	18	40	45	90	50	42	M10x1.0	2	0.90	
	CBT30-HC20-90	P2770510	20	42	45	90	50	42	M6x1.0	2	0.90	
	40	CBT40-HC6-90	P2770511	6	26	44.5	90	43	27	M5x0.8	2	1.30
		CBT40-HC8-90	P2770512	8	28	44.5	90	44.5	27	M6x1.0	2	1.30
		CBT40-HC10-90	P2770513	10	30	44.5	90	44.5	32	M8x1.0	2	1.35
		CBT40-HC12-90	P2770501	12	32	44.5	90	44.5	37	M10x1.0	2	1.35
CBT40-HC14-90		P2770514	14	34	44.5	90	44.5	37	M10x1.0	2	1.35	
CBT40-HC16-90		P2770515	16	38	44.5	90	47.5	42	M12x1.0	2	1.40	
CBT40-HC18-90		P2770516	18	40	44.5	90	47.5	42	M12x1.0	2	1.45	
CBT40-HC20-90		P2770502	20	42	44.5	90	47.5	42	M16x1.0	2	1.50	
CBT40-HC25-100		P2770517	25	50	60	100	47.5	48	M16x1.0	2	1.70	
CBT40-HC32-105		P2770518	32	60	60	105	-	55	M16x1.0	2	2.10	

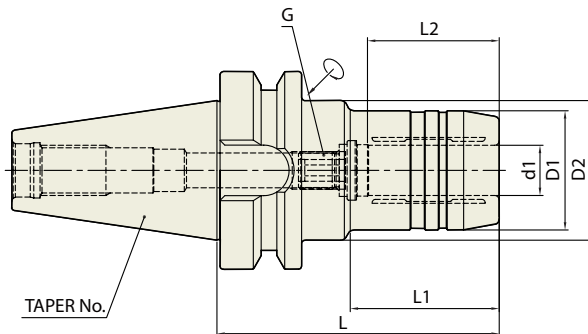
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**HYDRAULIC CHUCK (SLIM)**

HYDRAULIK SPANNFUTTER (SCHLANK)  
 MANDRIN HYDRAULIQUE (MINCE)  
 MANDRINI IDRAULICI (SOTTILE)  
 PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

CBT  
**(BT DUAL CONTACT)**



Collet  
 Refer to page 43-46

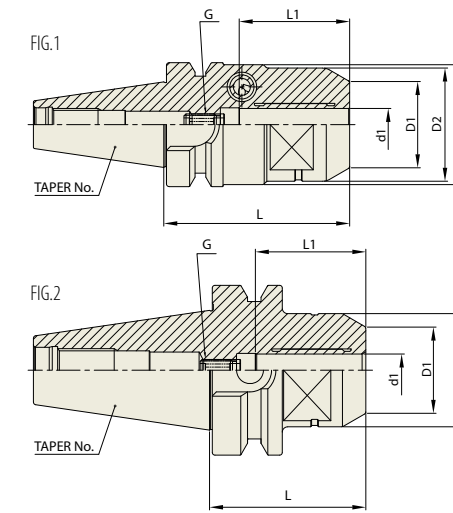
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
50	CBT50-HC6-90	P2770519	6	26	44.5	90	34	27	M5×0.8	3.75
	CBT50-HC6-120	P2770520	6	26	44.5	120	34	27	M5×0.8	4.10
	CBT50-HC6-150	P2770521	6	26	44.5	150	34	27	M5×0.8	4.70
	CBT50-HC8-90	P2770522	8	28	44.5	90	34	27	M6×1.0	3.75
	CBT50-HC8-120	P2770523	8	28	44.5	120	34	27	M6×1.0	4.10
	CBT50-HC8-150	P2770524	8	28	44.5	150	34	27	M6×1.0	4.10
	CBT50-HC10-90	P2770525	10	30	44.5	90	34	32	M8×1.0	3.90
	CBT50-HC10-120	P2770526	10	30	44.5	120	34	32	M8×1.0	4.30
	CBT50-HC10-150	P2770527	10	30	44.5	150	34	32	M8×1.0	4.90
	CBT50-HC12-90	P2770528	12	32	44.5	90	34	37	M10×1.0	3.90
	CBT50-HC12-120	P2770529	12	32	44.5	120	34	37	M10×1.0	4.30
	CBT50-HC12-150	P2770530	12	32	44.5	150	34	37	M10×1.0	4.90
	CBT50-HC14-90	P2770531	14	34	44.5	90	34	37	M10×1.0	3.90
	CBT50-HC14-120	P2770532	14	34	44.5	120	34	37	M10×1.0	4.30
	CBT50-HC14-150	P2770533	14	34	44.5	150	34	37	M10×1.0	4.90
	CBT50-HC16-90	P2770534	16	38	44.5	90	34	42	M12×1.0	4.00
	CBT50-HC16-120	P2770535	16	38	44.5	120	34	42	M12×1.0	4.40
	CBT50-HC16-150	P2770536	16	38	44.5	150	34	42	M12×1.0	5.00
	CBT50-HC18-90	P2770537	18	40	44.5	90	34	42	M12×1.0	4.00
	CBT50-HC18-120	P2770538	18	40	44.5	120	34	42	M12×1.0	4.40
CBT50-HC18-150	P2770539	18	40	44.5	150	34	42	M12×1.0	5.00	
CBT50-HC20-90	P2770540	20	42	44.5	90	34	42	M16×1.0	4.00	
CBT50-HC20-120	P2770541	20	42	44.5	120	34	42	M16×1.0	4.40	
CBT50-HC20-150	P2770542	20	42	44.5	150	34	42	M16×1.0	5.00	
CBT50-HC25-105	P2770543	25	57	63	105	52	48	M16×1.0	4.40	
CBT50-HC25-150	P2770544	25	57	63	150	97	48	M16×1.0	5.60	
CBT50-HC32-115	P2770545	32	64	75	115	62	55	M16×1.0	4.70	
CBT50-HC32-150	P2770546	32	64	75	150	97	55	M16×1.0	6.00	

**HYDRAULIC CHUCK (Power E Hydro)**

HYDRAULIK SPANNFUTTER (POWER E HYDRO)  
 MANDRIN HYDRAULIQUE (POWER E HYDRO)  
 MANDRINI IDRAULICI (POWER E HYDRO)  
 PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)

CBT  
**(BT DUAL CONTACT)**



Collet  
 Refer to page 43-46

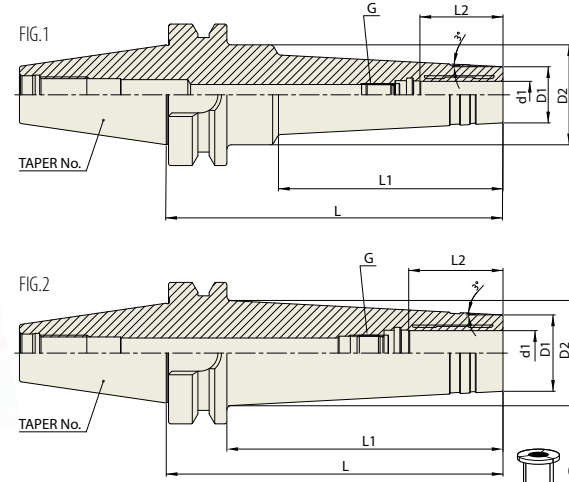
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	FIG.	WEIGHT (kg)
30	CBT30-HC12P-69	P2776606P	12	32	42	44.5	69	41	M8×1.0	1	0.80
	CBT30-HC20P-90	P2776607P	20	38	42	44.5	90	48	M8×1.0	1	0.90
40	CBT40-HC12P-58	P2776608P	12	32	42	-	58	41	M8×1.0	2	1.10
	CBT40-HC20P-72.5	P2776609P	20	38	49.25	-	72.5	48	M8×1.0	2	1.40

**HYDRAULIC CHUCK (For MOLD and DIE)**

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU  
 MANDRIN HYDRAULIQUE POUR MOULISTE  
 MANDRINI IDRAULICI PER STAMPAGGIO  
 PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES

**CBT (BT DUAL CONTACT)**



Collet Refer to page 43-46

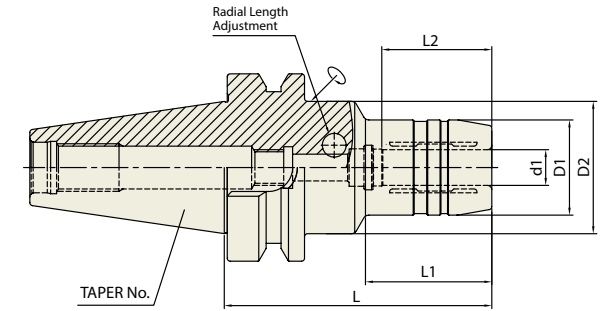
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	FIG.	WEIGHT (kg)
40	CBT40-HMC6-120	P2770921	6	20	44.5	120	70	27	M5×0.8	1	1.40
	CBT40-HMC6-150	P2770922	6	20	44.5	150	100	27	M5×0.8	1	1.65
	CBT40-HMC8-120	P2770923	8	22	44.5	120	70	27	M6×1.0	1	1.40
	CBT40-HMC8-150	P2770924	8	22	44.5	150	100	27	M6×1.0	1	1.65
	CBT40-HMC10-120	P2770925	10	24	44.5	120	70	32	M8×1.0	1	1.40
	CBT40-HMC10-150	P2770926	10	24	44.5	150	100	32	M8×1.0	1	1.65
	CBT40-HMC12-120	P2770927	12	25	44.5	120	70	37	M10×1.0	1	1.40
	CBT40-HMC12-150	P2770928	12	25	44.5	150	100	37	M10×1.0	1	1.65
	CBT40-HMC16-120	P2770929	16	32	44.5	120	70	42	M12×1.0	1	1.45
	CBT40-HMC16-150	P2770930	16	32	44.5	150	100	42	M12×1.0	1	1.70
	CBT40-HMC20-120	P2770931	20	34	43.8	120	93	42	M16×1.0	2	1.50
	CBT40-HMC20-150	P2770932	20	34	46.9	150	123	42	M16×1.0	2	1.80
50	CBT50-HMC6-150	P2770933	6	20	50	150	90	27	M5×0.8	1	4.70
	CBT50-HMC8-150	P2770934	8	22	50	150	90	27	M6×1.0	1	4.70
	CBT50-HMC10-150	P2770935	10	24	50	150	90	32	M8×1.0	1	4.70
	CBT50-HMC12-150	P2770936	12	25	50	150	90	37	M10×1.0	1	4.70
	CBT50-HMC16-150	P2770937	16	32	50	150	90	42	M12×1.0	1	4.90
	CBT50-HMC20-150	P2770938	20	34	50	150	90	42	M16×1.0	1	5.00

**HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type)**

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)  
 MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)  
 MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)  
 PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)

**JIS B6339/ MAS 403-BT**



Collet Refer to page 43-46

Unit : mm

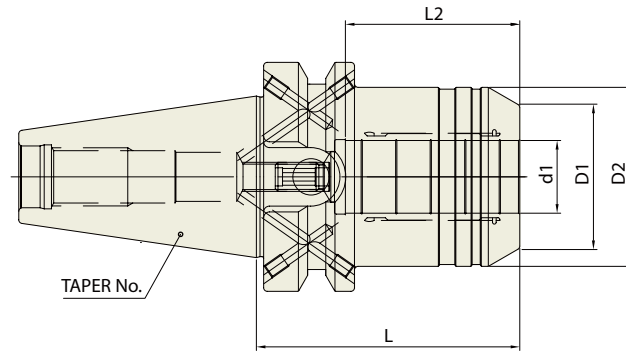
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	BT30AD/B-HCR12-85	P2777102	12	32	44.5	85	40	37	0.90
	BT30AD/B-HCR20-85	P2777103	20	44	44	85	-	42	1.00
40	BT40AD/B-HCR12-90	P2777104	12	32	44.5	90	42.5	37	1.50
	BT40AD/B-HCR20-90	P2554008	20	42	44.5	90	47.5	42	1.60
50	BT40AD/B-HCR32-105	P2777105	32	60	60	105	-	55	2.20
	BT50AD/B-HCR12-95	P2777106A	12	32	44.5	95	34	37	3.90
	BT50AD/B-HCR20-100	P2777101	20	42	44.5	100	44	42	4.00
	BT50AD/B-HCR32-115	P2777107	32	60	60	115	-	55	4.10

► CAT(ANSI B5.50) taper and Inch type products are available.

**HYDRAULIC CHUCK (Power E Hydro)**

HYDRAULIK SPANNFUTTER (POWER E HYDRO)  
 MANDRIN HYDRAULIQUE (POWER E HYDRO)  
 MANDRINI IDRAULICI (POWER E HYDRO)  
 PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)

JIS B6339/  
 MAS 403-BT



Collet  
 Refer to page 43-46

Unit : mm

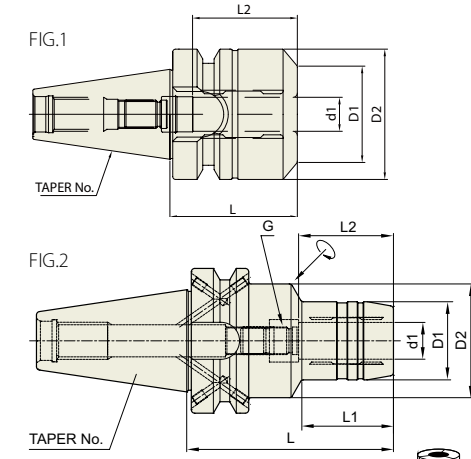
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
30	BT30AD/B-HC12P-69	P2776610P	12	32	42	69	41	M8x1.0	0.80
	BT30AD/B-HC20P-90	P2776611P	20	38	42	90	48	M8x1.0	0.90
40	BT40AD/B-HC12P-58	P2776601P	12	32	42	58	41	M8x1.0	1.10
	BT40AD/B-HC20P-72.5	P2554001P	20	38	49.25	72.5	48	M8x1.0	1.40
50	BT50AD/B-HC20P-83.5	P2755010P	20	38	49.25	83.5	48	M8x1.0	3.90
	BT50AD/B-HC32P-90	P2558001P	32	58.5	72	90	57	M8x1.0	4.60

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**HYDRAULIC CHUCK (SLIM)**

HYDRAULIK SPANNFUTTER (SCHLANK)  
 MANDRIN HYDRAULIQUE (MINCE)  
 MANDRINI IDRAULICI (SOTTILE)  
 PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

JIS B6339/  
 MAS 403-BT



Collet  
 Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	FIG.	WEIGHT (kg)	
30	BT30-HC6-45	P2770643A	6	46	46	45	-	27	M5x0.8	1	1.50	
	BT30-HC8-45	P2770644A	8	46	46	45	-	27	M6x1.0	1	1.50	
	BT30-HC10-45	P2770645A	10	46	46	45	-	32	M8x1.0	1	1.50	
	BT30-HC12-45	P2770646A	12	46	46	45	-	37	M10x1.0	1	1.50	
	BT30-HC16-45	P2770647A	16	46	46	45	-	42	M10x1.0	1	1.50	
	BT30-HC20-60	P2770648A	20	53	53	60	-	42	M10x1.0	1	2.10	
	BT30-HC6-70	P2770604A	6	26	44.5	70	29.5	27	M5x0.8	2	0.65	
	BT30-HC8-70	P2770605A	8	28	44.5	70	30	27	M6x1.0	2	0.65	
	BT30-HC10-75	P2770606A	10	30	44.5	75	31	32	M8x1.0	2	0.73	
	BT30-HC12-85	P2770607A	12	32	45	85	45	37	M10x1.0	2	0.80	
	BT30-HC14-85	P2770608A	14	34	45	85	45	37	M10x1.0	2	0.80	
	BT30-HC16-90	P2770601A	16	38	45	90	50	42	M10x1.0	2	0.90	
	BT30-HC18-90	P2770609A	18	40	45	90	50	42	M10x1.0	2	0.90	
	BT30-HC20-90	P2770602A	20	42	45	90	50	42	M6x1.0	2	0.90	
	40	BT40AD/B-HC6-90	P2554003	6	26	44.5	90	43	27	M5x0.8	2	1.30
		BT40AD/B-HC8-90	P2554021	8	28	44.5	90	44.5	27	M6x1.0	2	1.30
BT40AD/B-HC10-90		P2554005	10	30	44.5	90	44.5	32	M8x1.0	2	1.35	
BT40AD/B-HC12-90		P2554002	12	32	44.5	90	44.5	37	M10x1.0	2	1.35	
BT40AD/B-HC14-90		P2770610	14	34	44.5	90	44.5	37	M10x1.0	2	1.35	
BT40AD/B-HC16-90		P2554006	16	38	44.5	90	47.5	42	M12x1.0	2	1.40	
BT40AD/B-HC18-90		P2770611	18	40	44.5	90	47.5	42	M12x1.0	2	1.45	
BT40AD/B-HC20-90		P2554007	20	42	44.5	90	47.5	42	M16x1.0	2	1.50	
BT40AD/B-HC25-100		P2770641	25	50	60	100	47.5	48	M16x1.0	2	1.70	
BT40AD/B-HC32-105		P2770612	32	60	-	105	-	55	M16x1.0	2	2.10	

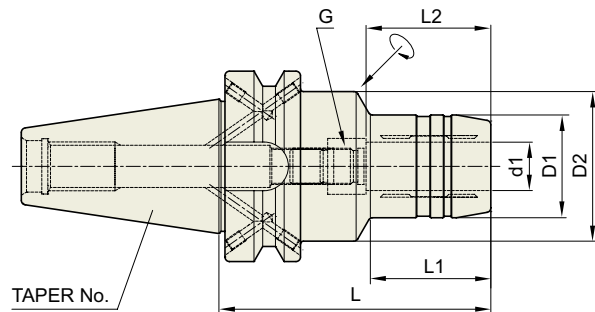
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**HYDRAULIC CHUCK (SLIM)**

HYDRAULIK SPANNFUTTER (SCHLANK)  
 MANDRIN HYDRAULIQUE (MINCE)  
 MANDRINI IDRAULICI (SOTTILE)  
 PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

JIS B6339/  
 MAS 403-BT



Collet  
 Refer to page 43-46

Unit : mm

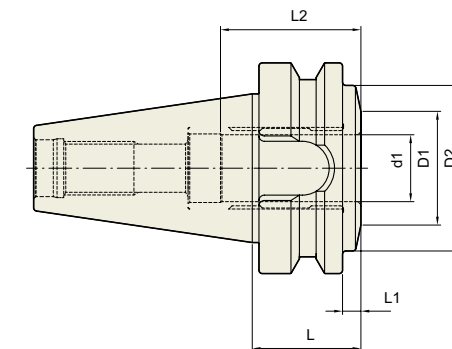
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
50	BT50AD/B-HC6-90	P2770613	6	26	44.5	90	34	27	M5×0.8	3.75
	BT50AD/B-HC6-120	P2770614	6	26	44.5	120	34	27	M5×0.8	4.10
	BT50AD/B-HC6-150	P2770615	6	26	44.5	150	34	27	M5×0.8	4.70
	BT50AD/B-HC8-90	P2770616	8	28	44.5	90	34	27	M6×1.0	3.75
	BT50AD/B-HC8-120	P2770617	8	28	44.5	120	34	27	M6×1.0	4.10
	BT50AD/B-HC8-150	P2770618	8	28	44.5	150	34	27	M6×1.0	4.10
	BT50AD/B-HC10-90	P2770619	10	30	44.5	90	34	32	M8×1.0	3.90
	BT50AD/B-HC10-120	P2770620	10	30	44.5	120	34	32	M8×1.0	4.30
	BT50AD/B-HC10-150	P2770621	10	30	44.5	150	34	32	M8×1.0	4.90
	BT50AD/B-HC12-90	P2770622	12	32	44.5	90	34	37	M10×1.0	3.90
	BT50AD/B-HC12-120	P2770623	12	32	44.5	120	34	37	M10×1.0	4.30
	BT50AD/B-HC12-150	P2770624	12	32	44.5	150	34	37	M10×1.0	4.90
	BT50AD/B-HC14-90	P2770625	14	34	44.5	90	34	37	M10×1.0	3.90
	BT50AD/B-HC14-120	P2770626	14	34	44.5	120	34	37	M10×1.0	4.30
	BT50AD/B-HC14-150	P2770627	14	34	44.5	150	34	37	M10×1.0	4.90
	BT50AD/B-HC16-90	P2770628	16	38	44.5	90	34	42	M12×1.0	4.00
	BT50AD/B-HC16-120	P2770629	16	38	44.5	120	34	42	M12×1.0	4.40
	BT50AD/B-HC16-150	P2770630	16	38	44.5	150	34	42	M12×1.0	5.00
	BT50AD/B-HC18-90	P2770631	18	40	44.5	90	34	42	M12×1.0	4.00
	BT50AD/B-HC18-120	P2770632	18	40	44.5	120	34	42	M12×1.0	4.40
BT50AD/B-HC18-150	P2770633	18	40	44.5	150	34	42	M12×1.0	5.00	
BT50AD/B-HC20-90	P2770634	20	42	44.5	90	34	42	M16×1.0	4.00	
BT50AD/B-HC20-120	P2770635	20	42	44.5	120	34	42	M16×1.0	4.40	
BT50AD/B-HC20-150	P2770636	20	42	44.5	150	34	42	M16×1.0	5.00	
BT50AD/B-HC25-105	P2770637	25	57	63	105	52	48	M16×1.0	4.40	
BT50AD/B-HC25-150	P2770638	25	57	63	150	97	48	M16×1.0	5.60	
BT50AD/B-HC32-115	P2770639	32	64	75	115	62	55	M16×1.0	4.70	
BT50AD/B-HC32-150	P2770640	32	64	75	150	97	55	M16×1.0	6.00	

► CAT(ANSI B5.50) taper and Inch type products are available.

**HYDRAULIC CHUCK (ULTRA SHORT)**

HYDRAULIK SPANNFUTTER (KURZ)  
 MANDRIN HYDRAULIQUE (COURT)  
 MANDRINI IDRAULICI (CORTO)  
 PORTAHERRAMIENTAS HIDRAULICO (CORTO)

JIS B6339/  
 MAS 403-BT



Collet  
 Refer to page 43-46

Unit : mm

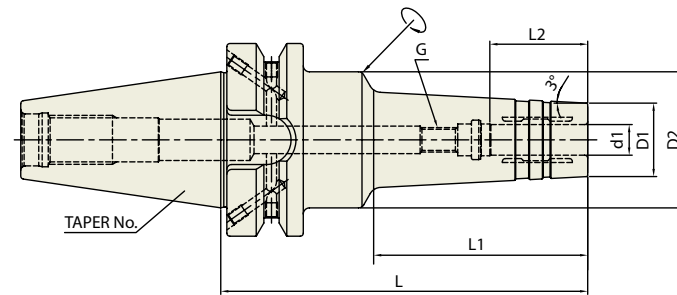
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	BT40-HC20-32.5	P2770642	20	34	49.5	32.5	5.5	42	-	0.99
50	BT50-HC32-50	P2770650	32	49	70.5	50	12	55	-	3.73

► CAT(ANSI B5.50) taper and Inch type products are available.

**HYDRAULIC CHUCK (For MOLD and DIE)**

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU  
 MANDRIN HYDRAULIQUE POUR MOULISTE  
 MANDRINI IDRAULICI PER STAMPAGGIO  
 PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES

JIS B6339/  
 MAS 403-BT



Collet  
 Refer to page 43-46

Unit : mm

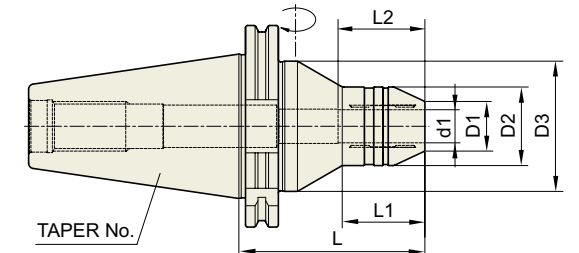
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	BT40AD/B-HMC6-120	P2770903	6	20	44.5	120	70	27	M5×0.8	1.40
	BT40AD/B-HMC6-150	P2770904	6	20	44.5	150	100	27	M5×0.8	1.65
	BT40AD/B-HMC8-120	P2770905	8	22	44.5	120	70	27	M6×1.0	1.40
	BT40AD/B-HMC8-150	P2770906	8	22	44.5	150	100	27	M6×1.0	1.65
	BT40AD/B-HMC10-120	P2770907	10	24	44.5	120	70	32	M8×1.0	1.40
	BT40AD/B-HMC10-150	P2770908	10	24	44.5	150	100	32	M8×1.0	1.65
	BT40AD/B-HMC12-120	P2770901	12	25	44.5	120	70	37	M10×1.0	1.40
	BT40AD/B-HMC12-150	P2770909	12	25	44.5	150	100	37	M10×1.0	1.65
	BT40AD/B-HMC16-120	P2770910	16	32	44.5	120	70	42	M12×1.0	1.45
	BT40AD/B-HMC16-150	P2770911	16	32	44.5	150	100	42	M12×1.0	1.70
	BT40AD/B-HMC20-120	P2770902	20	34	43.8	120	93	42	M16×1.0	1.50
	BT40AD/B-HMC20-150	P2770912	20	34	46.9	150	123	42	M16×1.0	1.80
50	BT50AD/B-HMC6-150	P2770913	6	20	50	150	90	27	M5×0.8	4.70
	BT50AD/B-HMC8-150	P2770914	8	22	50	150	90	27	M6×1.0	4.70
	BT50AD/B-HMC10-150	P2770915	10	24	50	150	90	32	M8×1.0	4.70
	BT50AD/B-HMC12-150	P2770916	12	25	50	150	90	37	M10×1.0	4.70
	BT50AD/B-HMC16-150	P2770917	16	32	50	150	90	42	M12×1.0	4.90
	BT50AD/B-HMC20-150	P2770918	20	34	50	150	90	42	M16×1.0	5.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**HYDRAULIC CHUCK (For GRINDER)**

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU  
 MANDRIN HYDRAULIQUE POUR MOULISTE  
 MANDRINI IDRAULICI PER STAMPAGGIO  
 PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES

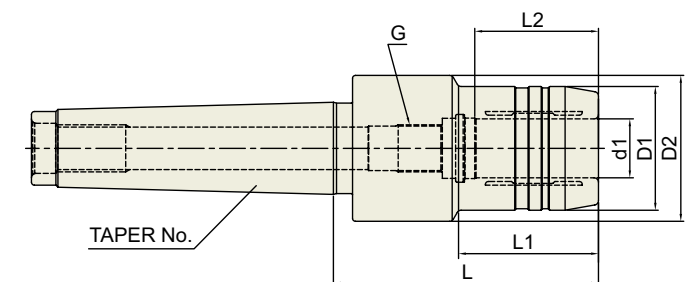
DIN 69871-SK



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L1	L2	WEIGHT (kg)
50	SK50-HC6G-90	P2770951	6	14	30	63	90	30	27	3.00
	SK50-HC8G-90	P2770952	8	16	30	63	90	30	27	3.00
	SK50-HC10G-90	P2770953	10	18	30	63	90	30	32	3.00
	SK50-HC12G-90	P2770954	12	21	33	63	90	35	37	3.05
	SK50-HC14G-90	P2770955	14	22	35	63	90	35	37	3.10
	SK50-HC16G-90	P2770956	16	24	38	63	90	40	42	3.10
	SK50-HC18G-90	P2770957	18	26	40	63	90	40	42	3.10
	SK50-HC20G-110	P2770958	20	29	42	63	110	40	42	3.30
	SK50-HC25G-110	P2770959	25	34	50	70	110	45	48	3.60
	SK50-HC32G-110	P2770960	32	42	56	80	110	50	55	4.20

**DIN 228-MTB**



Unit : mm

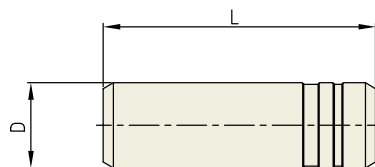
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
4	MTB4-HC20-90	P2770961	20	42	49.5	90	47.5	42	M16×1.0	1.30
	MTB4-HC32-90	P2770962	32	72	72	90	-	55	-	1.40
5	MTB5-HC20-90	P2770963	20	42	49.5	90	47.5	42	M16×1.0	2.20
	MTB5-HC32-90	P2770964	32	72	72	90	-	55	-	2.40

**HYDRAULIC CHUCK SET**



TAPER No.	MODEL No.	EDP No.	REDUCTION SLEEVE	WRENCH
HCSS40-20	SK40AD/B-HC20P-64.5	P2770971	HK20-6.8.10.12.16 (5pcs)	φ5mm
HCSB40-20	BT40AD/B-HC20P-72.5	P2770972	HK20-6.8.10.12.16 (5pcs)	φ5mm
HCSH40-20	HSK63A-HC20P-80	P2770973	HK20-6.8.10.12.16 (5pcs)	φ5mm

**TEST PIECE**



**TECHNICAL DATA**

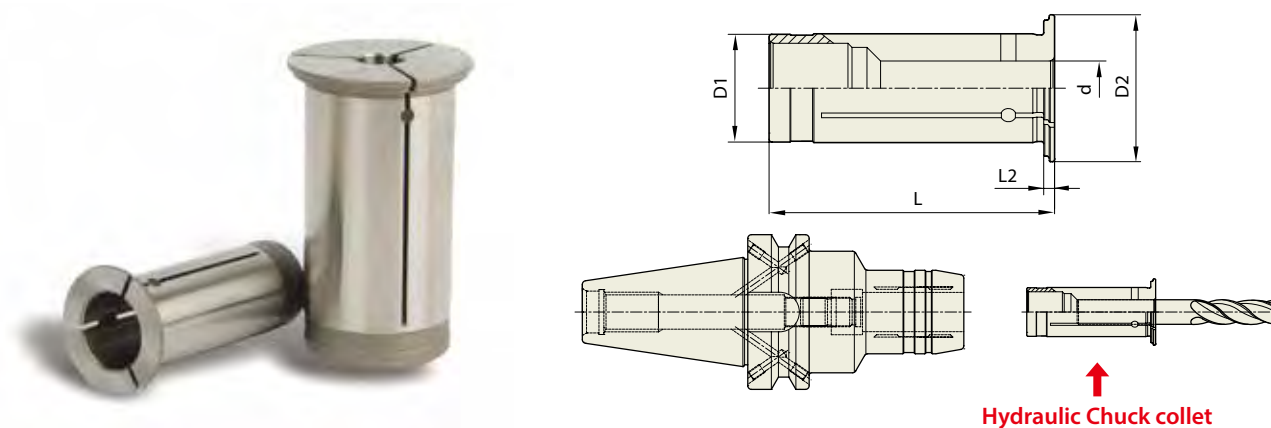
DESCRIPTIONS	EDP No.	D	L
TP6	P2801201	6	70
TP8	P2801202	8	70
TP10	P2801203	10	80
TP12	P2801204	12	80
TP14	P2801205	14	80
TP16	P2801206	16	90
TP18	P2801207	18	90
TP20	P2801208	20	100
TP25	P2801209	25	100
TP32	P2801210	32	100

**POWER E HYDRO**

DESCRIPTIONS	EDP No.	D	L
TP12P	P2801211	12	80
TP20P	P2801212	20	100
TP32P	P2801213	32	100

**HYDRAULIC CHUCK COLLET (Reduction Sleeve : Open Type)**

HYDRAULIK SPANNFUTTER SPANNZANGE  
 MANDRIN HYDRAULIQUE PINCE DE SERRAGE  
 MANDRINI IDRAULICI PINZA DI SERRAGGIO  
 PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



MODEL No.	EDP No.	d	D1	D2	L	L2		
HK12	3	P2569022	3	12	19	47	2	
	4	P2569023	4	12	19	47	2	
	5	P2569024	5	12	19	47	2	
	6	P2569025	6	12	19	47	2	
	7	P2771001	7	12	19	47	2	
	8	P2569026	8	12	19	47	2	
	HK20	3	P2569001	3	20	27	52.5	2
		4	P2569002	4	20	27	52.5	2
5		P2569003	5	20	27	52.5	2	
6		P2569004	6	20	27	52.5	2	
7		P2771002	7	20	27	52.5	2	
8		P2569005	8	20	27	52.5	2	
9		P2771003	9	20	27	52.5	2	
10		P2569006	10	20	27	52.5	2	
11		P2771004	11	20	27	52.5	2	
12		P2569007	12	20	27	52.5	2	
13		P2771005	13	20	27	52.5	2	
14		P2569008	14	20	27	52.5	2	
15		P2771006	15	20	27	52.5	2	
16		P2569009	16	20	27	52.5	2	
HK32		6	P2569010	6	32	39	63.5	3
		8	P2569011	8	32	39	63.5	3
	10	P2569012	10	32	39	63.5	3	
	12	P2569013	12	32	39	63.5	3	
	14	P2569014	14	32	39	63.5	3	
	16	P2569015	16	32	39	63.5	3	
	18	P2569016	18	32	39	63.5	3	
	20	P2569017	20	32	39	63.5	3	
	25	P2569018	25	32	39	63.5	3	

▶ Inch type products are available.  
 ▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

**Feature**

HK Hydraulic Chuck collet (reduction sleeve) is cut into trisection by high precision cutting to guarantee precise I.D and strong clamping power.

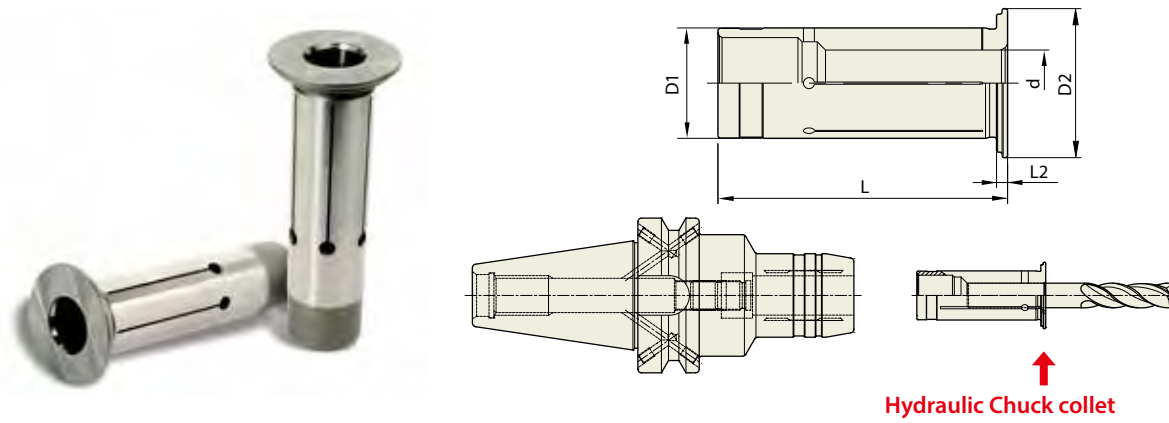
**Chucking Method**

Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.



**HYDRAULIC CHUCK COLLET (Reduction Sleeve : Closed Type)**

HYDRAULIK SPANNFUTTER SPANNZANGE  
 MANDRIN HYDRAULIQUE PINCE DE SERRAGE  
 MANDRINI IDRAULICI PINZA DI SERRAGGIO  
 PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



Unit : mm

MODEL No.	EDP No.	d	D1	D2	L	L2	
HS12	3	P2771101	3	12	19	47	2
	4	P2771102	4	12	19	47	2
	5	P2771103	5	12	19	47	2
	6	P2771104	6	12	19	47	2
	7	P2771105	7	12	19	47	2
	8	P2771106	8	12	19	47	2
HS20	3	P2771107	3	20	27	52.5	2
	4	P2771108	4	20	27	52.5	2
	5	P2771109	5	20	27	52.5	2
	6	P2771110	6	20	27	52.5	2
	7	P2771111	7	20	27	52.5	2
	8	P2771112	8	20	27	52.5	2
	9	P2771113	9	20	27	52.5	2
	10	P2771114	10	20	27	52.5	2
	11	P2771115	11	20	27	52.5	2
	12	P2771116	12	20	27	52.5	2
	13	P2771117	13	20	27	52.5	2
HS32	14	P2771118	14	20	27	52.5	2
	15	P2771119	15	20	27	52.5	2
	16	P2771120	16	20	27	52.5	2
	17	P2771130	17	20	27	52.5	2
	6	P2771121	6	32	39	63.5	3
	8	P2771122	8	32	39	63.5	3
	10	P2771123	10	32	39	63.5	3
	12	P2771124	12	32	39	63.5	3
	14	P2771125	14	32	39	63.5	3
	16	P2771126	16	32	39	63.5	3
	18	P2771127	18	32	39	63.5	3
20	P2771128	20	32	39	63.5	3	
25	P2771129	25	32	39	63.5	3	

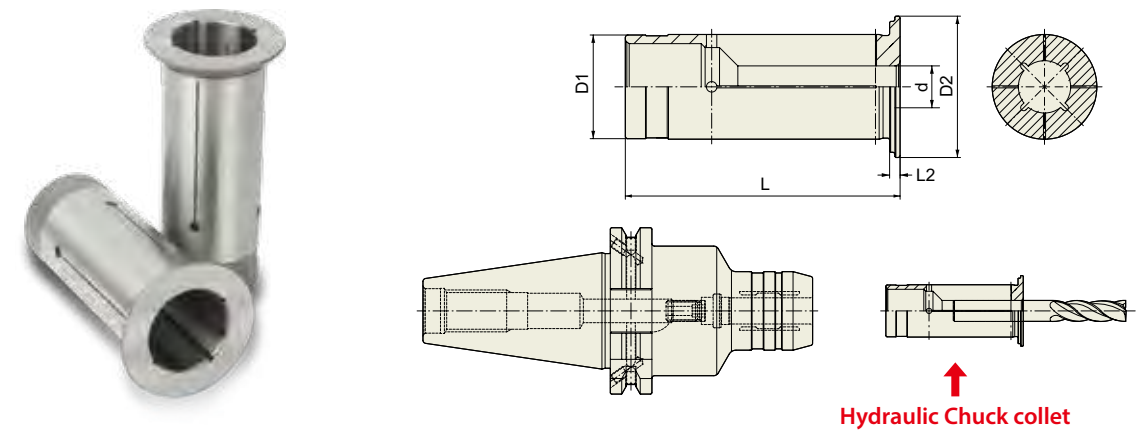
- ▶ Inch type products are available.
- ▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

**Feature** HS Hydraulic Chuck collet (reduction sleeve) is cut by high precision wire-cutting to guarantee precise I.D and strong clamping power.

**Chucking Method** Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

**HYDRAULIC CHUCK COLLET (Reduction Sleeve : Coolant Flush Type)**

HYDRAULIK SPANNFUTTER SPANNZANGE  
 MANDRIN HYDRAULIQUE PINCE DE SERRAGE  
 MANDRINI IDRAULICI PINZA DI SERRAGGIO  
 PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



Unit : mm

MODEL No.	EDP No.	d	D1	D2	L	L2	
HF12	3	P2771201	3	12	19	47	2
	4	P2771202	4	12	19	47	2
	5	P2771203	5	12	19	47	2
	6	P2771204	6	12	19	47	2
	7	P2771205	7	12	19	47	2
	8	P2771206	8	12	19	47	2
HF20	3	P2771207	3	20	27	52.5	2
	4	P2771208	4	20	27	52.5	2
	5	P2771209	5	20	27	52.5	2
	6	P2771210	6	20	27	52.5	2
	7	P2771211	7	20	27	52.5	2
	8	P2771212	8	20	27	52.5	2
	9	P2771213	9	20	27	52.5	2
	10	P2771214	10	20	27	52.5	2
	11	P2771215	11	20	27	52.5	2
	12	P2771216	12	20	27	52.5	2
	13	P2771217	13	20	27	52.5	2
HF32	14	P2771218	14	20	27	52.5	2
	15	P2771219	15	20	27	52.5	2
	16	P2771220	16	20	27	52.5	2
	6	P2771221	6	32	39	63.5	3
	8	P2771222	8	32	39	63.5	3
	10	P2771223	10	32	39	63.5	3
	12	P2771224	12	32	39	63.5	3
	14	P2771225	14	32	39	63.5	3
	16	P2771226	16	32	39	63.5	3
	18	P2771227	18	32	39	63.5	3
	20	P2771228	20	32	39	63.5	3
25	P2771229	25	32	39	63.5	3	

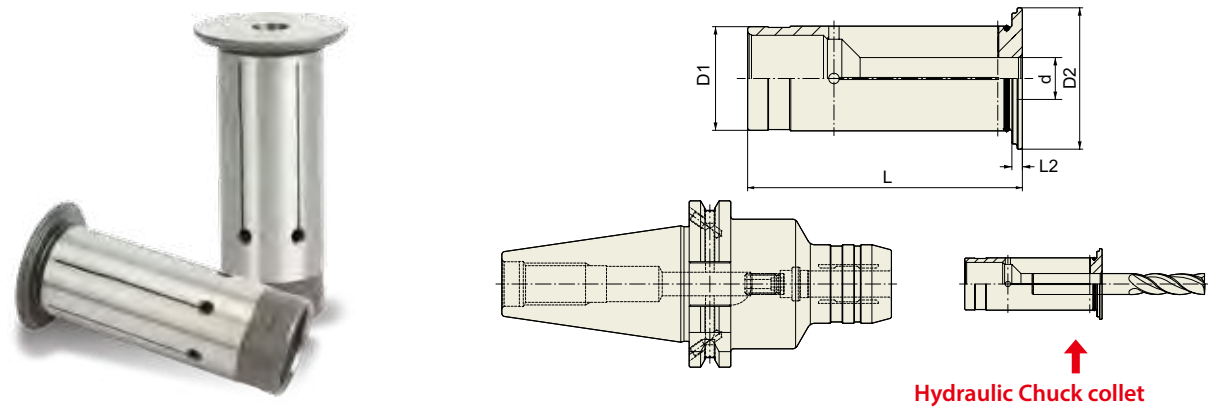
- ▶ Inch type products are available.
- ▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

**Feature** HF Hydraulic Chuck collet (reduction sleeve) is for internal coolant flush.

**Chucking Method** Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

**HYDRAULIC CHUCK COLLET (Reduction Sleeve : for High Pressure Coolant)**

HYDRAULIK SPANNFUTTER SPANNZANGE  
 MANDRIN HYDRAULIQUE PINCE DE SERRAGE  
 MANDRINI IDRAULICI PINZA DI SERRAGGIO  
 PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



Unit : mm

MODEL No.	EDP No.	d	D1	D2	L	L2	
HR12	3	P2777601	3	12	19	47	2
	4	P2777602	4	12	19	47	2
	5	P2777603	5	12	19	47	2
	6	P2777604	6	12	19	47	2
	7	P2777605	7	12	19	47	2
	8	P2777606	8	12	19	47	2
HR20	3	P2777607	3	20	27	52.5	2
	4	P2777608	4	20	27	52.5	2
	5	P2777609	5	20	27	52.5	2
	6	P2777610	6	20	27	52.5	2
	7	P2777611	7	20	27	52.5	2
	8	P2777612	8	20	27	52.5	2
	9	P2777613	9	20	27	52.5	2
	10	P2777614	10	20	27	52.5	2
	11	P2777615	11	20	27	52.5	2
	12	P2777616	12	20	27	52.5	2
HR32	13	P2777617	13	20	27	52.5	2
	14	P2777618	14	20	27	52.5	2
	15	P2777619	15	20	27	52.5	2
	16	P2777620	16	20	27	52.5	2
	6	P2777621	6	32	39	63.5	3
	8	P2777622	8	32	39	63.5	3
	10	P2777623	10	32	39	63.5	3
	12	P2777624	12	32	39	63.5	3
	14	P2777625	14	32	39	63.5	3
	16	P2777626	16	32	39	63.5	3
	18	P2777627	18	32	39	63.5	3
	20	P2777628	20	32	39	63.5	3
	25	P2777629	25	32	39	63.5	3

▶ Inch type products are available.  
 ▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

**Feature** HR Hydraulic Chuck collet (reduction sleeve) is for high pressure coolant supply.

**Chucking Method** Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

**YG-1 TOOLING SYSTEM**

**SHRINK FIT HOLDER**

- SCHRUMPFUTTER
- MANDRIN DE FRETTAGE
- MADRINI PER CALLETAMENTO A CALDO
- PORTAHERRAMIENTAS DE COMPRESION POR CALOR



**DIN 69871-SK**

**DIN 69893/ISO 12164-1-HSK**

**CBT (BT DUAL CONTACT)**

**JIS B6339/MAS 403-BT**

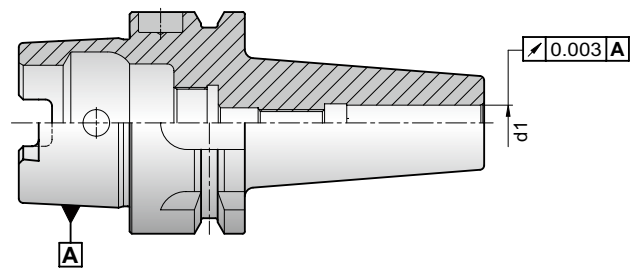
**ISO 25**

**STRAIGHT (EXTENSION)**

**SHRINK FIT HEATING MACHINE**

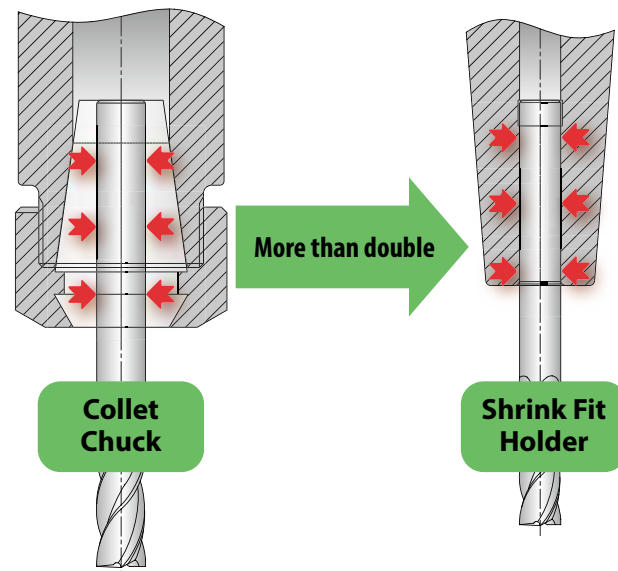


**High Precision I.D Run-out :  $\leq 0.003\text{mm}$**



• Less than 0.003mm of Tool Holder accuracy at I.D

**Strong and Consistent Torque Power**

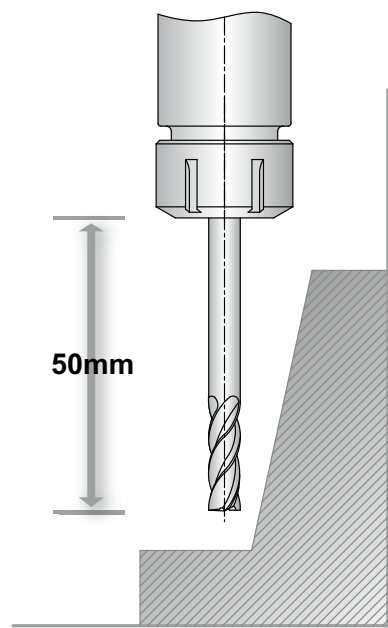


• Achieving strong torque power by integration of chuck and tool

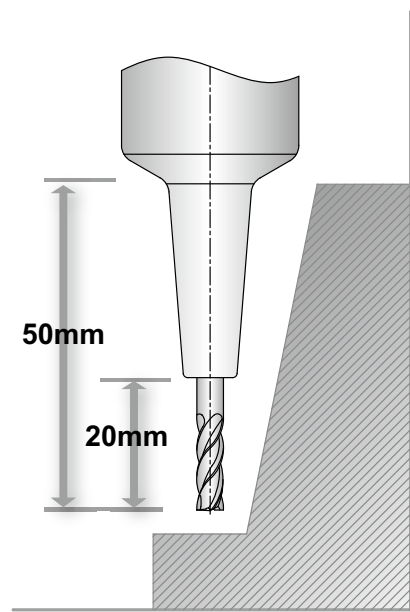
**Deep hole Machining**

Collet Chuck

Shrink Fit Holder



More favorable in deep hole machining

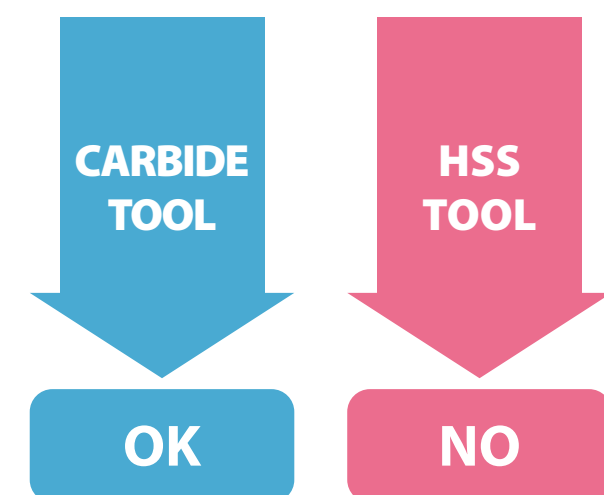
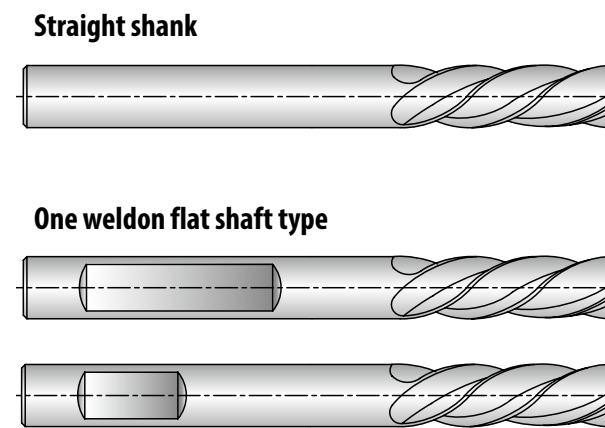


• Suitable for High-Speed precision deep hole machining

APPLICATION		
<b>Rough Milling</b>	<b>Finish Milling</b>	<b>High-Speed Cutting</b>
<b>Drilling</b>	<b>Reaming</b>	<b>Countersinking</b>

**Shank Type of Cutting Tool**

**Material of Cutting Tool**



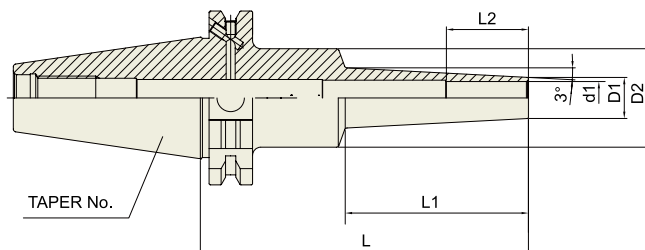
• One Weldon flat shaft type tool is usable, but there is a possibility that the I.D of shrink fit holder may be deformed.



**SHRINK FIT HOLDER (EXTRA SLIM)**

DIN 69871-SK

SCHRUMPFUTTER  
MANDRIN DE FRETAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



Unit : mm									
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	SK30-SFHS3-60	P2771332S	3	6	20	60	22	9	-
	SK30-SFHS3-80	P2771333S	3	6	20	80	42	9	-
	SK30-SFHS4-60	P2771334S	4	7	20	60	22	12	-
	SK30-SFHS4-80	P2771335S	4	7	20	80	42	12	-
	SK30-SFHS6-60	P2771336S	6	9	20	60	22	18	-
	SK30-SFHS6-80	P2771337S	6	9	20	80	42	18	-
40	SK40AD/B-SFHS3-95	P2771338S	3	6	26	95	42	9	0.89
	SK40AD/B-SFHS3-120	P2771339S	3	6	26	120	67	9	0.91
	SK40AD/B-SFHS4-95	P2771340S	4	7	26	95	42	12	0.90
	SK40AD/B-SFHS4-120	P2771341S	4	7	26	120	67	12	0.92
	SK40AD/B-SFHS6-95	P2771342S	6	9	26	95	42	18	0.90
	SK40AD/B-SFHS6-120	P2771343S	6	9	26	120	67	18	0.93
	SK40AD/B-SFHS8-95	P2771344S	8	11	36	95	42	24	0.90
	SK40AD/B-SFHS8-120	P2771345S	8	11	36	120	67	24	1.01
	SK40AD/B-SFHS10-95	P2771346S	10	13	36	95	42	30	0.91
	SK40AD/B-SFHS10-120	P2771347S	10	13	36	120	67	30	1.02
	SK40AD/B-SFHS12-95	P2771348S	12	15	36	95	42	30	0.99
	SK40AD/B-SFHS12-120	P2771349S	12	15	36	120	67	30	1.02
50	SK50AD/B-SFHS3-110	P2771350S	3	6	26	110	42	9	2.77
	SK50AD/B-SFHS3-160	P2771351S	3	6	26	160	97	9	2.79
	SK50AD/B-SFHS4-110	P2771352S	4	7	26	110	42	12	2.75
	SK50AD/B-SFHS4-160	P2771353S	4	7	26	160	97	12	2.80
	SK50AD/B-SFHS6-110	P2771354S	6	9	26	110	42	18	2.74
	SK50AD/B-SFHS6-160	P2771355S	6	9	26	160	97	18	2.85
	SK50AD/B-SFHS8-110	P2771356S	8	11	36	110	42	24	2.84
	SK50AD/B-SFHS8-160	P2771357S	8	11	36	160	97	24	2.92
	SK50AD/B-SFHS10-110	P2771358S	10	13	36	110	42	30	2.85
	SK50AD/B-SFHS10-160	P2771359S	10	13	36	160	97	30	2.93
	SK50AD/B-SFHS12-110	P2771360S	12	15	36	110	42	30	2.85
	SK50AD/B-SFHS12-160	P2771361S	12	15	36	160	97	30	2.96

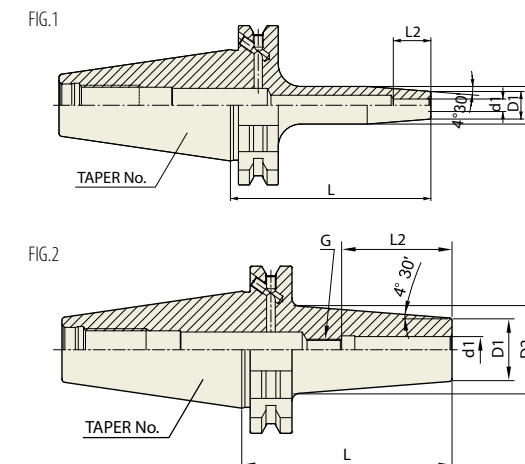
► CAT(ANSI B5.50) taper and Inch type products are available.



**SHRINK FIT HOLDER**

DIN 69871-SK

SCHRUMPFUTTER  
MANDRIN DE FRETAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
30	SK30AD/B-SFH3-60	P2771308	3	11	15	60	10	-	1	0.40
	SK30AD/B-SFH4-60	P2771309	4	11	15	60	12	-	1	0.40
	SK30AD/B-SFH5-60	P2771310	5	11	15	60	15	-	1	0.40
	SK30AD/B-SFH6-60	P2771311	6	21	27	60	36	M5x0.8	2	0.40
	SK30AD/B-SFH8-60	P2771312	8	21	27	60	36	M6x1.0	2	0.40
	SK30AD/B-SFH10-80	P2771313	10	24	32	80	42	M8x1.0	2	0.40
	SK30AD/B-SFH12-80	P2771314	12	24	32	80	47	M10x1.0	2	0.42
	SK30AD/B-SFH14-80	P2771315	14	27	34	80	47	M10x1.0	2	-
	SK30AD/B-SFH16-80	P2771316	16	27	34	80	50	M12x1.0	2	0.42
	SK30AD/B-SFH18-80	P2771317	18	33	42	80	50	M12x1.0	2	-
	SK30AD/B-SFH20-90	P2771318	20	33	42	90	52	M16x1.0	2	0.44
	40	SK40AD/B-SFH3-80	P2771301	3	11	15	80	10	-	1
SK40AD/B-SFH4-80		P2771302	4	11	15	80	12	-	1	1.00
SK40AD/B-SFH5-80		P2771303	5	11	15	80	15	-	1	1.00
SK40AD/B-SFH6-80		P2554058	6	21	27	80	36	M5x0.8	2	1.10
SK40AD/B-SFH6-160		P2771304	6	21	27	160	36	M5x0.8	2	1.15
SK40AD/B-SFH8-80		P2600009	8	21	27	80	36	M6x1.0	2	1.11
SK40AD/B-SFH8-160		P2771305	8	21	27	160	36	M6x1.0	2	1.15
SK40AD/B-SFH10-80		P2554052	10	24	32	80	42	M8x1.0	2	1.10
SK40AD/B-SFH10-160		P2771306	10	24	32	160	42	M8x1.0	2	1.15
SK40AD/B-SFH12-80		P2600008	12	24	32	80	47	M10x1.0	2	1.10
SK40AD/B-SFH12-160		P2771307	12	24	32	160	47	M10x1.0	2	1.15
SK40AD/B-SFH14-80		P2771319	14	27	34	80	47	M10x1.0	2	1.20
SK40AD/B-SFH14-160		P2771320	14	27	34	160	47	M10x1.0	2	1.50
SK40AD/B-SFH16-80		P2554054	16	27	34	80	50	M12x1.0	2	1.20
SK40AD/B-SFH16-160		P2554053	16	27	34	160	50	M12x1.0	2	1.50
SK40AD/B-SFH18-80		P2771321	18	33	42	80	50	M12x1.0	2	1.30
SK40AD/B-SFH18-160		P2771322	18	33	42	160	50	M12x1.0	2	1.60
SK40AD/B-SFH20-80		P2554056	20	33	42	80	52	M16x1.0	2	1.40
SK40AD/B-SFH20-160		P2554055	20	33	42	160	52	M16x1.0	2	1.70
SK40AD/B-SFH25-90		P2771323	25	44	53	90	58	M16x1.0	2	1.70
SK40AD/B-SFH25-160	P2771324	25	44	53	160	58	M16x1.0	2	2.00	

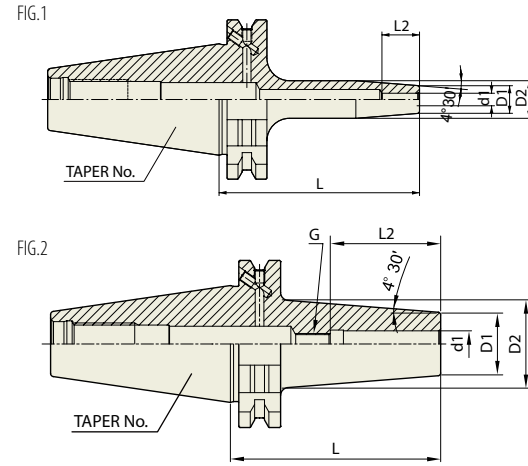
► CAT(ANSI B5.50) taper and Inch type products are available.  
► Without balancing screw.

► NEXT PAGE

**SHRINK FIT HOLDER**

DIN 69871-SK

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
50	SK50AD/B-SFH3-80	P2771325	3	11	15	100	10	-	1	1.50
	SK50AD/B-SFH4-80	P2771326	4	11	15	100	12	-	1	1.50
	SK50AD/B-SFH5-80	P2771327	5	11	15	100	15	-	1	1.50
	SK50AD/B-SFH6-80	P2771328	6	21	27	80	36	M5x0.8	2	1.50
	SK50AD/B-SFH6-160	P2771329	6	21	27	160	36	M5x0.8	2	2.00
	SK50AD/B-SFH8-80	P2760010	8	21	27	80	36	M6x1.0	2	1.50
	SK50AD/B-SFH8-160	P2760015	8	21	27	160	36	M6x1.0	2	2.00
	SK50AD/B-SFH10-80	P2761010	10	24	32	80	42	M8x1.0	2	1.50
	SK50AD/B-SFH10-160	P2761015	10	24	32	160	42	M8x1.0	2	2.00
	SK50AD/B-SFH12-80	P2762010	12	24	32	80	47	M10x1.0	2	1.50
	SK50AD/B-SFH12-160	P2762015	12	24	32	160	47	M10x1.0	2	2.00
	SK50AD/B-SFH14-80	P2763010	14	27	34	80	47	M10x1.0	2	1.60
	SK50AD/B-SFH14-160	P2763015	14	27	34	160	47	M10x1.0	2	2.10
	SK50AD/B-SFH16-80	P2764010	16	27	34	80	50	M12x1.0	2	1.60
	SK50AD/B-SFH16-160	P2764015	16	27	34	160	50	M12x1.0	2	2.10
	SK50AD/B-SFH18-80	P2765010	18	33	42	80	50	M12x1.0	2	1.60
	SK50AD/B-SFH18-160	P2765015	18	33	42	160	50	M12x1.0	2	2.00
	SK50AD/B-SFH20-80	P2766010	20	33	42	80	52	M16x1.0	2	1.80
	SK50AD/B-SFH20-160	P2766015	20	33	42	160	52	M16x1.0	2	2.20
	SK50AD/B-SFH25-90	P2771330	25	44	53	90	58	M16x1.0	2	2.00
SK50AD/B-SFH25-160	P2771331	25	44	53	160	58	M16x1.0	2	2.40	

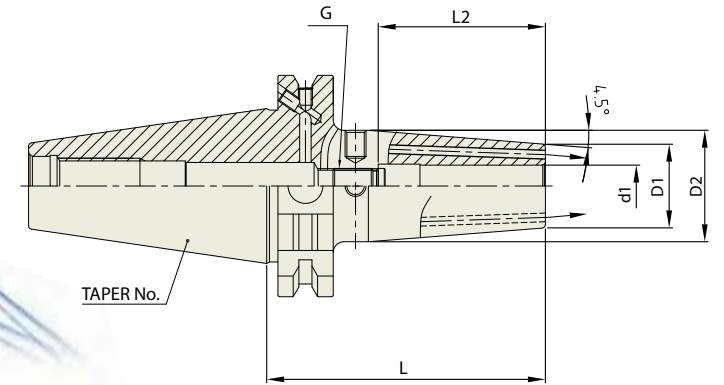
▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Without balancing screw.



**SHRINK FIT HOLDER (COOLANT CHANNEL)**

DIN 69871-SK

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



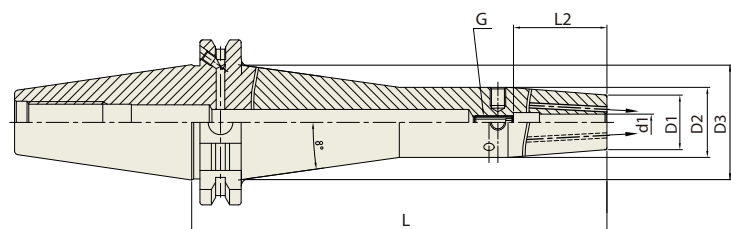
Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
40	SK40AD/B-SFH6C-80	P2801301C	6	21	27	80	36	M5x0.8	1	1.10
	SK40AD/B-SFH6C-160	P2801302C	6	21	27	160	36	M5x0.8	1	1.15
	SK40AD/B-SFH8C-80	P2801303C	8	21	27	80	36	M6x1.0	1	1.11
	SK40AD/B-SFH8C-160	P2801304C	8	21	27	160	36	M6x1.0	1	1.15
	SK40AD/B-SFH10C-80	P2801305C	10	24	32	80	42	M8x1.0	1	1.10
	SK40AD/B-SFH10C-160	P2801306C	10	24	32	160	42	M8x1.0	1	1.15
	SK40AD/B-SFH12C-80	P2801307C	12	24	32	80	47	M10x1.0	1	1.10
	SK40AD/B-SFH12C-160	P2801308C	12	24	32	160	47	M10x1.0	1	1.15
	SK40AD/B-SFH14C-80	P2801309C	14	27	34	80	47	M10x1.0	1	1.20
	SK40AD/B-SFH14C-160	P2801310C	14	27	34	160	47	M10x1.0	1	1.50
	SK40AD/B-SFH16C-80	P2801311C	16	27	34	80	50	M12x1.0	1	1.20
	SK40AD/B-SFH16C-160	P2801312C	16	27	34	160	50	M12x1.0	1	1.50
	SK40AD/B-SFH18C-80	P2801313C	18	33	42	80	50	M12x1.0	1	1.30
	SK40AD/B-SFH18C-160	P2801314C	18	33	42	160	50	M12x1.0	1	1.60
	SK40AD/B-SFH20C-80	P2801315C	20	33	42	80	52	M16x1.0	1	1.40
	SK40AD/B-SFH20C-160	P2801316C	20	33	42	160	52	M16x1.0	1	1.70
	SK40AD/B-SFH25C-90	P2801317C	25	44	53	90	58	M16x1.0	1	1.70
	SK40AD/B-SFH25C-160	P2801318C	25	44	53	160	58	M16x1.0	1	2.00
	SK50AD/B-SFH6C-80	P2801319C	6	21	27	80	36	M5x0.8	1	1.50
	SK50AD/B-SFH6C-160	P2801320C	6	21	27	160	36	M5x0.8	1	2.00
50	SK50AD/B-SFH8C-80	P2801321C	8	21	27	80	36	M6x1.0	1	1.50
	SK50AD/B-SFH8C-160	P2801322C	8	21	27	160	36	M6x1.0	1	2.00
	SK50AD/B-SFH10C-80	P2801323C	10	24	32	80	42	M8x1.0	1	1.50
	SK50AD/B-SFH10C-160	P2801324C	10	24	32	160	42	M8x1.0	1	2.00
	SK50AD/B-SFH12C-80	P2801325C	12	24	32	80	47	M10x1.0	1	1.60
	SK50AD/B-SFH12C-160	P2801326C	12	24	32	160	47	M10x1.0	1	2.10
	SK50AD/B-SFH14C-80	P2801327C	14	27	34	80	47	M10x1.0	1	1.60
	SK50AD/B-SFH14C-160	P2801328C	14	27	34	160	47	M10x1.0	1	2.10
	SK50AD/B-SFH16C-80	P2801329C	16	27	34	80	50	M12x1.0	1	1.60
	SK50AD/B-SFH16C-160	P2801330C	16	27	34	160	50	M12x1.0	1	2.10
	SK50AD/B-SFH18C-80	P2801331C	18	33	42	80	50	M12x1.0	1	1.60
	SK50AD/B-SFH18C-160	P2801332C	18	33	42	160	50	M12x1.0	1	2.00
	SK50AD/B-SFH20C-80	P2801333C	20	33	42	80	52	M16x1.0	1	1.80
	SK50AD/B-SFH20C-160	P2801334C	20	33	42	160	52	M16x1.0	1	2.20
	SK50AD/B-SFH25C-90	P2801335C	25	44	53	90	58	M16x1.0	1	2.00
	SK50AD/B-SFH25C-160	P2801336C	25	44	53	160	58	M16x1.0	1	2.40

▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Without balancing screw.  
▶ Resealable Coolant Channel type is available upon request.

**SHRINK FIT HOLDER (REINFORCED)**

DIN 69871-SK

SCHRUMPFUTTER (VERSTÄRKT)  
MANDRIN DE FRETTAGE (RENFORCÉ)  
MADRINI PER CALLETAMENTO A CALDO (RINFORZATO)  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR (REFORZADO)



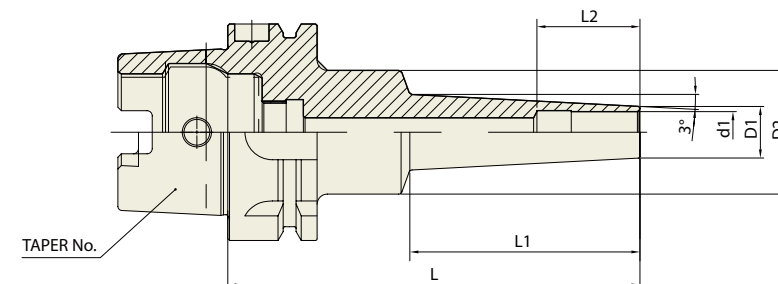
Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	WEIGHT (kg)
40	SK40AD/B-SFH6C TW-160	P2801401TW	6	21	27	44.1	160	36	M5x0.8	1.56
	SK40AD/B-SFH8C TW-160	P2801402TW	8	21	27	44.1	160	36	M6x1.0	1.56
	SK40AD/B-SFH10C TW-160	P2801403TW	10	24	32	49.1	160	42	M8x1.0	1.78
	SK40AD/B-SFH12C TW-160	P2801404TW	12	24	32	49.1	160	47	M10x1.0	1.77
	SK40AD/B-SFH14C TW-160	P2801405TW	14	27	34	51.1	160	47	M10x1.0	1.74
	SK40AD/B-SFH16C TW-160	P2801406TW	16	27	34	51.1	160	50	M12x1.0	1.72
50	SK50AD/B-SFH6C TW-160	P2801407TW	6	21	27	44.1	160	36	M5x0.8	3.32
	SK50AD/B-SFH8C TW-160	P2801408TW	8	21	27	44.1	160	36	M6x1.0	3.32
	SK50AD/B-SFH10C TW-160	P2801409TW	10	24	32	49.1	160	42	M8x1.0	3.54
	SK50AD/B-SFH12C TW-160	P2801410TW	12	24	32	49.1	160	47	M10x1.0	3.54
	SK50AD/B-SFH14C TW-160	P2801411TW	14	27	34	51.1	160	47	M10x1.0	3.50
	SK50AD/B-SFH16C TW-160	P2801412TW	16	27	34	51.1	160	50	M12x1.0	3.48
SK50AD/B-SFH20C TW-160	P2801413TW	20	33	42	59.1	160	52	M16x1.0	3.88	

▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Without balancing screw.

**SHRINK FIT HOLDER (EXTRA SLIM)**

DIN 69893/  
ISO 12164-1-HSK FORM A

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



Unit : mm									
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
40A	HSK40A-SFHS3-60	P2779801S	3	6	20	60	22	9	-
	HSK40A-SFHS3-90	P2779802S	3	6	20	80	42	9	-
	HSK40A-SFHS4-60	P2779803S	4	7	20	60	22	12	-
	HSK40A-SFHS4-90	P2779804S	4	7	20	80	42	12	-
	HSK40A-SFHS6-60	P2779805S	6	9	20	60	22	18	-
	HSK40A-SFHS6-90	P2779806S	6	9	20	80	42	18	-
50A	HSK50A-SFHS3-95	P2779807S	3	6	26	95	42	9	-
	HSK50A-SFHS3-120	P2779808S	3	6	26	120	67	9	-
	HSK50A-SFHS4-95	P2779809S	4	7	26	95	42	12	-
	HSK50A-SFHS4-120	P2779810S	4	7	26	120	67	12	-
	HSK50A-SFHS6-95	P2779811S	6	9	26	95	42	18	-
	HSK50A-SFHS6-120	P2779812S	6	9	26	120	67	18	-
	HSK50A-SFHS8-95	P2779813S	8	11	36	95	42	24	-
	HSK50A-SFHS8-120	P2779814S	8	11	36	120	67	24	-
	HSK50A-SFHS10-95	P2779815S	10	13	36	95	42	30	-
	HSK50A-SFHS10-120	P2779816S	10	13	36	120	67	30	-
63A	HSK63A-SFHS3-95	P2779817S	3	6	26	95	42	9	0.75
	HSK63A-SFHS3-120	P2779818S	3	6	26	120	67	9	0.77
	HSK63A-SFHS4-95	P2779819S	4	7	26	95	42	12	0.75
	HSK63A-SFHS4-120	P2779820S	4	7	26	120	67	12	0.78
	HSK63A-SFHS6-95	P2779821S	6	9	26	95	42	18	0.76
	HSK63A-SFHS6-120	P2779822S	6	9	26	120	97	18	0.78
	HSK63A-SFHS8-95	P2779823S	8	11	36	95	42	24	0.75
	HSK63A-SFHS8-160	P2779824S	8	11	36	160	97	24	0.97
	HSK63A-SFHS10-95	P2779825S	10	13	36	95	42	30	0.76
	HSK63A-SFHS10-160	P2779826S	10	13	36	160	97	30	1.00
	HSK63A-SFHS12-95	P2779827S	12	15	36	95	42	30	0.83
	HSK63A-SFHS12-160	P2779828S	12	15	36	160	97	30	1.04
	HSK100A-SFHS3-95	P2779829S	3	6	26	95	42	9	2.12
	HSK100A-SFHS3-120	P2779830S	3	6	26	120	67	9	2.14
100A	HSK100A-SFHS4-95	P2779831S	4	7	26	95	42	12	2.12
	HSK100A-SFHS4-120	P2779832S	4	7	26	120	67	12	2.14
	HSK100A-SFHS6-95	P2779833S	6	9	26	95	42	18	2.12
	HSK100A-SFHS6-120	P2779834S	6	9	26	120	67	18	2.15
	HSK100A-SFHS8-95	P2779835S	8	11	36	95	42	24	2.18
	HSK100A-SFHS8-160	P2779836S	8	11	36	160	97	24	2.33
	HSK100A-SFHS10-95	P2779837S	10	13	36	95	42	30	2.19
	HSK100A-SFHS10-160	P2779838S	10	13	36	160	97	30	2.34
	HSK100A-SFHS12-95	P2779839S	12	15	36	95	42	30	2.20
	HSK100A-SFHS12-160	P2779840S	12	15	36	160	97	30	2.38

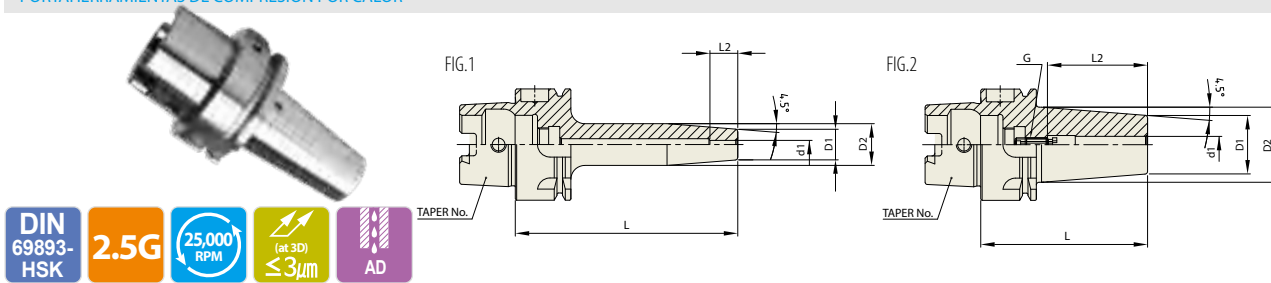
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**SHRINK FIT HOLDER**

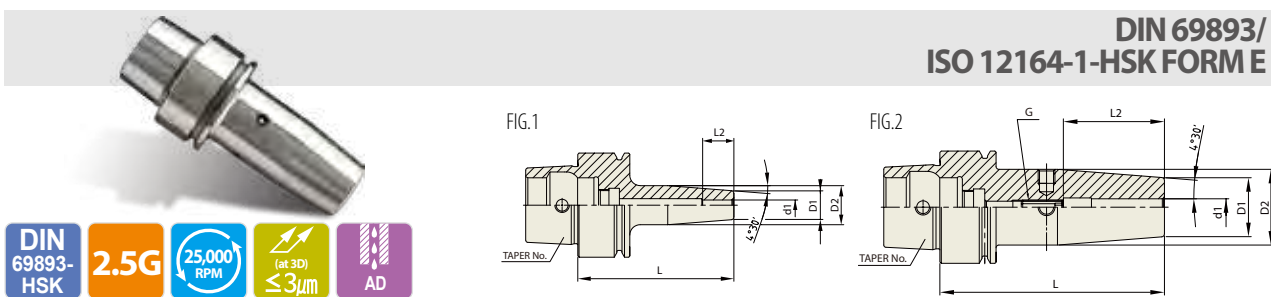
SCHRUMPFUTTER  
MANDRIN DE FRETAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/  
ISO 12164-1-HSK FORM A



TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
40A	HSK40A-SFH3-60	P2771408	3	11	15	60	10	-	1	0.30
	HSK40A-SFH3-80	P2771409	3	11	15	80	10	-	1	0.40
	HSK40A-SFH4-60	P2771410	4	11	15	60	12	-	1	0.30
	HSK40A-SFH4-80	P2771411	4	11	15	80	12	-	1	0.40
	HSK40A-SFH5-60	P2771412	5	11	15	60	15	-	1	0.30
	HSK40A-SFH5-80	P2771413	5	11	15	80	15	-	1	0.40
	HSK40A-SFH6-60	P2771414	6	21	27	60	36	M5x0.8	2	0.40
	HSK40A-SFH6-80	P2771415	6	21	27	80	36	M5x0.8	2	0.50
	HSK40A-SFH8-70	P2771416	8	21	27	70	36	M6x1.0	2	0.40
	HSK40A-SFH8-90	P2771417	8	21	27	90	36	M6x1.0	2	0.50
40A	HSK40A-SFH10-70	P2771418	10	24	32	70	42	M8x1.0	2	0.50
	HSK40A-SFH10-90	P2771419	10	24	32	90	42	M8x1.0	2	0.60

▶ Without balancing screw.



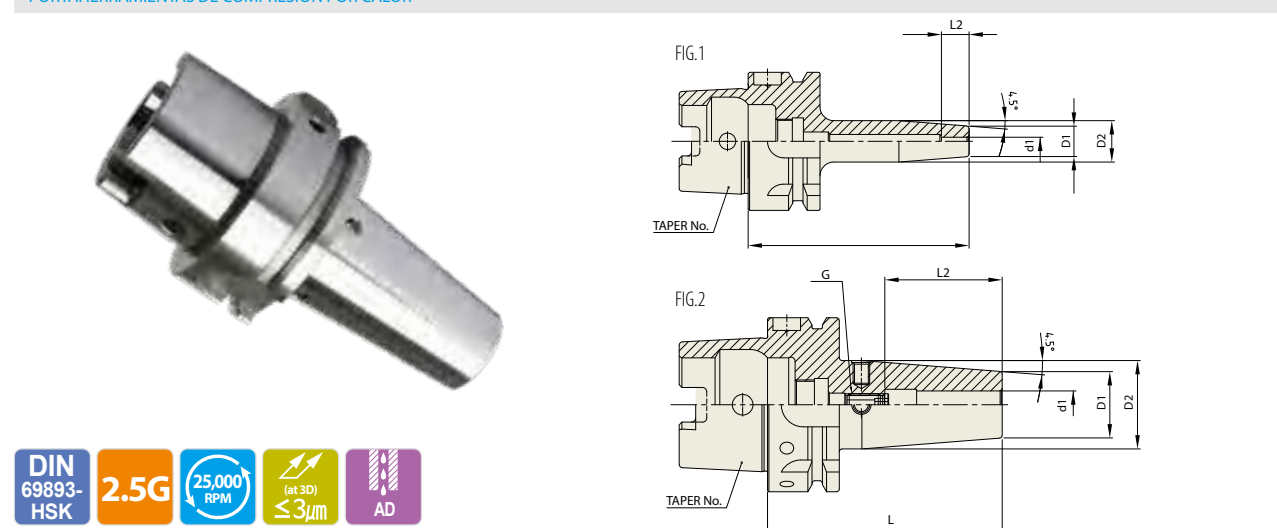
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
25E	HSK25E-SFH3-45	P2771420	3	11	15	45	10	-	1	-
	HSK25E-SFH4-45	P2771421	4	11	15	45	12	-	1	-
	HSK25E-SFH5-45	P2771422	5	11	15	45	15	-	1	-
	HSK25E-SFH6-45	P2771423	6	12	17	45	18	-	1	-
	HSK25E-SFH8-45	P2771424	8	14	18	45	30	-	1	-
	HSK25E-SFH10-50	P2771425	10	16	20	50	37	-	1	-
32E	HSK32E-SFH3-60	P2771426	3	11	15	60	10	-	1	-
	HSK32E-SFH4-60	P2771427	4	11	15	60	12	-	1	-
	HSK32E-SFH5-60	P2771428	5	11	15	60	15	-	1	-
	HSK32E-SFH6-70	P2771429	6	12	17	70	18	-	1	-
	HSK32E-SFH8-70	P2771430	8	14	18	70	30	-	1	-
	HSK32E-SFH10-80	P2771431	10	16	20	80	37	-	1	-
40E	HSK40E-SFH3-60	P2771432	3	11	15	60	10	-	1	0.30
	HSK40E-SFH3-80	P2771433	3	11	15	80	10	-	1	0.40
	HSK40E-SFH4-60	P2771434	4	11	15	60	12	-	1	0.30
	HSK40E-SFH4-80	P2771435	4	11	15	80	12	-	1	0.40
	HSK40E-SFH5-60	P2771436	5	11	15	60	15	-	1	0.30
	HSK40E-SFH5-80	P2771437	5	11	15	80	15	-	1	0.40
	HSK40E-SFH6-60	P2771438	6	21	27	60	36	M5x0.8	2	0.40
	HSK40E-SFH6-80	P2771439	6	21	27	80	36	M5x0.8	2	0.50
	HSK40E-SFH8-70	P2771440	8	21	27	70	36	M6x1.0	2	0.40
	HSK40E-SFH8-90	P2771441	8	21	27	90	36	M6x1.0	2	0.50
	HSK40E-SFH10-70	P2771442	10	24	32	70	42	M8x1.0	2	0.50
	HSK40E-SFH10-90	P2771443	10	24	32	90	42	M8x1.0	2	0.60

▶ Without balancing screw.

**SHRINK FIT HOLDER**

SCHRUMPFUTTER  
MANDRIN DE FRETAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/  
ISO 12164-1-HSK FORM A



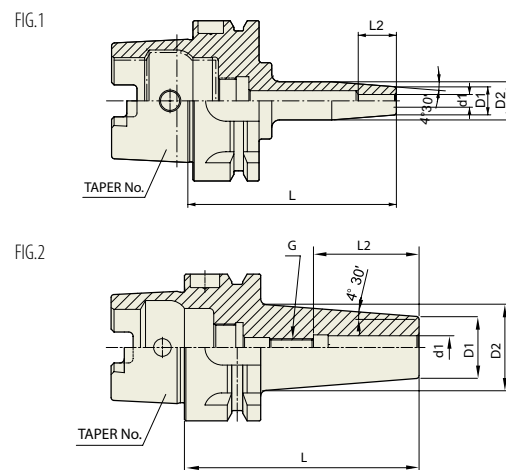
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)	
50A	HSK50A-SFH3-80	P2771444	3	11	15	80	10	-	1	0.54	
	HSK50A-SFH4-80	P2771445	4	11	15	80	12	-	1	0.55	
	HSK50A-SFH5-80	P2771446	5	11	15	80	15	-	1	0.56	
	HSK50A-SFH6-80	P2776901	6	21	27	80	36	M5x0.8	2	0.57	
	HSK50A-SFH8-80	P2771447	8	21	27	80	36	M6x1.0	2	0.58	
	HSK50A-SFH10-85	P2771448	10	24	32	85	42	M8x1.0	2	0.65	
	HSK50A-SFH12-90	P2771449	12	24	32	90	47	M10x1.0	2	0.67	
	HSK50A-SFH14-90	P2771450	14	27	34	90	47	M10x1.0	2	0.72	
	HSK50A-SFH16-95	P2771451	16	27	34	95	50	M12x1.0	2	0.73	
	HSK50A-SFH18-95	P2771452	18	33	42	95	50	M12x1.0	2	0.90	
	HSK50A-SFH20-100	P2771453	20	33	42	100	52	M16x1.0	2	0.92	
	63A	HSK63A-SFH3-80	P2771401	3	11	15	80	10	-	1	0.70
		HSK63A-SFH4-80	P2771402	4	11	15	80	12	-	1	0.70
		HSK63A-SFH5-80	P2771403	5	11	15	80	15	-	1	0.70
HSK63A-SFH6-80		P2565057	6	21	27	80	36	M5x0.8	2	0.83	
HSK63A-SFH6-160		P2771404	6	21	27	160	36	M5x0.8	2	1.00	
HSK63A-SFH8-80		P2600007	8	21	27	80	36	M6x1.0	2	0.83	
HSK63A-SFH8-160		P2771405	8	21	27	160	36	M6x1.0	2	1.00	
HSK63A-SFH10-85		P2565052	10	24	32	85	42	M8x1.0	2	0.83	
HSK63A-SFH10-160		P2771406	10	24	32	160	42	M8x1.0	2	1.00	
HSK63A-SFH12-90		P2600003	12	24	32	90	47	M10x1.0	2	0.83	
HSK63A-SFH12-160		P2771407	12	24	32	160	47	M10x1.0	2	1.00	
HSK63A-SFH14-90		P2771454	14	27	34	90	47	M10x1.0	2	0.91	
HSK63A-SFH14-160		P2771455	14	27	34	160	47	M10x1.0	2	1.30	
HSK63A-SFH16-95		P2565054	16	27	34	95	50	M12x1.0	2	0.98	
HSK63A-SFH16-160	P2565053	16	27	34	160	50	M12x1.0	2	1.40		
HSK63A-SFH18-95	P2771456	18	33	42	95	50	M12x1.0	2	0.98		
HSK63A-SFH18-160	P2771457	18	33	42	160	50	M12x1.0	2	1.40		
HSK63A-SFH20-100	P2600005	20	33	42	100	52	M16x1.0	2	1.00		
HSK63A-SFH20-160	P2565055	20	33	42	160	52	M16x1.0	2	1.40		
HSK63A-SFH25-115	P2771458	25	44	53	115	58	M16x1.0	2	1.40		
HSK63A-SFH25-160	P2771459	25	44	53	160	58	M16x1.0	2	1.80		

▶ Without balancing screw.

**SHRINK FIT HOLDER**

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/  
ISO 12164-1-HSK FORM A



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
80A	HSK80A-SFH6-85	P2771460	6	21	27	85	36	M5x0.8	1	
	HSK80A-SFH8-85	P2771461	8	21	27	85	36	M6x1.0	1	
	HSK80A-SFH10-90	P2771462	10	24	32	90	41	M8x1.0	2	
	HSK80A-SFH12-95	P2771463	12	24	32	95	46	M10x1.0	2	
	HSK80A-SFH14-95	P2771464	14	27	34	95	46	M10x1.0	2	
	HSK80A-SFH16-100	P2771465	16	27	34	100	49	M12x1.0	2	
	HSK80A-SFH18-100	P2771466	18	33	42	100	49	M12x1.0	2	
	HSK80A-SFH20-105	P2771467	20	33	42	105	51	M16x1.0	2	
	HSK80A-SFH25-115	P2771468	25	44	53	115	57	M16x1.0	2	
	HSK100A-SFH3-85	P2771469	3	11	15	85	10	-	1	1.30
HSK100A-SFH4-85	P2771470	4	11	15	85	12	-	1	1.30	
HSK100A-SFH5-85	P2771471	5	11	15	85	15	-	1	1.30	
HSK100A-SFH6-85	P2777301	6	21	27	85	36	M5x0.8	1	1.30	
HSK100A-SFH6-160	P2771472	6	21	27	160	36	M5x0.8	1	1.80	
HSK100A-SFH8-85	P2777302	8	21	27	85	36	M6x1.0	1	1.30	
HSK100A-SFH8-160	P2771473	8	21	27	160	36	M6x1.0	1	1.80	
HSK100A-SFH10-90	P2777303	10	24	32	90	42	M8x1.0	1	1.30	
HSK100A-SFH10-160	P2771474	10	24	32	160	42	M8x1.0	1	1.80	
HSK100A-SFH12-95	P2777304	12	24	32	95	47	M10x1.0	1	1.30	
HSK100A-SFH12-160	P2771475	12	24	32	160	47	M10x1.0	1	1.80	
HSK100A-SFH14-95	P2771476	14	27	34	95	47	M10x1.0	1	1.40	
HSK100A-SFH14-160	P2771477	14	27	34	160	47	M10x1.0	1	1.90	
HSK100A-SFH16-100	P2771478	16	27	34	100	50	M12x1.0	1	1.40	
HSK100A-SFH16-160	P2771479	16	27	34	160	50	M12x1.0	1	1.90	
HSK100A-SFH18-100	P2771480	18	33	42	100	50	M12x1.0	2	1.50	
HSK100A-SFH18-160	P2771481	18	33	42	160	50	M12x1.0	2	2.00	
HSK100A-SFH20-100	P2771482	20	33	42	100	52	M16x1.0	2	1.50	
HSK100A-SFH20-160	P2771483	20	33	42	160	52	M16x1.0	2	2.00	
HSK100A-SFH25-115	P2771484	25	44	53	115	58	M16x1.0	2	1.80	
HSK100A-SFH25-160	P2771485	25	44	53	160	58	M16x1.0	2	2.30	

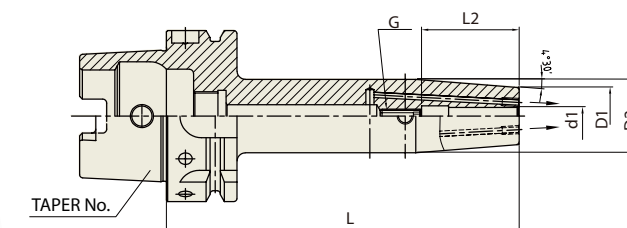
▶ Without balancing screw.



**SHRINK FIT HOLDER (COOLANT CHANNEL)**

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/  
ISO 12164-1-HSK FORM A



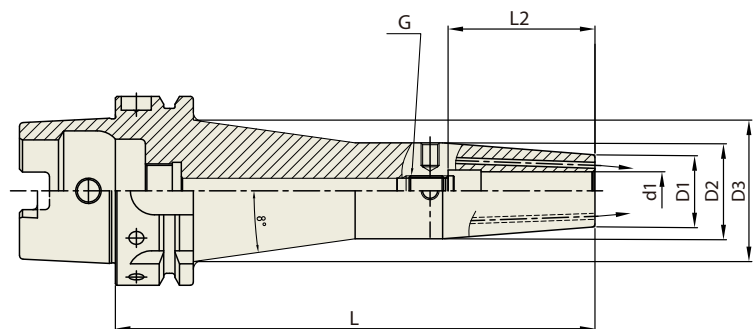
Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
63A	HSK63A-SFH6C-80	P2862013C	6	21	27	80	36	M5x0.8	0.83	
	HSK63A-SFH6C-160	P2862014C	6	21	27	160	36	M5x0.8	1.00	
	HSK63A-SFH8C-80	P2862015C	8	21	27	80	36	M6x1.0	0.83	
	HSK63A-SFH8C-160	P2862016C	8	21	27	160	36	M6x1.0	1.00	
	HSK63A-SFH10C-85	P2862017C	10	24	32	85	42	M8x1.0	0.83	
	HSK63A-SFH10C-160	P2862018C	10	24	32	160	42	M8x1.0	1.00	
	HSK63A-SFH12C-90	P2862019C	12	24	32	90	47	M10x1.0	0.83	
	HSK63A-SFH12C-160	P2862020C	12	24	32	160	47	M10x1.0	1.00	
	HSK63A-SFH14C-90	P2862021C	14	27	34	90	47	M10x1.0	0.91	
	HSK63A-SFH14C-160	P2862022C	14	27	34	160	47	M10x1.0	1.30	
HSK63A-SFH16C-95	P2862023C	16	27	34	95	50	M12x1.0	0.98		
HSK63A-SFH16C-160	P2862024C	16	27	34	160	50	M12x1.0	1.40		
HSK63A-SFH18C-95	P2862025C	18	33	42	95	50	M12x1.0	0.98		
HSK63A-SFH18C-160	P2862026C	18	33	42	160	50	M12x1.0	1.40		
HSK63A-SFH20C-100	P2862027C	20	33	42	100	52	M16x1.0	1.00		
HSK63A-SFH20C-160	P2862028C	20	33	42	160	52	M16x1.0	1.40		
HSK63A-SFH25C-115	P2862029C	25	44	53	115	58	M16x1.0	1.40		
HSK63A-SFH25C-160	P2862030C	25	44	53	160	58	M16x1.0	1.80		
HSK100A-SFH6C-85	P2862031C	6	21	27	85	36	M5x0.8	1.30		
HSK100A-SFH6C-160	P2862032C	6	21	27	160	36	M5x0.8	1.80		
HSK100A-SFH8C-85	P2862033C	8	21	27	85	36	M6x1.0	1.30		
HSK100A-SFH8C-160	P2862034C	8	21	27	160	36	M6x1.0	1.80		
HSK100A-SFH10C-90	P2862035C	10	24	32	90	42	M8x1.0	1.30		
HSK100A-SFH10C-160	P2862036C	10	24	32	160	42	M8x1.0	1.80		
HSK100A-SFH12C-95	P2862037C	12	24	32	95	47	M10x1.0	1.30		
HSK100A-SFH12C-160	P2862038C	12	24	32	160	47	M10x1.0	1.80		
HSK100A-SFH14C-95	P2862039C	14	27	34	95	47	M10x1.0	1.40		
HSK100A-SFH14C-160	P2862040C	14	27	34	160	47	M10x1.0	1.90		
HSK100A-SFH16C-100	P2862041C	16	27	34	100	50	M12x1.0	1.40		
HSK100A-SFH16C-160	P2862042C	16	27	34	160	50	M12x1.0	1.90		
HSK100A-SFH18C-100	P2862043C	18	33	42	100	50	M12x1.0	1.50		
HSK100A-SFH18C-160	P2862044C	18	33	42	160	50	M12x1.0	2.00		
HSK100A-SFH20C-100	P2862045C	20	33	42	100	52	M16x1.0	1.50		
HSK100A-SFH20C-160	P2862046C	20	33	42	160	52	M16x1.0	2.00		
HSK100A-SFH25C-115	P2862047C	25	44	53	115	58	M16x1.0	1.80		
HSK100A-SFH25C-160	P2862048C	25	44	53	160	58	M16x1.0	2.30		

▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Without balancing screw.  
▶ Resealable Coolant Channel type is available upon request.

**SHRINK FIT HOLDER (REINFORCED)**

SCHRUMPFUTTER (VERSTÄRKT)  
 MANDRIN DE FRETTAGE (RENFORCÉ)  
 MADRINI PER CALLETAMENTO A CALDO (RINFORZATO)  
 PORTAHERRAMIENTAS DE COMPRESION POR CALOR (REFORZADO)

DIN 69893/  
 ISO 12164-1-HSK FORM A



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	WEIGHT (kg)
63A	HSK63A-SFH6C TW-160	P2801501TW	6	21	27	42.2	160	36	M5x0.8	1.36
	HSK63A-SFH8C TW-160	P2801502TW	8	21	27	42.2	160	36	M6x1.0	1.35
	HSK63A-SFH10C TW-160	P2801503TW	10	24	32	47.2	160	42	M8x1.0	1.56
	HSK63A-SFH12C TW-160	P2801504TW	12	24	32	47.2	160	47	M10x1.0	1.55
	HSK63A-SFH14C TW-160	P2801505TW	14	27	34	49.2	160	47	M10x1.0	1.52
	HSK63A-SFH16C TW-160	P2801506TW	16	27	34	49.2	160	50	M12x1.0	1.64
100A	HSK100A-SFH6C TW-160	P2801507TW	6	21	27	41.3	160	36	M5x0.8	2.73
	HSK100A-SFH8C TW-160	P2801508TW	8	21	27	41.3	160	36	M6x1.0	2.72
	HSK100A-SFH10C TW-160	P2801509TW	10	24	32	46.3	160	42	M8x1.0	2.92
	HSK100A-SFH12C TW-160	P2801510TW	12	24	32	46.3	160	47	M10x1.0	2.90
	HSK100A-SFH14C TW-160	P2801511TW	14	27	34	48.3	160	47	M10x1.0	3.05
	HSK100A-SFH16C TW-160	P2801512TW	16	27	34	48.3	160	50	M12x1.0	3.03
	HSK100A-SFH18C TW-160	P2801513TW	18	33	42	56.3	160	50	M12x1.0	3.39
	HSK100A-SFH20C TW-160	P2801514TW	20	33	42	56.3	160	52	M16x1.0	3.36

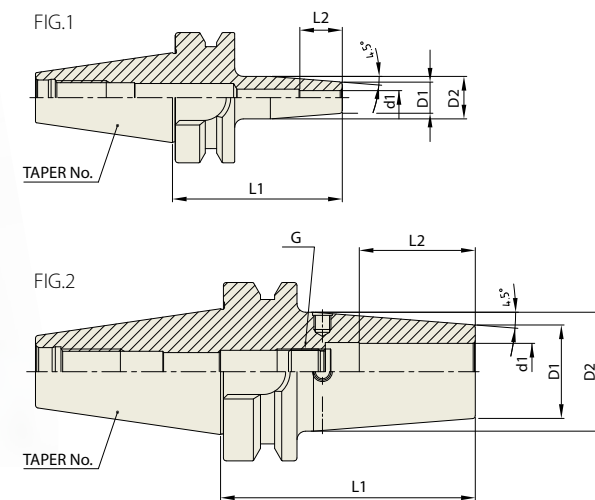
► CAT(ANSI B5.50) taper and Inch type products are available.  
 ► Without balancing screw.



**SHRINK FIT HOLDER**

SCHRUMPFUTTER  
 MANDRIN DE FRETTAGE  
 MADRINI PER CALLETAMENTO A CALDO  
 PORTAHERRAMIENTAS DE COMPRESION POR CALOR

CBT  
 (BT DUAL CONTACT)



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)	
30	CBT30-SFH3-60	P2771505	3	11	15	60	10	-	1	0.40	
	CBT30-SFH4-60	P2771506	4	11	15	60	12	-	1	0.40	
	CBT30-SFH5-60	P2771507	5	11	15	60	15	-	1	0.40	
	CBT30-SFH6-60	P2771508	6	21	27	60	36	M5x0.8	2	0.40	
	CBT30-SFH8-60	P2771509	8	21	27	60	36	M6x1.0	2	0.40	
	CBT30-SFH10-80	P2771510	10	24	32	80	41	M8x1.0	2	0.40	
	CBT30-SFH12-80	P2771511	12	24	32	80	48	M10x1.0	2	0.42	
	CBT30-SFH14-80	P2771512	14	27	34	80	48	M10x1.0	2		
	CBT30-SFH16-80	P2771513	16	27	34	80	51	M12x1.0	2	0.42	
	CBT30-SFH18-80	P2771514	18	27	34	80	51	M12x1.0	2		
	CBT30-SFH20-90	P2771515	20	33	42	90	53	M16x1.0	2	0.44	
	40	CBT40-SFH3-90	P2771516	3	11	15	90	10	-	1	1.00
		CBT40-SFH4-90	P2771517	4	11	15	90	12	-	1	1.00
		CBT40-SFH5-90	P2771518	5	11	15	90	23	-	1	1.00
CBT40-SFH6-90		P2771519	6	21	27	90	36	M5x0.8	2	1.10	
CBT40-SFH6-160		P2771520	6	21	27	160	36	M5x0.8	2	1.15	
CBT40-SFH8-90		P2771501	8	21	27	90	36	M6x1.0	2	1.11	
CBT40-SFH8-160		P2771521	8	21	27	160	36	M6x1.0	2	1.15	
CBT40-SFH10-90		P2771502	10	24	32	90	41	M8x1.0	2	1.10	
CBT40-SFH10-160		P2771522	10	24	32	160	41	M8x1.0	2	1.15	
CBT40-SFH12-90		P2771503	12	24	32	90	47	M10x1.0	2	1.10	
CBT40-SFH12-160		P2771523	12	24	32	160	47	M10x1.0	2	1.15	
CBT40-SFH14-90		P2771524	14	27	34	90	47	M10x1.0	2	1.20	
CBT40-SFH14-160		P2771525	14	27	34	160	47	M10x1.0	2	1.50	
CBT40-SFH16-90		P2771526	16	27	34	90	50	M12x1.0	2	1.20	
CBT40-SFH16-160		P2771527	16	27	34	160	50	M12x1.0	2	1.50	
CBT40-SFH18-90		P2771528	18	33	42	90	50	M12x1.0	2	1.30	
CBT40-SFH18-160	P2771529	18	33	42	160	50	M12x1.0	2	1.60		
CBT40-SFH20-90	P2771504	20	33	42	90	52	M16x1.0	2	1.40		
CBT40-SFH20-160	P2771530	20	33	42	160	52	M16x1.0	2	1.70		
CBT40-SFH25-100	P2771531	25	44	53	100	58	M16x1.0	2	1.70		
CBT40-SFH25-160	P2771532	25	44	53	160	58	M16x1.0	2	2.00		

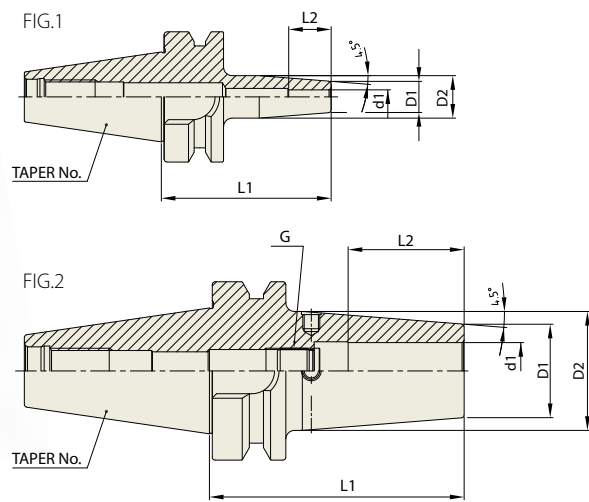
► Without balancing screw.



**SHRINK FIT HOLDER**

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

**CBT**  
**(BT DUAL CONTACT)**



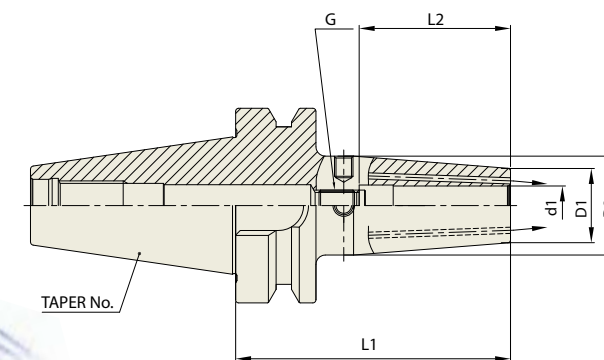
Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
50	CBT50-SFH3-100	P2771533	3	11	15	100	10	-	1	1.50
	CBT50-SFH4-100	P2771534	4	11	15	100	12	-	1	1.50
	CBT50-SFH5-100	P2771535	5	11	15	100	15	-	1	1.50
	CBT50-SFH6-100	P2771536	6	21	27	100	36	M5x0.8	2	1.50
	CBT50-SFH6-160	P2771537	6	21	27	160	36	M5x0.8	2	2.00
	CBT50-SFH8-100	P2771538	8	21	27	100	36	M6x1.0	2	1.50
	CBT50-SFH8-160	P2771539	8	21	27	160	36	M6x1.0	2	2.00
	CBT50-SFH10-100	P2771540	10	24	32	100	42	M8x1.0	2	1.50
	CBT50-SFH10-160	P2771541	10	24	32	160	42	M8x1.0	2	2.00
	CBT50-SFH12-100	P2771542	12	24	32	100	47	M10x1.0	2	1.50
	CBT50-SFH12-160	P2771543	12	24	32	160	47	M10x1.0	2	2.00
	CBT50-SFH14-100	P2771544	14	27	34	100	47	M10x1.0	2	1.60
	CBT50-SFH14-160	P2771545	14	27	34	160	47	M10x1.0	2	2.10
	CBT50-SFH16-100	P2771546	16	27	34	100	50	M12x1.0	2	1.60
	CBT50-SFH16-160	P2771547	16	27	34	160	50	M12x1.0	2	2.10
	CBT50-SFH18-100	P2771548	18	33	42	100	50	M12x1.0	2	1.60
	CBT50-SFH18-160	P2771549	18	33	42	160	50	M12x1.0	2	2.00
	CBT50-SFH20-100	P2771550	20	33	42	100	52	M16x1.0	2	1.80
	CBT50-SFH20-160	P2771551	20	33	42	160	52	M16x1.0	2	2.20
	CBT50-SFH25-100	P2771552	25	44	53	100	58	M16x1.0	2	2.00
	CBT50-SFH25-160	P2771553	25	44	53	160	58	M16x1.0	2	2.40

▶ Without balancing screw.

**SHRINK FIT HOLDER (COOLANT CHANNEL)**

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

**CBT**  
**(BT DUAL CONTACT)**



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
40	CBT40-SFH6C-90	P2862049C	6	21	27	90	36	M5x0.8	1	1.10
	CBT40-SFH6C-160	P2862050C	6	21	27	160	36	M5x0.8	1	1.15
	CBT40-SFH8C-90	P2862051C	8	21	27	90	36	M6x1.0	1	1.11
	CBT40-SFH8C-160	P2862052C	8	21	27	160	36	M6x1.0	1	1.15
	CBT40-SFH10C-90	P2862053C	10	24	32	90	41	M8x1.0	1	1.10
	CBT40-SFH10C-160	P2862054C	10	24	32	160	41	M8x1.0	1	1.15
	CBT40-SFH12C-90	P2862055C	12	24	32	90	47	M10x1.0	1	1.10
	CBT40-SFH12C-160	P2862056C	12	24	32	160	47	M10x1.0	1	1.15
	CBT40-SFH14C-90	P2862057C	14	27	34	90	47	M10x1.0	1	1.20
	CBT40-SFH14C-160	P2862058C	14	27	34	160	47	M10x1.0	1	1.50
	CBT40-SFH16C-90	P2862059C	16	27	34	90	50	M12x1.0	1	1.20
	CBT40-SFH16C-160	P2862060C	16	27	34	160	50	M12x1.0	1	1.50
	CBT40-SFH18C-90	P2862061C	18	33	42	90	50	M12x1.0	1	1.30
	CBT40-SFH18C-160	P2862062C	18	33	42	160	50	M12x1.0	1	1.60
	CBT40-SFH20C-90	P2862063C	20	33	42	90	52	M16x1.0	1	1.40
	CBT40-SFH20C-160	P2862064C	20	33	42	160	52	M16x1.0	1	1.70
	CBT40-SFH25C-100	P2862065C	25	44	53	100	58	M16x1.0	1	1.70
	CBT40-SFH25C-160	P2862066C	25	44	53	160	58	M16x1.0	1	2.00
	CBT50-SFH6C-100	P2862067C	6	21	27	100	36	M5x0.8	1	1.50
	CBT50-SFH6C-160	P2862068C	6	21	27	160	36	M5x0.8	1	2.00
	CBT50-SFH8C-100	P2862069C	8	21	27	100	36	M6x1.0	1	1.50
	CBT50-SFH8C-160	P2862070C	8	21	27	160	36	M6x1.0	1	2.00
	CBT50-SFH10C-100	P2862071C	10	24	32	100	42	M8x1.0	1	1.10
	CBT50-SFH10C-160	P2862072C	10	24	32	160	42	M8x1.0	1	1.15
	CBT50-SFH12C-100	P2862073C	12	24	32	100	47	M10x1.0	1	1.60
CBT50-SFH12C-160	P2862074C	12	24	32	160	47	M10x1.0	1	2.10	
CBT50-SFH14C-100	P2862075C	14	27	34	100	47	M10x1.0	1	1.60	
CBT50-SFH14C-160	P2862076C	14	27	34	160	47	M10x1.0	1	2.10	
CBT50-SFH16C-100	P2862077C	16	27	34	100	50	M12x1.0	1	1.60	
CBT50-SFH16C-160	P2862078C	16	27	34	160	50	M12x1.0	1	2.10	
CBT50-SFH18C-100	P2862079C	18	33	42	100	50	M12x1.0	1	1.60	
CBT50-SFH18C-160	P2862080C	18	33	42	160	50	M12x1.0	1	2.00	
CBT50-SFH20C-100	P2862081C	20	33	42	100	52	M16x1.0	1	1.80	
CBT50-SFH20C-160	P2862082C	20	33	42	160	52	M16x1.0	1	2.20	
CBT50-SFH25C-100	P2862083C	25	44	53	100	58	M16x1.0	1	2.00	
CBT50-SFH25C-160	P2862084C	25	44	53	160	58	M16x1.0	1	2.40	

▶ Without balancing screw.

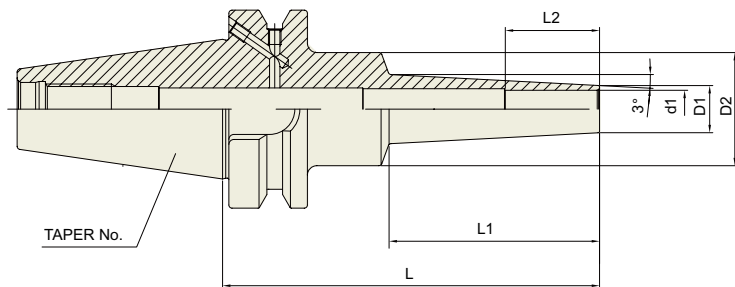
▶ Two Coolant Bores are a standard design for Coolant Channel type.

▶ Resealable Coolant Channel type is available upon request.

**SHRINK FIT HOLDER (EXTRA SLIM)**

SCHRUMPFUTTER  
MANDRIN DE FRETAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

JIS B6339/  
MAS 403-BT



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)	
30	BT30-SFHS3-60	P2779851S	3	6	20	60	22	9		
	BT30-SFHS3-80	P2779852S	3	6	20	80	42	9		
	BT30-SFHS3-120	P2779853S	3	6	20	120	67	9		
	BT30-SFHS4-60	P2779854S	4	7	20	60	22	12		
	BT30-SFHS4-80	P2779855S	4	7	20	80	42	12		
	BT30-SFHS4-120	P2779856S	4	7	20	120	67	12		
	BT30-SFHS6-60	P2779857S	6	9	20	60	22	18		
	BT30-SFHS6-80	P2779858S	6	9	20	80	42	18		
	BT30-SFHS6-120	P2779859S	6	9	20	120	67	18		
	BT40AD/B-SFHS3-95	P2779860S	3	6	26	95	42	9		
	BT40AD/B-SFHS3-120	P2779861S	3	6	26	120	67	9		
	BT40AD/B-SFHS3-160	P2779862S	3	6	26	160	97	9		
40	BT40AD/B-SFHS4-95	P2779863S	4	7	26	95	42	12		
	BT40AD/B-SFHS4-120	P2779864S	4	7	26	120	67	12		
	BT40AD/B-SFHS4-160	P2779865S	4	7	26	160	97	12		
	BT40AD/B-SFHS6-95	P2779866S	6	9	26	95	42	18		
	BT40AD/B-SFHS6-120	P2779867S	6	9	26	120	67	18		
	BT40AD/B-SFHS6-160	P2779868S	6	9	26	160	97	18		
	BT40AD/B-SFHS8-95	P2779869S	8	11	36	95	42	24		
	BT40AD/B-SFHS8-120	P2779870S	8	11	36	120	67	24		
	BT40AD/B-SFHS8-160	P2779871S	8	11	36	160	97	24		
	BT40AD/B-SFHS10-95	P2779872S	10	13	36	95	42	30		
	BT40AD/B-SFHS10-120	P2779873S	10	13	36	120	67	30		
	BT40AD/B-SFHS10-160	P2779874S	10	13	36	160	97	30		
	BT40AD/B-SFHS12-95	P2779875S	12	15	36	95	42	30		
	BT40AD/B-SFHS12-120	P2779876S	12	15	36	120	67	30		
	BT40AD/B-SFHS12-160	P2779877S	12	15	36	160	97	30		
	50	BT50AD/B-SFHS3-110	P2779878S	3	6	26	110	42	9	
		BT50AD/B-SFHS3-160	P2779879S	3	6	26	160	97	9	
		BT50AD/B-SFHS4-110	P2779880S	4	7	26	110	42	12	
		BT50AD/B-SFHS4-160	P2779881S	4	7	26	160	97	12	
		BT50AD/B-SFHS6-110	P2779882S	6	9	26	110	42	18	
		BT50AD/B-SFHS6-160	P2779883S	6	9	26	160	97	18	
		BT50AD/B-SFHS8-110	P2779884S	8	11	36	110	42	24	
		BT50AD/B-SFHS8-160	P2779885S	8	11	36	160	97	24	
		BT50AD/B-SFHS10-110	P2779886S	10	13	36	110	42	30	
BT50AD/B-SFHS10-160		P2779887S	10	13	36	160	97	30		
BT50AD/B-SFHS12-110		P2779888S	12	15	36	110	42	30		
BT50AD/B-SFHS12-160		P2779889S	12	15	36	160	97	30		

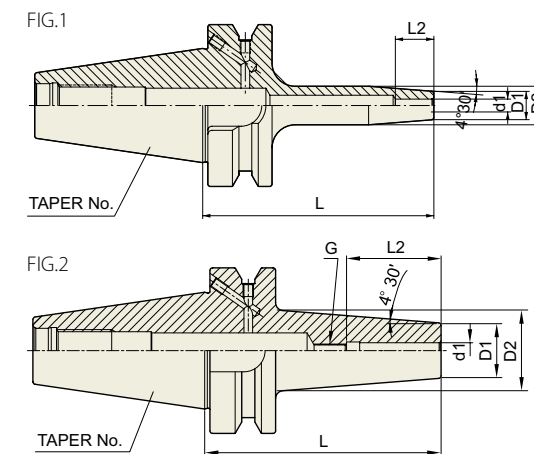
▶ CBT(BT DUAL CONTACT) Holder available.  
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**SHRINK FIT HOLDER**

SCHRUMPFUTTER  
MANDRIN DE FRETAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

JIS B6339/  
MAS 403-BT



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
30	BT30AD/B-SFH3-60	P2776703	3	11	15	60	10	-	1	0.40
	BT30AD/B-SFH4-60	P2776702	4	11	15	60	12	-	1	0.40
	BT30AD/B-SFH5-60	P2776704	5	11	15	60	15	-	1	0.40
	BT30AD/B-SFH6-60	P2776701	6	21	27	60	36	M5×0.8	2	0.40
	BT30AD/B-SFH8-60	P2776705	8	21	27	60	36	M6×1.0	2	0.40
	BT30AD/B-SFH10-80	P2776706	10	24	32	80	42	M8×1.0	2	0.40
	BT30AD/B-SFH12-80	P2776707	12	24	32	80	47	M10×1.0	2	0.42
	BT30AD/B-SFH14-80	P2776708	14	27	34	80	47	M10×1.0	2	
	BT30AD/B-SFH16-80	P2776709	16	27	34	80	50	M12×1.0	2	0.42
	BT30AD/B-SFH18-80	P2776710	18	33	42	80	50	M12×1.0	2	
	BT30AD/B-SFH20-90	P2776711	20	33	42	90	52	M16×1.0	2	0.44
	40	BT40AD/B-SFH3-90	P2776712	3	11	15	90	10	-	1
BT40AD/B-SFH4-90		P2776713	4	11	15	90	12	-	1	1.00
BT40AD/B-SFH5-90		P2776714	5	11	15	90	15	-	1	1.00
BT40AD/B-SFH6-90		P2771601	6	21	27	90	36	M5×0.8	2	1.10
BT40AD/B-SFH6-160		P2771602	6	21	27	160	36	M5×0.8	2	1.15
BT40AD/B-SFH8-90		P2771603	8	21	27	90	36	M6×1.0	2	1.11
BT40AD/B-SFH8-160		P2771604	8	21	27	160	36	M6×1.0	2	1.15
BT40AD/B-SFH10-90		P2771605	10	24	32	90	42	M8×1.0	2	1.10
BT40AD/B-SFH10-160		P2771606	10	24	32	160	42	M8×1.0	2	1.15
BT40AD/B-SFH12-90		P2771607	12	24	32	90	47	M10×1.0	2	1.10
BT40AD/B-SFH12-160		P2771608	12	24	32	160	47	M10×1.0	2	1.15
BT40AD/B-SFH14-90		P2771611	14	27	34	90	47	M10×1.0	2	1.20
BT40AD/B-SFH14-160		P2771612	14	27	34	160	47	M10×1.0	2	1.50
BT40AD/B-SFH16-90		P2771609	16	27	34	90	50	M12×1.0	2	1.20
BT40AD/B-SFH16-160		P2771610	16	27	34	160	50	M12×1.0	2	1.50
BT40AD/B-SFH18-90		P2771613	18	33	42	90	50	M12×1.0	2	1.30
BT40AD/B-SFH18-160		P2771614	18	33	42	160	50	M12×1.0	2	1.60
BT40AD/B-SFH20-90		P2771615	20	33	42	90	52	M16×1.0	2	1.40
BT40AD/B-SFH20-160		P2771616	20	33	42	160	52	M16×1.0	2	1.70
BT40AD/B-SFH25-100		P2771617	25	44	53	100	58	M16×1.0	2	1.70
BT40AD/B-SFH25-160		P2771618	25	44	53	160	58	M16×1.0	2	2.00

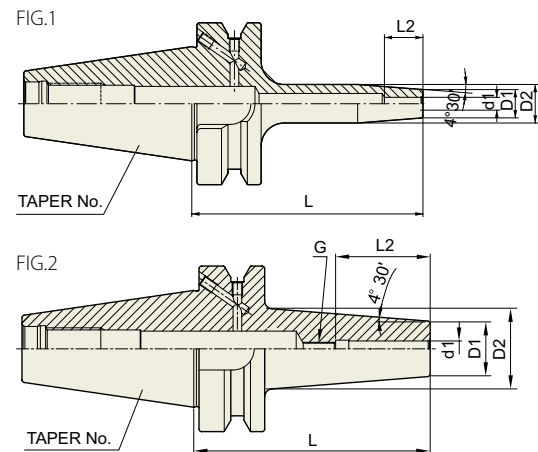
▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Without balancing screw.



**SHRINK FIT HOLDER**

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

JIS B6339/  
MAS 403-BT



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
50	BT50AD/B-SFH3-100	P2771619	3	11	15	100	10	-	1	1.50
	BT50AD/B-SFH4-100	P2771620	4	11	15	100	12	-	1	1.50
	BT50AD/B-SFH5-100	P2771621	5	11	15	100	15	-	1	1.50
	BT50AD/B-SFH6-100	P2771622	6	21	27	100	36	M5x0.8	2	1.50
	BT50AD/B-SFH6-160	P2771623	6	21	27	160	36	M5x0.8	2	2.00
	BT50AD/B-SFH8-100	P2771624	8	21	27	100	36	M6x1.0	2	1.50
	BT50AD/B-SFH8-160	P2771625	8	21	27	160	36	M6x1.0	2	2.00
	BT50AD/B-SFH10-100	P2771626	10	24	32	100	42	M8x1.0	2	1.50
	BT50AD/B-SFH10-160	P2771627	10	24	32	160	42	M8x1.0	2	2.00
	BT50AD/B-SFH12-100	P2771628	12	24	32	100	47	M10x1.0	2	1.50
	BT50AD/B-SFH12-160	P2771629	12	24	32	160	47	M10x1.0	2	2.00
	BT50AD/B-SFH14-100	P2771630	14	27	34	100	47	M10x1.0	2	1.60
	BT50AD/B-SFH14-160	P2771631	14	27	34	160	47	M10x1.0	2	2.10
	BT50AD/B-SFH16-100	P2771632	16	27	34	100	50	M12x1.0	2	1.60
	BT50AD/B-SFH16-160	P2771633	16	27	34	160	50	M12x1.0	2	2.10
	BT50AD/B-SFH18-100	P2771634	18	33	42	100	50	M12x1.0	2	1.60
	BT50AD/B-SFH18-160	P2771635	18	33	42	160	50	M12x1.0	2	2.00
	BT50AD/B-SFH20-100	P2771636	20	33	42	100	52	M16x1.0	2	1.80
	BT50AD/B-SFH20-160	P2771637	20	33	42	160	52	M16x1.0	2	2.20
	BT50AD/B-SFH25-100	P2771638	25	44	53	100	58	M16x1.0	2	2.00
BT50AD/B-SFH25-160	P2771639	25	44	53	160	58	M16x1.0	2	2.40	

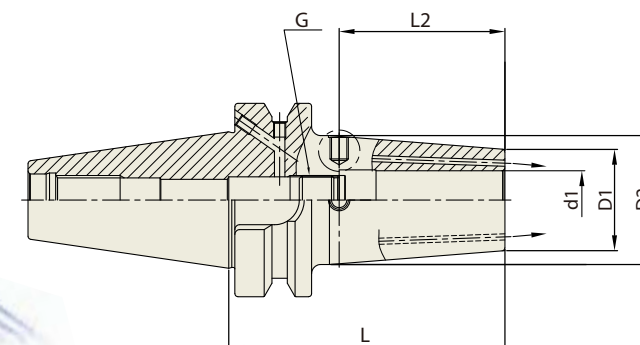
▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Without balancing screw.



**SHRINK FIT HOLDER (COOLANT CHANNEL)**

SCHRUMPFUTTER  
MANDRIN DE FRETTAGE  
MADRINI PER CALLETAMENTO A CALDO  
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

JIS B6339/  
MAS 403-BT



Unit : mm										
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
40	BT40AD/B-SFH6C-90	P2862085C	6	21	27	90	36	M5x0.8	1	1.10
	BT40AD/B-SFH6C-160	P2862086C	6	21	27	160	36	M5x0.8	1	1.15
	BT40AD/B-SFH8C-90	P2862087C	8	21	27	90	36	M6x1.0	1	1.11
	BT40AD/B-SFH8C-160	P2862088C	8	21	27	160	36	M6x1.0	1	1.15
	BT40AD/B-SFH10C-90	P2862089C	10	24	32	90	41	M8x1.0	1	1.10
	BT40AD/B-SFH10C-160	P2862090C	10	24	32	160	41	M8x1.0	1	1.15
	BT40AD/B-SFH12C-90	P2862091C	12	24	32	90	47	M10x1.0	1	1.10
	BT40AD/B-SFH12C-160	P2862092C	12	24	32	160	47	M10x1.0	1	1.15
	BT40AD/B-SFH14C-90	P2862093C	14	27	34	90	47	M10x1.0	1	1.20
	BT40AD/B-SFH14C-160	P2862094C	14	27	34	160	47	M10x1.0	1	1.50
	BT40AD/B-SFH16C-90	P2862095C	16	27	34	90	50	M12x1.0	1	1.20
	BT40AD/B-SFH16C-160	P2862096C	16	27	34	160	50	M12x1.0	1	1.50
	BT40AD/B-SFH18C-90	P2862097C	18	33	42	90	50	M12x1.0	1	1.30
	BT40AD/B-SFH18C-160	P2862098C	18	33	42	160	50	M12x1.0	1	1.60
	BT40AD/B-SFH20C-90	P2862099C	20	33	42	90	52	M16x1.0	1	1.40
	BT40AD/B-SFH20C-160	P2862100C	20	33	42	160	52	M16x1.0	1	1.70
	BT40AD/B-SFH25C-100	P2862101C	25	44	53	100	58	M16x1.0	1	1.70
	BT40AD/B-SFH25C-160	P2862102C	25	44	53	160	58	M16x1.0	1	2.00
	BT50AD/B-SFH6C-100	P2862103C	6	21	27	100	36	M5x0.8	1	1.50
	BT50AD/B-SFH6C-160	P2862104C	6	21	27	160	36	M5x0.8	1	2.00
BT50AD/B-SFH8C-100	P2862105C	8	21	27	100	36	M6x1.0	1	1.50	
BT50AD/B-SFH8C-160	P2862106C	8	21	27	160	36	M6x1.0	1	2.00	
BT50AD/B-SFH10C-100	P2862107C	10	24	32	100	42	M8x1.0	1	1.10	
BT50AD/B-SFH10C-160	P2862108C	10	24	32	160	42	M8x1.0	1	1.15	
BT50AD/B-SFH12C-100	P2862109C	12	24	32	100	47	M10x1.0	1	1.60	
BT50AD/B-SFH12C-160	P2862110C	12	24	32	160	47	M10x1.0	1	2.10	
BT50AD/B-SFH14C-100	P2862111C	14	27	34	100	47	M10x1.0	1	1.60	
BT50AD/B-SFH14C-160	P2862112C	14	27	34	160	47	M10x1.0	1	2.10	
BT50AD/B-SFH16C-100	P2862113C	16	27	34	100	50	M12x1.0	1	1.60	
BT50AD/B-SFH16C-160	P2862114C	16	27	34	160	50	M12x1.0	1	2.10	
BT50AD/B-SFH18C-100	P2862115C	18	33	42	100	50	M12x1.0	1	1.60	
BT50AD/B-SFH18C-160	P2862116C	18	33	42	160	50	M12x1.0	1	2.00	
BT50AD/B-SFH20C-100	P2862117C	20	33	42	100	52	M16x1.0	1	1.80	
BT50AD/B-SFH20C-160	P2862118C	20	33	42	160	52	M16x1.0	1	2.20	
BT50AD/B-SFH25C-100	P2862119C	25	44	53	100	58	M16x1.0	1	2.00	
BT50AD/B-SFH25C-160	P2862120C	25	44	53	160	58	M16x1.0	1	2.40	

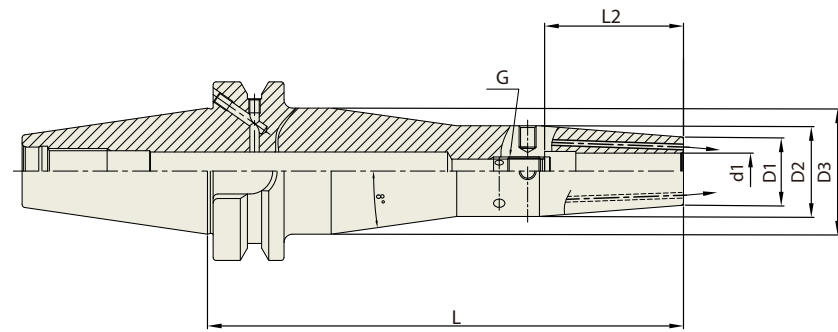
▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Without balancing screw.  
▶ Resealable Coolant Channel type is available upon request.



**SHRINK FIT HOLDER (REINFORCED)**

SCHRUMPFUTTER (VERSTÄRKT)  
 MANDRIN DE FRETAGE (RENFORCÉ)  
 MADRINI PER CALLETAMENTO A CALDO (RINFORZATO)  
 PORTAHERRAMIENTAS DE COMPRESION POR CALOR (REFORZADO)

JIS B6339/  
 MAS 403-BT



Unit : mm

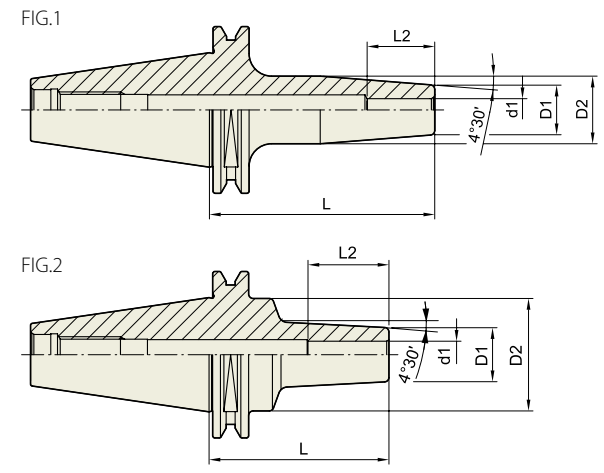
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	WEIGHT (kg)
40	BT40AD/B-SFH6C TW-160	P2801601TW	6	21	27	41.9	160	36	M5x0.8	1.64
	BT40AD/B-SFH8C TW-160	P2801602TW	8	21	27	41.9	160	36	M6x1.0	1.63
	BT40AD/B-SFH10C TW-160	P2801603TW	10	24	32	46.9	160	42	M8x1.0	1.84
	BT40AD/B-SFH12C TW-160	P2801604TW	12	24	32	46.9	160	47	M10x1.0	1.83
	BT40AD/B-SFH14C TW-160	P2801605TW	14	27	34	48.9	160	47	M10x1.0	1.80
	BT40AD/B-SFH16C TW-160	P2801606TW	16	27	34	48.9	160	50	M12x1.0	1.92
50	BT50AD/B-SFH6C TW-160	P2801607TW	6	21	27	38.8	160	36	M5x0.8	4.12
	BT50AD/B-SFH8C TW-160	P2801608TW	8	21	27	38.8	160	36	M6x1.0	4.57
	BT50AD/B-SFH10C TW-160	P2801609TW	10	24	32	43.8	160	42	M8x1.0	4.76
	BT50AD/B-SFH12C TW-160	P2801610TW	12	24	32	43.8	160	47	M10x1.0	4.74
	BT50AD/B-SFH14C TW-160	P2801611TW	14	27	34	45.8	160	47	M10x1.0	4.70
	BT50AD/B-SFH16C TW-160	P2801612TW	16	27	34	45.8	160	50	M12x1.0	4.69
	BT50AD/B-SFH20C TW-160	P2801613TW	20	33	42	53.8	160	52	M16x1.0	5.17

► CAT(ANSI B5.50) taper and Inch type products are available.  
 ► Without balancing screw.

**SHRINK FIT HOLDER**

SCHRUMPFUTTER  
 MANDRIN DE FRETAGE  
 MADRINI PER CALLETAMENTO A CALDO  
 PORTAHERRAMIENTAS DE COMPRESION POR CALOR

ISO 25



Unit : mm

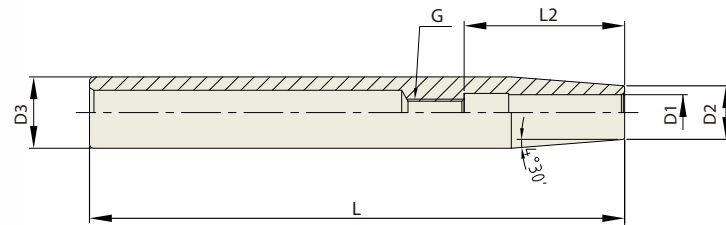
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	FIG.	WEIGHT (kg)
25	ISO25-SFH3-50	P2771651	3	11	15	50	10	1	
	ISO25-SFH4-50	P2771652	4	11	15	50	12	1	
	ISO25-SFH5-50	P2771653	5	11	15	50	15	1	
	ISO25-SFH6-40	P2771654	6	12	17	40	18	2	
	ISO25-SFH8-50	P2771655	8	14	18	50	30	2	
	ISO25-SFH10-50	P2771656	10	16	20	50	37	2	

► Higher balancing grade is available upon request.  
 ► To be supplied with assembling of pull stud bolt.

**SHRINK FIT HOLDER (EXTENSION)**

STRAIGHT

SCHRUMPFUTTER (VERLÄGERUNG)  
 MANDRIN DE FRETAGE (EXTENSION)  
 MADRINI PER CALLETAMENTO A CALDO (PROLUNGHE)  
 PORTAHERRAMIENTAS DE COMPRESION POR CALOR (EXTENSION)



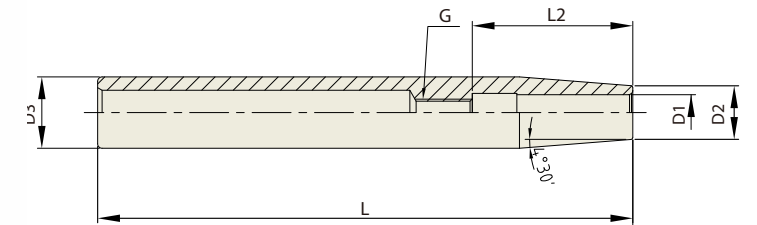
Unit : mm									
TAPER No.	MODEL No.	EDP No.	D1	D2	D3	L	L1	G	WEIGHT (kg)
12	ST12-SFH3-120	P2767010	3	8	12	120	10	-	0.05
	ST12-SFH4-120	P2767015	4	8	12	120	12	-	0.05
	ST12-SFH5-120	P2771701	5	10	12	120	15	-	0.08
	ST12-SFH6-120	P2771709	6	10	12	120	36	M5×0.8	0.07
16	ST16-SFH3-120	P2767110	3	10	16	120	10	-	0.14
	ST16-SFH4-120	P2767115	4	10	16	120	12	-	0.14
	ST16-SFH5-120	P2771702	5	10	16	120	15	-	0.14
	ST16-SFH6-120	P2771710	6	10	16	120	36	M5×0.8	0.14
20	ST16-SFH8-120	P2771711	8	12	16	120	36	M6×1.0	0.12
	ST20-SFH3-120	P2771703	3	10	20	120	10	-	0.21
	ST20-SFH4-120	P2771704	4	10	20	120	12	-	0.21
	ST20-SFH5-120	P2771705	5	10	20	120	15	-	0.20
20	ST20-SFH6-120	P2771712	6	10	20	120	36	M5×0.8	0.20
	ST20-SFH8-120	P2771713	8	12	20	120	36	M6×1.0	0.19
	ST20-SFH10-120	P2771714	10	14	20	120	43	M8×1.0	0.20
	ST20-SFH12-120	P2771715	12	16	20	120	48	M10×1.0	0.18

► Inch type products are available.

**SHRINK FIT HOLDER (EXTENSION)**

STRAIGHT

SCHRUMPFUTTER (VERLÄGERUNG)  
 MANDRIN DE FRETAGE (EXTENSION)  
 MADRINI PER CALLETAMENTO A CALDO (PROLUNGHE)  
 PORTAHERRAMIENTAS DE COMPRESION POR CALOR (EXTENSION)



Unit : mm									
TAPER No.	MODEL No.	EDP No.	D1	D2	D3	L	L1	G	WEIGHT (kg)
12	ST12-SFH3-160	P2767020	3	8	12	160	10	-	0.07
	ST12-SFH4-160	P2767025	4	8	12	160	12	-	0.07
	ST12-SFH5-160	P2771706	5	10	12	160	15	-	0.10
	ST12-SFH6-160	P2767030	6	10	12	160	36	M5×0.8	0.13
16	ST16-SFH3-160	P2767120	3	10	16	160	10	-	0.20
	ST16-SFH4-160	P2767125	4	10	16	160	12	-	0.20
	ST16-SFH5-160	P2771707	5	10	16	160	15	-	0.20
	ST16-SFH6-160	P2767130	6	10	16	160	36	M5×0.8	0.19
20	ST16-SFH8-160	P2767135	8	12	16	160	36	M6×1.0	0.16
	ST20-SFH3-160	P2767210	3	10	20	160	10	-	0.30
	ST20-SFH4-160	P2767215	4	10	20	160	12	-	0.30
	ST20-SFH5-160	P2771708	5	10	20	160	15	-	0.29
20	ST20-SFH6-160	P2767220	6	10	20	160	36	M5×0.8	0.29
	ST20-SFH8-160	P2767225	8	12	20	160	36	M6×1.0	0.27
	ST20-SFH10-160	P2767230	10	14	20	160	43	M8×1.0	0.27
	ST20-SFH12-160	P2767235	12	16	20	160	48	M10×1.0	0.23
25	ST25-SFH3-160	P2771716	3	10	25	160	10	-	0.41
	ST25-SFH4-160	P2771717	4	10	25	160	12	-	0.39
	ST25-SFH5-160	P2771718	5	15	25	160	15	-	0.50
	ST25-SFH6-160	P2771719	6	20	25	160	36	M5×0.8	0.55
25	ST25-SFH8-160	P2771720	8	20	25	160	36	M6×1.0	0.51
	ST25-SFH10-160	P2771721	10	20	25	160	43	M8×1.0	0.50
	ST25-SFH12-160	P2771722	12	20	25	160	48	M10×1.0	0.44
	ST25-SFH14-160	P2771723	14	20	25	160	48	M10×1.0	0.40
32	ST25-SFH16-160	P2771724	16	22	25	160	51	M12×1.0	0.39
	ST32-SFH6-160	P2771725	6	20	32	160	36	M5×0.8	0.92
	ST32-SFH8-160	P2771726	8	20	32	160	36	M6×1.0	0.88
	ST32-SFH10-160	P2771727	10	24	32	160	43	M8×1.0	0.83
32	ST32-SFH12-160	P2771728	12	24	32	160	48	M10×1.0	0.78
	ST32-SFH14-160	P2771729	14	27	32	160	48	M10×1.0	0.78
	ST32-SFH16-160	P2771730	16	27	32	160	51	M12×1.0	0.76
	ST32-SFH18-160	P2771731	18	27	32	160	51	M12×1.0	0.63
32	ST32-SFH20-160	P2771732	20	27	32	160	53	M16×1.0	0.60

► Inch type products are available.

**YIG SHRINK FIT HOLDER**

**SFH**

**SHRINK FIT HEATING MACHINE**

**TECHINCAL INFORMATION**

**FEATURE**

- ▶ Electromagnetic induction heating system
- ▶ Automatic voltage adjustment : AC 100V~240V
- ▶ Small size and light weight
- ▶ Easy to operate

**SPECIFICATION**

CHARACTERISTICS	SPECIFICATION
MODEL No.	SF-3300
EDP No.	P2781003
Power	100V~240V AC, 50/60Hz, Max. 3.6KW
Dimension	380(W) x 350(D) x 720(H)mm
Weight	22Kg
Holder Support	SK, HSK, BT



**YG-1 TOOLING SYSTEM**

**ER COLLET CHUCK**

- FRÄSERSPANNFUTTER - ER
- MANDRIN À PINCES - ER
- MANDRINO PORTA PINZE - ER
- PORTAPINZAS - ER



- DIN 69871-SK**
- DIN 69893/ISO 12164-1-HSK**
- CBT (BT DUAL CONTACT)**
- JIS B6339/MAS 403-BT**
- ISO 20/25**
- DIN 228-MTA/MTB**
- STRAIGHT-K**
- NC AND BRIDGEPORT-R8**
- GOST 25827-93**

**ACCESSORY & PART**  
ER COLLET / TAP ER COLLET / ER NUT & SEALING DISK / SPANNER



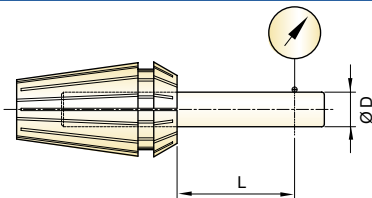
## ER COLLET CHUCK



### FEATURE

- Powerful chucking, high precision and easy operation
- Precise machining is stably maintained without chattering in High-Speed rotation.
- Due to nut designed with small bore, interference with work piece can be minimized and it enables speedy operation.
- Various nuts can be selected and used according to usage.
- Unlike single taper, double taper has long chucking part providing excellent torque power.

### HIGH PRECISION

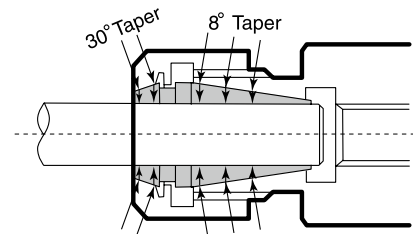


- By using high precision collet, excellent T.I.R can be achievable.
- With fine cutting of 16 sections, it has excellent contractile force, which makes higher precision can be achieved.

D	L	Max.T.I.R(STD.)
Ø1 ~ Ø1.6	6	0.015
Ø1.6 ~ Ø3	10	0.015
Ø3 ~ Ø6	16	0.015
Ø6 ~ Ø10	25	0.015
Ø10 ~ Ø18	40	0.020
Ø18 ~ Ø26	50	0.020
Ø26 ~ Ø34	60	0.020

### STRONG TORQUE POWER

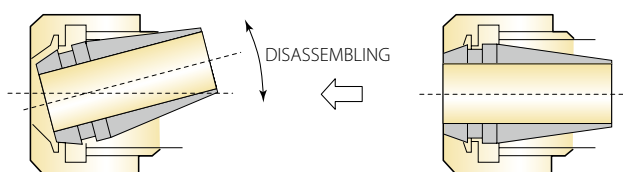
- Longer clamping part of double taper collet provides stronger torque power.
- Stronger torque power can be achieved if ball bearing nut is used.



### EASY ASSEMBLING AND DISASSEMBLING

- For assembling or disassembling of collet, first gently insert groove part of collet into eccentric portion inside nut, and fasten it to same direction as screw or loosen it reversely.

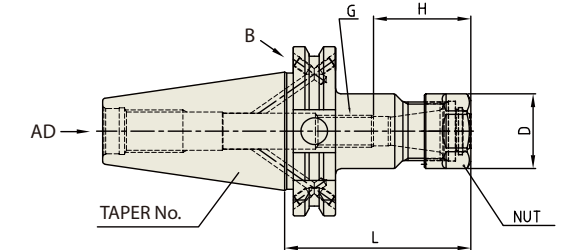
- Notice :  
In case of Ø12.2mm tool, don't use Ø12~11mm collet. But use collet with Ø12.5~11.5mm. (In case of general cutting process, Ø13~12mm collet is usable)



### ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

DIN 69871-SK



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)	Unit : mm
40	SK40AD/B-ER11-70	P2774812	0.5 - 7.0	70	19	M6	45	ER11	0.90	
	SK40AD/B-ER11-100	P2774826	0.5 - 7.0	100	19	M6	45	ER11	0.95	
	SK40AD/B-ER16-70	P2774801	0.5 - 10.0	70	28	M12	36	ER16	0.44	
	SK40AD/B-ER16-100	P2774804	0.5 - 10.0	100	28	M12	36	ER16	0.56	
	SK40AD/B-ER16-130	P2774827	0.5 - 10.0	130	28	M12	36	ER16	0.69	
	SK40AD/B-ER16-160	P2774828	0.5 - 10.0	160	28	M12	36	ER16	0.81	
	SK40AD/B-ER20-70	P2774813	0.5 - 13.0	70	34	M12	44.5	ER20	0.47	
	SK40AD/B-ER20-100	P2774820	0.5 - 13.0	100	34	M12	44.5	ER20	0.64	
	SK40AD/B-ER20-130	P2774829	0.5 - 13.0	130	34	M12	44.5	ER20	0.80	
	SK40AD/B-ER20-160	P2774830	0.5 - 13.0	160	34	M12	44.5	ER20	1.00	
	SK40AD/B-ER25-70	P2774802	1.0 - 16.0	70	42	M12	52	ER25	0.56	
	SK40AD/B-ER25-100	P2774805	1.0 - 16.0	100	42	M12	52	ER25	0.84	
	SK40AD/B-ER25-130	P2774831	1.0 - 16.0	130	42	M12	52	ER25	1.14	
	SK40AD/B-ER25-160	P2774832	1.0 - 16.0	160	42	M12	52	ER25	1.44	
	SK40AD/B-ER32-70	P2774803	1.0 - 20.0	70	50	M12	60	ER32	0.51	
	SK40AD/B-ER32-100	P2774806	1.0 - 20.0	100	50	M12	60	ER32	0.88	
	SK40AD/B-ER32-130	P2774833	1.0 - 20.0	130	50	M12	60	ER32	1.21	
	SK40AD/B-ER32-160	P2774834	1.0 - 20.0	160	50	M12	60	ER32	1.54	
	SK40AD/B-ER40-80	P2774814	2.0 - 30.0	80	63	M12	53	ER40	0.65	
	SK40AD/B-ER40-100	P2774835	2.0 - 30.0	100	63	M12	75	ER40	0.90	
SK40AD/B-ER40-130	P2774836	2.0 - 30.0	130	63	M12	75	ER40	1.34		
SK40AD/B-ER40-160	P2774837	2.0 - 30.0	160	63	M12	75	ER40	1.77		
50	SK50AD/B-ER16-70	P2774815	0.5 - 10.0	70	28	M12	36	ER16	2.71	
	SK50AD/B-ER16-100	P2774821	0.5 - 10.0	100	28	M12	45	ER16	2.82	
	SK50AD/B-ER16-130	P2774838	0.5 - 10.0	130	28	M12	36	ER16	2.92	
	SK50AD/B-ER16-160	P2774839	0.5 - 10.0	160	28	M12	36	ER16	3.01	
	SK50AD/B-ER20-70	P2774816	0.5 - 13.0	70	34	M12	44.5	ER20	2.78	
	SK50AD/B-ER20-100	P2774822	0.5 - 13.0	100	34	M12	50	ER20	2.88	
	SK50AD/B-ER20-130	P2774840	0.5 - 13.0	130	34	M12	50	ER20	3.02	
	SK50AD/B-ER20-160	P2774841	0.5 - 13.0	160	34	M12	50	ER20	3.16	
	SK50AD/B-ER25-70	P2774817	1.0 - 16.0	70	42	M12	65	ER25	2.75	
	SK50AD/B-ER25-100	P2774823	1.0 - 16.0	100	42	M12	52	ER25	3.06	
	SK50AD/B-ER25-130	P2774842	1.0 - 16.0	130	42	M12	42	ER25	3.32	
	SK50AD/B-ER25-160	P2774843	1.0 - 16.0	160	42	M12	42	ER25	3.57	
	SK50AD/B-ER32-70	P2774818	1.0 - 20.0	70	50	M12	60	ER32	2.84	
	SK50AD/B-ER32-100	P2774824	1.0 - 20.0	100	50	M12	60	ER32	3.29	
	SK50AD/B-ER32-130	P2774844	1.0 - 20.0	130	50	M12	73	ER32	3.67	
	SK50AD/B-ER32-160	P2774845	1.0 - 20.0	160	50	M12	73	ER32	4.06	
	SK50AD/B-ER40-80	P2774819	2.0 - 30.0	80	63	M12	69	ER40	3.10	
	SK50AD/B-ER40-100	P2774825	2.0 - 30.0	100	63	M12	75	ER40	3.56	
	SK50AD/B-ER40-130	P2774846	2.0 - 30.0	130	63	M12	75	ER40	4.22	
	SK50AD/B-ER40-160	P2774847	2.0 - 30.0	160	63	M12	75	ER40	4.88	

▶ CAT(ANSI B5.50) taper and Inch type products are available.

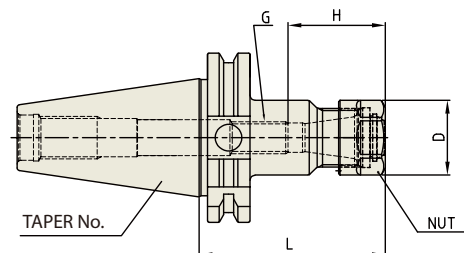
**YG ER COLLET CHUCK**

ER

**ER COLLET CHUCK**

DIN 69871-SK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm									
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	SK30-ER11-55	P2527001	0.5 - 7.0	55	19	M6	45	ER11	0.43
	SK30-ER16-55	P2527002	0.5 - 10.0	55	28	M12	45	ER16	0.44
	SK30-ER20-55	P2527003	0.5 - 13.0	55	34	M12	50	ER20	0.44
	SK30-ER25-55	P2527004	1.0 - 16.0	55	42	M12	65	ER25	0.42
	SK30-ER32-60	P2527005	1.0 - 20.0	60	50	M12	65	ER32	0.46
40	SK40-ER11-70	P2527006	0.5 - 7.0	70	19	M6	45	ER11	0.90
	SK40-ER11-100	P2527027	0.5 - 7.0	100	19	M6	45	ER11	0.95
	SK40-ER16-70	P2776417	0.5 - 10.0	70	28	M12	45	ER16	0.44
	SK40-ER16-100	P2527018	0.5 - 10.0	100	28	M12	45	ER16	0.56
	SK40-ER16-130	P2527028	0.5 - 10.0	130	28	M12	45	ER16	0.69
	SK40-ER16-160	P2527029	0.5 - 10.0	160	28	M12	45	ER16	0.81
	SK40-ER20-70	P2776418	0.5 - 13.0	70	34	M12	50	ER20	0.47
	SK40-ER20-100	P2527019	0.5 - 13.0	100	34	M12	50	ER20	0.64
	SK40-ER20-130	P2527030	0.5 - 13.0	130	34	M12	50	ER20	0.80
	SK40-ER20-160	P2527031	0.5 - 13.0	160	34	M12	50	ER20	1.00
	SK40-ER25-70	P2776419	1.0 - 16.0	70	42	M12	65	ER25	0.56
	SK40-ER25-100	P2776429	1.0 - 16.0	100	42	M12	65	ER25	0.84
	SK40-ER25-130	P2527032	1.0 - 16.0	130	42	M12	65	ER25	1.14
	SK40-ER25-160	P2527033	1.0 - 16.0	160	42	M12	65	ER25	1.44
	SK40-ER32-70	P2776420	1.0 - 20.0	70	50	M12	65	ER32	0.51
	SK40-ER32-100	P2776430	1.0 - 20.0	100	50	M12	65	ER32	0.88
	SK40-ER32-130	P2527034	1.0 - 20.0	130	50	M12	65	ER32	1.21
	SK40-ER32-160	P2527035	1.0 - 20.0	160	50	M12	65	ER32	1.54
	SK40-ER40-80	P2527011	2.0 - 30.0	80	63	M12	69	ER40	0.65
	SK40-ER40-100	P2527036	2.0 - 30.0	100	63	M12	69	ER40	0.90
SK40-ER40-130	P2527037	2.0 - 30.0	130	63	M12	69	ER40	1.34	
SK40-ER40-160	P2527038	2.0 - 30.0	160	63	M12	69	ER40	1.77	

► CAT(ANSI B5.50) taper and Inch type products are available.



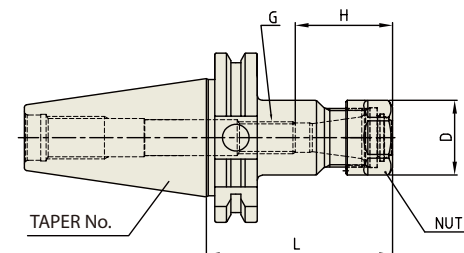
**YG ER COLLET CHUCK**

ER

**ER COLLET CHUCK**

DIN 69871-SK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm									
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	SK50-ER16-70	P2527012	0.5 - 10.0	70	28	M12	45	ER16	2.71
	SK50-ER16-100	P2527022	0.5 - 10.0	100	28	M12	45	ER16	2.82
	SK50-ER16-130	P2527039	0.5 - 10.0	130	28	M12	45	ER16	2.92
	SK50-ER16-160	P2527040	0.5 - 10.0	160	28	M12	45	ER16	3.01
	SK50-ER20-70	P2776423	0.5 - 13.0	70	34	M12	50	ER20	2.78
	SK50-ER20-100	P2527023	0.5 - 13.0	100	34	M12	40.5	ER20	2.88
	SK50-ER20-130	P2527041	0.5 - 13.0	130	34	M12	50	ER20	3.02
	SK50-ER20-160	P2527042	0.5 - 13.0	160	34	M12	50	ER20	3.16
	SK50-ER25-70	P2776424	1.0 - 16.0	70	42	M12	65	ER25	2.75
	SK50-ER25-100	P2527024	1.0 - 16.0	100	42	M12	65	ER25	3.06
	SK50-ER25-130	P2527043	1.0 - 16.0	130	42	M12	65	ER25	3.32
	SK50-ER25-160	P2527044	1.0 - 16.0	160	42	M12	65	ER25	3.57
	SK50-ER32-70	P2776425	1.0 - 20.0	70	50	M12	65	ER32	2.84
	SK50-ER32-100	P2527025	1.0 - 20.0	100	50	M12	65	ER32	3.29
	SK50-ER32-130	P2527045	1.0 - 20.0	130	50	M12	65	ER32	3.67
SK50-ER32-160	P2527046	1.0 - 20.0	160	50	M12	65	ER32	4.06	
SK50-ER40-80	P2527016	2.0 - 30.0	80	63	M12	75	ER40	3.10	
SK50-ER40-100	P2527026	2.0 - 30.0	100	63	M12	75	ER40	3.56	
SK50-ER40-130	P2527047	2.0 - 30.0	130	63	M12	75	ER40	4.22	
SK50-ER40-160	P2527048	2.0 - 30.0	160	63	M12	75	ER40	4.88	

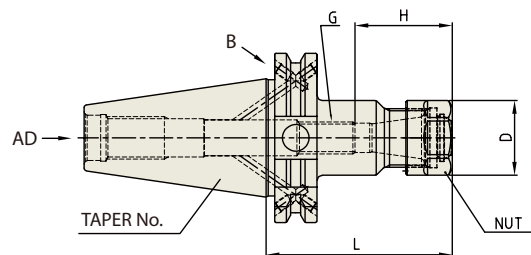
► CAT(ANSI B5.50) taper and Inch type products are available.



**ER COLLET CHUCK**

DIN 69871-SK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm										
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)	
40	SK40AD/B-ER11-70	P2537006	0.5 - 7.0	70	19	M6	45	ER11	0.90	
	SK40AD/B-ER11-100	P2771802	0.5 - 7.0	100	19	M6	45	ER11	0.95	
	SK40AD/B-ER16-70	P2537033	0.5 - 10.0	70	28	M12	36	ER16	0.44	
	SK40AD/B-ER16-100	P2537017	0.5 - 10.0	100	28	M12	36	ER16	0.56	
	SK40AD/B-ER16-130	P2771803	0.5 - 10.0	130	28	M12	36	ER16	0.69	
	SK40AD/B-ER16-160	P2771804	0.5 - 10.0	160	28	M12	36	ER16	0.81	
	SK40AD/B-ER20-70	P2537034	0.5 - 13.0	70	34	M12	44.5	ER20	0.47	
	SK40AD/B-ER20-100	P2537018	0.5 - 13.0	100	34	M12	44.5	ER20	0.64	
	SK40AD/B-ER20-130	P2771805	0.5 - 13.0	130	34	M12	44.5	ER20	0.80	
	SK40AD/B-ER20-160	P2771806	0.5 - 13.0	160	34	M12	44.5	ER20	1.00	
	SK40AD/B-ER25-70	P2537009	1.0 - 16.0	70	42	M12	52	ER25	0.56	
	SK40AD/B-ER25-100	P2537019	1.0 - 16.0	100	42	M12	52	ER25	0.84	
	SK40AD/B-ER25-130	P2771807	1.0 - 16.0	130	42	M12	52	ER25	1.14	
	SK40AD/B-ER25-160	P2771808	1.0 - 16.0	160	42	M12	52	ER25	1.44	
	SK40AD/B-ER32-70	P2537032	1.0 - 20.0	70	50	M12	60	ER32	0.51	
	SK40AD/B-ER32-100	P2537020	1.0 - 20.0	100	50	M12	60	ER32	0.88	
	SK40AD/B-ER32-130	P2771809	1.0 - 20.0	130	50	M12	60	ER32	1.21	
	SK40AD/B-ER32-160	P2771810	1.0 - 20.0	160	50	M12	60	ER32	1.54	
	SK40AD/B-ER40-80	P2537011	2.0 - 30.0	80	63	M12	53	ER40	0.65	
	SK40AD/B-ER40-100	P2771811	2.0 - 30.0	100	63	M12	75	ER40	0.90	
	SK40AD/B-ER40-130	P2771812	2.0 - 30.0	130	63	M12	75	ER40	1.34	
	SK40AD/B-ER40-160	P2771813	2.0 - 30.0	160	63	M12	75	ER40	1.77	
	50	SK50AD/B-ER16-70	P2537012	0.5 - 10.0	70	28	M12	36	ER16	2.71
		SK50AD/B-ER16-100	P2537021	0.5 - 10.0	100	28	M12	45	ER16	2.82
		SK50AD/B-ER16-130	P2771814	0.5 - 10.0	130	28	M12	36	ER16	2.92
		SK50AD/B-ER16-160	P2771815	0.5 - 10.0	160	28	M12	36	ER16	3.01
		SK50AD/B-ER20-70	P2771801	0.5 - 13.0	70	34	M12	44.5	ER20	2.78
		SK50AD/B-ER20-100	P2537022	0.5 - 13.0	100	34	M12	50	ER20	2.88
SK50AD/B-ER20-130		P2771816	0.5 - 13.0	130	34	M12	50	ER20	3.02	
SK50AD/B-ER20-160		P2771817	0.5 - 13.0	160	34	M12	50	ER20	3.16	
SK50AD/B-ER25-70		P2600030	1.0 - 16.0	70	42	M12	65	ER25	2.75	
SK50AD/B-ER25-100		P2537023	1.0 - 16.0	100	42	M12	52	ER25	3.06	
SK50AD/B-ER25-130		P2771818	1.0 - 16.0	130	42	M12	42	ER25	3.32	
SK50AD/B-ER25-160		P2771819	1.0 - 16.0	160	42	M12	42	ER25	3.57	
SK50AD/B-ER32-70		P2537035	1.0 - 20.0	70	50	M12	60	ER32	2.84	
SK50AD/B-ER32-100		P2537024	1.0 - 20.0	100	50	M12	60	ER32	3.29	
SK50AD/B-ER32-130		P2771820	1.0 - 20.0	130	50	M12	73	ER32	3.67	
SK50AD/B-ER32-160		P2771821	1.0 - 20.0	160	50	M12	73	ER32	4.06	
SK50AD/B-ER40-80		P2537016	2.0 - 30.0	80	63	M12	69	ER40	3.10	
SK50AD/B-ER40-100		P2537025	2.0 - 30.0	100	63	M12	75	ER40	3.56	
SK50AD/B-ER40-130		P2771822	2.0 - 30.0	130	63	M12	75	ER40	4.22	
SK50AD/B-ER40-160		P2771823	2.0 - 30.0	160	63	M12	75	ER40	4.88	

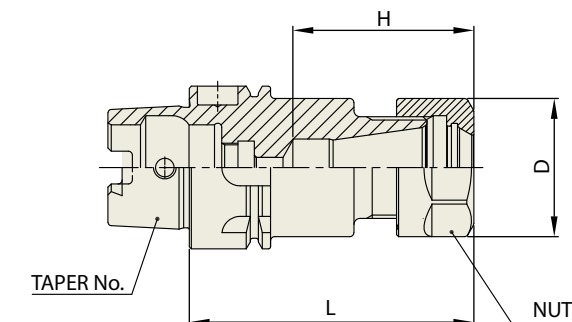
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**ER COLLET CHUCK**

DIN 69893/  
ISO 12164-1-HSK FORM A

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER



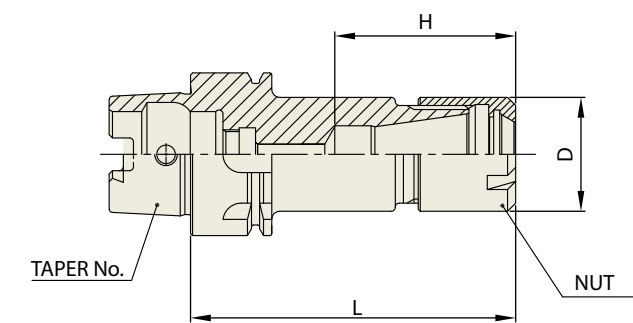
ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

◆ Standard Type

Unit : mm								
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER11-50	P2774908	0.5 - 7.0	50	19	28.6	ER11	0.18
	HSK32A-ER16-60	P2774909	0.5 - 10.0	60	28	36.6	ER16	0.21
40A	HSK40A-ER11-60	P2774910	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40A-ER16-60	P2774911	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40A-ER20-70	P2774912	0.5 - 13.0	70	34	44.5	ER20	0.80

◆ Slim Type

Unit : mm								
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER8M-40	P2774913	0.5 - 5.0	40	12	21	ER8M/ER8	0.18
	HSK32A-ER11M-40	P2774914	0.5 - 7.0	40	16	23	ER11M/ER11	0.18
	HSK32A-ER16M-60	P2774915	0.5 - 10.0	60	22	38	ER16M/ER16	0.21
	HSK32A-ER20M-60	P2774916	0.5 - 13.0	60	28	39.5	ER20M/ER20	0.21
40A	HSK40A-ER11M-75	P2774917	0.5 - 7.0	75	16	29.5	ER11M/ER11	0.40
	HSK40A-ER16M-80	P2774918	0.5 - 10.0	80	22	38	ER16M/ER16	0.50
	HSK40A-ER20M-80	P2774919	0.5 - 13.0	80	28	44.5	ER20M/ER20	0.70
	HSK40A-ER25M-80	P2774920	1.0 - 16.0	80	35	52	ER25M/ER25	0.80

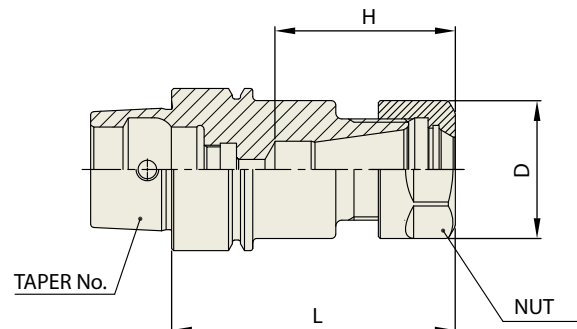




**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

DIN 69893/  
ISO 12164-1-HSK FORM E



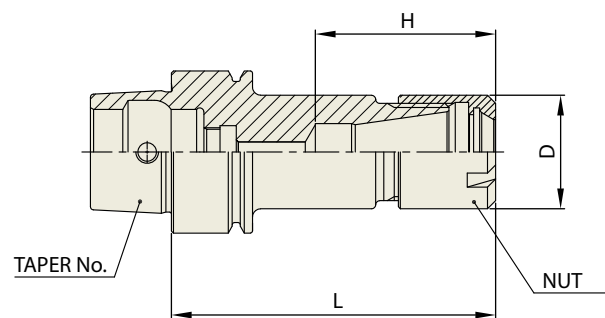
ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

◆ Standard Type

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	-40	P2774921	0.5 - 7.0	40	19	23.5	ER11	0.15
	HSK25E-ER16-50	P2774922	0.5 - 10.0	50	28	32.5	ER16	0.18
32E	HSK32E-ER11-50	P2774923	0.5 - 7.0	50	19	28.6	ER11	0.18
	HSK32E-ER16-60	P2774924	0.5 - 10.0	60	28	36.6	ER16	0.21
40E	HSK40E-ER11-60	P2774925	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40E-ER16-60	P2774926	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40E-ER20-70	P2774927	0.5 - 13.0	70	34	44.5	ER20	0.80



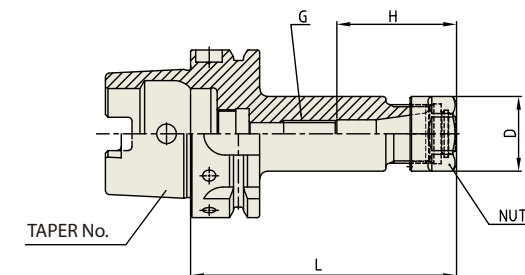
◆ Slim Type

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	HSK25E-ER8M-35	P2774928	0.5 - 5.0	35	12	21	ER8M / ER8	0.15
	HSK25E-ER11M-40	P2774929	0.5 - 7.0	40	16	24.5	ER11M / ER11	0.18
32E	HSK32E-ER8M-40	P2774930	0.5 - 5.0	40	12	21	ER8M / ER8	0.15
	HSK32E-ER11M-40	P2774931	0.5 - 7.0	40	16	23	ER11M / ER11	0.18
	HSK32E-ER16M-60	P2774932	0.5 - 10.0	60	22	38	ER16M / ER16	0.21
40E	HSK32E-ER20M-60	P2774933	0.5 - 13.0	60	28	39.5	ER20M / ER20	0.21
	HSK40E-ER11M-75	P2774934	0.5 - 7.0	75	16	29.5	ER11M / ER11	0.40
	HSK40E-ER16M-80	P2774935	0.5 - 10.0	80	22	38	ER16M / ER16	0.50
	HSK40E-ER20M-80	P2774936	0.5 - 13.0	80	28	44.5	ER20M / ER20	0.70
	HSK40E-ER25M-80	P2774937	1.0 - 16.0	80	35	52	ER25M / ER25	0.80

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

DIN 69893/  
ISO 12164-1-HSK FORM A



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

◆ Standard Type

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50A	HSK50A-ER16-100	P2774938	0.5 - 10.0	100	28	M12	45	ER16	0.70
	HSK50A-ER20-100	P2774939	0.5 - 13.0	100	35	M12	50	ER20	0.90
	HSK50A-ER25-100	P2774940	1.0 - 16.0	100	42	M12	50	ER25	1.20
	HSK50A-ER32-100	P2774941	1.0 - 20.0	100	50	M12	47	ER32	1.50
63A	HSK63A-ER16-100	P2774901	0.5 - 10.0	100	28	M12	45	ER16	1.20
	HSK63A-ER20-100	P2774942	0.5 - 13.0	100	35	M12	50	ER20	1.50
	HSK63A-ER25-100	P2774902	1.0 - 16.0	100	42	M12	57	ER25	1.80
80A	HSK63A-ER32-100	P2774903	1.0 - 20.0	100	50	M12	47	ER32	2.00
	HSK80A-ER16-100	P2774943	0.5 - 10.0	100	28	M12	45	ER16	1.77
	HSK80A-ER25-100	P2774944	1.0 - 16.0	100	42	M12	47	ER20	1.79
100A	HSK80A-ER32-100	P2774945	1.0 - 20.0	100	50	M12	53	ER25	1.95
	HSK100A-ER16-100	P2774905	0.5 - 10.0	100	28	M12	45	ER16	2.60
	HSK100A-ER20-100	P2774946	0.5 - 13.0	100	35	M12	50	ER20	2.70
	HSK100A-ER25-100	P2774906	1.0 - 16.0	100	42	M12	57	ER25	2.90
	HSK100A-ER32-100	P2774907	1.0 - 20.0	100	50	M12	56.5	ER32	3.10
	HSK100A-ER40-120	P2774947	2.0 - 30.0	120	63	M12	69	ER40	3.30

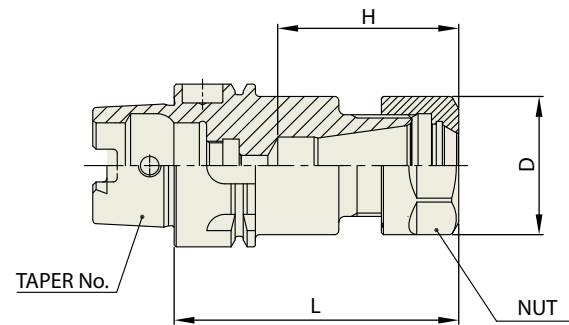
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

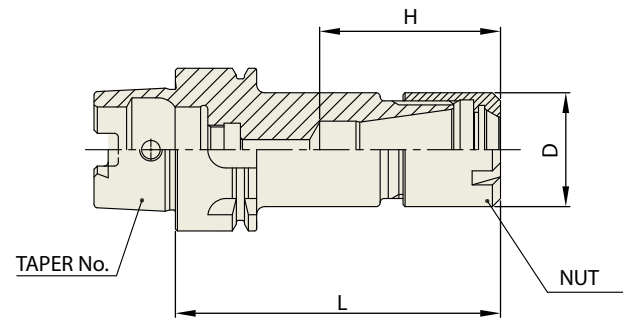
**DIN 69893/  
ISO 12164-1-HSK FORM A**



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

**Standard Type**

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER11-50	P2771908	0.5 - 7.0	50	19	28.6	ER11	0.81
	HSK32A-ER16-60	P2771909	0.5 - 10.0	60	28	36.6	ER16	0.21
40A	HSK40A-ER11-60	P2771901	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40A-ER16-60	P2771902	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40A-ER20-70	P2771903	0.5 - 13.0	70	34	44.5	ER20	0.80



**Slim Type**

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER8M-40	P2771910	0.5 - 5.0	40	12	21	ER8M/ER8	0.15
	HSK32A-ER11M-40	P2771911	0.5 - 7.0	40	16	23	ER11M/ER11	0.15
	HSK32A-ER16M-60	P2771912	0.5 - 10.0	60	22	38	ER16M/ER16	0.21
	HSK32A-ER20M-60	P2771913	0.5 - 13.0	60	28	39.5	ER20M/ER20	0.20
40A	HSK40A-ER11M-75	P2771914	0.5 - 7.0	75	16	29.5	ER11M/ER11	0.40
	HSK40A-ER16M-80	P2771915	0.5 - 10.0	80	22	38	ER16M/ER16	0.50
	HSK40A-ER20M-80	P2771916	0.5 - 13.0	80	28	44.5	ER20M/ER20	0.70
	HSK40A-ER25M-80	P2771917	1.0 - 16.0	80	35	52	ER25M/ER25	0.80



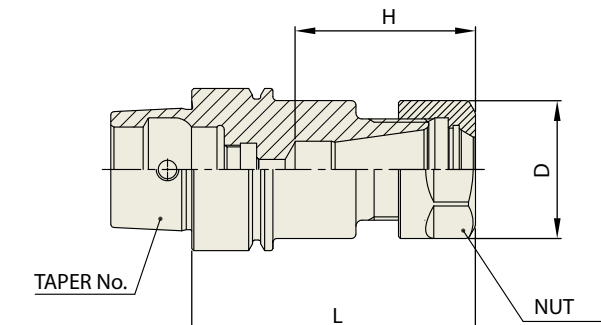
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

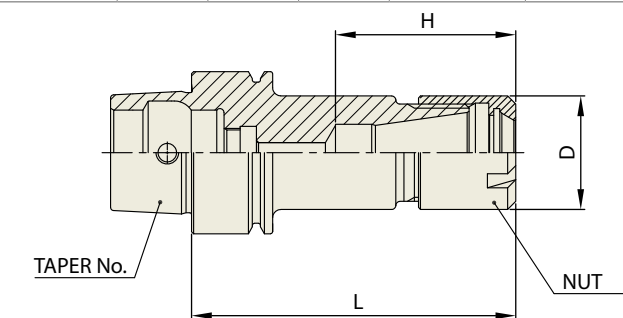
**DIN 69893/  
ISO 12164-1-HSK FORM E**



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

**Standard Type**

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	HSK25E-ER11-40	P2771935	0.5 - 7.0	40	19	23.5	ER11	0.16
	HSK25E-ER16-50	P2771936	0.5 - 10.0	50	28	32.5	ER16	0.16
32E	HSK32E-ER11-50	P2771918	0.5 - 7.0	50	19	28.6	ER11	0.18
	HSK32E-ER16-60	P2771919	0.5 - 10.0	60	28	36.6	ER16	0.21
40E	HSK40E-ER11-60	P2771920	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40E-ER16-60	P2771921	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40E-ER20-70	P2771922	0.5 - 13.0	70	34	44.5	ER20	0.80



**Slim Type**

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	HSK25E-ER8M-35	P2771937	0.5 - 5.0	35	12	21	ER8M / ER8	0.10
	HSK25E-ER11M-40	P2771938	0.5 - 7.0	40	16	24.5	ER11M / ER11	0.10
32E	HSK32E-ER8M-40	P2774948	0.5 - 5.0	40	12	21	ER8M / ER8	0.15
	HSK32E-ER11M-40	P2774949	0.5 - 7.0	40	16	23	ER11M / ER11	0.15
	HSK32E-ER16M-60	P2774950	0.5 - 10.0	60	22	38	ER16M / ER16	0.21
	HSK32E-ER20M-60	P2774951	0.5 - 13.0	60	28	39.5	ER20M / ER20	0.20
40E	HSK40E-ER11M-75	P2771904	0.5 - 7.0	75	16	29.5	ER11M / ER11	0.40
	HSK40E-ER16M-80	P2771905	0.5 - 10.0	80	22	38	ER16M / ER16	0.50
	HSK40E-ER20M-80	P2771906	0.5 - 13.0	80	28	44.5	ER20M / ER20	0.70
	HSK40E-ER25M-80	P2771907	1.0 - 16.0	80	35	52	ER25M / ER25	0.80

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

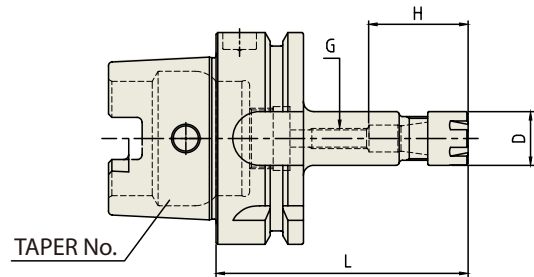
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK (SLIM)**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

**DIN 69893/  
ISO 12164-1-HSK FORM A**



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50A	HSK50A-ER11M-75	P2802501	0.5 - 7.0	75	16	M6	29.5	XSQ-R11M / ER11	0.30
	HSK50A-ER16M-85	P2802502	0.5 - 10.0	85	22	M10	38	XSQ-R16M / ER16	0.40
	HSK50A-ER20M-90	P2802503	0.5 - 13.0	90	28	M12	44.5	XSQ-R20M / ER20	0.80
	HSK50A-ER25M-105	P2802504	1.0 - 16.0	105	35	M12	52	XSQ-R25M / ER25	1.20
63A	HSK63A-ER11M-75	P2802505	0.5 - 7.0	75	16	M6	29.5	XSQ-R11M / ER11	0.80
	HSK63A-ER16M-85	P2802506	0.5 - 10.0	85	22	M10	38	XSQ-R16M / ER16	1.00
	HSK63A-ER20M-95	P2802507	0.5 - 13.0	95	28	M12	44.5	XSQ-R20M / ER20	1.20
	HSK63A-ER25M-105	P2802508	1.0 - 16.0	105	35	M12	52	XSQ-R25M / ER25	1.40
100A	HSK100A-ER11M-85	P2802509	0.5 - 7.0	85	16	M6	29.5	XSQ-R11M / ER11	2.40
	HSK100A-ER16M-95	P2802510	0.5 - 10.0	95	22	M10	38	XSQ-R16M / ER16	2.70
	HSK100A-ER20M-100	P2802511	0.5 - 13.0	100	28	M12	44.5	XSQ-R20M / ER20	3.00
	HSK100A-ER25M-120	P2802512	1.0 - 16.0	120	35	M12	52	XSQ-R25M / ER25	3.20

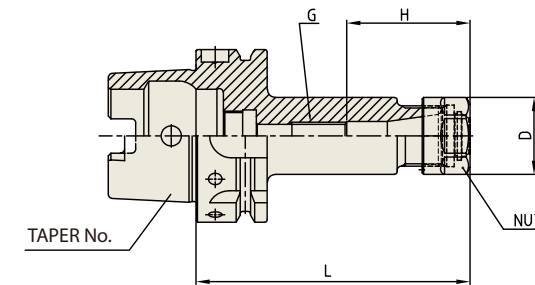
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

**DIN 69893/  
ISO 12164-1-HSK FORM A**



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

Unit : mm

◆ Standard Type

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50A	HSK50A-ER16-100	P2771927	0.5 - 10.0	100	28	M12	45	ER16	0.70
	HSK50A-ER20-100	P2771928	0.5 - 13.0	100	35	M12	50	ER20	0.90
	HSK50A-ER25-100	P2771929	1.0 - 16.0	100	42	M12	50	ER25	1.20
	HSK50A-ER32-100	P2771930	1.0 - 20.0	100	50	M12	47	ER32	1.50
63A	HSK63A-ER16-100	P2564001	0.5 - 10.0	100	28	M12	45	ER16	1.20
	HSK63A-ER20-100	P2564005	0.5 - 13.0	100	35	M12	50	ER20	1.50
	HSK63A-ER25-100	P2564002	1.0 - 16.0	100	42	M12	57	ER25	1.80
	HSK63A-ER32-100	P2564003	1.0 - 20.0	100	50	M12	47	ER32	2.00
80A	HSK63A-ER40-120	P2564004	2.0 - 30.0	120	63	M12	69	ER40	2.30
	HSK80A-ER16-100	P2771932	0.5 - 10.0	100	28	M12	45	ER16	1.77
	HSK80A-ER25-100	P2771933	1.0 - 16.0	100	42	M12	47	ER20	1.79
	HSK80A-ER32-100	P2771934	1.0 - 20.0	100	50	M12	53	ER25	1.95
100A	HSK100A-ER16-100	P2564011	0.5 - 10.0	100	28	M12	45	ER16	2.60
	HSK100A-ER20-100	P2564015	0.5 - 13.0	100	35	M12	50	ER20	2.70
	HSK100A-ER25-100	P2564012	1.0 - 16.0	100	42	M12	57	ER25	2.90
	HSK100A-ER32-100	P2564013	1.0 - 20.0	100	50	M12	56.5	ER32	3.10
	HSK100A-ER40-120	P2564014	2.0 - 30.0	120	63	M12	69	ER40	3.30

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS



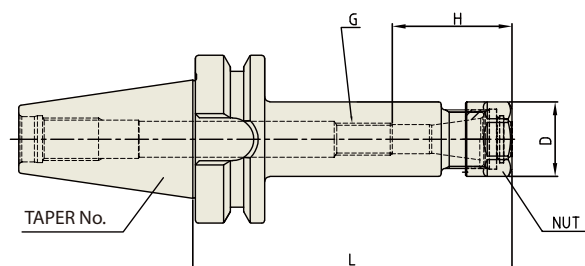
# YG ER COLLET CHUCK

ER

## ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

CBT  
(BT DUAL CONTACT)



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)	
30	CBT30-ER11-70	P2776802	0.5 - 7.0	70	19	M6	45	ER11	0.50	
	CBT30-ER11-100	P2776803	0.5 - 7.0	100	19	M6	45	ER11	0.50	
	CBT30-ER16-70	P2776804	0.5 - 10.0	70	28	M12	45	ER16	1.00	
	CBT30-ER16-100	P2776805	0.5 - 10.0	100	28	M12	45	ER16	1.10	
	CBT30-ER20-80	P2776806	0.5 - 13.0	80	34	M12	50	ER20	1.20	
	CBT30-ER20-100	P2776807	0.5 - 13.0	100	34	M12	50	ER20	1.30	
	CBT30-ER25-70	P2776808	1.0 - 16.0	70	42	M12	65	ER25	1.20	
	CBT30-ER25-100	P2776809	1.0 - 16.0	100	42	M12	65	ER25	1.30	
	CBT30-ER32-60	P2776801	1.0 - 20.0	60	50	M12	65	ER32	1.40	
	CBT30-ER32-90	P2776810	1.0 - 20.0	90	50	M12	65	ER32	1.90	
	40	CBT40-ER11-75	P2772004	0.5 - 7.0	75	19	M6	45	ER11	1.00
		CBT40-ER11-100	P2772005	0.5 - 7.0	100	19	M6	45	ER11	1.10
CBT40-ER16-75		P2772006	0.5 - 10.0	75	28	M12	45	ER16	1.10	
CBT40-ER16-100		P2772001	0.5 - 10.0	100	28	M12	45	ER16	1.20	
CBT40-ER16-120		P2772007	0.5 - 10.0	120	28	M12	45	ER16	1.40	
CBT40-ER20-75		P2772008	0.5 - 13.0	75	34	M12	50	ER20	1.40	
CBT40-ER20-100		P2772009	0.5 - 13.0	100	34	M12	50	ER20	1.80	
CBT40-ER20-135		P2772010	0.5 - 13.0	135	34	M12	50	ER20	2.20	
CBT40-ER25-75		P2772011	1.0 - 16.0	75	42	M12	65	ER25	1.40	
CBT40-ER25-100		P2772002	1.0 - 16.0	100	42	M12	65	ER25	1.80	
CBT40-ER25-135		P2772012	1.0 - 16.0	135	42	M12	65	ER25	2.20	
CBT40-ER25-150		P2772013	1.0 - 16.0	150	42	M12	65	ER25	2.40	
CBT40-ER32-60		P2772014	1.0 - 20.0	60	50	M12	65	ER32	1.80	
CBT40-ER32-100		P2772003	1.0 - 20.0	100	50	M12	65	ER32	2.20	
CBT40-ER32-120		P2772015	1.0 - 20.0	120	50	M12	65	ER32	2.40	
CBT40-ER32-150		P2772016	1.0 - 20.0	150	50	M12	65	ER32	2.60	
CBT40-ER40-80	P2772017	2.0 - 30.0	80	63	M12	75	ER40	1.50		

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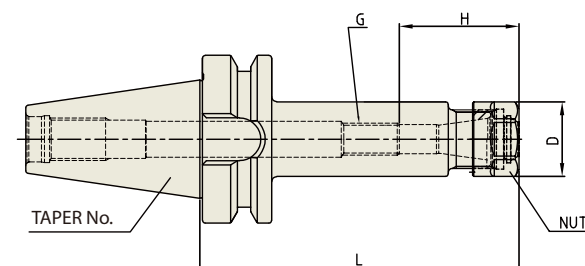
# YG ER COLLET CHUCK

ER

## ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

CBT  
(BT DUAL CONTACT)



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	CBT50-ER16-100	P2772018	0.5 - 10.0	100	28	M12	45	ER16	4.20
	CBT50-ER16-120	P2772019	0.5 - 10.0	120	28	M12	45	ER16	4.40
	CBT50-ER16-165	P2772020	0.5 - 10.0	165	28	M12	45	ER16	4.60
	CBT50-ER20-100	P2772021	0.5 - 13.0	100	34	M12	50	ER20	4.60
	CBT50-ER20-135	P2772022	0.5 - 13.0	135	34	M12	50	ER20	4.80
	CBT50-ER20-165	P2772023	0.5 - 13.0	165	34	M12	50	ER20	5.00
	CBT50-ER25-100	P2772024	1.0 - 16.0	100	42	M12	65	ER25	4.70
	CBT50-ER25-135	P2772025	1.0 - 16.0	135	42	M12	65	ER25	4.80
	CBT50-ER25-165	P2772026	1.0 - 16.0	165	42	M12	65	ER25	5.00
	CBT50-ER32-100	P2772027	1.0 - 20.0	100	50	M12	65	ER32	5.20
	CBT50-ER32-135	P2772028	1.0 - 20.0	135	50	M12	65	ER32	5.70
	CBT50-ER32-165	P2772029	1.0 - 20.0	165	50	M12	65	ER32	5.80
40	CBT50-ER40-100	P2772030	2.0 - 30.0	100	63	M12	75	ER40	5.60
	CBT50-ER40-150	P2772031	2.0 - 30.0	150	63	M12	75	ER40	6.10
	CBT50-ER50-100	P2772032	4.0 - 34.0	100	78	M16	85	ER50	5.80
	CBT50-ER50-150	P2772033	4.0 - 34.0	150	78	M16	85	ER50	6.30

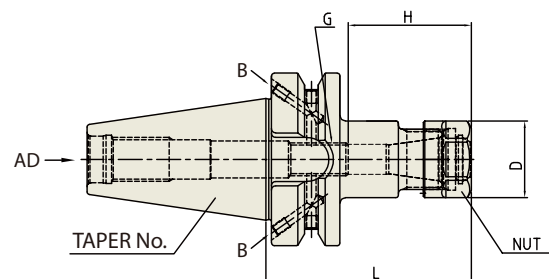
# YIG ER COLLET CHUCK

ER

## ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

JIS B6339/  
MAS 403-BT



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	BT30-ER11-70	P2776501A	0.5 - 7.0	70	19	M6	45	ER11	0.50
	BT30-ER11-100	P2776502A	0.5 - 7.0	100	19	M6	45	ER11	0.50
	BT30-ER16-70	P2776503A	0.5 - 10.0	70	28	M12	45	ER16	1.00
	BT30-ER16-100	P2776506A	0.5 - 10.0	100	28	M12	45	ER16	1.10
	BT30-ER20-80	P2776507A	0.5 - 13.0	80	34	M12	50	ER20	1.20
	BT30-ER20-100	P2776508A	0.5 - 13.0	100	34	M12	50	ER20	1.30
	BT30-ER25-70	P2776509A	1.0 - 16.0	70	42	M12	65	ER25	1.20
	BT30-ER25-100	P2776510A	1.0 - 16.0	100	42	M12	65	ER25	1.30
	BT30-ER32-60	P2776511A	1.0 - 20.0	60	50	M12	65	ER32	1.40
	BT30-ER32-90	P2776512A	1.0 - 20.0	90	50	M12	65	ER32	1.90
40	BT40AD/B-ER11-75	P2776513	0.5 - 7.0	75	19	M6	45	ER11	1.00
	BT40AD/B-ER11-100	P2776514	0.5 - 7.0	100	19	M6	45	ER11	1.10
	BT40AD/B-ER16-75	P2776504	0.5 - 10.0	75	28	M12	45	ER16	1.10
	BT40AD/B-ER16-100	P2553021	0.5 - 10.0	100	28	M12	45	ER16	1.20
	BT40AD/B-ER16-120	P2776515	0.5 - 10.0	120	28	M12	45	ER16	1.40
	BT40AD/B-ER20-75	P2776516	0.5 - 13.0	75	34	M12	50	ER20	1.40
	BT40AD/B-ER20-100	P2553017	0.5 - 13.0	100	34	M12	50	ER20	1.80
	BT40AD/B-ER20-135	P2776517	0.5 - 13.0	135	34	M12	50	ER20	2.20
	BT40AD/B-ER25-75	P2600012	1.0 - 16.0	75	42	M12	65	ER25	1.40
	BT40AD/B-ER25-100	P2553018	1.0 - 16.0	100	42	M12	65	ER25	1.80
	BT40AD/B-ER25-135	P2776518	1.0 - 16.0	135	42	M12	65	ER25	2.20
	BT40AD/B-ER25-150	P2776519	1.0 - 16.0	150	42	M12	65	ER25	2.40
	BT40AD/B-ER32-60	P2553501	1.0 - 20.0	60	50	M12	65	ER32	1.80
	BT40AD/B-ER32-100	P2776505	1.0 - 20.0	100	50	M12	65	ER32	2.20

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE

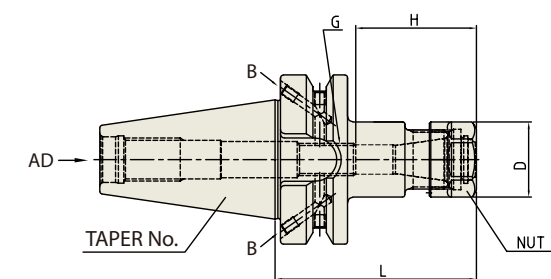
# YIG ER COLLET CHUCK

ER

## ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

JIS B6339/  
MAS 403-BT



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	BT50AD/B-ER16-100	P2776522	0.5 - 10.0	100	28	M12	45	ER16	4.20
	BT50AD/B-ER16-120	P2776523	0.5 - 10.0	120	28	M12	45	ER16	4.40
	BT50AD/B-ER16-165	P2776524	0.5 - 10.0	165	28	M12	45	ER16	4.60
	BT50AD/B-ER20-100	P2776525	0.5 - 13.0	100	34	M12	50	ER20	4.60
	BT50AD/B-ER20-135	P2776526	0.5 - 13.0	135	34	M12	50	ER20	4.80
	BT50AD/B-ER20-165	P2776527	0.5 - 13.0	165	34	M12	50	ER20	5.00
	BT50AD/B-ER25-100	P2776528	1.0 - 16.0	100	42	M12	65	ER25	4.70
	BT50AD/B-ER25-135	P2776529	1.0 - 16.0	135	42	M12	65	ER25	4.80
	BT50AD/B-ER25-165	P2776530	1.0 - 16.0	165	42	M12	65	ER25	5.00
	BT50AD/B-ER32-100	P2600026	1.0 - 20.0	100	50	M12	65	ER32	5.20
	BT50AD/B-ER32-135	P2776531	1.0 - 20.0	135	50	M12	65	ER32	5.70
	BT50AD/B-ER32-165	P2776532	1.0 - 20.0	165	50	M12	65	ER32	5.80
	BT50AD/B-ER40-100	P2600027	2.0 - 30.0	100	63	M12	75	ER40	5.60
	BT50AD/B-ER40-150	P2776533	2.0 - 30.0	150	63	M12	75	ER40	6.10
	BT50AD/B-ER50-100	P2776534	4.0 - 34.0	100	78	M16	85	ER50	5.80
	BT50AD/B-ER50-150	P2776535	4.0 - 34.0	150	78	M16	85	ER50	6.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

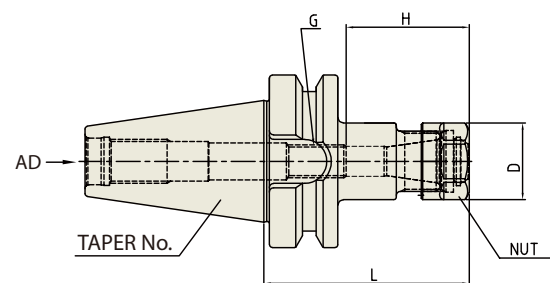
**YG ER COLLET CHUCK**

ER

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

JIS B6339/  
MAS 403-BT



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	BT30-ER11-70	P2772107	0.5 - 7.0	70	19	M6	45	ER11	0.50
	BT30-ER11-100	P2772108	0.5 - 7.0	100	19	M6	45	ER11	0.50
	BT30-ER16-70	P2772109	0.5 - 10.0	70	28	M12	45	ER16	1.00
	BT30-ER16-100	P2772110	0.5 - 10.0	100	28	M12	45	ER16	1.10
	BT30-ER20-80	P2772111	0.5 - 13.0	80	34	M12	50	ER20	1.20
	BT30-ER20-100	P2772112	0.5 - 13.0	100	34	M12	50	ER20	1.30
	BT30-ER25-70	P2772106	1.0 - 16.0	70	42	M12	65	ER25	1.20
	BT30-ER25-100	P2772113	1.0 - 16.0	100	42	M12	65	ER25	1.30
	BT30-ER32-60	P2772144	1.0 - 20.0	60	50	M12	65	ER32	1.40
	BT30-ER32-90	P2772115	1.0 - 20.0	90	50	M12	65	ER32	1.90
40	BT40-ER11-75	P2772116	0.5 - 7.0	75	19	M6	45	ER11	1.00
	BT40-ER11-100	P2772117	0.5 - 7.0	100	19	M6	45	ER11	1.10
	BT40-ER16-75	P2772101	0.5 - 10.0	75	28	M12	45	ER16	1.10
	BT40-ER16-100	P2772118	0.5 - 10.0	100	28	M12	45	ER16	1.20
	BT40-ER16-120	P2772119	0.5 - 10.0	120	28	M12	45	ER16	1.40
	BT40-ER20-75	P2772102	0.5 - 13.0	75	34	M12	50	ER20	1.40
	BT40-ER20-100	P2772120	0.5 - 13.0	100	34	M12	50	ER20	1.80
	BT40-ER20-135	P2772121	0.5 - 13.0	135	34	M12	50	ER20	2.20
	BT40-ER25-75	P2772103	1.0 - 16.0	75	42	M12	65	ER25	1.40
	BT40-ER25-100	P2772122	1.0 - 16.0	100	42	M12	65	ER25	1.80
	BT40-ER25-135	P2772123	1.0 - 16.0	135	42	M12	65	ER25	2.20
	BT40-ER25-150	P2772124	1.0 - 16.0	150	42	M12	65	ER25	2.40
	BT40-ER32-60	P2772104	1.0 - 20.0	60	50	M12	65	ER32	1.80
	BT40-ER32-100	P2772125	1.0 - 20.0	100	50	M12	65	ER32	2.20
	BT40-ER32-120	P2772105	1.0 - 20.0	120	50	M12	65	ER32	2.40
	BT40-ER32-150	P2772126	1.0 - 20.0	150	50	M12	65	ER32	2.60
	BT40-ER40-80	P2772127	2.0 - 30.0	80	63	M12	75	ER40	1.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE



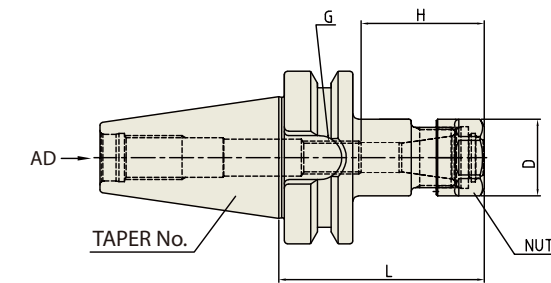
**YG ER COLLET CHUCK**

ER

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

JIS B6339/  
MAS 403-BT



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	BT50-ER16-100	P2772128	0.5 - 10.0	100	28	M12	45	ER16	4.20
	BT50-ER16-120	P2772129	0.5 - 10.0	120	28	M12	45	ER16	4.40
	BT50-ER16-165	P2772130	0.5 - 10.0	165	28	M12	45	ER16	4.60
	BT50-ER20-100	P2772131	0.5 - 13.0	100	34	M12	50	ER20	4.60
	BT50-ER20-135	P2772132	0.5 - 13.0	135	34	M12	50	ER20	4.80
	BT50-ER20-165	P2772133	0.5 - 13.0	165	34	M12	50	ER20	5.00
	BT50-ER25-100	P2772134	1.0 - 16.0	100	42	M12	65	ER25	4.70
	BT50-ER25-135	P2772135	1.0 - 16.0	135	42	M12	65	ER25	4.80
	BT50-ER25-165	P2772136	1.0 - 16.0	165	42	M12	65	ER25	5.00
	BT50-ER32-100	P2772137	1.0 - 20.0	100	50	M12	65	ER32	5.20
	BT50-ER32-135	P2772138	1.0 - 20.0	135	50	M12	65	ER32	5.70
	BT50-ER32-165	P2772139	1.0 - 20.0	165	50	M12	65	ER32	5.80
	BT50-ER40-100	P2772140	2.0 - 30.0	100	63	M12	75	ER40	5.60
	BT50-ER40-150	P2772141	2.0 - 30.0	150	63	M12	75	ER40	6.10
	BT50-ER50-100	P2772142	4.0 - 34.0	100	78	M16	85	ER50	5.80
	BT50-ER50-150	P2772143	4.0 - 34.0	150	78	M16	85	ER50	6.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.



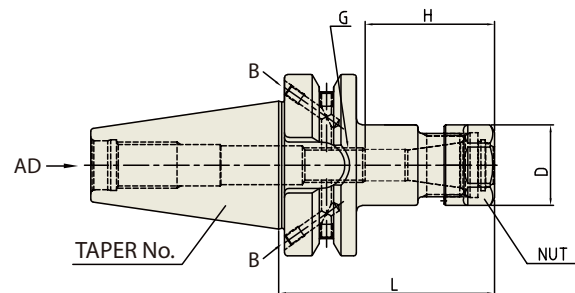
# YIG ER COLLET CHUCK

ER

## ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

JIS B6339/  
MAS 403-BT



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm									
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
40	BT40AD/B-ER11-75	P2776551	0.5 - 7.0	75	19	M6	45	ER11	1.00
	BT40AD/B-ER11-100	P2776552	0.5 - 7.0	100	19	M6	45	ER11	1.10
	BT40AD/B-ER16-75	P2776553	0.5 - 10.0	75	28	M12	45	ER16	1.10
	BT40AD/B-ER16-100	P2776554	0.5 - 10.0	100	28	M12	45	ER16	1.20
	BT40AD/B-ER16-120	P2776555	0.5 - 10.0	120	28	M12	45	ER16	1.40
	BT40AD/B-ER20-75	P2776556	0.5 - 13.0	75	34	M12	50	ER20	1.40
	BT40AD/B-ER20-100	P2776557	0.5 - 13.0	100	34	M12	50	ER20	1.80
	BT40AD/B-ER20-135	P2776558	0.5 - 13.0	135	34	M12	50	ER20	2.20
	BT40AD/B-ER25-75	P2776559	1.0 - 16.0	75	42	M12	65	ER25	1.40
	BT40AD/B-ER25-100	P2776560	1.0 - 16.0	100	42	M12	65	ER25	1.80
	BT40AD/B-ER25-135	P2776561	1.0 - 16.0	135	42	M12	65	ER25	2.20
	BT40AD/B-ER25-150	P2776562	1.0 - 16.0	150	42	M12	65	ER25	2.40
	BT40AD/B-ER32-60	P2776563	1.0 - 20.0	60	50	M12	65	ER32	1.80
	BT40AD/B-ER32-100	P2776564	1.0 - 20.0	100	50	M12	65	ER32	2.20
50	BT50AD/B-ER16-100	P2776565	0.5 - 10.0	100	28	M12	45	ER16	4.20
	BT50AD/B-ER16-120	P2776566	0.5 - 10.0	120	28	M12	45	ER16	4.40
	BT50AD/B-ER16-165	P2776567	0.5 - 10.0	165	28	M12	45	ER16	4.60
	BT50AD/B-ER20-100	P2776568	0.5 - 13.0	100	34	M12	50	ER20	4.60
	BT50AD/B-ER20-135	P2776569	0.5 - 13.0	135	34	M12	50	ER20	4.80
	BT50AD/B-ER20-165	P2776570	0.5 - 13.0	165	34	M12	50	ER20	5.00
	BT50AD/B-ER25-100	P2776571	1.0 - 16.0	100	42	M12	65	ER25	4.70
	BT50AD/B-ER25-135	P2776572	1.0 - 16.0	135	42	M12	65	ER25	4.80
	BT50AD/B-ER25-165	P2776573	1.0 - 16.0	165	42	M12	65	ER25	5.00
	BT50AD/B-ER32-100	P2776574	1.0 - 20.0	100	50	M12	65	ER32	5.20
	BT50AD/B-ER32-135	P2776575	1.0 - 20.0	135	50	M12	65	ER32	5.70
	BT50AD/B-ER32-165	P2776576	1.0 - 20.0	165	50	M12	65	ER32	5.80
	BT50AD/B-ER40-100	P2776577	2.0 - 30.0	100	63	M12	75	ER40	5.60
	BT50AD/B-ER40-150	P2776578	2.0 - 30.0	150	63	M12	75	ER40	6.10
BT50AD/B-ER50-100	P2776579	4.0 - 34.0	100	78	M16	85	ER50	5.80	
BT50AD/B-ER50-150	P2776580	4.0 - 34.0	150	78	M16	85	ER50	6.30	

▶ CAT(ANSI B5.50) taper and Inch type products are available.



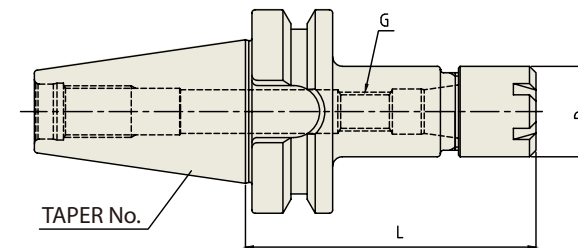
# YIG ER COLLET CHUCK

ER

## ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

JIS B6339/  
MAS 403-BT



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm									
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	BT30-ER11M-50	P2802601	0.5 - 7.0	50	16	M6	29.5	XSQ-R11M / ER11	0.50
	BT30-ER11M-75	P2802602	0.5 - 7.0	75	16	M6	29.5	XSQ-R11M / ER11	0.50
	BT30-ER11M-100	P2802603	0.5 - 7.0	100	16	M6	29.5	XSQ-R11M / ER11	0.60
	BT30-ER16M-50	P2802604	0.5 - 10.0	50	22	M10	38	XSQ-R16M / ER16	0.50
	BT30-ER16M-75	P2802605	0.5 - 10.0	75	22	M10	38	XSQ-R16M / ER16	0.50
	BT30-ER16M-100	P2802606	0.5 - 10.0	100	22	M10	38	XSQ-R16M / ER16	0.60
	BT30-ER20M-50	P2802607	0.5 - 13.0	50	28	M12	44.5	XSQ-R20M / ER20	0.50
	BT30-ER20M-75	P2802608	0.5 - 13.0	75	28	M12	44.5	XSQ-R20M / ER20	0.60
	BT30-ER20M-100	P2802609	0.5 - 13.0	100	28	M12	44.5	XSQ-R20M / ER20	0.70
	BT30-ER25M-50	P2802610	1.0 - 16.0	50	35	M12	52	XSQ-R25M / ER25	0.60
	BT30-ER25M-75	P2802611	1.0 - 16.0	75	35	M12	52	XSQ-R25M / ER25	0.70
	BT30-ER25M-100	P2802612	1.0 - 16.0	100	35	M12	52	XSQ-R25M / ER25	0.80
	BT40-ER11M-60	P2802613	0.5 - 7.0	60	16	M6	29.5	XSQ-R11M / ER11	1.00
	BT40-ER11M-90	P2802614	0.5 - 7.0	90	16	M6	29.5	XSQ-R11M / ER11	1.10
40	BT40-ER11M-135	P2802615	0.5 - 7.0	135	16	M6	29.5	XSQ-R11M / ER11	1.20
	BT40-ER16M-60	P2802616	0.5 - 10.0	60	22	M10	38	XSQ-R16M / ER16	1.10
	BT40-ER16M-90	P2802617	0.5 - 10.0	90	22	M10	38	XSQ-R16M / ER16	1.20
	BT40-ER16M-135	P2802618	0.5 - 10.0	135	22	M10	38	XSQ-R16M / ER16	1.40
	BT40-ER20M-60	P2802619	0.5 - 13.0	60	28	M12	44.5	XSQ-R20M / ER20	1.10
	BT40-ER20M-90	P2802620	0.5 - 13.0	90	28	M12	44.5	XSQ-R20M / ER20	1.50
	BT40-ER20M-150	P2802621	0.5 - 13.0	150	28	M12	44.5	XSQ-R20M / ER20	1.80
	BT40-ER25M-60	P2802622	1.0 - 16.0	60	35	M12	52	XSQ-R25M / ER25	1.20
	BT40-ER25M-90	P2802623	1.0 - 16.0	90	35	M12	52	XSQ-R25M / ER25	1.40
	BT40-ER25M-150	P2802624	1.0 - 16.0	150	35	M12	52	XSQ-R25M / ER25	1.80
	BT50-ER11M-90	P2802625	0.5 - 7.0	90	16	M6	29.5	XSQ-R11M / ER11	3.80
	BT50-ER11M-120	P2802626	0.5 - 7.0	120	16	M6	29.5	XSQ-R11M / ER11	3.90
	BT50-ER11M-165	P2802627	0.5 - 7.0	165	16	M6	29.5	XSQ-R11M / ER11	4.00
	BT50-ER16M-90	P2802628	0.5 - 10.0	90	22	M10	38	XSQ-R16M / ER16	3.80
BT50-ER16M-120	P2802629	0.5 - 10.0	120	22	M10	38	XSQ-R16M / ER16	4.00	
50	BT50-ER16M-165	P2802630	0.5 - 10.0	165	22	M10	38	XSQ-R16M / ER16	4.20
	BT50-ER20M-75	P2802631	0.5 - 13.0	75	28	M12	44.5	XSQ-R20M / ER20	3.80
	BT50-ER20M-105	P2802632	0.5 - 13.0	105	28	M12	44.5	XSQ-R20M / ER20	3.90
	BT50-ER20M-165	P2802633	0.5 - 13.0	165	28	M12	44.5	XSQ-R20M / ER20	4.50
	BT50-ER25M-75	P2802634	1.0 - 16.0	75	35	M12	52	XSQ-R25M / ER25	3.90
	BT50-ER25M-105	P2802635	1.0 - 16.0	105	35	M12	52	XSQ-R25M / ER25	4.10
	BT50-ER25M-165	P2802636	1.0 - 16.0	165	35	M12	52	XSQ-R25M / ER25	4.40

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

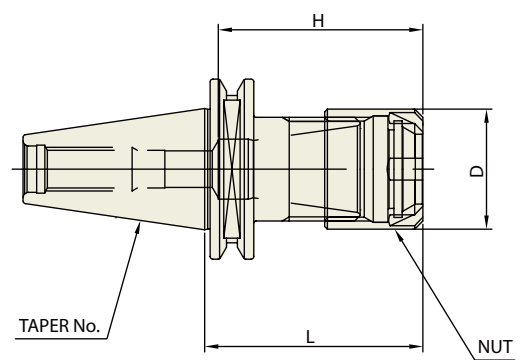
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

**ISO 20/25 (SLIM TYPE)**



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
20	ISO20-ER16M-35	P2776541	0.5 - 10.0	35	22	37.5	ER16M / ER16	-
25	ISO25-ER16M-35	P2776542	0.5 - 10.0	35	22	37.5	ER16M / ER16	-
	ISO25-ER20M-36	P2776543	0.5 - 13.0	36	28	-	ER20M / ER20	-

- Higher balancing grade is available upon request.
- To be supplied with assembling of pull stud bolt.

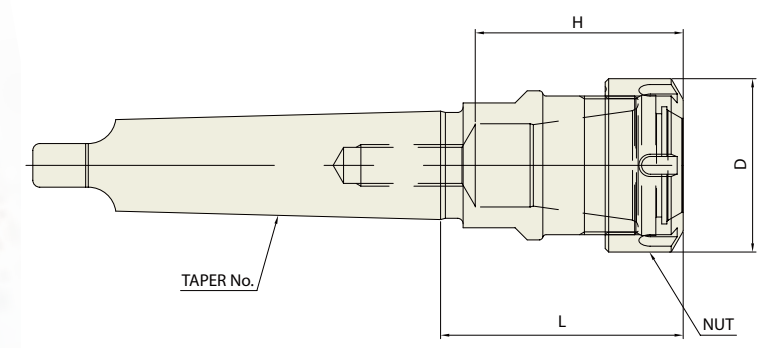
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER

**DIN 228-MTA**



ER Collet Refer to page 103-109  
ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
1	MTA1-ER11	P2772241	0.5 - 7.0	42.1	19	28.6	ER11	0.30
	MTA1-ER16	P2772242	0.5 - 10.0	43.9	28	36.6	ER16	0.35
2	MTA2-ER20	P2772243	0.5 - 13.0	50	34	40.5	ER20	0.50
	MTA2-ER25	P2772244	1.0 - 16.0	50	42	41	ER25	0.60
3	MTA3-ER25	P2772245	1.0 - 16.0	60	42	52	ER25	0.60
	MTA3-ER32	P2772246	1.0 - 20.0	70	50	47	ER32	0.65
4	MTA4-ER20	P2772247	0.5 - 13.0	60	34	50	ER20	1.00
	MTA4-ER25	P2772248	1.0 - 16.0	60	42	52	ER25	1.10
	MTA4-ER32	P2772249	1.0 - 20.0	65	50	48	ER32	1.30
5	MTA4-ER40	P2772250	2.0 - 30.0	80	63	69	ER40	1.50
	MTA5-ER32	P2772251	1.0 - 20.0	70	50	60	ER32	2.20
	MTA5-ER40	P2772252	2.0 - 30.0	80	63	69	ER40	2.40
	MTA5-ER50	P2772253	4.0 - 34.0	80	78	69	ER50	2.80



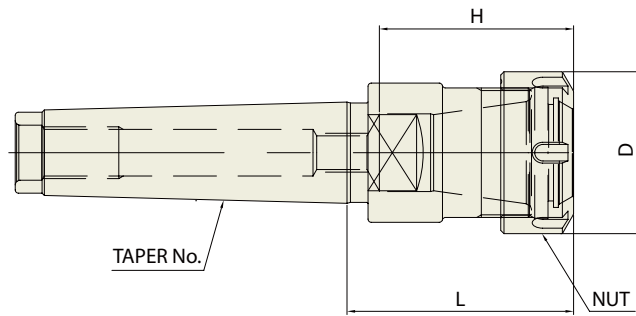
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

**DIN 228-MTB**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
1	MTB1-ER16	P2772254	0.5 - 10.0	43.9	28	36.6	ER16	0.35
2	MTB2-ER20	P2772255	0.5 - 13.0	50	34	40.5	ER20	0.50
	MTB2-ER25	P2772256	1.0 - 16.0	50	42	41	ER25	0.60
3	MTB3-ER25	P2772257	1.0 - 16.0	60	42	52	ER25	0.60
	MTB3-ER32	P2772258	1.0 - 20.0	70	50	47	ER32	0.65
4	MTB4-ER32	P2772259	1.0 - 20.0	65	50	48	ER32	1.10
	MTB4-ER40	P2772260	2.0 - 30.0	80	63	69	ER40	1.30
5	MTB5-ER32	P2772261	1.0 - 20.0	70	50	60	ER32	2.00
	MTB5-ER40	P2772262	2.0 - 30.0	80	63	69	ER40	2.20
	MTB5-ER50	P2772263	4.0 - 34.0	80	78	69	ER50	2.60

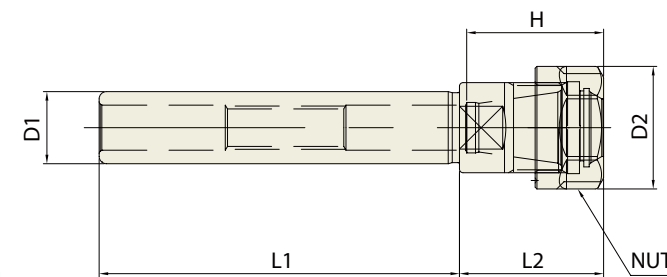
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

**STRAIGHT-K**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L1	L2	H	NUT / COLLET	WEIGHT (kg)
16	K16-ER11-100	P2772201	0.5 - 7.0	16	19	100	32	27	ER11	0.15
	K16-ER16-100	P2772219	0.5 - 10.0	16	28	100	36	32.6	ER16	0.18
20	K20-ER16-100	P2772202	0.5 - 10.0	20	28	100	36	35.6	ER16	0.25
	K20-ER20-100	P2772203	0.5 - 13.0	20	34	100	40	38	ER20	0.29
25	K25-ER20-100	P2772221	0.5 - 13.0	25	34	100	40	71.6	ER20	0.40
	K25-ER25-100	P2772204	1.0 - 16.0	25	42	100	50	43.1	ER25	0.45
32	K32-ER16-100	P2772222	0.5 - 10.0	32	28	100	36	-	ER16	0.50
	K32-ER20-100	P2772223	0.5 - 13.0	32	34	100	40	71.6	ER20	0.66
	K32-ER25-100	P2772224	1.0 - 16.0	32	42	100	50	71.1	ER25	0.75
	K32-ER32-100	P2772225	1.0 - 20.0	32	50	100	58	78	ER32	1.00

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

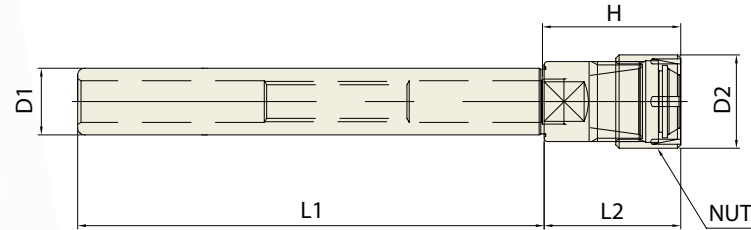
ACCESSORY & OTHERS



**EXTENSION ER COLLET CHUCK**

VERLÄNGERUNG FRÄSERSPANNFUTTER - SCHLANKER TYP  
 EXTENSION MANDRIN À PINCES - TYPE MINCE  
 PROLUNGHE MANDRINO PORTA PINZE - TIPO SOTTILE  
 EXTENSION PORTAPINZAS - TIPO DELGADO

**STRAIGHT-K (SLIM TYPE)**



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

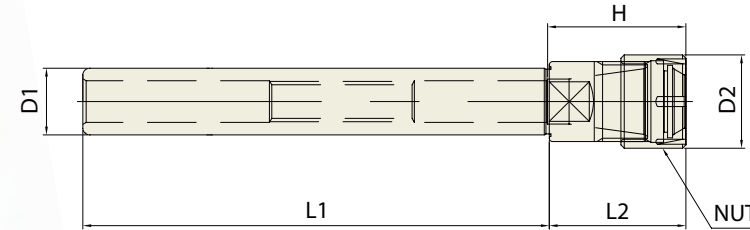
Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L1	L2	H	NUT / COLLET	WEIGHT (kg)
12	K12-ER8M-70	P2772205	0.5 - 5.0	12	12	70	25	38	ER8M / ER8	0.10
	K12-ER8M-100	P2780001	0.5 - 5.0	12	12	100	25	38	ER8M / ER8	0.13
	K12-ER8M-150	P2780002	0.5 - 5.0	12	12	150	25	38	ER8M / ER8	0.17
	K12-ER8M-200	P2780003	0.5 - 5.0	12	12	200	25	38	ER8M / ER8	0.21
	K12-ER8M-250	P2780004	0.5 - 5.0	12	12	250	25	38	ER8M / ER8	0.26
	K12-ER8M-300	P2780005	0.5 - 5.0	12	12	300	25	38	ER8M / ER8	0.3
16	K16-ER11M-100	P2780006	0.5 - 7.0	16	16	100	32	29.5	ER11M / ER11	0.18
	K16-ER11M-140	P2772206	0.5 - 7.0	16	16	140	32	29.5	ER11M / ER11	0.23
	K16-ER11M-200	P2780007	0.5 - 7.0	16	16	200	32	29.5	ER11M / ER11	0.37
	K16-ER11M-250	P2780008	0.5 - 7.0	16	16	250	32	29.5	ER11M / ER11	0.45
	K16-ER11M-300	P2780009	0.5 - 7.0	16	16	300	32	29.5	ER11M / ER11	0.52
	K16-ER16M-100	P2780010	0.5 - 10.0	16	22	100	32	38	ER16M / ER16	0.18
	K16-ER16M-140	P2780011	0.5 - 10.0	16	22	140	32	38	ER16M / ER16	0.23
	K16-ER16M-200	P2780012	0.5 - 10.0	16	22	200	32	38	ER16M / ER16	0.37
	K16-ER16M-250	P2780013	0.5 - 10.0	16	22	250	32	38	ER16M / ER16	0.45
20	K20-ER16M-100	P2780015	0.5 - 10.0	20	22	100	41	-	ER16M / ER16	0.22
	K20-ER16M-140	P2772207	0.5 - 10.0	20	22	140	41	-	ER16M / ER16	0.28
	K20-ER16M-200	P2780016	0.5 - 10.0	20	22	200	41	-	ER16M / ER16	0.54
	K20-ER16M-250	P2780017	0.5 - 10.0	20	22	250	41	-	ER16M / ER16	0.66
	K20-ER16M-300	P2780018	0.5 - 10.0	20	22	300	41	-	ER16M / ER16	0.78
	K20-ER20M-100	P2780019	0.5 - 13.0	20	28	100	41	41.5	ER20M / ER20	0.25
	K20-ER20M-140	P2772208	0.5 - 13.0	20	28	140	41	41.5	ER20M / ER20	0.32
	K20-ER20M-200	P2780020	0.5 - 13.0	20	28	200	41	41.5	ER20M / ER20	0.54
	K20-ER20M-250	P2780021	0.5 - 13.0	20	28	250	41	41.5	ER20M / ER20	0.66
	K20-ER20M-300	P2780022	0.5 - 13.0	20	28	300	41	41.5	ER20M / ER20	0.78

**EXTENSION ER COLLET CHUCK**

VERLÄNGERUNG FRÄSERSPANNFUTTER - SCHLANKER TYP  
 EXTENSION MANDRIN À PINCES - TYPE MINCE  
 PROLUNGHE MANDRINO PORTA PINZE - TIPO SOTTILE  
 EXTENSION PORTAPINZAS - TIPO DELGADO

**STRAIGHT-K (SLIM TYPE)**



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

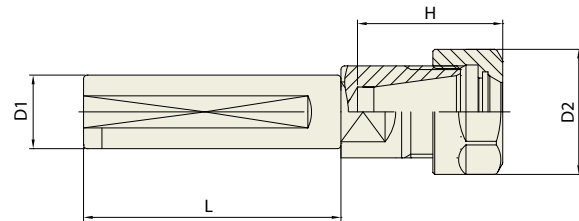
Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L1	L2	H	NUT / COLLET	WEIGHT (kg)	
25	K25-ER16M-100	P2780023	0.5 - 10.0	25	22	100	41	-	ER16M / ER16	0.38	
	K25-ER16M-140	P2772209	0.5 - 10.0	25	22	140	41	-	ER16M / ER16	0.50	
	K25-ER16M-200	P2780024	0.5 - 10.0	25	22	200	41	-	ER16M / ER16	0.80	
	K25-ER16M-250	P2780025	0.5 - 10.0	25	22	250	41	-	ER16M / ER16	1.00	
	K25-ER20M-140	P2772210	0.5 - 13.0	25	28	140	41	79	ER20M / ER20	0.52	
	K25-ER20M-200	P2780027	0.5 - 13.0	25	28	200	41	79	ER20M / ER20	0.84	
	K25-ER20M-250	P2780028	0.5 - 13.0	25	28	250	41	79	ER20M / ER20	1.03	
	K25-ER20M-300	P2780029	0.5 - 13.0	25	28	300	41	79	ER20M / ER20	1.23	
	K25-ER25M-140	P2772211	1.0 - 16.0	25	35	140	45	82	ER25M / ER25	0.50	
	K25-ER25M-200	P2780030	1.0 - 16.0	25	35	200	45	82	ER25M / ER25	0.84	
	K25-ER25M-250	P2780031	1.0 - 16.0	25	35	250	45	82	ER25M / ER25	1.04	
	K25-ER25M-300	P2780032	1.0 - 16.0	25	35	300	45	82	ER25M / ER25	1.23	
	32	K32-ER20M-150	P2780033	0.5 - 13.0	32	28	150	41	41.5	ER20M / ER25	0.84
		K32-ER20M-200	P2780034	0.5 - 13.0	32	28	200	41	41.5	ER20M / ER25	1.31
K32-ER20M-250		P2780035	0.5 - 13.0	32	28	250	41	41.5	ER20M / ER25	1.62	
K32-ER20M-300		P2780036	0.5 - 13.0	32	28	300	41	41.5	ER20M / ER25	1.94	
K32-ER25M-150		P2780037	1.0 - 16.0	32	35	150	41	41.5	ER25M / ER25	1.01	
K32-ER25M-200		P2780038	1.0 - 16.0	32	35	200	41	41.5	ER25M / ER25	1.32	
K32-ER25M-250		P2780039	1.0 - 16.0	32	35	250	41	41.5	ER25M / ER25	1.64	
	K32-ER25M-300	P2780040	1.0 - 16.0	32	35	300	41	41.5	ER25M / ER25	1.95	
	K32-ER25M-350	P2780041	1.0 - 16.0	32	35	350	41	41.5	ER25M / ER25	2.27	

**TENSION ER CHUCK (For TAPPING)**

**STRAIGHT-K**

SPANNUNG FRÄSERSPANNFUTTER - ER - FÜR GEWINDESCHNEID  
 TENSION MANDRIN À PINCES - ER - POUR TARAUDER  
 TENSIONAMENTO MANDRINO PORTA PINZE - ER - PER MASCHIARE  
 TENSION PORTAPINZAS - ER - PARA HILO



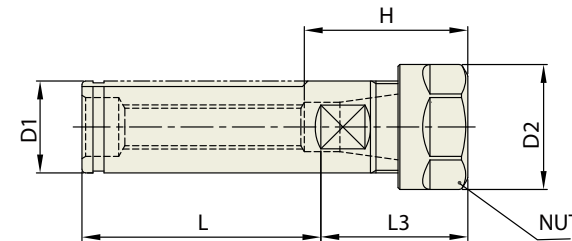
ER Collet Refer to page 103-109  
 ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm										
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L	H	NUT / COLLET	WEIGHT (kg)	
20	K20-ERT16-70	P2772212	0.5 - 10.0	20	28	70	31.7	ER16	0.40	
	K25-ERT16-80	P2772213	0.5 - 10.0	25	28	80	31.7	ER16	0.45	
25	K25-ERT20-80	P2772214	0.5 - 13.0	25	34	80	35.5	ER20	0.50	
	K32-ERT16-80	P2772215	0.5 - 10.0	32	28	80	31.7	ER16	0.70	
32	K32-ERT20-80	P2772216	0.5 - 13.0	32	34	80	35.5	ER20	0.80	
	K32-ERT25-80	P2772217	1.0 - 16.0	32	42	80	42	ER25	1.00	
	K32-ERT32-80	P2772218	1.0 - 20.0	32	50	80	48	ER32	1.20	

**ER COLLET CHUCK**

**NC- for CNC LATHE**

FRÄSERSPANNFUTTER - ER - FÜR CNC DREHBANK  
 MANDRIN À PINCES - ER - POUR CNC TOUR  
 MANDRINO PORTA PINZE - ER - PER CNC TORNO  
 PORTAPINZAS - ER - PARA CNC TORNO

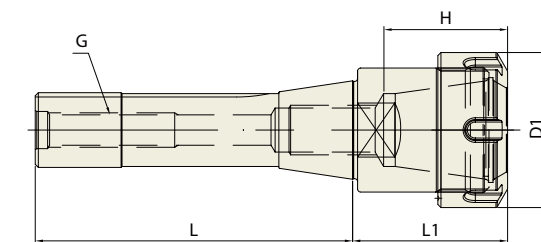


ER Collet Refer to page 103-109  
 ER nut, Sealing disk and Spanner Refer to page 110-115

**STANDARD**

Unit : mm										
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L	L1	H	NUT / COLLET	WEIGHT (kg)
25	NC25-ER11	P2772310	0.5 - 7.0	25	19	65	32	28.6	ER11	0.30
	NC25-ER16	P2772311	0.5 - 10.0	25	28	65	36	35.6	ER16	0.45
	NC25-ER20	P2772301	0.5 - 13.0	25	34	65	40	44.5	ER20	0.50
	NC25-ER25	P2772302	1.0 - 16.0	25	42	65	40	41	ER25	0.55
32	NC32-ER20	P2772303	0.5 - 13.0	32	34	60	39.5	44.5	ER20	0.60
	NC32-ER25	P2772304	1.0 - 16.0	32	42	70	40	41	ER25	0.70
	NC32-ER32	P2772305	1.0 - 20.0	32	50	70	45	47	ER32	0.75
40	NC40-ER32	P2772306	1.0 - 20.0	40	50	75	45	60	ER32	1.25
	NC40-ER40	P2772307	2.0 - 30.0	40	63	75	55	53	ER40	1.30

**BRIDGEPORT-R8**



ER Collet Refer to page 103-109  
 ER nut, Sealing disk and Spanner Refer to page 110-115

Unit : mm										
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	G	D1	L	L1	H	NUT / COLLET	WEIGHT (kg)
R8	R8-ER32	P2772308	1.0 - 20.0	U7/16	50	102.4	50	40	ER32	1.00
	R8-ER40	P2772309	2.0 - 30.0	U7/16	63	102.4	75	51	ER40	1.20

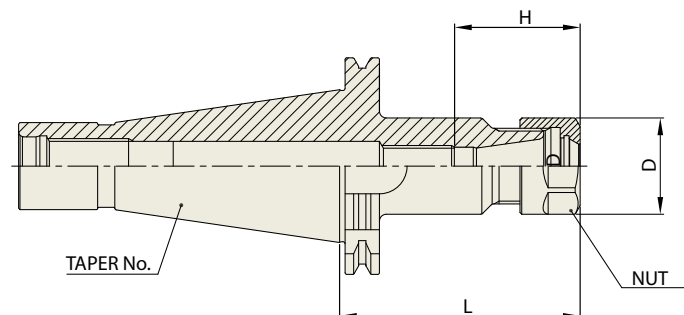
**YG ER COLLET CHUCK**

**ER**

**ER COLLET CHUCK**

**GOST 25827-93**

FRÄSERSPANNFUTTER - ER  
MANDRIN À PINCES - ER  
MANDRINO PORTA PINZE - ER  
PORTAPINZAS - ER



ER Collet  
Refer to page 103-109



ER nut, Sealing disk and Spanner  
Refer to page 110-115

Unit : mm

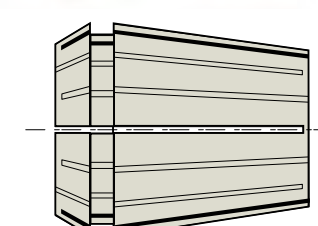
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L	H	NUT / COLLET	WEIGHT (kg)
40	GOST40-ER16-70	P2780101	0.5 - 10.0	28	70	45	ER16	
	GOST40-ER16-100	P2780102	0.5 - 10.0	28	100	45	ER16	
	GOST40-ER25-70	P2780103	1.0 - 16.0	42	70	65	ER25	
	GOST40-ER25-100	P2780104	1.0 - 16.0	42	120	65	ER25	
	GOST40-ER32-70	P2780105	1.0 - 20.0	50	70	65	ER32	
	GOST40-ER32-100	P2780106	1.0 - 20.0	50	100	65	ER32	
50	GOST50-ER16-90	P2780107	0.5 - 10.0	28	90	45	ER16	
	GOST50-ER16-150	P2780108	0.5 - 10.0	28	150	45	ER16	
	GOST50-ER25-90	P2780109	1.0 - 16.0	42	90	65	ER25	
	GOST50-ER25-150	P2780110	1.0 - 16.0	42	150	65	ER25	
	GOST50-ER32-90	P2780111	1.0 - 20.0	50	90	65	ER32	
	GOST50-ER32-150	P2780112	1.0 - 20.0	50	150	65	ER32	
	GOST50-ER40-90	P2780113	2.0 - 30.0	63	90	65	ER40	

**YG ER COLLET CHUCK**

**GER**

**ER COLLET - GER (High Precision)**

ER SPANNZANGE - GER  
ER PINCE DE SERRAGE - GER  
ER PINZA DI SERRAGGIO - GER  
ER PINZA PORTAPIEZAS - GER



\* T.I.R : ≤0.005mm at 3D

GER 8		
CLAMPING RANGE	CODE No.	EDP No.
1.0 - 0.5	108010	P2772557
1.5 - 1.0	108015	P2772558
2.0 - 1.5	108020	P2772559
2.5 - 2.0	108025	P2772560
3.0 - 2.5	108030	P2772561
3.5 - 3.0	108035	P2772562
4.0 - 3.5	108040	P2772563
4.5 - 4.0	108045	P2772564
5.0 - 4.5	108050	P2772565

GER 11		
CLAMPING RANGE	CODE No.	EDP No.
1.0 - 0.5	111010	P2772401
1.5 - 1.0	111015	P2772402
2.0 - 1.5	111020	P2772403
2.5 - 2.0	111025	P2772404
3.0 - 2.5	111030	P2772405
3.5 - 3.0	111035	P2772406
4.0 - 3.5	111040	P2772407
4.5 - 4.0	111045	P2772408
5.0 - 4.5	111050	P2772409
5.5 - 5.0	111055	P2772410
6.0 - 5.5	111060	P2772411
6.5 - 6.0	111065	P2772412
7.0 - 6.5	111070	P2772413

GER 16		
CLAMPING RANGE	CODE No.	EDP No.
1.0 - 0.5	116010	P2772414
2.0 - 1.0	116020	P2772415
3.0 - 2.0	116030	P2772416
4.0 - 3.0	116040	P2772417
5.0 - 4.0	116050	P2772418
6.0 - 5.0	116060	P2772419
7.0 - 6.0	116070	P2772420
8.0 - 7.0	116080	P2772421
9.0 - 8.0	116090	P2772422
10.0 - 9.0	116100	P2772423
1.5 - 1.0	116015	P2772424
2.5 - 2.0	116025	P2772425

GER 25		
CLAMPING RANGE	CODE No.	EDP No.
2.0 - 1.0	125020	P2772441
3.0 - 2.0	125030	P2772442
4.0 - 3.0	125040	P2772443
5.0 - 4.0	125050	P2772444
6.0 - 5.0	125060	P2772445
7.0 - 6.0	125070	P2772446
8.0 - 7.0	125080	P2772447
9.0 - 8.0	125090	P2772448
10.0 - 9.0	125100	P2772449
11.0 - 10.0	125110	P2772450
12.0 - 11.0	125120	P2772451
13.0 - 12.0	125130	P2772452
14.0 - 13.0	125140	P2772453
15.0 - 14.0	125150	P2772454
16.0 - 15.0	125160	P2772455
1.0 - 1.5	125010	P2772456
1.5 - 1.0	125015	P2772457
2.5 - 2.0	125025	P2772458

GER 32		
CLAMPING RANGE	CODE No.	EDP No.
3.0 - 2.0	132030	P2772459
4.0 - 3.0	132040	P2772460
5.0 - 4.0	132050	P2772461
6.0 - 5.0	132060	P2772462
7.0 - 6.0	132070	P2772463
8.0 - 7.0	132080	P2772464
9.0 - 8.0	132090	P2772465
10.0 - 9.0	132100	P2772466
11.0 - 10.0	132110	P2772467
12.0 - 11.0	132120	P2772468
13.0 - 12.0	132130	P2772469
14.0 - 13.0	132140	P2772470
15.0 - 14.0	132150	P2772471
16.0 - 15.0	132160	P2772472
17.0 - 16.0	132170	P2772473
18.0 - 17.0	132180	P2772474
19.0 - 18.0	132190	P2772475
20.0 - 19.0	132200	P2772476
2.0 - 1.0	132020	P2772477
2.5 - 2.0	132025	P2772478

GER 40		
CLAMPING RANGE	CODE No.	EDP No.
4.0 - 3.0	140040	P2772479
5.0 - 4.0	140050	P2772480
6.0 - 5.0	140060	P2772481
7.0 - 6.0	140070	P2772482
8.0 - 7.0	140080	P2772483
9.0 - 8.0	140090	P2772484
10.0 - 9.0	140100	P2772485
11.0 - 10.0	140110	P2772486
12.0 - 11.0	140120	P2772487
13.0 - 12.0	140130	P2772488
14.0 - 13.0	140140	P2772489
15.0 - 14.0	140150	P2772490
16.0 - 15.0	140160	P2772491
17.0 - 16.0	140170	P2772492
18.0 - 17.0	140180	P2772493
19.0 - 18.0	140190	P2772494
20.0 - 19.0	140200	P2772495
21.0 - 20.0	140210	P2772496
22.0 - 21.0	140220	P2772497
23.0 - 22.0	140230	P2772498
24.0 - 23.0	140240	P2772499
25.0 - 24.0	140250	P2772500
26.0 - 25.0	140260	P2772501
3.0 - 2.0	140030	P2772502
27.0 - 26.0	140270	P2772503
28.0 - 27.0	140280	P2772504
29.0 - 28.0	140290	P2772505
30.0 - 29.0	140300	P2772506

Unit : mm



HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS



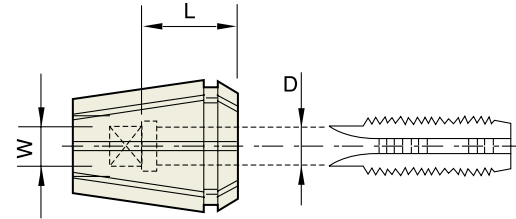




**TAP ER COLLET (JIS)**

ER SPANNZANGE - FÜR GEWINDESCHNEID  
ER PINCE DE SERRAGE - POUR TARAUDER  
ER PINZA DI SERRAGGIO - PER MASCHIARE  
ER PINZA PORTAPIEZAS - PARA HILO

Below standard  
Tap ER Collet conforms to **JIS**



Unit : mm

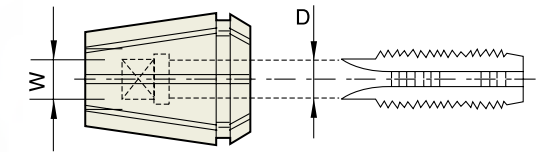
TAP	RDT 16				RDT 20				RDT 25				RDT 32				RDT 40					
	D (∅)	W (□)	L	EDP No.	D (∅)	W (□)	L	EDP No.	D (∅)	W (□)	L	EDP No.	D (∅)	W (□)	L	EDP No.	D (∅)	W (□)	L	EDP No.		
M2	3.0	2.5	15	P2772501																		
M3	4.0	3.2	15	P2772502	4.0	3.2	15	P2772507	4.0	3.2	15	P2772513										
M4	5.0	4.0	15	P2772503	5.0	4.0	15	P2772508	5.0	4.0	15	P2772514	5.0	4.0	15	P2772521						
M5	5.5	4.5	15	P2772504	5.5	4.5	15	P2772509	5.5	4.5	15	P2772515	5.5	4.5	15	P2772522						
M6	6.0	4.5	15	P2772505	6.0	4.5	15	P2772510	6.0	4.5	15	P2772516	6.0	4.5	15	P2772523						
M8	6.2	5.0	15	P2772506	6.2	5.0	20	P2772511	6.2	5.0	20	P2772517	6.2	5.0	20	P2772524	6.2	5.0	20	P2772530		
M10					7.0	5.5	20	P2772512	7.0	5.5	20	P2772518	7.0	5.5	20	P2772525	7.0	5.5	20	P2772531		
M12									8.5	6.5	20	P2772519	8.5	6.5	20	P2772526	8.5	6.5	25	P2772532		
M14									10.5	8.0	20	P2772520	10.5	8.0	20	P2772527	10.5	8.0	25	P2772533		
M16													12.5	10.0	20	P2772528	12.5	10.0	25	P2772534		
M18													14.0	11.0	20	P2772529	14.0	11.0	25	P2772535		
M20																	15.0	12.0	28	P2772536		
M22																		17.0	13.0	28	P2772537	
M24																		19.0	15.0	28	P2772538	

▶ Inch type collets available.

**TAP ER COLLET (DIN)**

ER SPANNZANGE - FÜR GEWINDESCHNEID  
ER PINCE DE SERRAGE - POUR TARAUDER  
ER PINZA DI SERRAGGIO - PER MASCHIARE  
ER PINZA PORTAPIEZAS - PARA HILO

Below standard  
Tap ER Collet conforms to **DIN**



Unit : mm

DIN STANDARD			RD 11TC			RD 16TC			RD 20TC			RD 25TC			RD 32TC			RD 40TC			RD 50TC			
DIN 374/376	DIN 352/2181	DIN 371	D (∅)	W (□)	EDP No.	D (∅)	W (□)	EDP No.	D (∅)	W (□)	EDP No.	D (∅)	W (□)	EDP No.	D (∅)	W (□)	EDP No.	D (∅)	W (□)	EDP No.	D (∅)	W (□)	EDP No.	
M5	M3	M3	3.5	2.7	P2772501D	3.5	2.7	P2772507D	3.5	2.7	P2772514D	3.5	2.7	P2772524D	3.5	2.7	P2772538D	3.5	2.7	P2772552D				
M5.5	M3.5	M3.5	4.0	3.0	P2772502D	4.0	3.0	P2772508D	4.0	3.0	P2772515D	4.0	3.0	P2772525D	4.0	3.0	P2772539D	4.0	3.0	P2772553D				
M6	M4	M4	4.5	3.4	P2772503D	4.5	3.4	P2772509D	4.5	3.4	P2772516D	4.5	3.4	P2772526D	4.5	3.4	P2772540D	4.5	3.4	P2772554D				
M5	-	-	5.0	4.0	P2772504D	5.0	4.0	P2772510D	5.0	4.0	P2772517D	5.0	4.0	P2772527D	5.0	4.0	P2772541D	5.0	4.0	P2772555D				
M7	-	-	5.5	4.3	P2772505D	5.5	4.3	P2772511D	5.5	4.3	P2772518D	5.5	4.3	P2772528D	5.5	4.3	P2772542D	5.5	4.3	P2772556D				
M8	M4.5-M8	M4.5-M8	6.0	4.9	P2772506D	6.0	4.9	P2772512D	6.0	4.9	P2772519D	6.0	4.9	P2772529D	6.0	4.9	P2772543D	6.0	4.9	P2772557D				
M9+M10	M9+M10	M7				7.0	5.5	P2772513D	7.0	5.5	P2772520D	7.0	5.5	P2772530D	7.0	5.5	P2772544D	7.0	5.5	P2772558D				
M11	M11	M8							8.0	6.2	P2772521D	8.0	6.2	P2772531D	8.0	6.2	P2772545D	8.0	6.2	P2772559D	8.0	6.2	P2772569D	
M12	M12	M9							9.0	7.0	P2772522D	9.0	7.0	P2772532D	9.0	7.0	P2772546D	9.0	7.0	P2772560D	9.0	7.0	P2772570D	
-	-	M10							10.0	8.0	P2772523D	10.0	8.0	P2772533D	10.0	8.0	P2772547D	10.0	8.0	P2772561D	10.0	8.0	P2772571D	
M13+M14	M13+M14	-										11.0	9.0	P2772534D	11.0	9.0	P2772548D	11.0	9.0	P2772562D	11.0	9.0	P2772572D	
M15-M17	M15-M17	-										12.0	9.0	P2772535D	12.0	9.0	P2772549D	12.0	9.0	P2772563D	12.0	9.0	P2772573D	
M18+M19	M18+M19	-										14.0	11.0	P2772536D	14.0	11.0	P2772550D	14.0	11.0	P2772564D	14.0	11.0	P2772574D	
M20+M21	M20+M21	-										16.0	12.0	P2772537D	16.0	12.0	P2772551D	16.0	12.0	P2772565D	16.0	12.0	P2772575D	
M22-M26	M22-M26	-																18.0	14.5	P2772566D	18.0	14.5	P2772576D	
M27+M28	M27+M28	-																20.0	16.0	P2772567D	20.0	16.0	P2772577D	
M29-M32	M29-M32	-																22.0	18.0	P2772568D	22.0	18.0	P2772578D	
M33	M33	-																			25.0	20.0	P2772579D	
M34-M38	M34-M38	-																				28.0	22.0	P2772580D
M39-M42	M39-M42	-																				32.0	24.0	P2772581D

▶ Inch type collets available.



**ER NUT**

ER NUSS  
ER ÉCROU  
ER DADO  
ERTUERCA

**DIN 6499/ISO 15488**■ **SQ-ER (Standard : Hex. )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
SQ-ER11	P2700006	M14×0.75	19.0	12.0
SQ-ER16	P2700001	M22×1.50	28.0	18.0
SQ-ER20	P2700002	M25×1.50	34.0	19.5

■ **SQ-ER (Standard : Round )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
SQ-ER25	P2700003	M32×1.50	42.0	20.5
SQ-ER32	P2700004	M40×1.50	50.0	23.0
SQ-ER40	P2700005	M50×1.50	63.0	26.0
SQ-ER50	P2700007	M64×2.00	78.0	35.0

■ **XSQ-R (Standard : Hex. )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-R11	P2777002	M14×0.75	19.0	12.0
XSQ-R16	P2777003	M22×1.50	28.0	18.0
XSQ-R20	P2777004	M25×1.50	34.0	19.5

■ **XSQ-RU (Standard : Round )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RU25	P2777005	M32×1.50	42.0	20.5
XSQ-RU32	P2777006	M40×1.50	50.0	23.0
XSQ-RU40	P2777007	M50×1.50	63.0	26.0
XSQ-RU50	P2777008	M64×2.00	78.0	35.0

**ER NUT**

ER NUSS  
ER ÉCROU  
ER DADO  
ERTUERCA

**DIN 6499/ISO 15488**■ **XSQ-RT (Sealing Disk Type: Hex. )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RT16	P2777009	M22×1.50	28.0	22.5
XSQ-RT20	P2777010	M25×1.50	34.0	24.0

■ **XSQ-RUT (Sealing Disk Type: Round )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RUT16	P2777011	M22×1.50	32.0	22.5
XSQ-RUT20	P2777012	M25×1.50	35.0	24.0
XSQ-RUT25	P2777013	M32×1.50	42.0	25.0
XSQ-RUT32	P2777014	M40×1.50	50.0	27.5
XSQ-RUT40	P2777015	M50×1.50	63.0	30.5

■ **XSQ-RSU (Sleeve Bearing Type )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RSU16	P2777016	M22×1.50	32.0	18.0
XSQ-RSU20	P2777017	M25×1.50	35.0	20.0
XSQ-RSU25	P2777018	M32×1.50	42.0	20.5
XSQ-RSU32	P2777019	M40×1.50	50.0	23.0
XSQ-RSU40	P2777020	M50×1.50	63.0	26.0

■ **XSQ-RST (Sleeve Bearing / Sealing Disk Type: Hex. )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RST16	P2777021	M22×1.50	28.0	22.5
XSQ-RST20	P2777022	M25×1.50	34.0	24.5

■ **XSQ-RSUT (Sleeve Bearing / Sealing Disk Type: Round )**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RSUT16	P2777023	M22×1.50	32.0	22.5
XSQ-RSUT20	P2777024	M25×1.50	35.0	24.5
XSQ-RSUT25	P2777025	M32×1.50	42.0	25.0
XSQ-RSUT32	P2777026	M40×1.50	50.0	27.5
XSQ-RSUT40	P2777027	M50×1.50	63.0	30.5



**ER NUT**
 ER NUSS  
 ER ÉCROU  
 ER DADO  
 ER TUERCA

**■ XSQ-RKU (Ball Bearing Type)**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RKU16	P2777028	M22×1.50	32.0	18.0
XSQ-RKU20	P2777029	M25×1.50	35.0	20.0
XSQ-RKU25	P2777030	M32×1.50	42.0	21.5
XSQ-RKU32	P2777031	M40×1.50	50.0	23.0
XSQ-RKU40	P2777032	M50×1.50	63.0	26.0


**■ XSQ-RKUT (Ball Bearing / Sealing Disk Type)**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RKUT16	P2777033	M22×1.50	32.0	22.5
XSQ-RKUT20	P2777034	M25×1.50	35.0	24.5
XSQ-RKUT25	P2777035	M32×1.50	42.0	25.0
XSQ-RKUT32	P2777036	M40×1.50	50.0	27.5
XSQ-RKUT40	P2777037	M50×1.50	63.0	30.5


**■ XSQ-RM (Mini Nut : Standard Type)**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-R08M	P2777038	M10×0.75	12.0	11.0
XSQ-R11M	P2777039	M13×0.75	16.0	12.0
XSQ-R16M	P2777040	M19×1.00	22.0	18.0
XSQ-R20M	P2777041	M24×1.00	28.0	19.5
XSQ-R25M	P2777042	M30×1.00	35.0	20.5


**■ XSQ-RTM (Mini Nut : Sealing Disk Type)**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RT16M	P2777043	M19×1.00	22.0	22.5
XSQ-RT20M	P2777044	M24×1.00	28.0	24.0
XSQ-RT25M	P2777045	M30×1.00	35.0	25.0

**ER NUT & SEALING DISK SET**
**■ XSQ-RA (External Thread Type)**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RA11	P2777046	M18×1.00	18.0	6.0
XSQ-RA16	P2777047	M24×1.00	24.0	8.0
XSQ-RA20	P2777048	M28×1.50	28.0	11.0
XSQ-RA25	P2777049	M32×1.50	32.0	12.5
XSQ-RA32	P2777050	M40×1.50	40.0	14.0


**■ XSQ-RAT (External Thread / Sealing Disk Type)**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RA11S*	P2777051	M18×1.00	18.0	8.0
XSQ-RAT16	P2777052	M24×1.00	24.0	11.0
XSQ-RAT20	P2777053	M28×1.50	28.0	12.5
XSQ-RAT25	P2777054	M32×1.50	32.0	14.0
XSQ-RAT32	P2777001	M40×1.50	40.0	17.5

\* Without sealing disk


**■ SEALING DISK SET**

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
DS16S2	P2777061	13.0	4.0	7pcs / set
DS20S2	P2777062	16.0	4.0	10pcs / set
DS25S2	P2777063	21.0	4.0	13pcs / set
DS32S2	P2777064	27.0	4.0	17pcs / set
DS40S2	P2777065	33.5	4.0	23pcs / set
DS50S2	P2777066	31.0	4.0	22pcs / set

**SEALING DISK**



SEALING DISK

Unit : mm

MODEL No.	EDP No.	Dia.	INNER DIA. (Step : 0.5mm)	THICKNESS
DS/ER16-3	P2780501	13.0	3.0	4.0
DS/ER16-3.5	P2780502	13.0	3.5	4.0
DS/ER16-4	P2780503	13.0	4.0	4.0
DS/ER16-4.5	P2780504	13.0	4.5	4.0
DS/ER16-5	P2780505	13.0	5.0	4.0
DS/ER16-6	P2780506	13.0	6.0	4.0
DS/ER16-6.5	P2780507	13.0	6.5	4.0
DS/ER16-7	P2780508	13.0	7.0	4.0
DS/ER16-8	P2780509	13.0	8.0	4.0
DS/ER16-9	P2780510	13.0	9.0	4.0
DS/ER16-10	P2780511	13.0	10.0	4.0
DS/ER20-3	P2780512	16.0	3.0	4.0
DS/ER20-4	P2780513	16.0	4.0	4.0
DS/ER20-4.5	P2780514	16.0	4.5	4.0
DS/ER20-5	P2780515	16.0	5.0	4.0
DS/ER20-5.5	P2780516	16.0	5.5	4.0
DS/ER20-6	P2780517	16.0	6.0	4.0
DS/ER20-6.5	P2780518	16.0	6.5	4.0
DS/ER20-7	P2780519	16.0	7.0	4.0
DS/ER20-7.5	P2780520	16.0	7.5	4.0
DS/ER20-8	P2780521	16.0	8.0	4.0
DS/ER20-8.5	P2780522	16.0	8.5	4.0
DS/ER20-9	P2780523	16.0	9.0	4.0
DS/ER20-10	P2780524	16.0	10.0	4.0
DS/ER20-11	P2780525	16.0	11.0	4.0
DS/ER20-12	P2780526	16.0	12.0	4.0
DS/ER20-13	P2780527	16.0	13.0	4.0
DS/ER25-3	P2780528	21.0	3.0	4.0
DS/ER25-3.5	P2780529	21.0	3.5	4.0
DS/ER25-4	P2780530	21.0	4.0	4.0
DS/ER25-4.5	P2780531	21.0	4.5	4.0
DS/ER25-5	P2780532	21.0	5.0	4.0
DS/ER25-5.5	P2780533	21.0	5.5	4.0
DS/ER25-6	P2780534	21.0	6.0	4.0
DS/ER25-6.5	P2780535	21.0	6.5	4.0
DS/ER25-7	P2780536	21.0	7.0	4.0
DS/ER25-7.5	P2780537	21.0	7.5	4.0
DS/ER25-8	P2780538	21.0	8.0	4.0
DS/ER25-8.5	P2780539	21.0	8.5	4.0
DS/ER25-9	P2780540	21.0	9.0	4.0
DS/ER25-9.5	P2780541	21.0	9.5	4.0
DS/ER25-10	P2780542	21.0	10.0	4.0
DS/ER25-10.5	P2780543	21.0	10.5	4.0
DS/ER25-11	P2780544	21.0	11.0	4.0
DS/ER25-11.5	P2780545	21.0	11.5	4.0
DS/ER25-12	P2780546	21.0	12.0	4.0
DS/ER25-12.5	P2780547	21.0	12.5	4.0
DS/ER25-13	P2780548	21.0	13.0	4.0
DS/ER25-13.5	P2780549	21.0	13.5	4.0
DS/ER25-14	P2780550	21.0	14.0	4.0
DS/ER25-14.5	P2780551	21.0	14.5	4.0

MODEL No.	EDP No.	Dia.	INNER DIA. (Step : 0.5mm)	THICKNESS
DS/ER25-15	P2780552	21.0	15.0	4.0
DS/ER25-15.5	P2780553	21.0	15.5	4.0
DS/ER25-16	P2780554	21.0	16.0	4.0
DS/ER32-3	P2780555	27.0	3.0	4.0
DS/ER32-4	P2780556	27.0	4.0	4.0
DS/ER32-5	P2780557	27.0	5.0	4.0
DS/ER32-6	P2780558	27.0	6.0	4.0
DS/ER32-7	P2780559	27.0	7.0	4.0
DS/ER32-8	P2780560	27.0	8.0	4.0
DS/ER32-9	P2780561	27.0	9.0	4.0
DS/ER32-10	P2780562	27.0	10.0	4.0
DS/ER32-10.5	P2780563	27.0	10.5	4.0
DS/ER32-11	P2780564	27.0	11.0	4.0
DS/ER32-11.5	P2780565	27.0	11.5	4.0
DS/ER32-12	P2780566	27.0	12.0	4.0
DS/ER32-12.5	P2780567	27.0	12.5	4.0
DS/ER32-13	P2780568	27.0	13.0	4.0
DS/ER32-13.5	P2780569	27.0	13.5	4.0
DS/ER32-14	P2780570	27.0	14.0	4.0
DS/ER32-14.5	P2780571	27.0	14.5	4.0
DS/ER32-15	P2780572	27.0	15.0	4.0
DS/ER32-16	P2780573	27.0	16.0	4.0
DS/ER32-17	P2780574	27.0	17.0	4.0
DS/ER32-18	P2780575	27.0	18.0	4.0
DS/ER32-19	P2780576	27.0	19.0	4.0
DS/ER32-20	P2780577	27.0	20.0	4.0
DS/ER40-3	P2780578	33.5	3.0	4.0
DS/ER40-4	P2780579	33.5	4.0	4.0
DS/ER40-5	P2780580	33.5	5.0	4.0
DS/ER40-6	P2780581	33.5	6.0	4.0
DS/ER40-7	P2780582	33.5	7.0	4.0
DS/ER40-8	P2780583	33.5	8.0	4.0
DS/ER40-9	P2780584	33.5	9.0	4.0
DS/ER40-10	P2780585	33.5	10.0	4.0
DS/ER40-11	P2780586	33.5	11.0	4.0
DS/ER40-12	P2780587	33.5	12.0	4.0
DS/ER40-13	P2780588	33.5	13.0	4.0
DS/ER40-14	P2780589	33.5	14.0	4.0
DS/ER40-15	P2780590	33.5	15.0	4.0
DS/ER40-16	P2780591	33.5	16.0	4.0
DS/ER40-17	P2780592	33.5	17.0	4.0
DS/ER40-18	P2780593	33.5	18.0	4.0
DS/ER40-19	P2780594	33.5	19.0	4.0
DS/ER40-20	P2780595	33.5	20.0	4.0
DS/ER40-21	P2780596	33.5	21.0	4.0
DS/ER40-22	P2780597	33.5	22.0	4.0
DS/ER40-23	P2780598	33.5	23.0	4.0
DS/ER40-24	P2780599	33.5	24.0	4.0
DS/ER40-25	P2780600	33.5	25.0	4.0
DS/ER40-26	P2780601	33.5	26.0	4.0

**ER SPANNER/WRENCH**

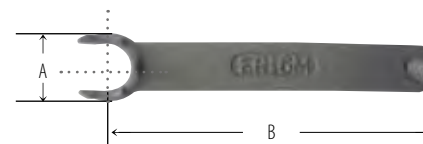
ER MAULSCHLÜSEL  
ER CL  
ER CHIAVE  
ER LLAVE



FIG.1



FIG.2



FOR ER / SKN NUT

Unit : mm

MODEL No.	EDP No.	A	B	APPLICABLE NUT
ER11SP	P2772601	-	-	ER11, SKN6 (FIG.1)
ER16SP	P2772602	50	160	ER16, SKN10 (FIG.1)
ER20SP	P2772603	55	180	ER20 (FIG.1)
ER25SP	P2772604	65	210	ER25, SKN16 (FIG.2)
ER32SP	P2772605	75	250	ER32 (FIG.2)
ER40SP	P2772606	90	290	ER40 (FIG.2)
ER50SP	P2772612	110	350	ER50 (FIG.2)

► Design and shape could be changed without prior notice.

FOR ER Mini NUT

Unit : mm

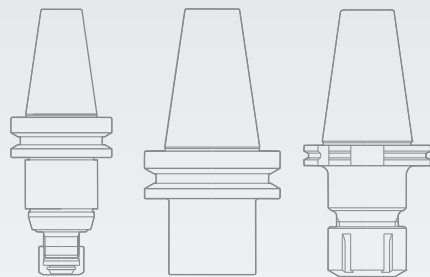
MODEL No.	EDP No.	A	B	APPLICABLE NUT
GE8M	P2772608	12.4	70	ER8M
GE11M	P2772609	16.8	90	ER11M
GE16M	P2772610	22.5	110	ER16M
GE20M	P2772611	29.0	120	ER20M
GE25M	P2772607	36.0	130	ER25M

► Design and shape could be changed without prior notice.





Global Cutting Tool Leader **YG-1**



# TOOLING SYSTEM

## YG-1 TOOLING SYSTEM

# END MILL HOLDER & SIDE LOCK ARBOR

- FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
- MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
- MANDRINI PORTA FRESA TIPO WELDON
- PORTAFRESAS Y EJES DE SUJECCION LATERAL



### END MILL HOLDER

DIN 69871-SK  
DIN 69893/ISO 12164-1-HSK  
JIS B6339/MAS 403-BT  
SHORT TYPE (SK&BT)  
GOST 25827-93

### SIDE LOCK ARBOR

CBT (BT DUAL CONTACT)  
JIS B6339/MAS 403-BT

### PART

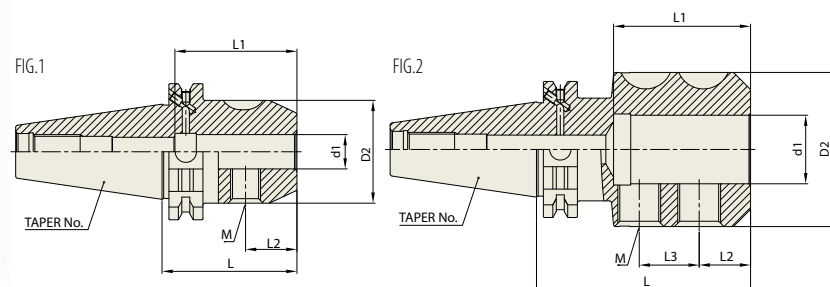
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	SK30-EMH6-50	P2779025A	6	25	50	35	18	-	M6	1	0.73
	SK30-EMH8-50	P2779026A	8	28	50	35	18	-	M8	1	0.83
	SK30-EMH10-50	P2779027A	10	35	50	42	20	-	M10	1	0.90
	SK30-EMH12-50	P2779028A	12	42	50	47	22.5	-	M12	1	0.90
	SK30-EMH16-63	P2779029A	16	48	63	50	24	-	M14	1	1.10
40	SK40AD/B-EMH6-50	P2779030	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8-50	P2779031	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10-50	P2779032	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12-50	P2779033	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH16-63	P2779034	16	48	63	57	24	-	M14	1	1.26
	SK40AD/B-EMH20-63	P2779035	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25-100	P2779036	25	65	100	60	24	25	M18	2	2.28
	SK40AD/B-EMH32-100	P2779037	32	72	100	64	24	28	M20	2	2.50
	SK50AD/B-EMH6-63	P2779038	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8-63	P2779039	8	28	63	35	18	-	M8	1	2.70
50	SK50AD/B-EMH10-63	P2779040	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12-63	P2779041	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH16-63	P2779042	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH20-63	P2779043	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25-80	P2779044	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32-100	P2779045	32	72	100	64	24	28	M20	2	4.53
	SK50AD/B-EMH40-100	P2779046	40	80	100	74	30	32	M20	2	4.77
	SK50AD/B-EMH50-125	P2779047	50	100	125	84	35	35	M24	2	7.03

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



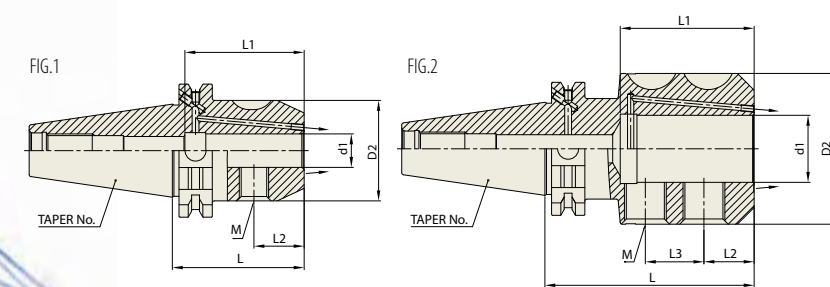
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER (COOLANT CHANNEL)

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40AD/B-EMH6C-50	P2779048	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8C-50	P2779049	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10C-50	P2779050	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12C-50	P2779051	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH14C-50	P2779052	14	44	50	48	22.5	-	M12	1	1.26
	SK40AD/B-EMH16C-63	P2779053	16	48	63	57	24	-	M14	1	1.28
	SK40AD/B-EMH18C-63	P2779054	18	50	63	54	24	-	M14	1	1.35
	SK40AD/B-EMH20C-63	P2779055	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25C-100	P2779056	25	65	100	60	24	25	M18	2	2.28
	SK40AD/B-EMH32C-100	P2779057	32	72	100	64	24	28	M20	2	2.50
50	SK50AD/B-EMH6C-63	P2779058	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8C-63	P2779059	8	28	63	35	18	-	M8	1	2.70
	SK50AD/B-EMH10C-63	P2779060	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12C-63	P2779061	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH14C-63	P2779062	14	44	63	45	22.5	-	M12	1	2.90
	SK50AD/B-EMH16C-63	P2779063	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH18C-63	P2779064	18	50	63	46	24	-	M14	1	3.00
	SK50AD/B-EMH20C-63	P2779065	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25C-80	P2779066	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32C-100	P2779067	32	72	100	64	24	28	M20	2	4.53
SK50AD/B-EMH40C-120	P2779068	40	80	120	74	30	32	M20	2	4.77	
SK50AD/B-EMH50C-125	P2779069	50	100	125	84	35	35	M24	2	7.03	

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

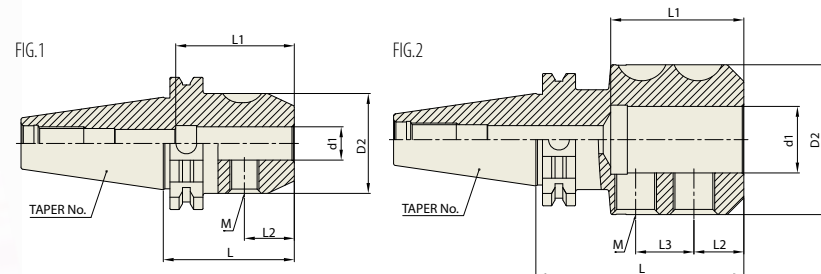
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	SK30-EMH6-50	P2521004	6	25	50	35	18	-	M6	1	0.73
	SK30-EMH8-50	P2521005	8	28	50	35	18	-	M8	1	0.83
	SK30-EMH10-50	P2521006	10	35	50	42	20	-	M10	1	0.90
	SK30-EMH12-50	P2521007	12	42	50	47	22.5	-	M12	1	0.90
	SK30-EMH16-63	P2521008	16	48	63	50	24	-	M14	1	1.10
40	SK40-EMH6-50	P2521009	6	25	50	35	18	-	M6	1	0.86
	SK40-EMH8-50	P2521010	8	28	50	35	18	-	M8	1	0.89
	SK40-EMH10-50	P2521011	10	35	50	39	20	-	M10	1	0.95
	SK40-EMH12-50	P2521012	12	42	50	46	22.5	-	M12	1	1.03
	SK40-EMH16-63	P2521013	16	48	63	57	24	-	M14	1	1.26
	SK40-EMH20-63	P2521014	20	52	63	54	25	-	M16	1	1.28
	SK40-EMH25-100	P2521015	25	65	100	60	24	25	M18	2	2.28
	SK40-EMH32-100	P2521016	32	72	100	64	24	28	M20	2	2.50
50	SK50-EMH6-63	P2521017	6	25	63	35	18	-	M6	1	2.70
	SK50-EMH8-63	P2521018	8	28	63	35	18	-	M8	1	2.70
	SK50-EMH10-63	P2521019	10	35	63	39	20	-	M10	1	2.90
	SK50-EMH12-63	P2521020	12	42	63	46	22.5	-	M12	1	2.90
	SK50-EMH16-63	P2521021	16	48	63	49	24	-	M14	1	3.00
	SK50-EMH20-63	P2521022	20	52	63	52	25	-	M16	1	3.05
	SK50-EMH25-80	P2521023	25	65	80	60	24	25	M18	2	3.73
	SK50-EMH32-100	P2521024	32	72	100	64	24	28	M20	2	4.53
	SK50-EMH40-100	P2521025	40	80	100	74	30	32	M20	2	4.77
	SK50-EMH50-125	P2521026	50	100	125	84	35	35	M24	2	7.03

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

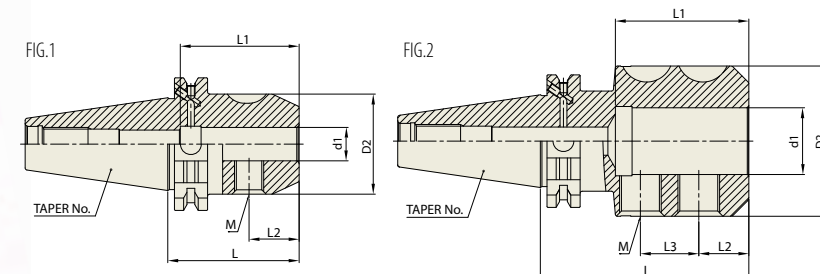
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40AD/B-EMH6-50	P2531009	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8-50	P2531010	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10-50	P2531011	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12-50	P2531012	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH16-63	P2531013	16	48	63	57	24	-	M14	1	1.28
	SK40AD/B-EMH20-63	P2531014	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25-100	P2531015	25	65	100	60	24	25	M18	2	2.28
50	SK40AD/B-EMH32-100	P2531016	32	72	100	64	24	28	M20	2	2.50
	SK50AD/B-EMH6-63	P2531017	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8-63	P2531018	8	28	63	35	18	-	M8	1	2.70
	SK50AD/B-EMH10-63	P2531019	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12-63	P2531020	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH16-63	P2531021	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH20-63	P2531022	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25-80	P2531023	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32-100	P2531024	32	72	100	64	24	28	M20	2	4.53
	SK50AD/B-EMH40-100	P2531025	40	80	100	74	30	32	M20	2	4.77
SK50AD/B-EMH50-125	P2531026	50	100	125	84	35	35	M24	2	7.03	

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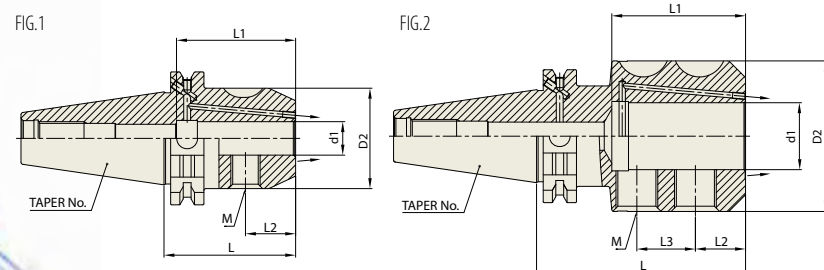
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER (COOLANT CHANNEL)

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40AD/B-EMH6C-50	P2779001	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8C-50	P2779002	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10C-50	P2779003	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12C-50	P2779004	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH14C-50	P2779005	14	44	50	48	22.5	-	M12	1	1.26
	SK40AD/B-EMH16C-63	P2779006	16	48	63	57	24	-	M14	1	1.28
	SK40AD/B-EMH18C-63	P2779007	18	50	63	54	24	-	M14	1	1.35
	SK40AD/B-EMH20C-63	P2779008	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25C-100	P2779009	25	65	100	60	24	25	M18	2	2.28
	SK40AD/B-EMH32C-100	P2779010	32	72	100	64	24	28	M20	2	2.50
50	SK50AD/B-EMH6C-63	P2779011	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8C-63	P2779012	8	28	63	35	18	-	M8	1	2.70
	SK50AD/B-EMH10C-63	P2779013	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12C-63	P2779014	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH14C-63	P2779015	14	44	63	45	22.5	-	M12	1	2.90
	SK50AD/B-EMH16C-63	P2779016	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH18C-63	P2779017	18	50	63	46	24	-	M14	1	3.00
	SK50AD/B-EMH20C-63	P2779018	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25C-80	P2779019	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32C-100	P2779020	32	72	100	64	24	28	M20	2	4.53
	SK50AD/B-EMH40C-120	P2779021	40	80	120	74	30	32	M20	2	4.77
	SK50AD/B-EMH50C-125	P2779022	50	100	125	84	35	35	M24	2	7.03

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



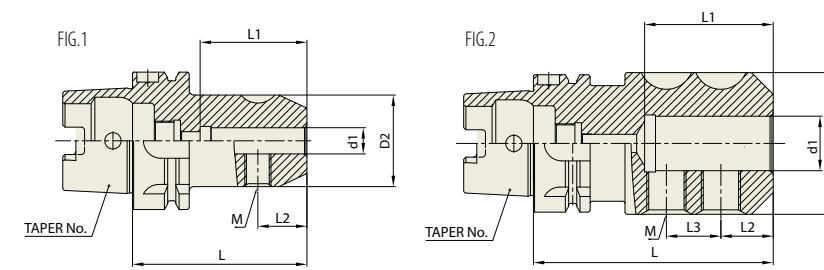
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

DIN 69893/  
ISO 12164-1-HSK FORM A

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL



Unit : mm												
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)	
40A	HSK40A-EMH6-60	P2775522	6	25	60	38	18	-	M6	1	0.30	
	HSK40A-EMH8-60	P2775523	8	28	60	38	18	-	M8	1	0.30	
	HSK40A-EMH10-60	P2775524	10	35	60	42	20	-	M10	1	0.30	
	HSK40A-EMH12-70	P2775525	12	42	70	47	22.5	-	M12	1	0.40	
	HSK40A-EMH14-70	P2775526	14	44	70	47	22.5	-	M12	1	0.40	
	HSK40A-EMH16-80	P2775527	16	48	80	50	24	-	M14	1	0.60	
50A	HSK50A-EMH6-65	P2775528	6	25	65	38	18	-	M6	1	0.70	
	HSK50A-EMH8-65	P2775529	8	28	65	38	18	-	M8	1	0.80	
	HSK50A-EMH10-65	P2775530	10	35	65	42	20	-	M10	1	0.80	
	HSK50A-EMH12-80	P2775531	12	42	80	47	22.5	-	M12	1	1.20	
	HSK50A-EMH14-80	P2775532	14	44	80	47	22.5	-	M12	1	1.30	
	HSK50A-EMH16-80	P2775533	16	48	80	50	24	-	M14	1	1.30	
	HSK50A-EMH18-80	P2775534	18	50	80	50	24	-	M14	1	1.40	
	HSK50A-EMH20-80	P2775535	20	52	80	52	25	-	M16	1	1.50	
	63A	HSK63A-EMH6-65	P2775501	6	25	65	35	18	-	M6	1	0.80
		HSK63A-EMH8-65	P2775502	8	28	65	38	18	-	M8	1	0.80
HSK63A-EMH10-65		P2775503	10	35	65	42	20	-	M10	1	0.90	
HSK63A-EMH12-80		P2775504	12	42	80	47	22.5	-	M12	1	1.10	
HSK63A-EMH14-80		P2775505	14	44	80	47	22.5	-	M12	1	1.20	
HSK63A-EMH16-80		P2775506	16	48	80	50	24	-	M14	1	1.30	
HSK63A-EMH18-80		P2775507	18	50	80	50	24	-	M14	1	1.40	
HSK63A-EMH20-80		P2775508	20	52	80	52	25	-	M16	1	1.50	
HSK63A-EMH25-110		P2775509	25	65	110	60	24	25	M18	2	2.30	
HSK63A-EMH32-110		P2775510	32	72	110	64	24	28	M20	2	2.60	
100A	HSK100A-EMH6-80	P2775511	6	25	80	35	18	-	M6	1	0.80	
	HSK100A-EMH8-80	P2775512	8	28	80	35	18	-	M8	1	0.80	
	HSK100A-EMH10-80	P2775513	10	35	80	39	20	-	M10	1	0.90	
	HSK100A-EMH12-80	P2775514	12	42	80	47	22.5	-	M12	1	1.10	
	HSK100A-EMH14-80	P2775515	14	44	80	47	22.5	-	M12	1	1.20	
	HSK100A-EMH16-100	P2775516	16	48	100	50	24	-	M14	1	1.30	
	HSK100A-EMH18-100	P2775517	18	50	100	50	24	-	M14	1	1.40	
	HSK100A-EMH20-100	P2775518	20	52	100	52	25	-	M16	1	1.50	
	HSK100A-EMH25-100	P2775519	25	65	100	60	24	25	M18	2	2.30	
	HSK100A-EMH32-100	P2775520	32	72	100	64	24	28	M20	2	2.60	
HSK100A-EMH40-120	P2775521	40	80	120	74	30	32	M20	2	2.60		

- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

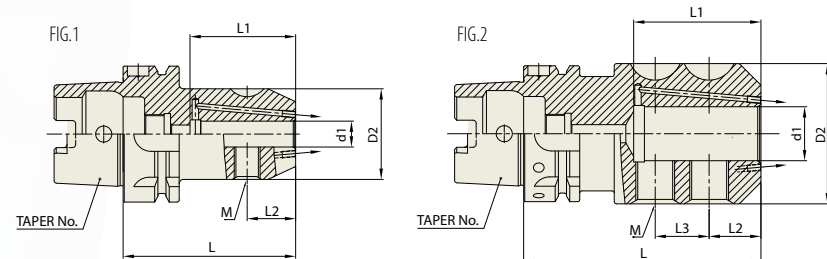
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER (COOLANT CHANNEL)

FRÄSERFUTTER UND FLÄCHENSPIANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

DIN 69893/  
ISO 12164-1-HSK FORM A



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40A	HSK40A-EMH6C-60	P2777222	6	25	60	38	18	-	M6	1	0.30
	HSK40A-EMH8C-60	P2777223	8	28	60	38	18	-	M8	1	0.30
	HSK40A-EMH10C-60	P2777224	10	35	60	42	20	-	M10	1	0.30
	HSK40A-EMH12C-70	P2777225	12	42	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH14C-70	P2777226	14	44	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH16C-80	P2777227	16	48	80	50	24	-	M14	1	0.60
50A	HSK50A-EMH6C-65	P2777228	6	25	65	38	18	-	M6	1	0.70
	HSK50A-EMH8C-65	P2777229	8	28	65	38	18	-	M8	1	0.80
	HSK50A-EMH10C-65	P2777230	10	35	65	42	20	-	M10	1	0.80
	HSK50A-EMH12C-80	P2777231	12	42	80	47	22.5	-	M12	1	1.20
	HSK50A-EMH14C-80	P2777232	14	44	80	47	22.5	-	M12	1	1.30
	HSK50A-EMH16C-80	P2777233	16	48	80	50	24	-	M14	1	1.30
	HSK50A-EMH18C-80	P2777234	18	50	80	50	24	-	M14	1	1.40
	HSK50A-EMH20C-80	P2777235	20	52	80	52	25	-	M16	1	1.50
63A	HSK63A-EMH6C-65	P2777201	6	25	65	35	18	-	M6	1	0.80
	HSK63A-EMH8C-65	P2777202	8	28	65	38	18	-	M8	1	0.80
	HSK63A-EMH10C-65	P2777203	10	35	65	42	20	-	M10	1	0.90
	HSK63A-EMH12C-80	P2777204	12	42	80	47	22.5	-	M12	1	1.10
	HSK63A-EMH14C-80	P2777206	14	44	80	47	22.5	-	M12	1	1.20
	HSK63A-EMH16C-80	P2777205	16	48	80	50	24	-	M14	1	1.30
	HSK63A-EMH18C-80	P2777207	18	50	80	50	24	-	M14	1	1.40
	HSK63A-EMH20C-80	P2777208	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH25C-110	P2777209	25	65	110	60	24	25	M18	2	2.30
	HSK63A-EMH32C-110	P2777210	32	72	110	64	24	28	M20	2	2.60
100A	HSK100A-EMH6C-80	P2777211	6	25	80	35	18	-	M6	1	0.80
	HSK100A-EMH8C-80	P2777212	8	28	80	35	18	-	M8	1	0.80
	HSK100A-EMH10C-80	P2777213	10	35	80	39	20	-	M10	1	0.90
	HSK100A-EMH12C-80	P2777214	12	42	80	47	22.5	-	M12	1	1.10
	HSK100A-EMH14C-80	P2777215	14	44	80	47	22.5	-	M12	1	1.20
	HSK100A-EMH16C-100	P2777216	16	48	100	50	24	-	M14	1	1.30
	HSK100A-EMH18C-100	P2777217	18	50	100	50	24	-	M14	1	1.40
	HSK100A-EMH20C-100	P2777218	20	52	100	52	25	-	M16	1	1.50
	HSK100A-EMH25C-100	P2777219	25	65	100	60	24	25	M18	2	2.30
	HSK100A-EMH32C-100	P2777220	32	72	100	64	24	28	M20	2	2.60
	HSK100A-EMH40C-120	P2777221	40	80	120	74	30	32	M20	2	2.60

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.  
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



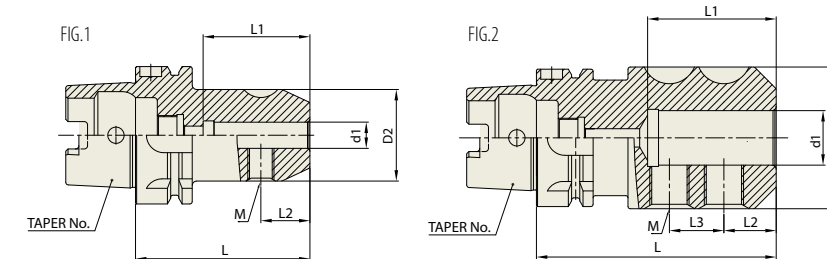
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

FRÄSERFUTTER UND FLÄCHENSPIANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

DIN 69893/  
ISO 12164-1-HSK FORM A



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40A	HSK40A-EMH6-60	P2563011	6	25	60	38	18	-	M6	1	0.30
	HSK40A-EMH8-60	P2563012	8	28	60	38	18	-	M8	1	0.30
	HSK40A-EMH10-60	P2563013	10	35	60	42	20	-	M10	1	0.30
	HSK40A-EMH12-70	P2563014	12	42	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH14-70	P2563015	14	44	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH16-80	P2563016	16	48	80	50	24	-	M14	1	0.60
50A	HSK50A-EMH6-65	P2563017	6	25	65	38	18	-	M6	1	0.70
	HSK50A-EMH8-65	P2563018	8	28	65	38	18	-	M8	1	0.80
	HSK50A-EMH10-65	P2563019	10	35	65	42	20	-	M10	1	0.80
	HSK50A-EMH12-80	P2563020	12	42	80	47	22.5	-	M12	1	1.20
	HSK50A-EMH14-80	P2563031	14	44	80	47	22.5	-	M12	1	1.30
	HSK50A-EMH16-80	P2563032	16	48	80	50	24	-	M14	1	1.30
	HSK50A-EMH18-80	P2563033	18	50	80	50	24	-	M14	1	1.40
	HSK50A-EMH20-80	P2563034	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH6-65	P2563001	6	25	65	35	18	-	M6	1	0.80
	HSK63A-EMH8-65	P2563002	8	28	65	38	18	-	M8	1	0.80
63A	HSK63A-EMH10-65	P2563003	10	35	65	42	20	-	M10	1	0.90
	HSK63A-EMH12-80	P2563004	12	42	80	47	22.5	-	M12	1	1.10
	HSK63A-EMH14-80	P2563005	14	44	80	47	22.5	-	M12	1	1.20
	HSK63A-EMH16-80	P2563006	16	48	80	50	24	-	M14	1	1.30
	HSK63A-EMH18-80	P2563007	18	50	80	50	24	-	M14	1	1.40
	HSK63A-EMH20-80	P2563008	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH25-110	P2563009	25	65	110	60	24	25	M18	2	2.30
	HSK63A-EMH32-110	P2563010	32	72	110	64	24	28	M20	2	2.60
	HSK100A-EMH6-80	P2563041	6	25	80	35	18	-	M6	1	0.80
	HSK100A-EMH8-80	P2563042	8	28	80	35	18	-	M8	1	0.80
	HSK100A-EMH10-80	P2563043	10	35	80	39	20	-	M10	1	0.90
	HSK100A-EMH12-80	P2563044	12	42	80	47	22.5	-	M12	1	1.10
HSK100A-EMH14-80	P2563045	14	44	80	47	22.5	-	M12	1	1.20	
100A	HSK100A-EMH16-100	P2563046	16	48	100	50	24	-	M14	1	1.30
	HSK100A-EMH18-100	P2563047	18	50	100	50	24	-	M14	1	1.40
	HSK100A-EMH20-100	P2563048	20	52	100	52	25	-	M16	1	1.50
	HSK100A-EMH25-100	P2563049	25	65	100	60	24	25	M18	2	2.30
	HSK100A-EMH32-100	P2563050	32	72	100	64	24	28	M20	2	2.60
	HSK100A-EMH40-120	P2563051	40	80	120	74	30	32	M20	2	2.60

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.  
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



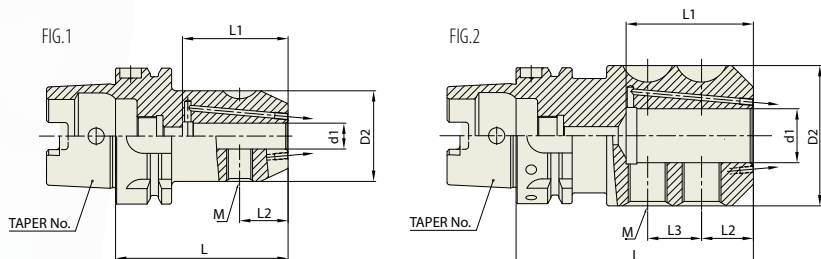
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER (COOLANT CHANNEL)

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

DIN 69893/  
ISO 12164-1-HSK FORM A



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40A	HSK40A-EMH6C-60	P2563061	6	25	60	38	18	-	M6	1	0.30
	HSK40A-EMH8C-60	P2563062	8	28	60	38	18	-	M8	1	0.30
	HSK40A-EMH10C-60	P2563063	10	35	60	42	20	-	M10	1	0.30
	HSK40A-EMH12C-70	P2563064	12	42	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH14C-70	P2563065	14	44	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH16C-80	P2563066	16	48	80	50	24	-	M14	1	0.60
50A	HSK50A-EMH6C-65	P2563067	6	25	65	38	18	-	M6	1	0.70
	HSK50A-EMH8C-65	P2563068	8	28	65	38	18	-	M8	1	0.80
	HSK50A-EMH10C-65	P2563069	10	35	65	42	20	-	M10	1	0.80
	HSK50A-EMH12C-80	P2563070	12	42	80	47	22.5	-	M12	1	1.20
	HSK50A-EMH14C-80	P2563071	14	44	80	47	22.5	-	M12	1	1.30
	HSK50A-EMH16C-80	P2563072	16	48	80	50	24	-	M14	1	1.30
63A	HSK50A-EMH18C-80	P2563073	18	50	80	50	24	-	M14	1	1.40
	HSK50A-EMH20C-80	P2563074	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH6C-65	P2563021	6	25	65	35	18	-	M6	1	0.80
	HSK63A-EMH8C-65	P2563022	8	28	65	38	18	-	M8	1	0.80
	HSK63A-EMH10C-65	P2563023	10	35	65	42	20	-	M10	1	0.90
	HSK63A-EMH12C-80	P2563024	12	42	80	47	22.5	-	M12	1	1.10
100A	HSK63A-EMH14C-80	P2563025	14	44	80	47	22.5	-	M12	1	1.20
	HSK63A-EMH16C-80	P2563026	16	48	80	50	24	-	M14	1	1.30
	HSK63A-EMH18C-80	P2563027	18	50	80	50	24	-	M14	1	1.40
	HSK63A-EMH20C-80	P2563028	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH25C-110	P2563029	25	65	110	60	24	25	M18	2	2.30
	HSK63A-EMH32C-110	P2563030	32	72	110	64	24	28	M20	2	2.60
100A	HSK100A-EMH6C-80	P2563059	6	25	80	35	18	-	M6	1	0.80
	HSK100A-EMH8C-80	P2563060	8	28	80	35	18	-	M8	1	0.80
	HSK100A-EMH10C-80	P2563052	10	35	80	39	20	-	M10	1	0.90
	HSK100A-EMH12C-80	P2563053	12	42	80	47	22.5	-	M12	1	1.10
	HSK100A-EMH14C-80	P2563054	14	44	80	47	22.5	-	M12	1	1.20
	HSK100A-EMH16C-100	P2563055	16	48	100	50	24	-	M14	1	1.30
	HSK100A-EMH18C-100	P2563056	18	50	100	50	24	-	M14	1	1.40
	HSK100A-EMH20C-100	P2563057	20	52	100	52	25	-	M16	1	1.50
	HSK100A-EMH25C-100	P2563058	25	65	100	60	24	25	M18	2	2.30
	HSK100A-EMH32C-100	P2772801	32	72	100	64	24	28	M20	2	2.60
HSK100A-EMH40C-120	P2772802	40	80	120	74	30	32	M20	2	2.60	

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.  
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



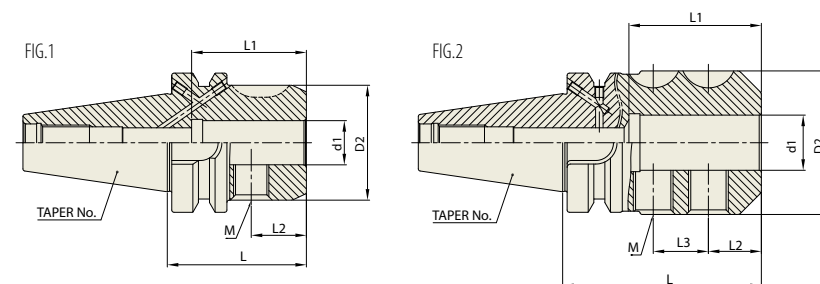
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

JIS B6339/  
MAS 403-BT



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	BT30-EMH6-50	P2772951A	6	25	50	35	18	-	M6	1	0.47
	BT30-EMH8-50	P2772952A	8	28	50	35	18	-	M8	1	0.49
	BT30-EMH10-50	P2772953A	10	35	50	35.5	20	-	M10	1	0.55
	BT30-EMH12-55	P2772954A	12	42	50	36	22.5	-	M12	1	0.67
	BT30-EMH14-55	P2772955A	14	44	55	36	22.5	-	M12	1	0.68
	BT30-EMH16-63	P2772956A	16	48	63	46	24	-	M14	1	0.83
40	BT30-EMH18-63	P2772958A	18	50	63	46	24	-	M14	1	0.85
	BT30-EMH20-70	P2772957A	20	52	70	48	25	-	M16	1	0.98
	BT40AD/B-EMH6-50	P2773031	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8-50	P2773032	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10-63	P2773033	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12-63	P2773034	12	42	63	44	22.5	-	M12	1	1.30
50	BT40AD/B-EMH14-63	P2773035	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16-63	P2773036	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18-63	P2773037	18	50	63	50	24	-	M14	1	1.70
	BT40AD/B-EMH20-63	P2773038	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25-90	P2773039	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32-100	P2773040	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6-63	P2773041	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8-63	P2773042	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10-65	P2773043	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12-80	P2773044	12	42	80	46	22.5	-	M12	1	3.80
	BT40AD/B-EMH14-80	P2773045	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16-80	P2773046	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18-80	P2773047	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20-80	P2773048	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25-100	P2773049	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32-105	P2773050	32	72	105	64	24	28	M20	2	4.70
BT50AD/B-EMH40-120	P2773051	40	80	120	73	30	32	M20	2	4.90	

▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.  
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



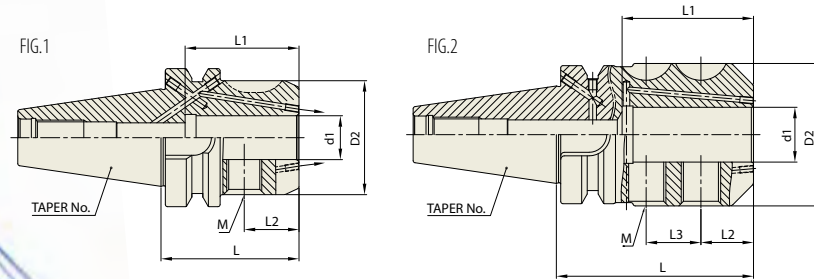
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER (COOLANT CHANNEL)

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

JIS B6339/  
MAS 403-BT



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40AD/B-EMH6C-50	P2772991	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8C-50	P2772992	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10C-63	P2772993	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12C-63	P2772994	12	42	63	44	22.5	-	M12	1	1.30
	BT40AD/B-EMH14C-63	P2772995	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16C-63	P2772996	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18C-63	P2772997	18	50	63	50	24	-	M14	1	1.70
	BT40AD/B-EMH20C-63	P2772998	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25C-90	P2772999	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32C-100	P2773000	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6C-63	P2773012	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8C-63	P2773013	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10C-65	P2773014	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12C-80	P2773015	12	42	80	46	22.5	-	M12	1	3.80
	BT40AD/B-EMH14C-80	P2773016	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16C-80	P2773017	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18C-80	P2773018	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20C-80	P2773019	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25C-100	P2773020	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32C-105	P2773021	32	72	105	64	24	28	M20	2	4.70
	BT50AD/B-EMH40C-120	P2773022	40	80	120	73	30	32	M20	2	4.90

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



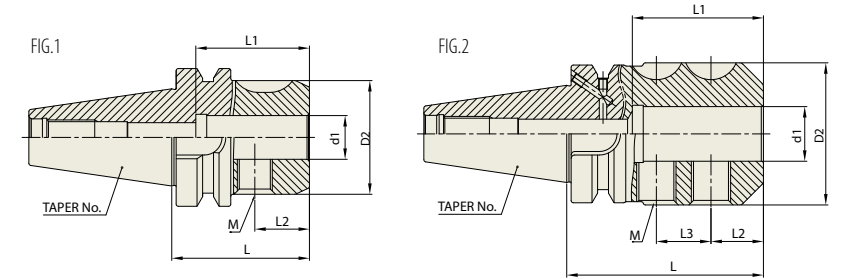
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

JIS B6339/  
MAS 403-BT



Unit : mm												
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)	
30	BT30-EMH6-50	P2776227A	6	25	50	35	18	-	M6	1	0.47	
	BT30-EMH8-50	P2776228A	8	28	50	35	18	-	M8	1	0.49	
	BT30-EMH10-50	P2776229A	10	35	50	35.5	20	-	M10	1	0.55	
	BT30-EMH12-55	P2776230A	12	42	50	36	22.5	-	M12	1	0.67	
	BT30-EMH14-55	P2776231A	14	44	55	36	22.5	-	M12	1	0.68	
	BT30-EMH16-63	P2776201A	16	48	63	46	24	-	M14	1	0.83	
	BT30-EMH18-63	P2776232A	18	50	63	46	24	-	M14	1	0.85	
	BT30-EMH20-70	P2776202A	20	52	70	48	25	-	M16	1	0.98	
	40	BT40-EMH6-50	P2773061	6	25	50	35	18	-	M6	1	1.00
		BT40-EMH8-50	P2773062	8	28	50	35	18	-	M8	1	1.00
BT40-EMH10-63		P2773063	10	35	63	39	20	-	M10	1	1.10	
BT40-EMH12-63		P2773064	12	42	63	44	22.5	-	M12	1	1.30	
BT40-EMH14-63		P2773065	14	44	63	49	22.5	-	M12	1	1.40	
BT40-EMH16-63		P2773066	16	48	63	52	24	-	M14	1	1.70	
BT40-EMH18-63		P2773067	18	50	63	50	24	-	M14	1	1.70	
BT40-EMH20-63		P2773068	20	52	63	52	25	-	M16	1	1.80	
BT40-EMH25-90		P2773069	25	65	90	60	24	25	M18	2	1.80	
BT40-EMH32-100		P2773070	32	72	100	64	24	28	M20	2	2.00	
50	BT50-EMH6-63	P2773071	6	25	63	35	18	-	M6	1	3.30	
	BT50-EMH8-63	P2773072	8	28	63	35	18	-	M8	1	3.60	
	BT50-EMH10-65	P2773073	10	35	65	39	20	-	M10	1	3.80	
	BT50-EMH12-80	P2773074	12	42	80	46	22.5	-	M12	1	3.80	
	BT50-EMH14-80	P2773075	14	44	80	46	22.5	-	M12	1	4.00	
	BT50-EMH16-80	P2773076	16	48	80	49	24	-	M14	1	4.00	
	BT50-EMH18-80	P2773077	18	50	80	49	24	-	M14	1	4.20	
	BT50-EMH20-80	P2773078	20	52	80	52	25	-	M16	1	4.20	
	BT50-EMH25-100	P2773079	25	65	100	60	24	25	M18	2	4.60	
	BT50-EMH32-105	P2773080	32	72	105	64	24	28	M20	2	4.70	
	BT50-EMH40-120	P2773081	40	80	120	73	30	32	M20	2	4.90	

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

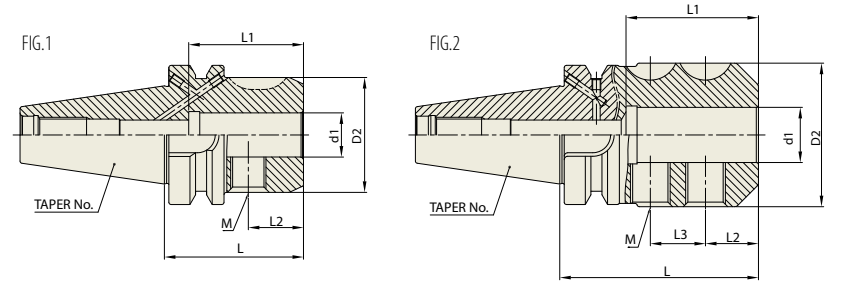
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

JIS B6339/  
MAS 403-BT



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40AD/B-EMH6-50	P2780301	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8-50	P2780302	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10-63	P2780303	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12-63	P2780304	12	42	63	44	22.5	-	M12	1	1.30
	BT40AD/B-EMH14-63	P2780305	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16-63	P2780306	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18-63	P2780307	18	50	63	50	24	-	M14	1	1.70
	BT40AD/B-EMH20-63	P2780308	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25-90	P2780309	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32-100	P2780310	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6-63	P2780311	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8-63	P2780312	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10-65	P2780313	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12-80	P2780314	12	42	80	46	22.5	-	M12	1	3.80
	BT50AD/B-EMH14-80	P2780315	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16-80	P2780316	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18-80	P2780317	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20-80	P2780318	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25-100	P2780319	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32-105	P2780320	32	72	105	64	24	28	M20	2	4.70
	BT50AD/B-EMH40-120	P2780321	40	80	120	73	30	32	M20	2	4.90

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.



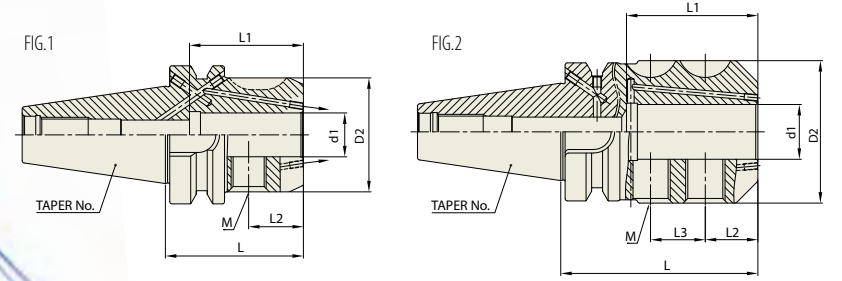
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER (COOLANT CHANNEL)

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

JIS B6339/  
MAS 403-BT



Unit : mm											
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40AD/B-EMH6C-50	P2778001	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8C-50	P2778002	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10C-63	P2778003	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12C-63	P2778004	12	42	63	44	22.5	-	M12	1	1.30
	BT40AD/B-EMH14C-63	P2778005	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16C-63	P2778006	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18C-63	P2778007	18	50	63	50	24	-	M14	1	1.70
	BT40AD/B-EMH20C-63	P2778008	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25C-90	P2778009	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32C-100	P2778010	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6C-63	P2778011	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8C-63	P2778012	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10C-65	P2778013	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12C-80	P2778014	12	42	80	46	22.5	-	M12	1	3.80
	BT50AD/B-EMH14C-80	P2778015	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16C-80	P2778016	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18C-80	P2778017	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20C-80	P2778018	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25C-100	P2778019	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32C-105	P2778020	32	72	105	64	24	28	M20	2	4.70
	BT50AD/B-EMH40C-120	P2778021	40	80	120	73	30	32	M20	2	4.90

- ▶ CAT(ANSI B5.50) taper and Inch type products are available.
- ▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
- ▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

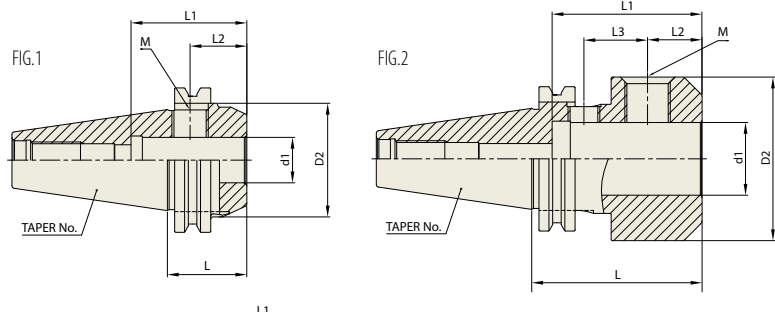
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER (SHORT TYPE)

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPIANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

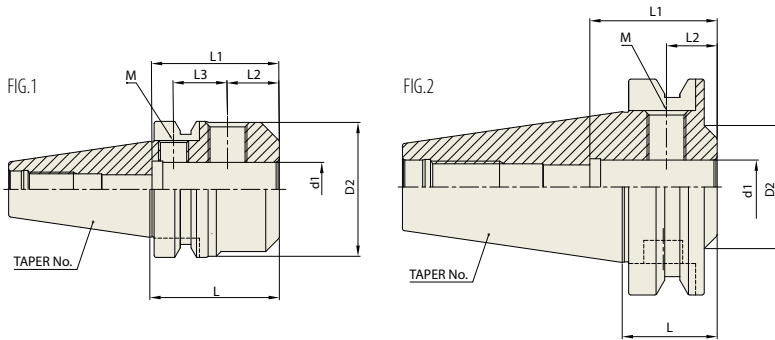


Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40-EMH16-35	P2521001	16	48	35	51	24	-	M14	1	0.80
	SK40-EMH20-35	P2521027	20	50	35	51	25	-	M16	1	0.90
	SK40-EMH25-60	P2521003	25	50	60	59	24	25	M18/M14	2	1.20
	SK40-EMH32-75	P2521030	32	72	75	66	24	28	M20/M14	2	1.80
50	SK50-EMH25-60	P2521031	25	65	60	60	23.5	25.4	M18/M14	2	3.35
	SK50-EMH32-60	P2521032	32	72	60	63	24	24.9	M20/M14	2	3.50



### JIS B6339/MAS 403-BT



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40-EMH25-60	P2773085	25	62	60	59	24	25	M18	1	1.50
	BT40-EMH32-65	P2773086	32	62	65	63	24	28	M20	1	1.45
50	BT50-EMH25-44	P2773087	25	57	44	59	24	-	M18	2	3.45
	BT50-EMH32-60	P2773088	32	72	60	63	24	28	M20/M14	1	3.80

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.



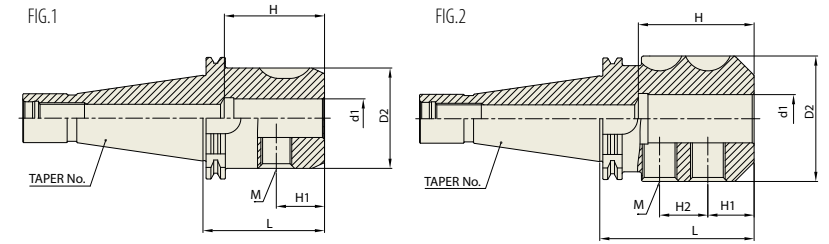
# YG END MILL HOLDER & SIDE LOCK ARBOR

EMH

## END MILL HOLDER

GOST 25827-93

FRÄSERFUTTER UND FLÄCHENSPIANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	H	H1	H2	M	FIG.	WEIGHT (kg)	
40	6-50	P2780361	6	25	50	35	18	-	M6	1		
	GOST40-EMH8-50	P2780362	8	28	50	35	18	-	M8	1		
	GOST40-EMH10-50	P2780363	10	35	50	35.5	20	-	M10	1		
	GOST40-EMH12-50	P2780364	12	42	50	36	22.5	-	M12	1		
	GOST40-EMH14-63	P2780365	14	44	63	36	22.5	-	M12	1		
	GOST40-EMH16-63	P2780366	16	48	63	46	24	-	M14	1		
	GOST40-EMH18-63	P2780367	18	50	63	46	24	-	M14	1		
	GOST40-EMH20-63	P2780368	20	52	63	48	25	-	M16	1		
	GOST40-EMH25-80	P2780369	25	65	80	55	24	25	M18	2		
	GOST40-EMH32-80	P2780370	32	72	80	57	24	28	M20	2		
	50	GOST50-EMH6-63	P2780371	6	25	63	35	18	-	M6	1	
		GOST50-EMH8-63	P2780372	8	28	63	35	18	-	M8	1	
GOST50-EMH10-63		P2780373	10	35	63	35.5	20	-	M10	1		
GOST50-EMH12-63		P2780374	12	42	63	36	22.5	-	M12	1		
GOST50-EMH14-63		P2780375	14	44	63	36	22.5	-	M12	1		
GOST50-EMH16-63		P2780376	16	48	63	46	24	-	M14	1		
GOST50-EMH18-63		P2780377	18	50	63	46	24	-	M14	1		
GOST50-EMH20-63		P2780378	20	52	63	48	25	-	M16	1		
GOST50-EMH25-80		P2780379	25	65	80	55	24	25	M18	2		
GOST50-EMH32-80		P2780380	32	72	80	63	24	28	M20	2		
GOST50-EMH40-90		P2780381	40	80	90	68	30	32	M20	2		



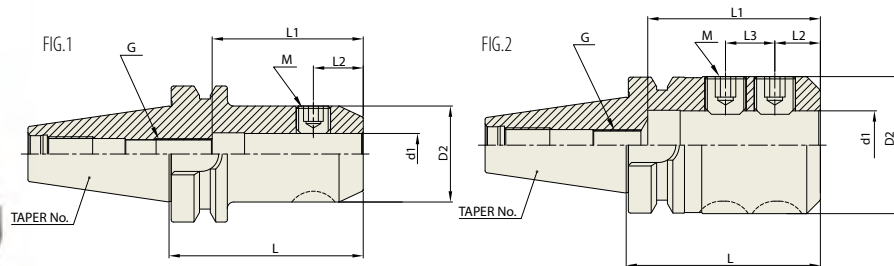
# YG END MILL HOLDER & SIDE LOCK ARBOR

SLA

## SIDE LOCK ARBOR

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

CBT  
(BT DUAL CONTACT)



TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	CBT30-SLA6-60	P2772918	6	25	60	35	18	-	M5	1	0.70
	CBT30-SLA8-60	P2772919	8	28	60	35	18	-	M6	1	0.80
	CBT30-SLA10-60	P2772920	10	35	60	40	14	13	M8	2	0.90
	CBT30-SLA12-60	P2772921	12	40	60	50	14	13	M10	2	1.10
	CBT30-SLA14-60	P2772922	14	40	60	50	14	13	M10	2	1.20
	CBT30-SLA16-75	P2772923	16	40	75	70	25	20	M12	2	1.30
	CBT30-SLA20-75	P2772924	20	50	75	70	25	20	M12	2	1.40
	CBT30-SLA25-75	P2772925	25	50	75	70	25	20	M14	2	1.50
	CBT30-SLA32-105	P2772926	32	60	105	80	25	25	M16	2	1.60
	CBT40-SLA6-60	P2772927	6	25	60	35	18	-	M5	1	1.10
40	CBT40-SLA8-60	P2772928	8	28	60	35	18	-	M6	1	1.10
	CBT40-SLA10-60	P2772929	10	35	60	50	14	13	M8	2	1.20
	CBT40-SLA12-60	P2772930	12	40	60	50	14	13	M10	2	1.40
	CBT40-SLA16-90	P2772931	16	40	90	70	25	20	M12	2	1.50
	CBT40-SLA20-90	P2772901	20	50	90	70	25	20	M12	2	1.80
	CBT40-SLA25-90	P2772902	25	50	90	70	25	20	M14	2	1.70
	CBT40-SLA32-90	P2772903	32	60	90	80	25	25	M16	2	1.90
	CBT40-SLA40-90	P2772904	40	63	90	80	25	25	M16	2	1.80
	CBT40-SLA42-90	P2772905	42	63	90	80	25	25	M16	2	1.80
	CBT50-SLA6-90	P2772906	6	25	90	40	18	-	M5	1	3.70
50	CBT50-SLA8-90	P2772907	8	28	90	40	18	-	M6	1	3.90
	CBT50-SLA10-90	P2772908	10	35	90	50	15	15	M8	2	4.10
	CBT50-SLA12-90	P2772909	12	40	90	55	15	15	M10	2	4.30
	CBT50-SLA14-90	P2772910	14	40	90	55	15	15	M10	2	4.30
	CBT50-SLA16-105	P2772911	16	40	105	70	25	20	M12	2	4.40
	CBT50-SLA20-105	P2772912	20	50	105	70	25	20	M12	2	4.80
	CBT50-SLA25-105	P2772913	25	50	105	70	25	20	M14	2	4.70
	CBT50-SLA32-105	P2772914	32	60	105	80	25	25	M14	2	4.00
	CBT50-SLA40-105	P2772915	40	63	105	80	25	25	M16	2	4.50
	CBT50-SLA42-105	P2772916	42	63	105	80	25	25	M16	2	4.70
CBT50-SLA50.8-121	P2772917	50.8	95	121	87	33.9	35.8	M20	2	5.00	

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.  
▶ Side Lock Arbor is Non-Balancing.



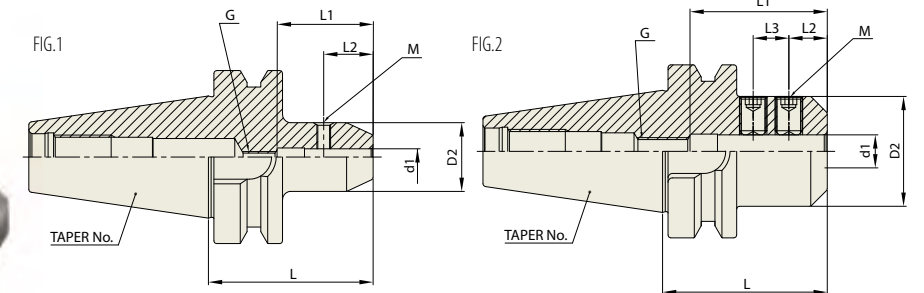
# YG END MILL HOLDER & SIDE LOCK ARBOR

SLA

## SIDE LOCK ARBOR

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

JIS B6339/  
MAS 403-BT



TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	G	FIG.	WEIGHT (kg)
30	BT30-SLA 6-60	P2780201	6	25	60	35	18	-	M5	M5	1	0.70
	BT30-SLA 8-60	P2780202	8	28	60	35	18	-	M6	M6	1	0.80
	BT30-SLA10-60	P2780203	10	35	60	40	14	13	M8	M8	2	0.90
	BT30-SLA12-60	P2780204	12	40	60	50	14	13	M10	M10	2	1.10
	BT30-SLA14-60	P2780205	14	40	60	50	14	13	M10	M10	2	1.20
	BT30-SLA16-75	P2780206	16	40	75	70	25	20	M12	M12	2	1.30
	BT30-SLA20-75	P2780207	20	50	75	70	25	20	M12	M12	2	1.40
	BT30-SLA25-75	P2780208	25	50	75	70	25	20	M14	M12	2	1.50
	BT30-SLA32-105	P2780209	32	60	105	80	25	25	M16	M12	2	1.60
	BT40-SLA6-60	P2780210	6	25	60	35	18	-	M5	M5	1	1.10
40	BT40-SLA8-60	P2780211	8	28	60	35	18	-	M6	M6	1	1.10
	BT40-SLA10-60	P2780212	10	35	60	50	14	13	M8	M8	2	1.20
	BT40-SLA12-60	P2780213	12	40	60	50	14	13	M10	M10	2	1.40
	BT40-SLA16-90	P2780214	16	40	90	70	25	20	M12	M12	2	1.50
	BT40-SLA20-90	P2780215	20	50	90	70	25	20	M12	M12	2	1.80
	BT40-SLA25-90	P2780216	25	50	90	70	25	20	M14	M12	2	1.70
	BT40-SLA32-90	P2780217	32	60	90	80	25	25	M16	M12	2	1.90
	BT40-SLA40-90	P2780218	40	63	90	80	25	25	M16	M12	2	1.80
	BT40-SLA42-90	P2780219	42	63	90	80	25	25	M16	M12	2	1.80
	BT50-SLA6-90	P2780220	6	25	90	40	18	-	M5	M5	1	3.70
50	BT50-SLA8-90	P2780221	8	28	90	40	18	-	M6	M6	1	3.90
	BT50-SLA10-90	P2780222	10	35	90	50	15	15	M8	M8	2	4.10
	BT50-SLA12-90	P2780223	12	40	90	55	15	15	M10	M10	2	4.30
	BT50-SLA14-90	P2780224	14	40	90	55	15	15	M10	M12	2	4.30
	BT50-SLA16-105	P2780225	16	40	105	70	25	20	M12	M12	2	4.40
	BT50-SLA20-105	P2780226	20	50	105	70	25	20	M12	M12	2	4.80
	BT50-SLA25-105	P2780227	25	50	105	70	25	20	M14	M12	2	4.70
	BT50-SLA32-105	P2780228	32	60	105	80	25	25	M16	M12	2	4.00
	BT50-SLA40-105	P2780229	40	63	105	80	25	25	M16	M12	2	4.50
	BT50-SLA42-105	P2780230	42	63	105	80	25	25	M16	M12	2	4.70
BT50-SLA50.8-121	P2780231	50.8	95	121	87	33.9	35.8	M20	-	2	5.00	

▶ CAT(ANSI B5.50) taper and Inch type products are available.  
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.  
▶ Side Lock Arbor is Non-Balancing.

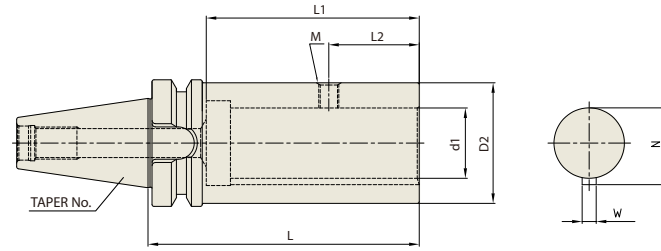
**YG** END MILL HOLDER & SIDE LOCK ARBOR

**SLB**

**SIDE LOCK ARBOR**

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER  
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT  
MANDRINI PORTA FRESA TIPO WELDON  
PORTAFRESAS Y EJES DE SUJECCION LATERAL

JIS B6339/  
MAS 403-BT



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	M	N	W	WEIGHT (kg)
40	BT40-SLB26-105	P2778051	26	50	105	85	40	M10	28.2	5	1.30
	BT40-SLB35-135	P2778052	35	60	135	105	55	M10	37.6	6	2.20
	BT40-SLB35T-135	P2778053	35	60	135	105	55	M10	38.2	7	2.20
50	BT50-SLB26-105	P2778054	26	50	105	85	40	M10	28.2	5	1.30
	BT50-SLB35-135	P2778055	35	60	135	106	55	M10	37.6	6	2.20
	BT50-SLB35T-135	P2778056	35	60	135	106	55	M10	38.2	7	2.20
	BT50-SLB48-165	P2778057	12	42	165	129	65	M10	51	8	3.80

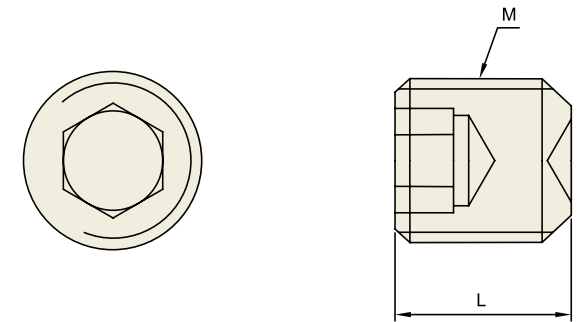
▶ Standard design of side lock arbor is for cutting tools with straight shank having flat face.  
▶ Side Lock Arbor is Non-Balancing.

**YG** END MILL HOLDER & SIDE LOCK ARBOR

**PART**

**SIDE LOCK BOLT**

(for END MILL HOLDER & SIDE LOCK ARBOR)

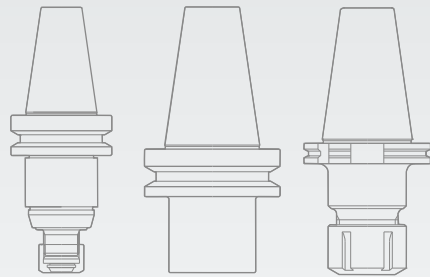


Unit : mm

SLA & EMH ID	EMH			SLA		
	M	L	EDP No.	M	L	EDP No.
6	M6 x 1.0	10.5	P2778088	M5 x 0.8	8	P2778079
8	M8 x 1.25	10.5	P2778089	M6 x 1.0	10	P2778080
10	M10 x 1.5	12.5	P2778090	M8 x 1.25	12	P2778081
12	M12 x 1.75	16.5	P2778091	M10 x 1.5	14	P2778082
14	M12 x 1.75	15.0	P2778092	M10 x 1.5	14	P2778082
16	M14 x 2.0	16.5	P2778093	M12 x 1.75	12	P2778083
18	M14 x 2.0	16.5	P2778093	-	-	-
20	M16 x 2.0	16.5	P2778094	M12 x 1.75	16	P2778084
25	M18 x 2.0	20.5	P2778095	M14 x 2.0	14	P2778085
32	M20 x 2.0	20.5	P2778096	M16 x 2.0	16	P2778086
40	M20 x 2.0	20.5	P2778096	M16 x 2.0	16	P2778086
42	-	-	-	M16 x 2.0	16	P2778086
50	M24 x 2.0	25.5	P2778098	-	-	-
50.8	-	-	-	M20 x 2.5	25	P2778087



Global Cutting Tool Leader **YG-1**



# TOOLING SYSTEM

## YG-1 TOOLING SYSTEM

# SHELL MILL ARBOR

- AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
- MANDRIN PORTE-FRAISES
- MANDRINO CON TRASCINAMENTO FISSO
- PORTA FRESAS



### SHELL MILL ARBOR

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

JIS B6339/MAS 403-BT

GOST 25827-93

PARTS

### COMBI SHELL MILL ARBOR

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

JIS B6339/MAS 403-BT

DIN 2080-ISO

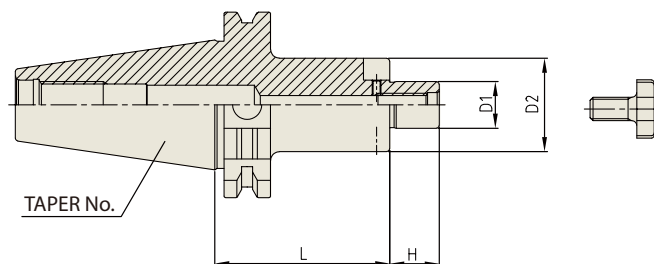
PARTS



**SHELL MILL ARBOR**

**DIN 69871-SK**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS



Parts, Refer to page 153-154

◆ **STANDARD**

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	SK30-SMA16-50	P2778901	16	32	50	17	M8x16L	0.85
	SK30-SMA22-50	P2778902	22	40	50	19	M10x18L	0.90
	SK30-SMA27-50	P2778903	27	48	50	21	M12x22L	1.03
40	SK40-SMA16-60	P2778904	16	32	60	17	M8x16L	0.35
	SK40-SMA22-60	P2778905	22	40	60	19	M10x18L	1.45
	SK40-SMA27-60	P2778906	27	48	60	21	M12x22L	1.70
	SK40-SMA32-60	P2778907	32	58	60	24	M16x26L	1.80
	SK40-SMA40-60	P2778908	40	70	60	27	M20x30L	3.10
50	SK50-SMA16-75	P2778909	16	32	75	17	M8x16L	2.80
	SK50-SMA22-75	P2778910	22	40	75	19	M10x18L	3.10
	SK50-SMA27-75	P2778911	27	48	75	21	M12x22L	3.40
	SK50-SMA32-75	P2778912	32	58	75	24	M16x26L	3.80
	SK50-SMA40-75	P2778913	40	70	75	27	M20x30L	4.50
	SK50-SMA50-75	P2778914	50	90	75	30	M24x36L	5.90

◆ **EXTENDED**

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	SK40-SMA16-120	P2778915	16	32	120	17	M8x16L	1.70
	SK40-SMA22-120	P2778916	22	40	120	19	M10x18L	1.80
	SK40-SMA27-120	P2778917	27	48	120	21	M12x22L	2.40
	SK40-SMA32-120	P2778918	32	58	120	24	M16x26L	3.70
50	SK50-SMA16-120	P2778919	16	32	120	17	M8x16L	3.90
	SK50-SMA22-120	P2778920	22	40	120	19	M10x18L	4.40
	SK50-SMA27-120	P2778921	27	48	120	21	M12x22L	4.70
	SK50-SMA32-120	P2778922	32	58	120	24	M16x26L	5.00
	SK50-SMA40-120	P2778923	40	70	120	27	M20x30L	6.05

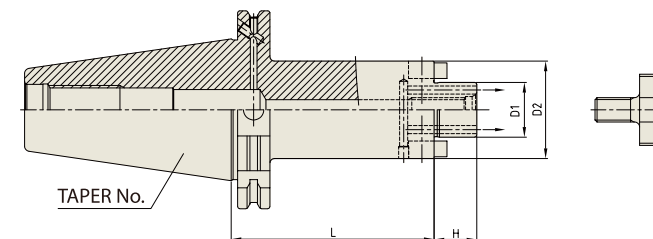
▶ Without "Coolant Through".  
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**SHELL MILL ARBOR (COOLANT CHANNEL)**

**DIN 69871-SK**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS



Parts, Refer to page 153-154

◆ **STANDARD**

Unit : mm

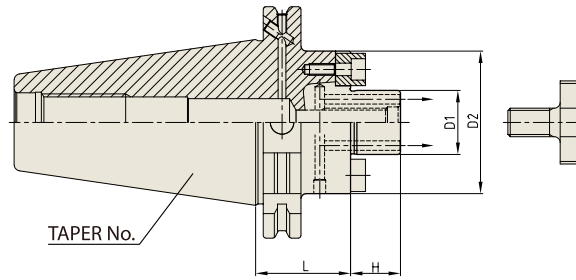
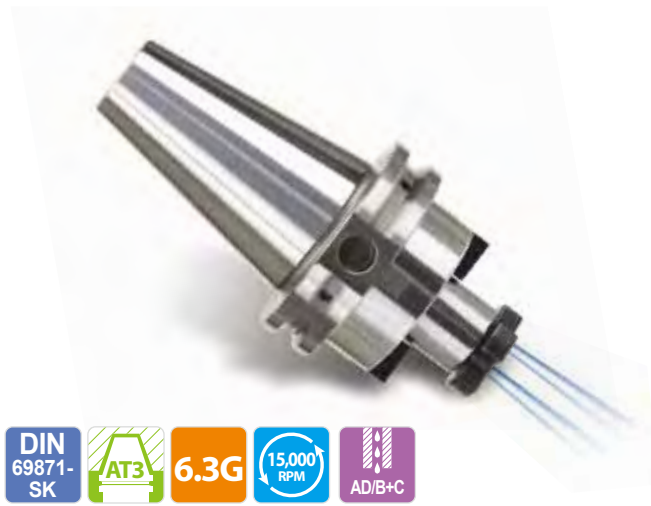
TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	SK40AD/B-SMA16C-60	P2801004C	16	32	60	17	M8x16L	0.35
	SK40AD/B-SMA16C-120	P2801015C	16	32	120	17	M8x16L	0.70
	SK40AD/B-SMA22C-44	P2803003C	22	40	44	19	M10x18L	1.03
	SK40AD/B-SMA22C-100	P2803004C	22	40	100	19	M10x18L	1.60
	SK40AD/B-SMA22C-120	P2801016C	22	40	120	19	M10x18L	1.90
	SK40AD/B-SMA27C-44	P2803006C	27	48	44	21	M12x22L	1.16
	SK40AD/B-SMA27C-100	P2803007C	27	48	100	21	M12x22L	1.97
	SK40AD/B-SMA27C-120	P2801017C	27	48	120	21	M12x22L	2.23
	SK40AD/B-SMA32C-60	P2801007C	32	58	60	24	M16x26L	1.64
	SK40AD/B-SMA32C-120	P2801018C	32	58	120	24	M16x26L	2.00
	SK40AD/B-SMA40C-60	P2803011C	40	70	60	27	M20x30L	1.83
	SK40AD/B-SMA40C-120	P2803012C	40	70	120	27	M20x30L	2.10
50	SK50AD/B-SMA16C-75	P2801009C	16	32	75	17	M8x16L	2.20
	SK50AD/B-SMA16C-120	P2801019C	16	32	120	17	M8x16L	2.50
	SK50AD/B-SMA22C-44	P2803015C	22	40	44	19	M10x18L	2.84
	SK50AD/B-SMA22C-75	P2801010C	22	40	75	19	M10x18L	3.10
	SK50AD/B-SMA22C-100	P2803017C	22	40	100	19	M10x18L	3.37
	SK50AD/B-SMA22C-120	P2801020C	22	40	120	19	M10x18L	3.60
	SK50AD/B-SMA22C-160	P2803019C	22	40	160	19	M10x18L	3.93
	SK50AD/B-SMA27C-75	P2801011C	27	48	75	21	M12x22L	3.40
	SK50AD/B-SMA27C-100	P2803021C	27	48	100	21	M12x22L	3.74
	SK50AD/B-SMA27C-120	P2801021C	27	48	120	21	M12x22L	4.00
	SK50AD/B-SMA27C-160	P2803023C	27	48	160	21	M12x22L	4.42
	SK50AD/B-SMA32C-75	P2801012C	32	58	75	24	M16x26L	3.80
	SK50AD/B-SMA32C-100	P2803025C	32	58	100	24	M16x26L	4.28
	SK50AD/B-SMA32C-120	P2801022C	32	58	120	24	M16x26L	4.40
	SK50AD/B-SMA32C-160	P2803027C	32	58	160	24	M16x26L	5.45
	SK50AD/B-SMA40C-75	P2801013C	40	70	75	27	M20x30L	4.50
	SK50AD/B-SMA40C-100	P2803029C	40	70	100	27	M20x30L	5.11
	SK50AD/B-SMA40C-120	P2801023C	40	70	120	27	M20x30L	5.30
SK50AD/B-SMA40C-160	P2803031C	40	70	160	27	M20x30L	6.78	

▶ With "Coolant Through" by coolant channels.  
▶ CAT(ANSI B5.50) taper and Inch type products are available.

**SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)**

**DIN 69871-SK**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS



Parts Refer to page 153-154

Unit : mm

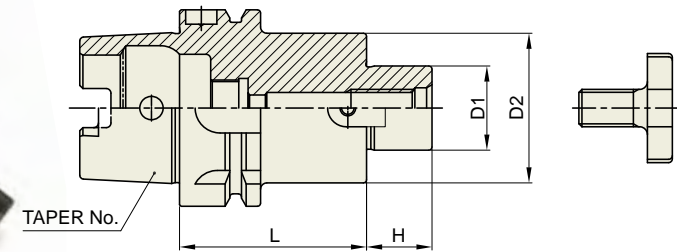
TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	SK40AD/B-SMA16CE-35	P2803101CE	16	38	35	17	M8x16L	0.94
	SK40AD/B-SMA16CE-100	P2803102CE	16	38	100	17	M8x16L	1.50
	SK40AD/B-SMA22CE-35	P2803103CE	22	48	35	19	M10x18L	1.05
	SK40AD/B-SMA22CE-100	P2803104CE	22	48	100	19	M10x18L	1.95
	SK40AD/B-SMA27CE-45	P2803105CE	27	60	45	21	M12x22L	1.33
	SK40AD/B-SMA27CE-100	P2803106CE	27	60	100	21	M12x22L	2.59
	SK40AD/B-SMA32CE-50	P2803107CE	32	78	50	24	M16x26L	1.72
	SK40AD/B-SMA40CE-50	P2803108CE	40	89	50	27	M20x30L	1.99
50	SK50AD/B-SMA16CE-100	P2803109CE	16	38	100	17	M8x16L	3.27
	SK50AD/B-SMA22CE-35	P2803110CE	22	48	35	19	M10x18L	2.83
	SK50AD/B-SMA22CE-100	P2803111CE	22	48	100	19	M10x18L	3.72
	SK50AD/B-SMA22CE-160	P2803112CE	22	48	160	19	M10x18L	4.54
	SK50AD/B-SMA27CE-40	P2803113CE	27	60	40	21	M12x22L	3.09
	SK50AD/B-SMA27CE-100	P2803114CE	27	60	100	21	M12x22L	4.35
	SK50AD/B-SMA27CE-160	P2803115CE	27	60	160	21	M12x22L	5.62
	SK50AD/B-SMA32CE-50	P2803116CE	32	78	50	24	M16x26L	3.82
	SK50AD/B-SMA32CE-100	P2803117CE	32	78	100	24	M16x26L	5.64
	SK50AD/B-SMA32CE-160	P2803118CE	32	78	160	24	M16x26L	7.81
	SK50AD/B-SMA40CE-50	P2803119CE	40	89	50	27	M20x30L	4.27
	SK50AD/B-SMA40CE-100	P2803120CE	40	89	100	27	M20x30L	6.61
SK50AD/B-SMA40CE-160	P2803121CE	40	89	160	27	M20x30L	9.43	

- ▶ With "Coolant Through" by coolant channels.
- ▶ CAT(ANSI B5.50) taper and Inch type products are available.

**SHELL MILL ARBOR**

**DIN 69893/ ISO 12164-1-HSK FORM A**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS



Parts Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40A	HSK40A-SMA16-50	P2778201	16	32	50	17	M8x16L	0.40
	HSK40A-SMA22-50	P2778202	22	40	50	19	M10x18L	0.50
	HSK40A-SMA27-60	P2778203	27	48	60	21	M12x22L	0.60
50A	HSK50A-SMA16-50	P2778204	16	32	50	17	M8x16L	0.50
	HSK50A-SMA22-60	P2778205	22	40	60	19	M10x18L	0.57
	HSK50A-SMA27-60	P2778206	27	48	60	21	M12x22L	0.75
63A	HSK63A-SMA16-50	P2566001	16	32	50	17	M8x16L	0.81
	HSK63A-SMA22-50	P2566002	22	40	50	19	M10x18L	0.93
	HSK63A-SMA27-60	P2566003	27	48	60	21	M12x22L	1.22
	HSK63A-SMA32-60	P2566004	32	58	60	24	M16x26L	1.46
100A	HSK63A-SMA40-60	P2566005	40	70	60	27	M20x30L	1.80
	HSK100A-SMA16-50	P2566011	16	32	50	17	M8x16L	2.14
	HSK100A-SMA22-50	P2566012	22	40	50	19	M10x18L	2.25
	HSK100A-SMA27-50	P2566013	27	48	50	21	M12x22L	2.40
	HSK100A-SMA32-50	P2566014	32	58	50	24	M16x26L	2.60
	HSK100A-SMA40-60	P2566015	40	70	60	27	M20x30L	3.25
	HSK100A-SMA50-70	P2778209	50	90	70	30	M24x36L	5.40

▶ Without "Coolant Through".

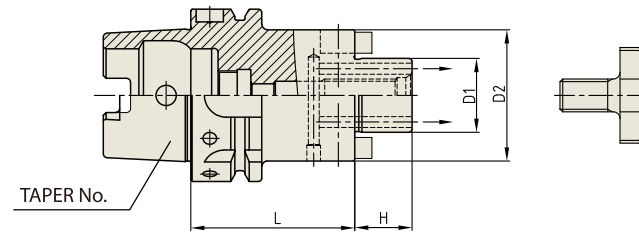
**YG SHELL MILL ARBOR**

**SMA**

**SHELL MILL ARBOR (COOLANT CHANNEL)**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

**DIN 69893/  
ISO 12164-1-HSK FORM A**



Parts Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
63A	HSK63A-SMA16C-50	P2566001C	16	32	50	17	M8x16L	0.80
	HSK63A-SMA22C-50	P2566002C	22	40	50	19	M10x18L	0.92
	HSK63A-SMA22C-100	P2801101C	22	40	100	19	M10x18L	1.40
	HSK63A-SMA22C-160	P2803202C	22	40	160	19	M10x18L	1.97
	HSK63A-SMA27C-60	P2566003C	27	48	60	21	M12x22L	1.19
	HSK63A-SMA27C-100	P2801102C	27	48	100	21	M12x22L	1.74
	HSK63A-SMA27C-160	P2803204C	27	48	160	21	M12x22L	2.55
	HSK63A-SMA32C-60	P2566004C	32	58	63	24	M16x26L	1.50
	HSK63A-SMA32C-100	P2801103C	32	58	100	24	M16x26L	2.72
	HSK63A-SMA40C-60	P2566005C	40	70	60	27	M20x30L	1.66
100A	HSK100A-SMA16C-50	P2566011C	16	32	50	17	M8x16L	2.25
	HSK100A-SMA22C-50	P2566012C	22	40	50	19	M10x18L	2.25
	HSK100A-SMA22C-100	P2801105C	22	40	100	19	M10x18L	2.72
	HSK100A-SMA22C-160	P2803206C	22	40	160	19	M10x18L	3.28
	HSK100A-SMA27C-50	P2566013C	27	48	50	21	M12x22L	2.40
	HSK100A-SMA27C-100	P2801106C	27	48	100	21	M12x22L	3.12
	HSK100A-SMA27C-160	P2803207C	27	48	160	21	M12x22L	4.01
	HSK100A-SMA32C-50	P2566014C	32	58	50	24	M16x26L	2.55
	HSK100A-SMA32C-100	P2801107C	32	58	100	24	M16x26L	3.49
	HSK100A-SMA32C-160	P2803208C	32	58	160	24	M16x26L	4.66
HSK100A-SMA40C-60	P2566015C	40	70	60	27	M20x30L	3.10	
HSK100A-SMA40C-100	P2801108C	40	70	100	27	M20x30L	4.19	
HSK100A-SMA40C-160	P2803209C	40	70	160	27	M20x30L	5.88	

▶ With "Coolant Through" by coolant channels.



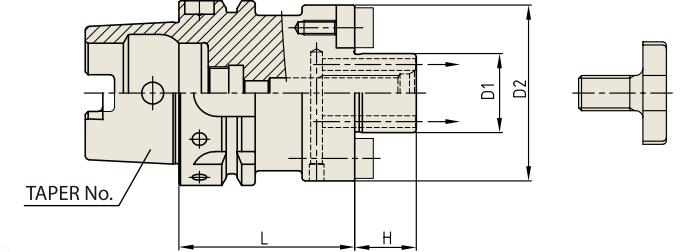
**YG SHELL MILL ARBOR**

**SMA**

**SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

**DIN 69893/  
ISO 12164-1-HSK FORM A**



Parts Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
63A	HSK63A-SMA16CE-50	P2803301CE	16	38	50	17	M8x16L	0.86
	HSK63A-SMA16CE-100	P2803302CE	16	38	100	17	M8x16L	1.29
	HSK63A-SMA16CE-145	P2803303CE	16	38	145	17	M8x16L	1.68
	HSK63A-SMA22CE-50	P2803304CE	22	48	50	19	M10x18L	1.02
	HSK63A-SMA22CE-100	P2803305CE	22	48	100	19	M10x18L	1.71
	HSK63A-SMA22CE-160	P2803306CE	22	48	160	19	M10x18L	2.54
	HSK63A-SMA27CE-60	P2803307CE	27	60	60	21	M12x22L	1.39
	HSK63A-SMA27CE-100	P2803308CE	27	60	100	21	M12x22L	2.25
	HSK63A-SMA27CE-160	P2803309CE	27	60	160	21	M12x22L	3.54
	HSK63A-SMA32CE-60	P2803310CE	32	78	63	24	M16x26L	1.70
100A	HSK100A-SMA16CE-100	P2803313CE	16	38	100	17	M8x16L	2.63
	HSK100A-SMA22CE-50	P2803314CE	22	48	50	19	M10x18L	2.34
	HSK100A-SMA22CE-100	P2803315CE	22	48	100	19	M10x18L	3.02
	HSK100A-SMA22CE-160	P2803316CE	22	48	160	19	M10x18L	3.85
	HSK100A-SMA27CE-50	P2803317CE	27	60	50	21	M12x22L	2.54
	HSK100A-SMA27CE-100	P2803318CE	27	60	100	21	M12x22L	3.60
	HSK100A-SMA27CE-160	P2803319CE	27	60	160	21	M12x22L	4.90
	HSK100A-SMA32CE-50	P2803320CE	32	78	50	24	M16x26L	2.90
	HSK100A-SMA32CE-100	P2803321CE	32	78	100	24	M16x26L	4.68
	HSK100A-SMA32CE-160	P2803322CE	32	78	160	24	M16x26L	6.86
HSK100A-SMA40CE-60	P2803323CE	40	89	60	27	M20x30L	3.68	
HSK100A-SMA40CE-100	P2803324CE	40	89	100	27	M20x30L	5.51	
HSK100A-SMA40CE-160	P2803325CE	40	89	160	27	M20x30L	8.32	

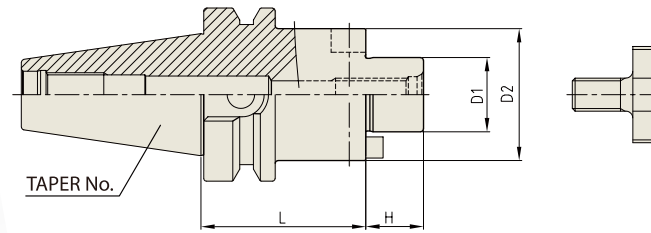
▶ With "Coolant Through" by coolant channels.



**SHELL MILL ARBOR**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

**CBT  
(BT DUAL CONTACT)**



Parts Refer to page 153-154

**STANDARD**

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	CBT30-SMA16-50	P2778701	16	32	30	17	M8x16L	0.58
	CBT30-SMA22-50	P2778702	22	40	30	19	M10x18L	0.70
	CBT30-SMA27-50	P2778703	27	48	30	21	M12x22L	0.85
40	CBT40-SMA16-60	P2778704	16	32	60	17	M8x16L	1.17
	CBT40-SMA22-60	P2778705	22	40	60	19	M10x18L	1.31
	CBT40-SMA27-60	P2778706	27	48	60	21	M12x22L	1.48
	CBT40-SMA32-60	P2778707	32	58	60	24	M16x26L	1.72
	CBT40-SMA40-60	P2778708	40	70	60	27	M20x30L	2.00
	CBT50-SMA16-75	P2778709	16	32	75	17	M8x16L	3.75
50	CBT50-SMA22-75	P2778710	22	40	75	19	M10x18L	3.90
	CBT50-SMA27-75	P2778711	27	48	75	21	M12x22L	4.09
	CBT50-SMA32-75	P2778712	32	58	75	24	M16x26L	4.35
	CBT50-SMA40-75	P2778713	40	70	75	27	M20x30L	4.77
	CBT50-SMA50-75	P2778714	50	90	75	30	M24x36L	5.63

**EXTENDED**

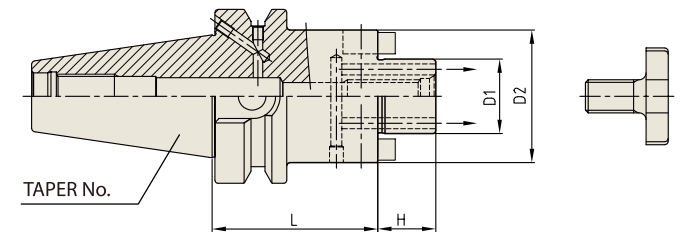
TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	CBT40-SMA16-120	P2778715	16	32	120	17	M8x16L	1.50
	CBT40-SMA22-120	P2778716	22	40	120	19	M10x18L	1.85
	CBT40-SMA27-120	P2778717	27	48	120	21	M12x22L	2.27
	CBT40-SMA32-120	P2778718	32	58	120	24	M16x26L	2.90
50	CBT50-SMA16-120	P2778719	16	32	120	17	M8x16L	4.03
	CBT50-SMA22-120	P2778720	22	40	120	19	M10x18L	4.25
	CBT50-SMA27-120	P2778721	27	48	120	21	M12x22L	4.56
	CBT50-SMA32-120	P2778722	32	58	120	24	M16x26L	5.22
	CBT50-SMA40-120	P2778723	40	70	120	27	M20x30L	6.04

▶ Without "Coolant Through".

**SHELL MILL ARBOR (COOLANT CHANNEL)**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

**CBT  
(BT DUAL CONTACT)**



Parts Refer to page 153-154

**STANDARD**

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	CBT40AD/B-SMA16C-60	P2801047C	16	32	60	17	M8x16L	1.20
	CBT40AD/B-SMA16C-120	P2801058C	16	32	120	17	M8x16L	1.20
	CBT40AD/B-SMA22C-60	P2801048C	22	40	60	19	M10x18L	1.27
	CBT40AD/B-SMA22C-120	P2801059C	22	40	120	19	M10x18L	1.84
	CBT40AD/B-SMA27C-60	P2801049C	27	48	60	21	M12x22L	1.44
	CBT40AD/B-SMA27C-120	P2801060C	27	48	120	21	M12x22L	2.26
50	CBT50AD/B-SMA16C-60	P2803407C	16	32	60	17	M8x16L	3.00
	CBT50AD/B-SMA16C-120	P2801062C	16	32	120	17	M8x16L	3.30
	CBT50AD/B-SMA22C-75	P2801053C	22	40	75	19	M10x18L	3.83
	CBT50AD/B-SMA22C-120	P2801063C	22	40	120	19	M10x18L	4.24
	CBT50AD/B-SMA27C-75	P2801054C	27	48	75	21	M12x22L	4.03
	CBT50AD/B-SMA27C-120	P2801064C	27	48	120	21	M12x22L	4.64
	CBT50AD/B-SMA32C-75	P2801055C	32	58	75	24	M16x26L	4.31
	CBT50AD/B-SMA32C-120	P2801065C	32	58	120	24	M16x26L	5.19
	CBT50AD/B-SMA40C-75	P2801056C	40	70	75	27	M20x30L	4.75
	CBT50AD/B-SMA40C-120	P2801066C	40	70	120	27	M20x30L	6.02

▶ With "Coolant Through" by coolant channels.

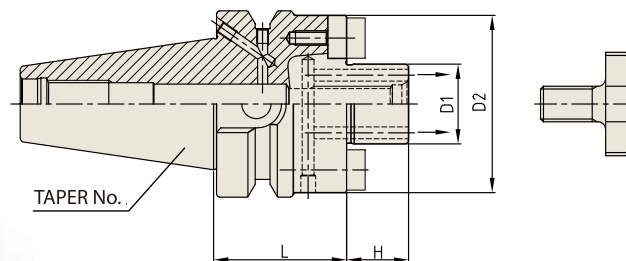
**YIG SHELL MILL ARBOR**

**SMA**

**SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

**CBT (BT DUAL CONTACT)**



Parts Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	CBT30-SMA16CE-40	P2803501CE	16	38	40	17	M8x16L	0.55
	CBT30-SMA22CE-40	P2803502CE	22	48	40	19	M10x18L	0.69
	CBT30-SMA27CE-40	P2803503CE	27	60	40	21	M12x22L	0.85
	CBT30-SMA32CE-45	P2803504CE	32	78	45	24	M16x26L	1.32
40	CBT40AD/B-SMA16CE-50	P2803505CE	22	38	50	17	M10x18L	1.14
	CBT40AD/B-SMA22CE-45	P2803506CE	22	48	45	19	M10x18L	1.22
	CBT40AD/B-SMA27CE-45	P2803507CE	27	60	45	21	M12x22L	1.39
	CBT40AD/B-SMA32CE-50	P2803508CE	32	78	50	24	M16x26L	1.80
	CBT40AD/B-SMA40CE-50	P2803509CE	40	89	50	27	M20x30L	2.05
50	CBT50AD/B-SMA22CE-55	P2803510CE	22	48	55	19	M10x18L	3.72
	CBT50AD/B-SMA27CE-55	P2803511CE	27	60	55	21	M12x22L	3.89
	CBT50AD/B-SMA32CE-55	P2803512CE	32	78	55	24	M16x26L	4.21
	CBT50AD/B-SMA40CE-55	P2803513CE	40	89	55	27	M20x30L	4.52

- ▶ With "Coolant Through" by coolant channels.
- ▶ CAT(ANSI B5.50) taper and Inch type products are available.

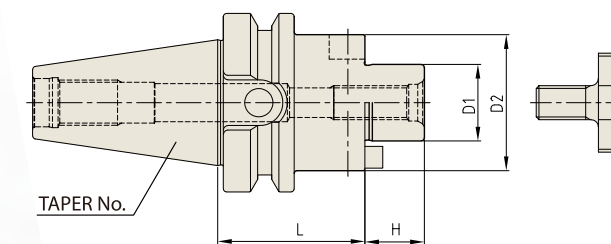
**YIG SHELL MILL ARBOR**

**SMA**

**SHELL MILL ARBOR**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

**JIS B6339/ MAS 403-BT**



Parts Refer to page 153-154

Unit : mm

**STANDARD**

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	BT30-SMA16-50	P2778801	16	32	50	17	M8x16L	0.58
	BT30-SMA22-50	P2778802	22	40	50	19	M10x18L	0.70
	BT30-SMA27-50	P2778803	27	48	50	21	M12x22L	0.85
40	BT40-SMA16-60	P2778804	16	32	60	17	M8x16L	1.17
	BT40-SMA22-60	P2778805	22	40	60	19	M10x18L	1.31
	BT40-SMA27-60	P2778806	27	48	60	21	M12x22L	1.48
	BT40-SMA32-60	P2778807	32	58	60	24	M16x26L	1.72
50	BT40-SMA40-60	P2778808	40	70	60	27	M20x30L	2.00
	BT50-SMA16-75	P2778809	16	32	75	17	M8x16L	3.75
	BT50-SMA22-75	P2778810	22	40	75	19	M10x18L	3.90
	BT50-SMA27-75	P2778811	27	48	75	21	M12x22L	4.09
	BT50-SMA32-75	P2778812	32	58	75	24	M16x26L	4.35
	BT50-SMA40-75	P2778813	40	70	75	27	M20x30L	4.77
	BT50-SMA50-75	P2778814	50	90	75	30	M24x36L	5.63

**EXTENDED**

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	BT40-SMA16-120	P2778815	16	32	120	17	M8x16L	1.50
	BT40-SMA22-120	P2778816	22	40	120	19	M10x18L	1.85
	BT40-SMA27-120	P2778817	27	48	120	21	M12x22L	2.27
	BT40-SMA32-120	P2778818	32	58	120	24	M16x26L	2.90
50	BT50-SMA16-120	P2778819	16	32	120	17	M8x16L	4.03
	BT50-SMA22-120	P2778820	22	40	120	19	M10x18L	4.25
	BT50-SMA27-120	P2778821	27	48	120	21	M12x22L	4.56
	BT50-SMA32-120	P2778822	32	58	120	24	M16x26L	5.22
	BT50-SMA40-120	P2778823	40	70	120	27	M20x30L	6.04

- ▶ Without "Coolant Through".
- ▶ CAT(ANSI B5.50) taper and Inch type products are available.



HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

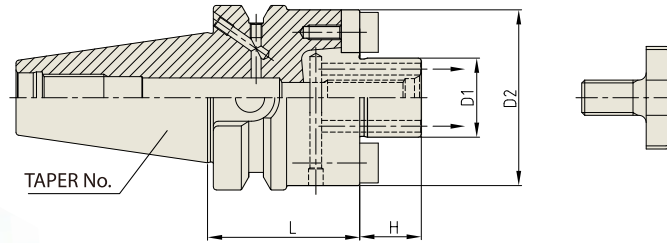
BORING SYSTEM

ACCESSORY & OTHERS

**SHELL MILL ARBOR (COOLANT CHANNEL)**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

JIS B6339/  
MAS 403-BT



Parts Refer to page 153-154

Unit : mm

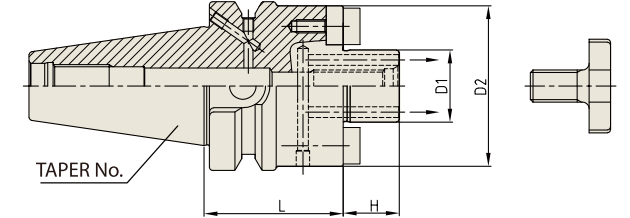
TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	BT30-SMA16C-40	P2803601C	16	32	40	17	M8x16L	0.55
	BT30-SMA22C-40	P2803602C	22	40	40	19	M10x18L	0.61
	BT30-SMA22C-100	P2803603C	22	40	100	19	M10x18L	1.18
	BT30-SMA27C-40	P2803604C	27	48	40	21	M12x22L	0.86
	BT30-SMA27C-100	P2803605C	27	48	100	21	M12x22L	1.67
40	BT40AD/B-SMA16C-60	P2801024C	16	32	60	17	M8x16L	1.00
	BT40AD/B-SMA22C-60	P2801025C	22	40	60	19	M10x18L	1.20
	BT40AD/B-SMA22C-100	P2803607C	22	40	100	19	M10x18L	1.65
	BT40AD/B-SMA27C-60	P2801026C	27	48	60	21	M12x22L	1.34
	BT40AD/B-SMA27C-100	P2803608C	27	48	100	21	M12x22L	1.99
	BT40AD/B-SMA32C-60	P2801027C	32	58	60	24	M16x26L	1.55
	BT40AD/B-SMA40C-70	P2803610C	40	70	60	27	M20x30L	1.97
50	BT50AD/B-SMA16C-75	P2801029C	16	32	75	17	M8x16L	3.00
	BT50AD/B-SMA16C-120	P2801039C	16	32	120	17	M8x16L	3.40
	BT50AD/B-SMA22C-75	P2801030C	22	40	75	19	M10x18L	3.72
	BT50AD/B-SMA22C-100	P2803614C	22	40	100	19	M10x18L	4.06
	BT50AD/B-SMA22C-120	P2801040C	22	40	120	19	M10x18L	4.40
	BT50AD/B-SMA22C-160	P2803616C	22	40	160	19	M10x18L	4.61
	BT50AD/B-SMA27C-75	P2801031C	27	48	75	21	M12x22L	3.87
	BT50AD/B-SMA27C-100	P2803618C	27	48	100	21	M12x22L	4.37
	BT50AD/B-SMA27C-120	P2801041C	27	48	120	21	M12x22L	4.68
	BT50AD/B-SMA27C-160	P2803620C	27	48	160	21	M12x22L	5.18
	BT50AD/B-SMA32C-75	P2801032C	32	58	75	24	M16x26L	4.08
	BT50AD/B-SMA32C-100	P2803622C	32	58	100	24	M16x26L	4.80
	BT50AD/B-SMA32C-120	P2801042C	32	58	120	24	M16x26L	5.40
	BT50AD/B-SMA32C-160	P2803624C	32	58	160	24	M16x26L	5.98
	BT50AD/B-SMA40C-75	P2801033C	40	70	75	27	M20x30L	4.41
	BT50AD/B-SMA40C-100	P2803626C	40	70	100	27	M20x30L	5.45
	BT50AD/B-SMA40C-120	P2801043C	40	70	120	27	M20x30L	6.00
	BT50AD/B-SMA40C-160	P2803628C	40	70	160	27	M20x30L	7.15

▶ With "Coolant Through" by coolant channels.  
▶ CAT(ANSI B5.50) taper and Inch type products are available.

**SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

JIS B6339/  
MAS 403-BT



Parts Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	BT40AD/B-SMA16CE-45	P2803701CE	16	38	45	17	M8x16L	1.09
	BT40AD/B-SMA16CE-100	P2803702CE	16	38	100	17	M8x16L	1.57
	BT40AD/B-SMA22CE-45	P2803703CE	22	48	45	19	M10x18L	1.22
	BT40AD/B-SMA22CE-100	P2803704CE	22	48	100	19	M10x18L	1.97
	BT40AD/B-SMA27CE-45	P2803705CE	27	60	45	21	M12x22L	1.39
	BT40AD/B-SMA27CE-100	P2803706CE	27	60	100	21	M12x22L	2.58
	BT40AD/B-SMA32CE-50	P2803707CE	32	78	50	24	M16x26L	1.80
50	BT40AD/B-SMA40CE-50	P2803708CE	40	89	50	27	M20x30L	2.05
	BT50AD/B-SMA22CE-55	P2803709CE	22	48	55	19	M10x18L	3.72
	BT50AD/B-SMA22CE-100	P2803710CE	22	48	100	19	M10x18L	4.33
	BT50AD/B-SMA22CE-160	P2803711CE	22	48	160	19	M10x18L	5.14
	BT50AD/B-SMA27CE-55	P2803712CE	27	60	55	21	M12x22L	3.89
	BT50AD/B-SMA27CE-100	P2803713CE	27	60	100	21	M12x22L	4.86
	BT50AD/B-SMA27CE-160	P2803714CE	27	60	160	21	M12x22L	6.15
	BT50AD/B-SMA32CE-55	P2803715CE	32	78	63	24	M16x26L	4.21
	BT50AD/B-SMA32CE-100	P2803716CE	32	78	100	24	M16x26L	5.87
	BT50AD/B-SMA32CE-160	P2803717CE	32	78	160	24	M16x26L	8.08
	BT50AD/B-SMA40CE-55	P2803718CE	40	89	63	27	M20x30L	4.52
	BT50AD/B-SMA40CE-100	P2803719CE	40	89	100	27	M20x30L	6.68
	BT50AD/B-SMA40CE-160	P2803720CE	40	89	160	27	M20x30L	9.57

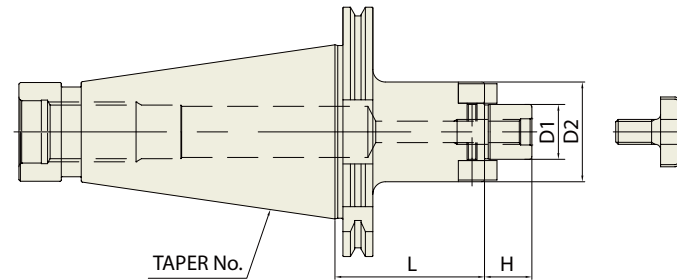
▶ With "Coolant Through" by coolant channels.



**SHELL MILL ARBOR**

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES  
MANDRINO CON TRASCINAMENTO FISSO  
PORTA FRESAS

GOST 25827-93



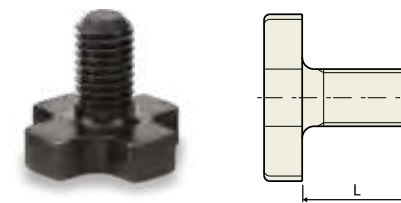
Parts Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	WEIGHT (kg)
40	GOST40-SMA16-40	P2780401	16	32	40	17	
	GOST40-SMA16-100	P2780402	16	32	100	17	
	GOST40-SMA22-40	P2780403	22	40	40	19	
	GOST40-SMA22-100	P2780404	22	40	100	19	
	GOST40-SMA27-45	P2780405	27	48	45	21	
	GOST40-SMA32-45	P2780406	32	58	45	24	
50	GOST50-SMA16-40	P2780407	16	32	40	17	
	GOST50-SMA16-100	P2780408	16	32	100	17	
	GOST40-SMA22-40	P2780409	22	40	40	19	
	GOST40-SMA22-100	P2780410	22	40	100	19	
	GOST40-SMA27-45	P2780411	27	48	45	21	
	GOST40-SMA27-120	P2780412	27	48	120	21	
	GOST40-SMA32-45	P2780413	32	58	45	24	
	GOST40-SMA32-130	P2780414	32	58	130	24	
	GOST40-SMA40-55	P2780415	40	70	55	27	
	GOST40-SMA40-150	P2780416	40	70	150	27	
GOST40-SMA50-60	P2780417	50	90	60	30		

▶ Without "Coolant Through".

**BOLT & KEY**  
(For SHELL MILL ARBOR)



■ COLLAR BOLT

M (COLLAR BOLT)	EDP No.	L (Length)	SMA SPIGOT Dia.
M8x1.25	P2514051	16	16
M10x1.5	P2514052	18	22
M12x1.75	P2514053	22	27
M16x2.0	P2514054	26	32
M20x2.5	P2514055	30	40
M24x3.0	P2514056	36	50



■ DRIVE KEY

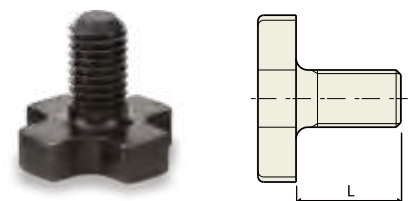
DRIVE KEY	EDP No.	SMA SPIGOT Dia.
8x7x2.8	P2778857	16
10x7.8x15.5	P2778858	22
12x9x18.5	P2778859	27
14x11.5x20.5	P2778860	32
16x13.5x23.5	P2778861	40
18x18x28.5	P2778862	50



■ KEY BOLT

KEY BOLT	EDP No.	SMA SPIGOT Dia.
M3x0.5x10L	P2778875	16
M4x0.7x10L	P2778864	22
M5x0.8x12L	P2778865	27
M6x1.0x15L	P2778866	32
M6x1.0x15L	P2778866	40
M6x1.0x20L	P2778868	50

**BOLT & KEY**  
(For SHELL MILL ARBOR - ENLARGED)



■ **COLLAR BOLT**

M (COLLAR BOLT)	EDP No.	L (Length)	SMA SPIGOT Dia.
M8 x 1.25	P2514051	16	16
M10 x 1.5	P2514052	18	22
M12 x 1.75	P2514053	22	27
M16 x 2.0	P2514054	26	32
M20 x 2.5	P2514055	30	40
M24 x 3.0	P2514056	36	50



■ **DRIVE KEY**

DRIVE KEY	EDP No.	SMA SPIGOT Dia.
8 x 10 x 9.7	P2778876	16
10 x 11.2 x 10.8	P2778877	22
12 x 12.6 x 13.6	P2778878	27
14 x 14 x 21	P2778879	32
16 x 16 x 21	P2778880	40



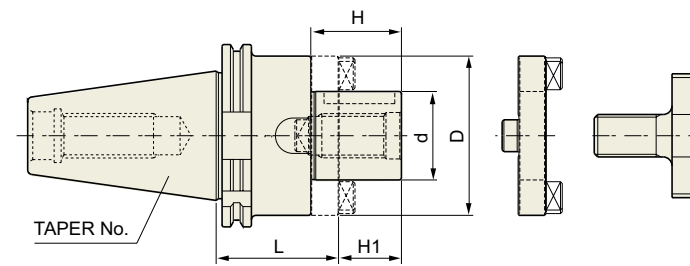
■ **KEY BOLT**

KEY BOLT	EDP No.	SMA SPIGOT Dia.
M3 x 0.5 x 12L	P2778881	16
M4 x 0.7 x 12L	P2778882	22
M5 x 0.8 x 15L	P2778883	27
M6 x 1.0 x 15L	P2778866	32
M6 x 1.0 x 15L	P2778866	40

**COMBI-SHELL MILL ARBOR**

**DIN 69871-SK**

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES COMBINÉS  
MANDRINO PORTA FRESE  
PORTA FRESAS COMBINADO



Parts, Refer to page 160

◆ **STANDARD**

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	SK30-CMA16-50	P2524001	16	50	32	17	27	27, 33, 39	0.58
	SK30-CMA22-50	P2524002	22	50	40	19	31	28, 34, 40	0.71
	SK30-CMA27-55	P2524003	27	55	48	21	33	29, 35, 41	0.78
40	SK40-CMA16-55	P2524004	16	55	32	17	27	27, 33, 39	1.03
	SK40-CMA22-55	P2524005	22	55	40	19	31	28, 34, 40	1.17
	SK40-CMA27-55	P2524006	27	55	48	21	33	29, 35, 41	1.37
	SK40-CMA32-60	P2524007	32	60	58	24	38	30, 36, 42	1.60
50	SK40-CMA40-60	P2524008	40	60	70	27	41	31, 37, 43	2.31
	SK50-CMA16-55	P2524009	16	55	32	17	27	27, 33, 39	2.81
	SK50-CMA22-55	P2524010	22	55	40	19	31	28, 34, 40	2.91
	SK50-CMA27-55	P2524011	27	55	48	21	33	29, 35, 41	3.15
	SK50-CMA32-55	P2524012	32	55	58	24	38	30, 36, 42	3.41
	SK50-CMA40-55	P2524013	40	55	70	27	41	31, 37, 43	3.78
	SK50-CMA50-70	P2524014	50	70	90	30	46	32, 38, 44	5.35

◆ **EXTENDED**

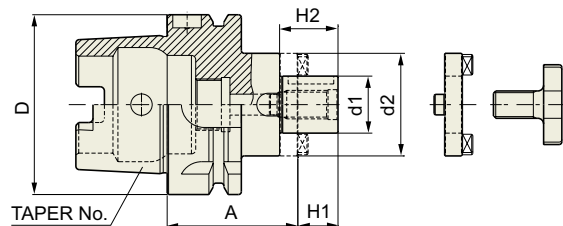
TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	SK40-CMA16-100	P2524015	16	100	32	17	27	27, 33, 39	1.27
	SK40-CMA22-100	P2524016	22	100	40	19	31	28, 34, 40	1.59
	SK40-CMA27-100	P2524017	27	100	48	21	33	29, 35, 41	1.94
	SK40-CMA32-100	P2524018	32	100	58	24	38	30, 36, 42	2.40
50	SK50-CMA16-100	P2524019	16	100	32	17	27	27, 33, 39	3.07
	SK50-CMA22-100	P2524020	22	100	40	19	31	28, 34, 40	3.38
	SK50-CMA27-100	P2524021	27	100	48	21	33	29, 35, 41	3.76
	SK50-CMA32-100	P2524022	32	100	58	24	38	30, 36, 42	4.23
	SK50-CMA40-100	P2524023	40	100	70	27	41	31, 37, 43	5.06

▶ Without "Coolant Through".

**COMBI-SHELL MILL ARBOR**

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES COMBINÉS  
MANDRINO PORTA FRESE  
PORTA FRESAS COMBINADO

**DIN 69893/  
ISO 12164-1-HSK FORM A**



Parts, Refer to page 160

Unit : mm

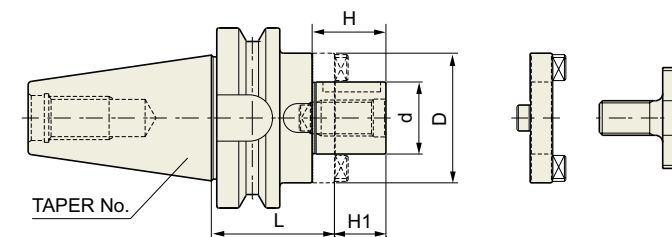
TAPER No.	MODEL No.	EDP No.	D	d1	d2	A	H1	H2	PART No.	WEIGHT (kg)
50A	HSK50A-CMA16-50	P2562006	50	16	32	50	17	27	27, 33, 39	0.56
	HSK50A-CMA22-50	P2562007	50	22	40	50	19	31	28, 34, 40	0.66
	HSK50A-CMA27-65	P2562008	50	27	48	65	21	33	29, 35, 41	0.96
	HSK50A-CMA32-65	P2562009	50	32	58	65	24	38	30, 36, 42	1.15
63A	HSK63A-CMA16-60	P2562001	63	16	32	60	17	27	27, 33, 39	0.88
	HSK63A-CMA22-60	P2562002	63	22	40	60	19	31	28, 34, 40	1.02
	HSK63A-CMA27-60	P2562003	63	27	48	60	21	33	29, 35, 41	1.20
	HSK63A-CMA32-60	P2562004	63	32	53	60	24	38	30, 36, 42	1.43
100A	HSK63A-CMA40-70	P2562005	63	40	70	70	27	41	31, 37, 43	1.93
	HSK100A-CMA16-60	P2562011	100	16	32	60	17	27	27, 33, 39	2.22
	HSK100A-CMA22-60	P2562012	100	22	40	60	19	31	28, 34, 40	2.34
	HSK100A-CMA27-60	P2562013	100	27	48	60	21	33	29, 35, 41	2.56
	HSK100A-CMA32-60	P2562014	100	32	58	60	24	38	30, 36, 42	2.69
	HSK100A-CMA40-70	P2562015	100	40	70	70	27	41	31, 37, 43	3.39
	HSK100A-CMA50-80	P2562010	100	50	90	80	30	46	32, 38, 44	4.50

▶ Without "Coolant Through".

**COMBI-SHELL MILL ARBOR**

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES COMBINÉS  
MANDRINO PORTA FRESE  
PORTA FRESAS COMBINADO

**CBT  
(BT DUAL CONTACT)**



Parts, Refer to page 160

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	CBT30-CMA16-50	P2775601	16	50	32	17	27	27, 33, 39	0.61
	CBT30-CMA22-50	P2775602	22	50	40	19	31	28, 34, 40	0.70
	CBT30-CMA27-55	P2775624	27	55	48	21	33	29, 35, 41	0.92
40	CBT40-CMA16-55	P2775604	16	55	32	17	27	27, 33, 39	1.14
	CBT40-CMA22-55	P2775605	22	55	40	19	31	28, 34, 40	1.26
	CBT40-CMA27-55	P2775606	27	55	48	21	33	29, 35, 41	1.42
	CBT40-CMA32-60	P2775607	32	60	58	24	38	30, 36, 42	1.72
50	CBT40-CMA40-70	P2775625	40	70	70	27	41	31, 37, 43	2.46
	CBT50-CMA16-70	P2775609	16	70	32	17	27	27, 33, 39	3.74
	CBT50-CMA22-70	P2775610	22	70	40	19	31	28, 34, 40	3.86
	CBT50-CMA27-70	P2775611	27	70	48	21	33	29, 35, 41	4.04
	CBT50-CMA32-70	P2775612	32	70	58	24	38	30, 36, 42	4.28
	CBT50-CMA40-70	P2775613	40	70	70	27	41	31, 37, 43	4.62
	CBT50-CMA50-70	P2775614	50	70	90	30	46	32, 38, 44	5.48

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	CBT40-CMA16-100	P2775615	16	100	32	17	27	27, 33, 39	1.41
	CBT40-CMA22-100	P2775616	22	100	40	19	31	28, 34, 40	1.68
	CBT40-CMA27-100	P2775617	27	100	48	21	33	29, 35, 41	2.02
	CBT40-CMA32-100	P2775618	32	100	58	24	38	30, 36, 42	2.51
50	CBT50-CMA16-100	P2775619	16	100	32	17	27	27, 33, 39	3.92
	CBT50-CMA22-100	P2775620	22	100	40	19	31	28, 34, 40	4.15
	CBT50-CMA27-100	P2775621	27	100	48	21	33	29, 35, 41	4.45
	CBT50-CMA32-100	P2775622	32	100	58	24	38	30, 36, 42	4.86
	CBT50-CMA40-100	P2775623	40	100	70	27	41	31, 37, 43	5.47

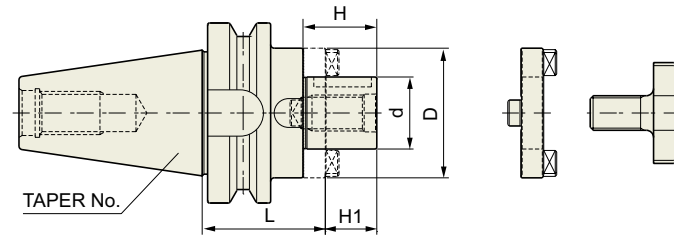
▶ Without "Coolant Through".



**COMBI-SHELL MILL ARBOR**

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES COMBINÉS  
MANDRINO PORTA FRESE  
PORTA FRESAS COMBINADO

JIS B6339/  
MAS 403-BT



Parts, Refer to page 160

◆ STANDARD

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	BT30-CMA16-50	P2544001	16	50	32	17	27	27, 33, 39	0.61
	BT30-CMA22-50	P2544002	22	50	40	19	31	28, 34, 40	0.70
	BT30-CMA27-55	P2544003	27	55	48	21	33	29, 35, 41	0.92
40	BT40-CMA16-55	P2544004	16	55	32	17	27	27, 33, 39	1.14
	BT40-CMA22-55	P2544005	22	55	40	19	31	28, 34, 40	1.26
	BT40-CMA27-55	P2544006	27	55	48	21	33	29, 35, 41	1.42
	BT40-CMA32-60	P2544007	32	60	58	24	38	30, 36, 42	1.72
50	BT40-CMA40-70	P2544024	40	70	70	27	41	31, 37, 43	2.46
	BT50-CMA16-70	P2544009	16	70	32	17	27	27, 33, 39	3.74
	BT50-CMA22-70	P2544010	22	70	40	19	31	28, 34, 40	3.86
	BT50-CMA27-70	P2544011	27	70	48	21	33	29, 35, 41	4.04
	BT50-CMA32-70	P2544012	32	70	58	24	38	30, 36, 42	4.28
	BT50-CMA40-70	P2544013	40	70	70	27	41	31, 37, 43	4.62
	BT50-CMA50-70	P2544014	50	70	90	30	46	32, 38, 44	5.48

◆ EXTENDED

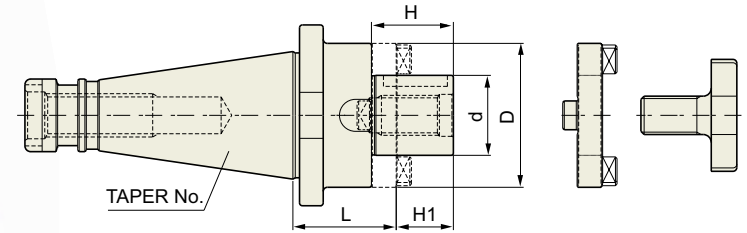
TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	BT40-CMA16-100	P2544015	16	100	32	17	27	27, 33, 39	1.41
	BT40-CMA22-100	P2544016	22	100	40	19	31	28, 34, 40	1.68
	BT40-CMA27-100	P2544017	27	100	48	21	33	29, 35, 41	2.02
	BT40-CMA32-100	P2544018	32	100	58	24	38	30, 36, 42	2.51
50	BT50-CMA16-100	P2544019	16	100	32	17	27	27, 33, 39	3.92
	BT50-CMA22-100	P2544020	22	100	40	19	31	28, 34, 40	4.15
	BT50-CMA27-100	P2544021	27	100	48	21	33	29, 35, 41	4.45
	BT50-CMA32-100	P2544022	32	100	58	24	38	30, 36, 42	4.86
	BT50-CMA40-100	P2544023	40	100	70	27	41	31, 37, 43	5.47

▶ Without "Coolant Through".

**COMBI-SHELL MILL ARBOR**

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG  
MANDRIN PORTE-FRAISES COMBINÉS  
MANDRINO PORTA FRESE  
PORTA FRESAS COMBINADO

DIN 2080-ISO



Parts, Refer to page 160

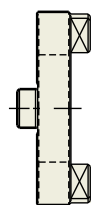
◆ STANDARD

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	ISO30-CMA16-35	P2514001	16	35	32	17	27	27, 33, 39	0.52
	ISO30-CMA22-35	P2514002	22	35	40	19	31	28, 34, 40	0.63
	ISO30-CMA27-35	P2514003	27	35	48	21	33	29, 35, 41	0.72
40	ISO40-CMA16-52	P2514004	16	52	32	17	27	27, 33, 39	0.99
	ISO40-CMA22-52	P2514005	22	52	40	19	31	28, 34, 40	1.15
	ISO40-CMA27-52	P2514006	27	52	48	21	33	29, 35, 41	1.37
	ISO40-CMA32-52	P2514007	32	52	58	24	38	30, 36, 42	1.65
50	ISO40-CMA40-52	P2514008	40	52	70	27	41	31, 37, 43	1.94
	ISO50-CMA16-55	P2514009	16	55	32	17	27	27, 33, 39	2.79
	ISO50-CMA22-55	P2514010	22	55	40	19	31	28, 34, 40	2.95
	ISO50-CMA27-55	P2514011	27	55	48	21	33	29, 35, 41	3.17
	ISO50-CMA32-55	P2514012	32	55	58	24	38	30, 36, 42	3.49
	ISO50-CMA40-55	P2514013	40	55	70	27	41	31, 37, 43	3.85
	ISO50-CMA50-55	P2514014	50	55	90	30	46	32, 38, 44	4.88

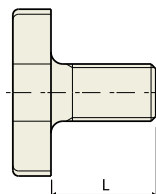
◆ EXTENDED

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	ISO40-CMA16-125	P2514015	16	125	32	17	27	27, 33, 39	1.41
	ISO40-CMA22-125	P2514016	22	125	40	19	31	28, 34, 40	1.78
	ISO40-CMA27-125	P2514017	27	125	48	21	33	29, 35, 41	2.35
	ISO40-CMA32-125	P2514018	32	125	58	24	38	30, 36, 42	3.07
50	ISO50-CMA16-125	P2514019	16	125	32	17	27	27, 33, 39	3.21
	ISO50-CMA22-125	P2514020	22	125	40	19	31	28, 34, 40	3.60
	ISO50-CMA27-125	P2514021	27	125	48	21	33	29, 35, 41	4.11
	ISO50-CMA32-125	P2514022	32	125	58	24	38	30, 36, 42	4.85
	ISO50-CMA40-125	P2514023	40	125	70	27	41	31, 37, 43	5.26

▶ Without "Coolant Through".

**DRIVE RING, BOLT & KEY**  
 (For COMBI-SHELL MILL ARBOR)

**CLUTCH DRIVE RING**

No.	CLUTCH DRIVE RING	EDP No.	CMA SPIGOT Dia.
27	#16	P2514063	16
28	#22	P2514064	22
29	#27	P2514065	27
30	#32	P2514066	32
31	#40	P2514067	40
32	#50	P2514068	50


**COLLAR BOLT**

No.	COLLAR BOLT	EDP No.	L (Length)	CMA SPIGOT Dia.
33	M8x1.25	P2778869	16	16
34	M10x1.5	P2778870	18	22
35	M12x1.75	P2778871	22	27
36	M16x2.0	P2778872	26	32
37	M20x2.5	P2778873	30	40
38	M24x3.0	P2778874	36	50

**KEY**

No.	KEY	EDP No.	CMA SPIGOT Dia.
39	4x4x20	P2514057	16
40	6x6x25	P2514058	22
41	7x7x25	P2514059	27
42	8x7x28	P2514060	32
43	10x8x32	P2514061	40
44	12x8x36	P2514062	50


**YG-1 TOOLING SYSTEM**

# POWER MILLING CHUCK

- FRÄSERSPANNFUTTER
- MANDRIN PORTE FRAISE
- MANDRINI PORTA FRESA
- PORTAHERRAMIENTAS PARA FRESADO


**DIN 69871-SK**

HIGH-SPEED TYPE / STANDARD TYPE

**DIN 69893/ISO 12164-1-HSK**

HIGH-SPEED TYPE / STANDARD TYPE

**CBT (BT DUAL CONTACT)**
**JIS B6339/MAS 403-BT**

HIGH-SPEED TYPE / STANDARD TYPE

**DIN 228-MTA/MTB, R8**
**MILLING CHUCK SET**

STANDARD MILLING CHUCK SET

Q.C MILLING CHUCK SET

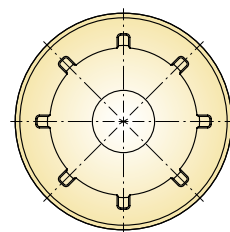
**ACCESSORY**

END MILL COLLET (K, CK, MT, JT), SPANNER

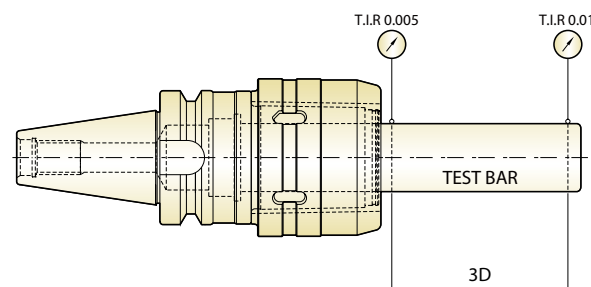
POWER MILLING CHUCK



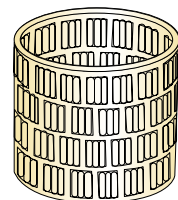
- Rigidity is strengthened through slot made at inside milling chuck, which prevents deformation of milling chuck. Smooth cutting is achieved by maximizing end mill clamping power.
- Enough thickness of clamping part prevents chattering and ensures durability.



- High precision can be achieved through accurate roundness of clamping part, deburred surface and rigidity (deviation of concentricity : below 2, roughness : below RZ B1.0~1.5)
- Maintaining T.I.R not exceeding 0.01 mm at 3D from nose part



- 160% more of bearings are used in needle roller than other make's chucks, which provides strong clamping power and high durability by dispersing surface pressure even in case strong load is applied.



- In order to improve durability, YG-1 milling chuck is passed through following processes.
  - "Normalizing" treatment for unifying material composition and removal internal stress.
  - Ultralow temperature (-90°C) treatment called "Sub-Zero treatment" after carburizing heat treatment for prior removal of any deformation of milling chuck after use for long periods of time.

POWER MILLING CHUCK

High-Speed POWER MILLING CHUCK

- Achieving optimum cutting for High-Speed heavy duty cutting and finishing with strong torque power
- Perfect clamping from 3mm depth of I.D entrance
- Achieving stability when exchanging and setting tools by stable fastening and unfastening torque



Strong Torque Power

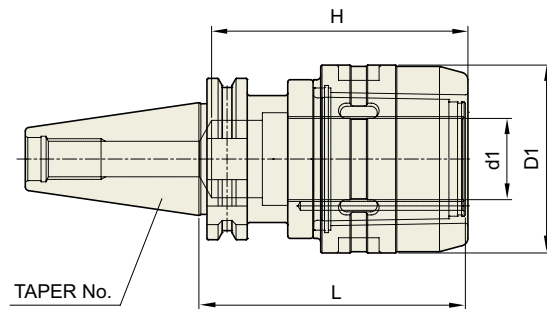
Milling chuck (I.D)	Standard	Tolerance (Taper shank)	Run-out	Clamping torque
C20	AT3	ISO 30 (0~+0.002) ISO 40 (0~+0.003) ISO 50 (0~+0.004)	0.01mm at 3D	980Nm
C25				1,760Nm
C32				3,430Nm
C42				4,900Nm



**HIGH-SPEED POWER MILLING CHUCK**

DIN 69871-SK

HOCHGESCHWINDIGKEITS FRÄSERFUTTER  
MANDRIN PORTE FRAISE À GRANDE VITESSE  
MANDRINI PORTA FRESA PER ALTA VELOCITÀ  
PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD



Collet, spanner  
Refer to page 176

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	SK30-C20-80HS	P2773005	20	54	80	70	1.15
	SK30-C25-80HS	P2773006	25	62.5	70	80	1.48
40	SK40-C20-105HS	P2526022	20	54	105	70	1.77
	SK40-C25-105HS	P2773001	25	62.5	105	80	2.10
	SK40-C32-105HS	P2526023	32	74	105	100	2.40
	SK40-C32-135HS	P2773007	32	74	135	100	3.10
50	SK50-C20-105HS	P2773002	20	54	105	70	3.40
	SK50-C25-105HS	P2773003	25	62.5	105	80	3.80
	SK50-C32-105HS	P2773004	32	74	105	100	4.30
	SK50-C32-135HS	P2526024	32	74	135	100	4.90
	SK50-C32-165HS	P2526025	32	74	165	100	5.60
	SK50-C42-115HS	P2773008	42	92	115	110	4.60
	SK50-C42-135HS	P2773009	42	92	135	110	5.60
	SK50-C42-165HS	P2773010	42	92	165	110	6.10

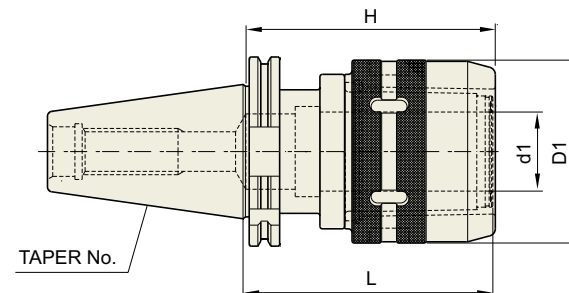
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**POWER MILLING CHUCK**

DIN 69871-SK

FRÄSERSPANNFUTTER  
MANDRIN PORTE FRAISE  
MANDRINI PORTA FRESA  
PORTAHERRAMIENTAS PARA FRESADO



Collet, spanner  
Refer to page 176

◆ STUB

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	SK30-C20-80	P2526001	20	54	80	70	1.15
	SK30-C25-80	P2526002	25	62.5	70	80	1.48
40	SK40-C20-90	P2526003	20	54	90	70	1.60
	SK40-C32-90	P2526004	32	72	90	100	2.00
50	SK50-C20-80	P2526005	20	54	80	70	3.22
	SK50-C25-90	P2526006	25	62.5	90	80	3.61
	SK50-C32-90	P2526007	32	72	90	100	3.87

◆ STANDARD

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
40	SK40-C20-105	P2526008	20	54	105	70	1.77
	SK40-C25-105	P2526009	25	62.5	105	80	2.01
	SK40-C32-105	P2526010	32	72	105	100	2.42
50	SK50-C20-105	P2526011	20	54	105	70	3.39
	SK50-C25-105	P2526012	25	62.5	105	80	3.78
	SK50-C32-105	P2526013	32	72	105	100	4.31
	SK50-C42-115	P2526014	42	92	115	110	4.53

◆ EXTENDED

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
40	SK40-C32-135	P2526015	32	72	135	100	3.11
50	SK50-C32-135	P2526018	32	72	135	100	4.94
	SK50-C42-135	P2526017	42	92	135	110	5.62

◆ EXTRA EXTENDED

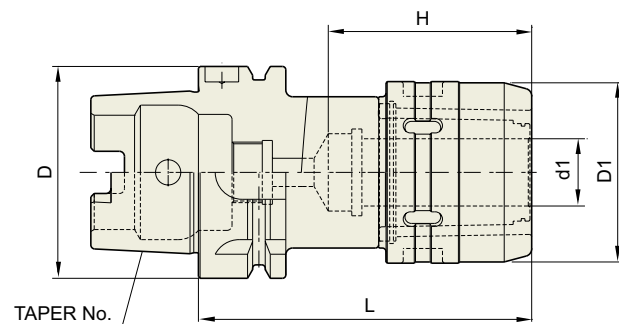
TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
50	SK50-C32-165	P2526020	32	72	165	100	5.59
	SK50-C42-165	P2526016	42	92	165	110	6.10

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**HIGH-SPEED POWER MILLING CHUCK**

HOCHGESCHWINDIGKEITS FRÄSERFUTTER  
MANDRIN PORTE FRAISE À GRANDE VITESSE  
MANDRINI PORTA FRESA PER ALTA VELOCITÀ  
PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD

DIN 69893/  
ISO 12164-1-HSK FORM A



Collet, spanner  
Refer to page 176

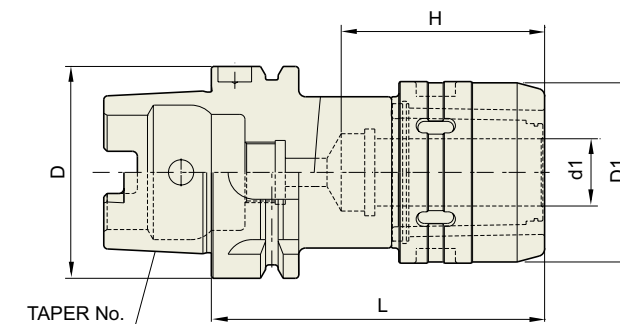
Unit : mm							
TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
50A	HSK50A-C20-100HS	P2773102	20	54	100	70	1.30
	HSK63A-C20-105HS	P2562016	20	54	105	70	1.50
63A	HSK63A-C25-120HS	P2773103	25	62.5	120	80	2.20
	HSK63A-C32-130HS	P2562017	32	74	130	100	2.70
100A	HSK100A-C20-110HS	P2773104	20	54	110	70	3.50
	HSK100A-C25-130HS	P2773105	25	62.5	130	80	3.80
	HSK100A-C32-135HS	P2773101	32	74	135	100	4.20
	HSK100A-C42-135HS	P2773106	42	74	135	100	5.30

► CAT(ANSI B5.50) taper and Inch type products are available.

**POWER MILLING CHUCK**

FRÄSERSPANNFUTTER  
MANDRIN PORTE FRAISE  
MANDRINI PORTA FRESA  
PORTAHERRAMIENTAS PARA FRESADO

DIN 69893/  
ISO 12164-1-HSK FORM A



Unit : mm								
TAPER No.	MODEL No.	EDP No.	d1	D	D1	L	H	WEIGHT (kg)
50A	HSK50A-C20-100	P2773151	20	50	54	100	70	1.30
	HSK63A-C20-105	P2773152	20	63	54	105	70	1.50
63A	HSK63A-C32-130	P2600032	32	63	72	130	100	2.70
	HSK100A-C20-110	P2773153	20	100	54	110	70	3.50
100A	HSK100A-C32-135	P2773154	32	100	72	135	100	4.20
	HSK100A-C42-135	P2773155	42	100	92	135	100	5.30

◆ ACCESSORY

END MILL COLLET	MODEL No.
	K20-6, 8, 10, 12, 16
	K32-6, 8, 10, 12, 16, 20, 25
	K42-6, 8, 10, 12, 16, 20, 25, 32

► Special size of Ø3, Ø4 or Ø5 can be produced and supplied upon request.

END MILL COLLET	MODEL No.
	CK20-6, 8, 10, 12, 16
	CK25-6, 8, 10, 12, 16, 20
	CK32-6, 8, 10, 12, 16, 20, 25
	CK42-6, 8, 10, 12, 16, 20, 25, 32

SPANNER	MODEL No.
	C20 SP
	C25 SP
	C32 SP
	C42 SP

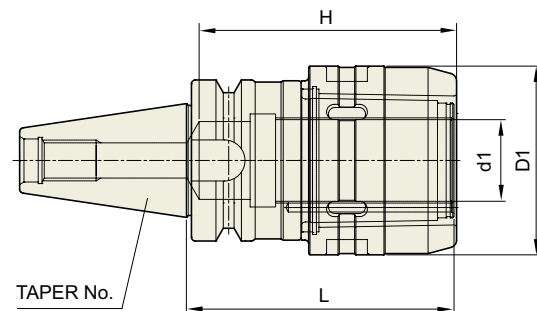
**YG POWER MILLING CHUCK**

**C**

**HIGH-SPEED POWER MILLING CHUCK**

HOCHGESCHWINDIGKEITS FRÄSERFUTTER  
 MANDRIN PORTE FRAISE À GRANDE VITESSE  
 MANDRINI PORTA FRESA PER ALTA VELOCITÀ  
 PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD

**CBT (BT DUAL CONTACT)**



Collet, spanner  
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	CBT30-C20-75HS	P2773251	20	54	75	70	1.50
	CBT30-C25-80HS	P2773252	25	62.5	80	70	2.00
40	CBT40-C20-80HS	P2773253	20	54	80	70	2.00
	CBT40-C20-105HS	P2773254	20	54	105	70	2.10
	CBT40-C25-105HS	P2773255	25	62.5	105	80	2.50
	CBT40-C32-90HS	P2773256	32	74	90	100	3.00
	CBT40-C32-105HS	P2773257	32	74	105	100	3.10
	CBT40-C32-135HS	P2773258	32	74	135	100	3.30
50	CBT50-C20-105HS	P2773259	20	54	105	70	4.50
	CBT50-C20-135HS	P2773260	20	54	135	70	4.90
	CBT50-C20-165HS	P2773261	20	54	165	70	5.40
	CBT50-C25-105HS	P2773262	25	62.5	105	80	5.20
	CBT50-C25-135HS	P2773263	25	62.5	135	80	5.80
	CBT50-C25-165HS	P2773264	25	62.5	165	80	6.20
	CBT50-C32-105HS	P2773265	32	74	105	100	6.00
	CBT50-C32-135HS	P2773266	32	74	135	100	6.70
	CBT50-C32-165HS	P2773267	32	74	165	100	7.40
	CBT50-C42-115HS	P2773268	42	92	115	110	6.70
CBT50-C42-135HS	P2773269	42	92	135	110	7.60	
CBT50-C42-165HS	P2773270	42	92	165	110	8.30	

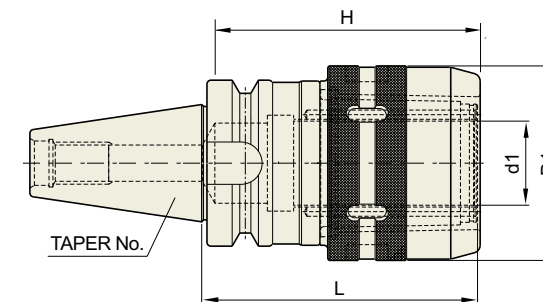
**YG POWER MILLING CHUCK**

**C**

**POWER MILLING CHUCK**

FRÄSERSPANNFUTTER  
 MANDRIN PORTE FRAISE  
 MANDRINI PORTA FRESA  
 PORTAHERRAMIENTAS PARA FRESADO

**CBT (BT DUAL CONTACT)**



Collet, spanner  
Refer to page 176

Unit : mm

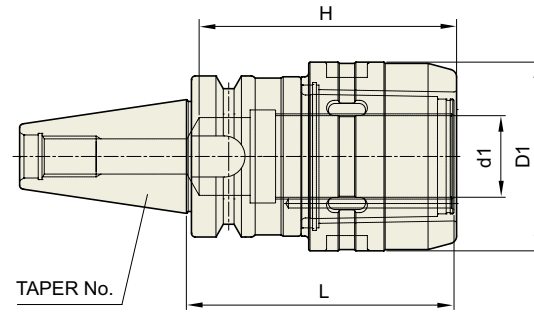
TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	CBT30-C20-75	P2773204	20	54	75	70	1.50
	CBT30-C25-80	P2773205	25	62.5	80	70	2.00
40	CBT40-C20-80	P2773201	20	54	80	70	2.00
	CBT40-C20-105	P2773206	20	54	105	70	2.10
	CBT40-C25-105	P2773207	25	62.5	105	80	2.50
	CBT40-C32-90	P2773202	32	72	90	100	3.00
	CBT40-C32-105	P2773203	32	72	105	100	3.10
	CBT40-C32-135	P2773208	32	72	135	100	3.30
50	CBT50-C20-105	P2773209	20	54	105	70	4.50
	CBT50-C20-135	P2773210	20	54	135	70	4.90
	CBT50-C20-165	P2773211	20	54	165	70	5.40
	CBT50-C25-105	P2773212	25	62.5	105	80	5.20
	CBT50-C25-135	P2773213	25	62.5	135	80	5.80
	CBT50-C25-165	P2773214	25	62.5	165	80	6.20
	CBT50-C32-105	P2773215	32	72	105	100	6.00
	CBT50-C32-115	P2773216	32	72	115	100	6.20
	CBT50-C32-135	P2773217	32	72	135	100	6.70
	CBT50-C32-165	P2773218	32	72	165	100	7.40
CBT50-C42-115	P2773219	42	92	115	110	6.70	
CBT50-C42-135	P2773220	42	92	135	110	7.60	
CBT50-C42-165	P2773221	42	92	165	110	8.30	



**HIGH-SPEED POWER MILLING CHUCK**

JIS B6339/MAS 403-BT

HOCHGESCHWINDIGKEITS FRÄSERFUTTER  
MANDRIN PORTE FRAISE À GRANDE VITESSE  
MANDRINI PORTA FRESA PER ALTA VELOCITÀ  
PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD



Collet, spanner  
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	BT30-C20-75HS	P2546101	20	54	75	70	1.50
	BT30-C25-80HS	P2546102	25	62.5	80	70	2.00
40	BT40-C20-80HS	P2546103	20	54	80	70	2.00
	BT40-C20-105HS	P2546104	20	54	105	70	2.10
	BT40-C25-105HS	P2546105	25	62.5	105	80	2.50
	BT40-C32-90HS	P2546106	32	74	90	100	3.00
	BT40-C32-105HS	P2546107	32	74	105	100	3.10
	BT40-C32-135HS	P2546108	32	74	135	100	3.30
	BT50-C20-105HS	P2546109	20	54	105	70	4.50
50	BT50-C20-135HS	P2546110	20	54	135	70	4.90
	BT50-C20-165HS	P2546111	20	54	165	70	5.40
	BT50-C25-105HS	P2546112	25	62.5	105	80	5.20
	BT50-C25-135HS	P2546113	25	62.5	135	80	5.80
	BT50-C25-165HS	P2546114	25	62.5	165	80	6.20
	BT50-C32-105HS	P2546115	32	74	105	100	6.00
	BT50-C32-135HS	P2546116	32	74	135	100	6.70
	BT50-C32-165HS	P2546117	32	74	165	100	7.40
	BT50-C42-115HS	P2546118	42	92	115	110	6.70
	BT50-C42-135HS	P2546119	42	92	135	110	7.60
BT50-C42-165HS	P2546120	42	92	165	110	8.30	

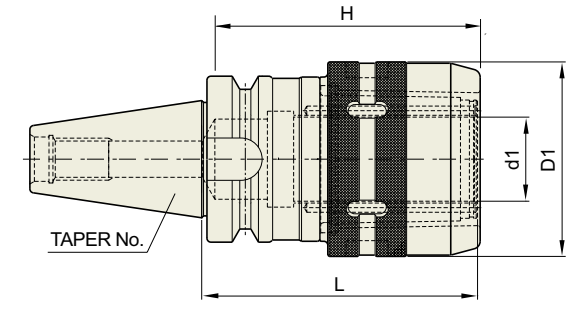
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**POWER MILLING CHUCK**

JIS B6339/MAS 403-BT

FRÄSERSPANNFUTTER  
MANDRIN PORTE FRAISE  
MANDRINI PORTA FRESA  
PORTAHERRAMIENTAS PARA FRESADO



Collet, spanner  
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	BT30-C20-75	P2546001	20	54	75	70	1.50
	BT30-C25-80	P2546002	25	62.5	80	70	2.00
40	BT40-C20-80	P2546003	20	54	80	70	2.00
	BT40-C20-105	P2546004	20	54	105	70	2.10
	BT40-C25-105	P2546005	25	62.5	105	80	2.50
	BT40-C32-90	P2546006	32	72	90	100	3.00
	BT40-C32-105	P2546007	32	72	105	100	3.10
	BT40-C32-135	P2546008	32	72	135	100	3.30
	BT50-C20-105	P2546009	20	54	105	70	4.50
50	BT50-C20-135	P2546010	20	54	135	70	4.90
	BT50-C20-165	P2546011	20	54	165	70	5.40
	BT50-C25-105	P2546012	25	62.5	105	80	5.20
	BT50-C25-135	P2546013	25	62.5	135	80	5.80
	BT50-C25-165	P2546014	25	62.5	165	80	6.20
	BT50-C32-105	P2546015	32	72	105	100	6.00
	BT50-C32-115	P2546016	32	72	115	100	6.20
	BT50-C32-135	P2546017	32	72	135	100	6.70
	BT50-C32-165	P2546018	32	72	165	100	7.40
	BT50-C42-115	P2546019	42	92	115	110	6.70
BT50-C42-135	P2546020	42	92	135	110	7.60	
BT50-C42-165	P2546121	42	92	165	110	8.30	

▶ CAT(ANSI B5.50) taper and Inch type products are available.

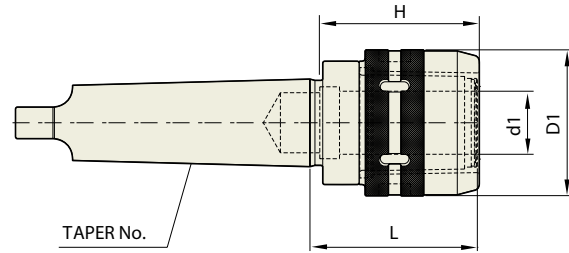
**YG POWER MILLING CHUCK**

**C**

**POWER MILLING CHUCK**

**DIN 228-MTA**

FRÄSERSPANNFUTTER  
MANDRIN PORTE FRAISE  
MANDRINI PORTA FRESA  
PORTAHERRAMIENTAS PARA FRESADO

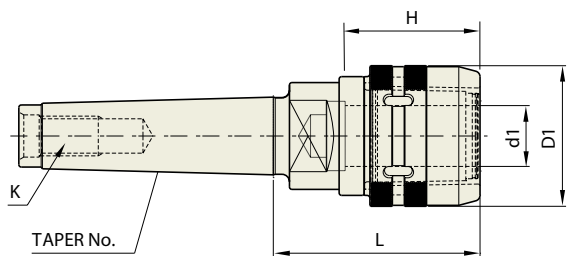


Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
4	MTA4-C32	P2546122	32	72	98	85	2.57
5	MTA5-C32	P2546123	32	72	85	100	3.06
	MTA5-C42	P2546124	42	92	114	100	3.45
6	MTA6-C42	P2546125	42	92	99	110	4.14

▶ In case of MT6, it is required to inform machine model number and company name for selection of cutter groove.

**DIN 228-MTB**



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	K	WEIGHT (kg)
3	MTB3-C20	P2546126	20	54	74	65	M12	2.10
4	MTB4-C32	P2546127	32	72	98	80	M16	2.57
5	MTB5-C32	P2546128	32	72	85	100	M20	3.06
	MTB5-C42	P2546129	42	92	114	100	M20	3.45

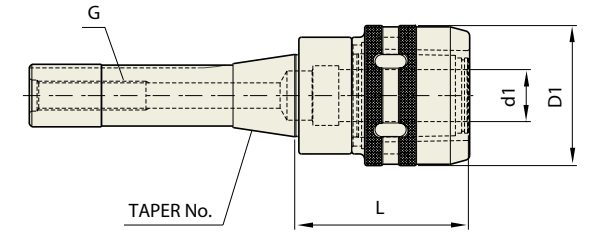
**YG POWER MILLING CHUCK**

**C**

**POWER MILLING CHUCK**

**BRIDGEPORT-R8**

FRÄSERSPANNFUTTER  
MANDRIN PORTE FRAISE  
MANDRINI PORTA FRESA  
PORTAHERRAMIENTAS PARA FRESADO



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	G	WEIGHT (kg)
R8	R8-C20	P2546130	20	54	69	U7/16-20	1.40

**MILLING CHUCK STANDARD SET**

GEGENSTÜCK FÜR FRÄSERSPANNFUTTER  
 ETUI AVEC PORTE-FRAISE ET CLEF  
 CASSETTA COMPLETA DI MANDRINO, CHIAVE E PINZE  
 ESTUCHE CON PORTAPINZAS, PINZAS Y LLAVE



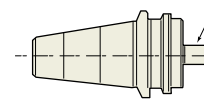
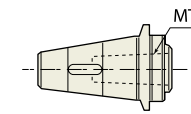
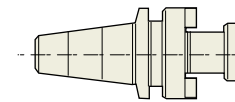
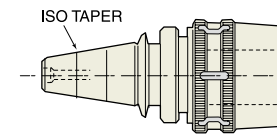
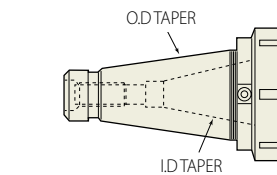
TAPER	STANDARD SET MODEL No.	EDP No.	MILLING CHUCK	END MILL COLLET	SPANNER
SK	SSK40-C20	P2526031	SK40-C20-105	K20-6, 8, 10, 12, 16 (5pcs)	C20 SP
	SSK40-C32	P2773301	SK40-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SSK50-C32	P2773302	SK50-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SSK50-C42	P2773303	SK50-C42-115	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP
BT	SBT40-C20	P2546021	BT40-C20-105	K20-6, 8, 10, 12, 16 (5pcs)	C20 SP
	SBT40-C32	P2546022	BT40-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SBT50-C32	P2546023	BT50-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SBT50-C42	P2546024	BT50-C42-115	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP
ISO	SISO40-C20	P2516021	ISO40-C20-78	K20-6, 8, 10, 12, 16 (5pcs)	C20 SP
	SISO40-C32	P2516022	ISO40-C32-78	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SISO50-C32	P2516023	ISO50-C32-85	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SISO50-C42	P2516024	ISO50-C42-102	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP
NT	SNT40-C32	P2773304	NT40-C32	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SNT50-C32	P2773305	NT50-C32	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SNT50-C42	P2773306	NT50-C42	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP

**QUICK CHANGE MILLING CHUCK SET**

SCHNELLWECHSEL GEGENSTÜCK FÜR FRÄSERSPANNFUTTER  
 CHANGEMENT RAPIDE ETUI AVEC PORTE-FRAISE ET CLEF  
 CAMBIO RAPIDO CASSETTA COMPLETA DI MANDRINO, CHIAVE E PINZE  
 CAMBIO RAPIDO ESTUCHE CON PORTAPINZAS, PINZAS Y LLAVE



TAPER	Q.C MILLING HOLDER SET MODEL No.	EDP No.	Q.C MASTER HOLDER	Q.C MILLING CHUCK	END MILL COLLETS	Q.C FACE MILL ARBOR	Q.C DRILL CHUCK BAR	DRILL CHUCK ARBOR	Q.C TAPER SLEEVE	SPANNER
NT40	SMH40-T35-32A	P2773307	MH40-T35	QT35-32	K32-(6-25)(7pcs)	QT35-4R	-	K32-J6	-	MH40 SP
	SMH40-T35-32B	P2773308	MH40-T35	QT35-32	K32-(6-25)(7pcs)	QT35-4R	QT35-J6	-	QT35-MT2, 3, 4	MH40 SP
NT50	SMH50-T45-32A	P2773309	MH50-T45	QT45-32	K32-(6-25)(7pcs)	QT45-5R	-	K32-J6	-	MH50 SP
	SMH50-T45-32B	P2773310	MH50-T45	QT45-32	K32-(6-25)(7pcs)	QT45-5R	QT45-J6	-	QT45-MT2, 3, 4	MH50 SP
	SMH50-T45-42A	P2773311	MH50-T45	QT45-42	K42-(6-32)(8pcs)	QT45-5R	-	K42-J6	-	MH50 SP
	SMH50-T45-42B	P2773312	MH50-T45	QT45-42	K42-(6-32)(8pcs)	QT45-5R	QT45-J6	-	QT45-MT2, 3, 4	MH50 SP



**◆ Q.C MASTER HOLDER**

MODEL No.	EDP No.	O.D TAPER	I.D TAPER	DRAW THREADS
MH40-T35	P2773313	NT40	NT35	U5/8-11(M16-2)
MH50-T45	P2773314	NT50	NT45	U1-8 (M24-3)

**◆ Q.C MILLING CHUCK**

Q.C MASTER HOLDER	MODEL No.	EDP No.
MH40	QT35-C32	P2773315
MH50	QT45-C32	P2773316
MH50	QT45-C42	P2773317

**◆ Q.C FACE MILL ARBOR**

Q.C MASTER HOLDER	MODEL No.	EDP No.
MH40	QT35-3R	P2773318
	QT35-4R	P2773319
	QT35-5R	P2773320
MH50	QT45-3R	P2773321
	QT45-4R	P2773322
	QT45-5R	P2773323
	QT45-6R	P2773324

**◆ Q.C TAPER SLEEVE**

Q.C MASTER HOLDER	MODEL No.	EDP No.
MH40	QT35-MT1	P2773325
	QT35-MT2	P2773326
	QT35-MT3	P2773327
MH50	QT45-MT1	P2773328
	QT45-MT2	P2773329
	QT45-MT3	P2773330
	QT45-MT4	P2773331

**◆ Q.C DRILL CHUCK ARBOR**

Q.C MASTER HOLDER	MODEL No.	EDP No.	DRILL (Ø)
MH40	QT35-J6	P2773332	1-13mm
MH50	QT45-J6	P2773333	1-13mm





POWER MILLING CHUCK

K/CK/MT/SP

## COLLET &amp; SPANNER



## ■ END MILL COLLET (K TYPE)

MODEL No.	EDP No.
K20-6	P2506401
K20-8	P2506402
K20-10	P2506403
K20-12	P2506404
K20-16	P2506405
K25-6	P2506601
K25-8	P2506602
K25-10	P2506603
K25-12	P2506604
K25-16	P2506605
K25-20	P2506606
K32-6	P2506411
K32-8	P2506412
K32-10	P2506413
K32-12	P2506414
K32-16	P2506415
K32-20	P2506416
K32-25	P2506417
K42-6	P2506511
K42-8	P2506512
K42-10	P2506513
K42-12	P2506514
K42-16	P2506515
K42-20	P2506516
K42-25	P2506517
K42-32	P2506518

## ■ END MILL COLLET (CK TYPE)

MODEL No.	EDP No.
CK20-6	P2506731
CK20-8	P2506732
CK20-10	P2506733
CK20-12	P2506734
CK20-16	P2506735
CK25-6	P2506736
CK25-8	P2506737
CK25-10	P2506738
CK25-12	P2506739
CK25-16	P2506740
CK25-20	P2506741
CK32-6	P2506742
CK32-8	P2506743
CK32-10	P2506744
CK32-12	P2506745
CK32-16	P2506746
CK32-20	P2506747
CK32-25	P2506748
CK42-6	P2506749
CK42-8	P2506750
CK42-10	P2506751
CK42-12	P2506752
CK42-16	P2506753
CK42-20	P2506754
CK42-25	P2506755
CK42-32	P2506756

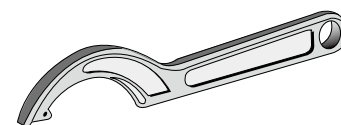
## ■ MT COLLET

MODEL No.	EDP No.
K20-MT1	P2506519
K20-MT2	P2506520
K25-MT1	P2506521
K25-MT2	P2506522
K25-MT3	P2506534
K32-MT1	P2506523
K32-MT2	P2506524
K32-MT3	P2506525
K42-MT1	P2506526
K42-MT2	P2506527
K42-MT3	P2506528
K42-MT4	P2506529



## ■ DRILL CHUCK ARBOR

MODEL No.	EDP No.
K20-JTA6	P2506530
K25-JTA6	P2506531
K32-JTA6	P2506532
K42-JTA6	P2506533



## ■ SPANNER

MODEL No.	EDP No.
C20 SP	P2773401
C25 SP	P2773402
C32 SP	P2600033
C42 SP	P2773403

## YG-1 TOOLING SYSTEM

## MORSE TAPER ARBOR

- EINSATZHÜLSEN FÜR MORSEKEGEL
- DOUILLES DE RÉDUCTION CÔNE MORSE
- MANDRINO RIDUZIONE CONO MORSE
- REDUCTORES A MORSE

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

ANSI B5.18-NT

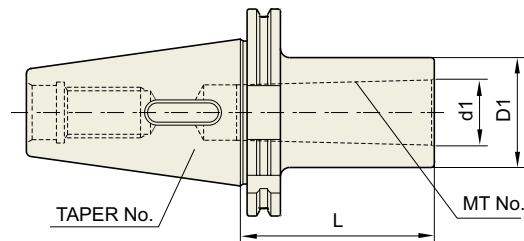
GOST 25827-93



**MORSE TAPER ARBOR**

**DIN 69871-SK**

EINSATZHÜLSEN FÜR MORSEKEGEL  
DOUILLES DE RÉDUCTION CÔNE MORSE  
MANDRINO RIDUZIONE CONO MORSE  
REDUCTORES A MORSE

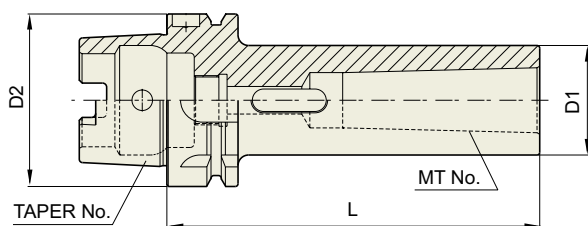


**STANDARD**

Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	d1	D1	L	WEIGHT (kg)
30	SK30-MTA1-50	P2522001	1	12.065	25	50	0.72
	SK30-MTA2-60	P2522002	2	17.78	32	60	0.87
	SK30-MTA3-80	P2522003	3	23.825	40	80	1.02
40	SK40-MTA1-50	P2522004	1	12.065	25	50	1.49
	SK40-MTA2-50	P2522005	2	17.78	32	50	1.62
	SK40-MTA3-70	P2522006	3	23.825	40	70	1.65
	SK40-MTA4-95	P2522007	4	31.267	48	95	1.90
50	SK50-MTA1-45	P2522008	1	12.065	25	45	2.60
	SK50-MTA2-60	P2522009	2	17.78	32	60	2.66
	SK50-MTA3-65	P2522010	3	23.825	40	65	2.75
	SK50-MTA4-95	P2522011	4	31.267	48	95	3.00
	SK50-MTA5-105	P2522012	5	44.399	63	105	3.30

**DIN 69893/  
ISO 12164-1-HSK FORM A**



Unit : mm

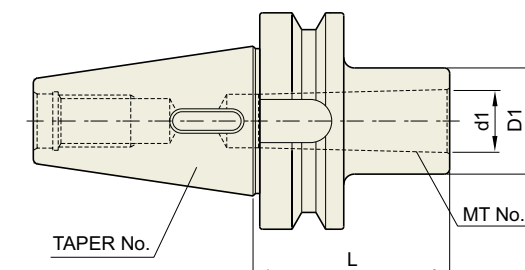
TAPER No.	MODEL No.	EDP No.	MT No.	D1	D2	L	WEIGHT (kg)
50A	HSK50A-MTA1-100	P2565005	1	25	50	100	0.67
	HSK50A-MTA2-120	P2565006	2	32	50	120	0.78
	HSK50A-MTA3-140	P2565007	3	40	50	140	0.91
63A	HSK63A-MTA1-100	P2565001	1	25	63	100	0.87
	HSK63A-MTA2-120	P2565002	2	32	63	120	1.28
	HSK63A-MTA3-140	P2565003	3	40	63	140	1.44
	HSK63A-MTA4-160	P2565004	4	48	63	160	1.86
100A	HSK100A-MTA1-110	P2565011	1	25	100	110	2.12
	HSK100A-MTA2-120	P2565012	2	32	100	120	2.41
	HSK100A-MTA3-150	P2565013	3	40	100	150	2.82
	HSK100A-MTA4-170	P2565014	4	48	100	170	3.63
	HSK100A-MTA5-200	P2565015	5	63	100	200	4.80

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**MORSE TAPER ARBOR**

**JIS B6339/  
MAS 403-BT**

EINSATZHÜLSEN FÜR MORSEKEGEL  
DOUILLES DE RÉDUCTION CÔNE MORSE  
MANDRINO RIDUZIONE CONO MORSE  
REDUCTORES A MORSE



Unit : mm

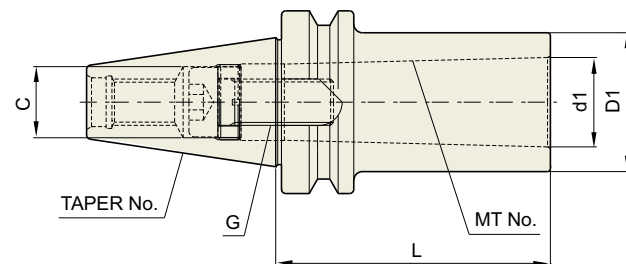
TAPER No.	MODEL No.	EDP No.	MT No.	L	d1	D1	WEIGHT (kg)
30	BT30-MTA1-45	P2542001	1	45	12.065	25	0.40
	BT30-MTA2-60	P2542002	2	60	17.780	32	0.50
	BT30-MTA2-120	P2542003	2	120	17.780	32	0.60
	BT30-MTA3-75	P2542004	3	75	23.825	40	0.70
40	BT40-MTA1-45	P2542005	1	45	12.065	25	1.00
	BT40-MTA1-120	P2542006	1	120	12.065	25	1.30
	BT40-MTA2-60	P2542013	2	60	17.780	32	1.00
	BT40-MTA2-120	P2542009	2	120	17.780	32	1.40
	BT40-MTA3-75	P2542014	3	75	23.825	40	1.20
	BT40-MTA3-135	P2542010	3	135	23.825	40	1.80
	BT40-MTA4-95	P2542007	4	95	31.267	50	1.10
	BT40-MTA4-165	P2542011	4	165	31.267	50	2.40
	BT50-MTA1-45	P2542008	1	45	12.065	25	4.00
	BT50-MTA1-120	P2542017	1	120	12.065	25	4.30
50	BT50-MTA1-180	P2542018	1	180	12.065	25	4.30
	BT50-MTA2-45	P2542015	2	45	17.780	32	4.00
	BT50-MTA2-135	P2542019	2	135	17.780	32	4.40
	BT50-MTA2-180	P2542020	2	180	17.780	32	4.60
	BT50-MTA3-45	P2542021	3	45	23.825	40	3.90
	BT50-MTA3-150	P2542022	3	150	23.825	40	4.70
	BT50-MTA3-180	P2542016	3	180	23.825	40	4.90
	BT50-MTA4-75	P2542023	4	75	31.267	50	4.00
	BT50-MTA4-105	P2542024	4	105	31.267	50	4.50
	BT50-MTA4-180	P2542025	4	180	31.267	50	5.40
	BT50-MTA5-105	P2542012	5	105	44.399	65	4.50
	BT50-MTA5-210	P2542026	5	210	44.399	65	7.20
	BT50-MTA5-270	P2542027	5	270	44.399	65	7.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**MORSE TAPER ARBOR**

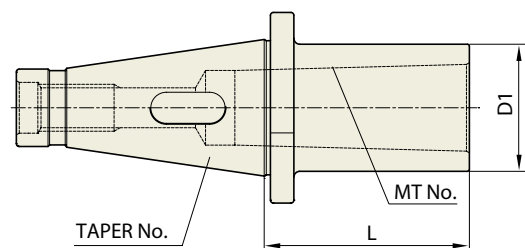
EINSATZHÜLSEN FÜR MORSEKEGEL  
DOUILLES DE RÉDUCTION CÔNE MORSE  
MANDRINO RIDUZIONE CONO MORSE  
REDUCTORES A MORSE

JIS B6339/  
MAS 403-BT



Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	L	d1	D1	C	G	WEIGHT (kg)
30	BT30-MTB1-45	P2542028	1	45	12.065	25	10	M6×1.0	0.80
	BT30-MTB2-45	P2542029	2	45	17.780	32	-	M10×1.5	0.80
40	BT40-MTB1-45	P2600019	1	45	12.065	25	10	M6×1.0	1.00
	BT40-MTB2-45	P2600020	2	45	17.780	32	13.5	M10×1.5	1.10
	BT40-MTB3-60	P2543016	3	60	23.825	40	-	M12×1.75	1.10
	BT40-MTB4-85	P2600021	4	85	31.267	50	-	M16×2.0	1.30
50	BT50-MTB1-45	P2543008	1	45	12.065	25	10	M6×1.0	3.90
	BT50-MTB2-45	P2542030	2	45	17.780	32	16	M10×1.5	3.90
	BT50-MTB3-60	P2542031	3	60	23.825	40	18	M12×1.75	3.90
	BT50-MTB4-75	P2542032	4	75	31.267	50	20.5	M16×2.0	3.90



Unit : mm

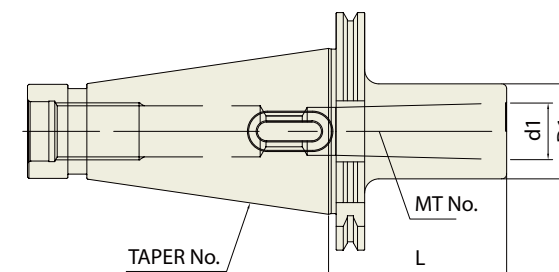
TAPER No.	MODEL No.	EDP No.	MT No.	RANGE OF DRILL		D1	L	DRAW THREAD	WEIGHT (kg)
				Min.	Max.				
40	NT40-MTA1-30	P2542051	1	2.0	14.0	25	30	U5/8-11(M16×2)	0.90
	NT40-MTA2-30	P2542052	2	14.1	23.0	32	30	U5/8-11(M16×2)	1.00
	NT40-MTA3-35	P2542053	3	23.1	32.0	40	45	U5/8-11(M16×2)	1.00
	NT40-MTA4-90	P2542054	4	32.1	50.0	50	90	U5/8-11(M16×2)	1.20
50	NT50-MTA1-30	P2542055	1	2.0	14.0	25	30	U1-8(M24×3)	3.50
	NT50-MTA2-30	P2542056	2	14.1	23.0	32	30	U1-8(M24×3)	3.50
	NT50-MTA3-30	P2542057	3	23.1	32.0	40	30	U1-8(M24×3)	3.50
	NT50-MTA4-45	P2542058	4	32.1	50.0	50	45	U1-8(M24×3)	3.50
	NT50-MTA5-105	P2542059	5	50.1	75.0	60	105	U1-8(M24×3)	4.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**MORSE TAPER ARBOR**

EINSATZHÜLSEN FÜR MORSEKEGEL  
DOUILLES DE RÉDUCTION CÔNE MORSE  
MANDRINO RIDUZIONE CONO MORSE  
REDUCTORES A MORSE

GOST 25827-93



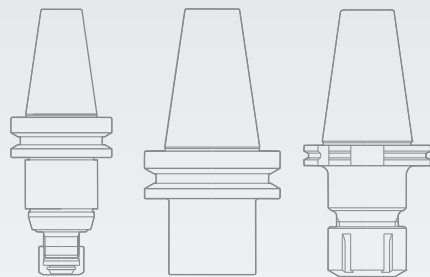
Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	d1	D1	L	WEIGHT (kg)
40	GOST40-MTA1-115	P2780451	1	12.065	25	115	
	GOST40-MTA2-125	P2780452	2	17.78	32	125	
	GOST40-MTA3-145	P2780453	3	23.825	40	145	
	GOST40-MTA4-165	P2780454	4	31.267	48	165	
50	GOST50-MTA2-135	P2780455	2	17.78	32	135	
	GOST50-MTA3-155	P2780456	3	23.825	40	155	
	GOST50-MTA4-180	P2780457	4	31.267	48	180	
	GOST50-MTA5-215	P2780458	5	44.399	63	215	





Global Cutting Tool Leader **YG-1**



# TOOLING SYSTEM

## YG-1 TOOLING SYSTEM

# SK SLIM CHUCK

- SK SCHLANKE FUTTER
- MANDRIN TYPE SK MINCE
- SK MANDRINI SOTTILI
- PORTAHERRAMIENTAS SK EJE REDUCIDO



**DIN 69871-SK**

**DIN 69893/ISO 12164-1-HSK**

**CBT (BT DUAL CONTACT)**

**JIS B6339/MAS 403-BT**

**ISO 20/25**

**STRAIGHT K (EXTENSION)**

**ACCESSORY & PARTS**

SK COLLET / SK NUT / SPANNER

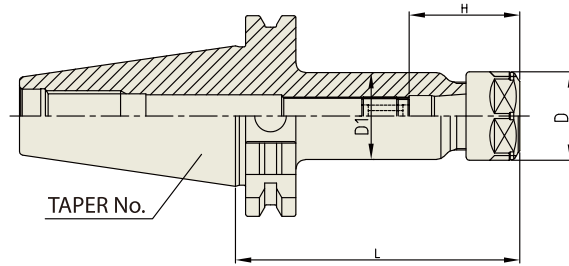


SKA

SK SLIM CHUCK

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69871-SK



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
30	SK30-SKA06-60	P2802801	1.8 ~ 6.0	60	20	19.5	31	SKC6	-
	SK30-SKA06-90	P2802802	1.8 ~ 6.0	90	20	19.5	31	SKC6	-
	SK30-SKA10-60	P2802803	1.75 ~ 10.0	60	28	27.5	35	SKC10	-
	SK30-SKA10-90	P2802804	1.75 ~ 10.0	90	28	27.5	35	SKC10	-
	SK30-SKA13-60	P2802805	2.75 ~ 13.0	60	33	33	43.6	SKC13	-
	SK30-SKA13-90	P2802806	2.75 ~ 13.0	90	33	33	43.6	SKC13	-
	SK30-SKA16-60	P2802807	2.75 ~ 16.0	60	40	40	52	SKC16	-
	SK30-SKA16-90	P2802808	2.75 ~ 16.0	90	40	40	52	SKC16	-
	SK30-SKA20-60	P2802809	3.5 ~ 20.0	60	48.5	48.5	59.6	SKC20	-
	SK30-SKA20-90	P2802810	3.5 ~ 20.0	90	48.5	48.5	59.6	SKC20	-
	SK30-SKA25-90	P2802811	16.0 ~ 25.4	90	55	55	63.4	SKC25	-
	40	SK40-SKA06-90	P2802812	1.8 ~ 6.0	90	20	19.5	31	SKC6
SK40-SKA06-120		P2802813	1.8 ~ 6.0	120	20	19.5	31	SKC6	-
SK40-SKA06-150		P2802814	1.8 ~ 6.0	150	20	19.5	31	SKC6	-
SK40-SKA10-90		P2802815	1.75 ~ 10.0	90	28	27.5	35	SKC10	-
SK40-SKA10-120		P2802816	1.75 ~ 10.0	120	28	27.5	35	SKC10	-
SK40-SKA10-150		P2802817	1.75 ~ 10.0	150	28	27.5	35	SKC10	-
SK40-SKA13-90		P2802818	2.75 ~ 13.0	90	33	33	43.6	SKC13	-
SK40-SKA13-120		P2802819	2.75 ~ 13.0	120	33	33	43.6	SKC13	-
SK40-SKA13-150		P2802820	2.75 ~ 13.0	150	33	33	43.6	SKC13	-
SK40-SKA16-90		P2802821	2.75 ~ 16.0	90	40	40	52	SKC16	-
SK40-SKA16-120		P2802822	2.75 ~ 16.0	120	40	40	52	SKC16	-
SK40-SKA16-150		P2802823	2.75 ~ 16.0	150	40	40	52	SKC16	-
50	SK40-SKA20-90	P2802824	3.5 ~ 20.0	90	48.5	48.5	59.6	SKC20	-
	SK40-SKA20-120	P2802825	3.5 ~ 20.0	120	48.5	48.5	59.6	SKC20	-
	SK40-SKA20-150	P2802826	3.5 ~ 20.0	150	48.5	48.5	59.6	SKC20	-
	SK40-SKA25-90	P2802827	16.0 ~ 25.4	90	55	55	63.4	SKC25	-
	SK40-SKA25-120	P2802828	16.0 ~ 25.4	120	55	55	63.4	SKC25	-
	SK40-SKA25-150	P2802829	16.0 ~ 25.4	150	55	55	63.4	SKC25	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE

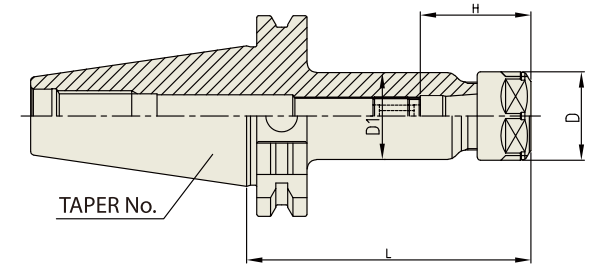


SKA

SK SLIM CHUCK

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69871-SK



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	SK50-SKA06-105	P2802830	1.8 ~ 6.0	105	20	19.5	31	SKC6	-
	SK50-SKA06-135	P2802831	1.8 ~ 6.0	135	20	19.5	31	SKC6	-
	SK50-SKA06-165	P2802832	1.8 ~ 6.0	165	20	19.5	31	SKC6	-
	SK50-SKA06-195	P2802833	1.8 ~ 6.0	195	20	19.5	31	SKC6	-
	SK50-SKA10-105	P2802834	1.75 ~ 10.0	105	28	27.5	35	SKC10	-
	SK50-SKA10-135	P2802835	1.75 ~ 10.0	135	28	27.5	35	SKC10	-
	SK50-SKA10-165	P2802836	1.75 ~ 10.0	165	28	27.5	35	SKC10	-
	SK50-SKA10-195	P2802837	1.75 ~ 10.0	195	28	27.5	35	SKC10	-
	SK50-SKA13-105	P2802838	2.75 ~ 13.0	105	33	33	43.6	SKC13	-
	SK50-SKA13-135	P2802839	2.75 ~ 13.0	135	33	33	43.6	SKC13	-
	SK50-SKA13-165	P2802840	2.75 ~ 13.0	165	33	33	43.6	SKC13	-
	SK50-SKA13-195	P2802841	2.75 ~ 13.0	195	33	33	43.6	SKC13	-
50	SK50-SKA16-105	P2802842	2.75 ~ 16.0	105	40	40	52	SKC16	-
	SK50-SKA16-135	P2802843	2.75 ~ 16.0	135	40	40	52	SKC16	-
	SK50-SKA16-165	P2802844	2.75 ~ 16.0	165	40	40	52	SKC16	-
	SK50-SKA16-195	P2802845	2.75 ~ 16.0	195	40	40	52	SKC16	-
	SK50-SKA20-105	P2802846	3.5 ~ 20.0	105	48.5	48.5	59.6	SKC20	-
	SK50-SKA20-135	P2802847	3.5 ~ 20.0	135	48.5	48.5	59.6	SKC20	-
	SK50-SKA20-165	P2802848	3.5 ~ 20.0	165	48.5	48.5	59.6	SKC20	-
	SK50-SKA20-195	P2802849	3.5 ~ 20.0	195	48.5	48.5	59.6	SKC20	-
	SK50-SKA25-105	P2802850	16.0 ~ 25.4	105	55	55	63.4	SKC25	-
	SK50-SKA25-135	P2802851	16.0 ~ 25.4	135	55	55	63.4	SKC25	-
	SK50-SKA25-165	P2802852	16.0 ~ 25.4	165	55	55	63.4	SKC25	-
	SK50-SKA25-195	P2802853	16.0 ~ 25.4	195	55	55	63.4	SKC25	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.



HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

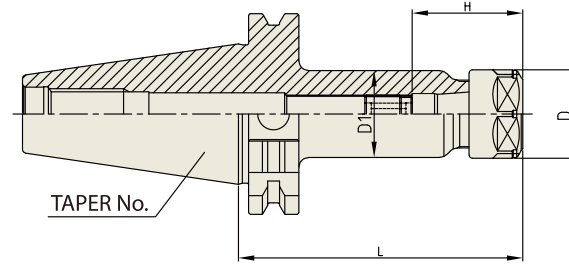


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69871-SK



TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
40	SK40AD/B-SKA06-60	P2802901	1.8 - 6.0	60	20	19.5	31	SKC6	-
	SK40AD/B-SKA06-90	P2802902	1.8 - 6.0	90	20	19.5	31	SKC6	-
	SK40AD/B-SKA06-120	P2802903	1.8 - 6.0	120	20	19.5	31	SKC6	-
	SK40AD/B-SKA06-150	P2802904	1.8 - 6.0	150	20	19.5	31	SKC6	-
	SK40AD/B-SKA10-90	P2802905	1.8 - 10.0	90	28	27.5	35	SKC10	-
	SK40AD/B-SKA10-120	P2802906	1.8 - 10.0	120	28	27.5	35	SKC10	-
	SK40AD/B-SKA10-150	P2802907	1.8 - 10.0	150	28	27.5	35	SKC10	-
	SK40AD/B-SKA13-90	P2802908	2.75 - 13.0	90	33	33	43.6	SKC13	-
	SK40AD/B-SKA13-120	P2802909	2.75 - 13.0	120	33	33	43.6	SKC13	-
	SK40AD/B-SKA13-150	P2802910	2.75 - 13.0	150	33	33	43.6	SKC13	-
	SK40AD/B-SKA16-90	P2802911	2.75 - 16.0	90	40	40	52	SKC16	-
	SK40AD/B-SKA16-120	P2802912	2.75 - 16.0	120	40	40	52	SKC16	-
	SK40AD/B-SKA16-150	P2802913	2.75 - 16.0	150	40	40	52	SKC16	-
	SK40AD/B-SKA20-90	P2802914	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	-
	SK40AD/B-SKA20-120	P2802915	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	-
	SK40AD/B-SKA20-150	P2802916	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	-
	SK40AD/B-SKA25-90	P2802917	16.0 - 25.4	90	55	55	63.4	SKC25	-
	SK40AD/B-SKA25-120	P2802918	16.0 - 25.4	120	55	55	63.4	SKC25	-
	SK40AD/B-SKA25-150	P2802919	16.0 - 25.4	150	55	55	63.4	SKC25	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE

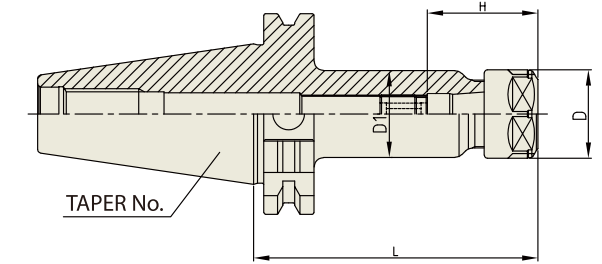


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69871-SK



TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	SK50AD/B-SKA06-105	P2802920	1.8 - 6.0	105	20	19.5	31	SKC6	-
	SK50AD/B-SKA06-135	P2802921	1.8 - 6.0	135	20	19.5	31	SKC6	-
	SK50AD/B-SKA06-165	P2802922	1.8 - 6.0	165	20	19.5	31	SKC6	-
	SK50AD/B-SKA06-195	P2802923	1.8 - 6.0	195	20	19.5	31	SKC6	-
	SK50AD/B-SKA10-105	P2802924	1.75 - 10.0	105	28	27.5	35	SKC10	-
	SK50AD/B-SKA10-135	P2802925	1.75 - 10.0	135	28	27.5	35	SKC10	-
	SK50AD/B-SKA10-165	P2802926	1.75 - 10.0	165	28	27.5	35	SKC10	-
	SK50AD/B-SKA10-195	P2802927	1.75 - 10.0	195	28	27.5	35	SKC10	-
	SK50AD/B-SKA13-105	P2802928	2.75 - 13.0	105	33	33	43.6	SKC13	-
	SK50AD/B-SKA13-135	P2802929	2.75 - 13.0	135	33	33	43.6	SKC13	-
	SK50AD/B-SKA13-165	P2802930	2.75 - 13.0	165	33	33	43.6	SKC13	-
	SK50AD/B-SKA13-195	P2802931	2.75 - 13.0	195	33	33	43.6	SKC13	-
	SK50AD/B-SKA16-105	P2802932	2.75 - 13.0	105	40	40	52	SKC16	-
	SK50AD/B-SKA16-135	P2802933	2.75 - 13.0	135	40	40	52	SKC16	-
	SK50AD/B-SKA16-165	P2802934	2.75 - 13.0	165	40	40	52	SKC16	-
	SK50AD/B-SKA16-195	P2802935	2.75 - 13.0	195	40	40	52	SKC16	-
	SK50AD/B-SKA20-105	P2802936	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	-
	SK50AD/B-SKA20-135	P2802937	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	-
	SK50AD/B-SKA20-165	P2802938	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	-
	SK50AD/B-SKA20-195	P2802939	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	-
SK50AD/B-SKA25-105	P2802940	16.0 - 25.4	105	55	55	63.4	SKC25	-	
SK50AD/B-SKA25-135	P2802941	16.0 - 25.4	135	55	55	63.4	SKC25	-	
SK50AD/B-SKA25-165	P2802942	16.0 - 25.4	165	55	55	63.4	SKC25	-	
SK50AD/B-SKA25-195	P2802943	16.0 - 25.4	195	55	55	63.4	SKC25	-	

▶ CAT(ANSI B5.50) taper and Inch type products are available.





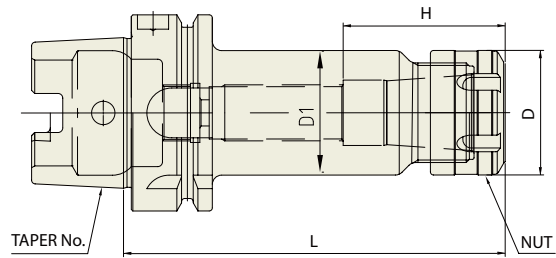


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69893/  
ISO 12164-1-HSK FORM A



Collet, Nut and spanner refer to page 199-201

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
32A	HSK32A-SKA06-50	P2775860	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32A-SKA10-60	P2775861	1.75 - 10.0	60	28	26	35	SKC10	0.70
40A	HSK40A-SKA06-60	P2775862	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40A-SKA10-60	P2775863	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
50A	HSK40A-SKA13-80	P2775864	2.75 - 13.0	80	33	33	43.6	SKC13	1.00
	HSK50A-SKA06-80	P2775865	1.8 - 6.0	80	20	19.5	31	SKC6	0.90
63A	HSK50A-SKA10-100	P2775866	1.75 - 10.0	100	28	27.5	35	SKC10	1.10
	HSK50A-SKA13-100	P2775867	2.75 - 13.0	100	33	33	43.6	SKC13	1.20
80A	HSK63A-SKA06-100	P2775868	1.8 - 6.0	100	20	19.5	31	SKC6	1.40
	HSK63A-SKA10-100	P2775869	1.75 - 10.0	100	28	27.5	35	SKC10	1.60
	HSK63A-SKA13-100	P2775870	2.75 - 13.0	100	33	33	43.6	SKC13	1.70
	HSK63A-SKA16-120	P2775871	2.75 - 16.0	120	40	40	52	SKC16	1.70
100A	HSK63A-SKA20-120	P2775872	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.10
	HSK63A-SKA25-150	P2775873	16.0 - 25.4	150	55	55	63.4	SKC25	2.40
	HSK80A-SKA06-120	P2775893	1.8 - 6.0	120	20	19.5	31	SKC6	1.60
	HSK80A-SKA10-120	P2775875	1.75 - 10.0	120	28	27.5	35	SKC10	1.72
	HSK80A-SKA13-120	P2775876	2.75 - 13.0	120	33	33	43.6	SKC13	1.79
100A	HSK80A-SKA16-120	P2775877	2.75 - 16.0	120	40	40	52	SKC16	1.96
	HSK80A-SKA20-130	P2775878	3.5 - 20.0	130	48.5	48.5	59.6	SKC20	2.39
	HSK80A-SKA25-150	P2775879	16.0 - 25.4	150	55	55	63.4	SKC25	2.82
	HSK100A-SKA06-120	P2775880	1.8 - 6.0	120	20	19.5	31	SKC6	4.00
	HSK100A-SKA10-150	P2775881	1.75 - 10.0	150	28	27.5	35	SKC10	4.50
100A	HSK100A-SKA13-150	P2775882	2.75 - 13.0	150	33	33	43.6	SKC13	4.60
	HSK100A-SKA16-150	P2775883	2.75 - 16.0	150	40	40	52	SKC16	5.10
	HSK100A-SKA20-150	P2775884	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	5.40
	HSK100A-SKA25-160	P2775885	16.0 - 25.4	160	55	55	63.4	SKC25	5.50

DIN 69893/  
ISO 12164-1-HSK FORM E

Collet, Nut and spanner refer to page 199-201

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
25E	HSK25E-SKA06-45	P2775886	1.8 - 6.0	45	20	19.5	31	SKC6	-
	HSK25E-SKA10-50	P2775887	1.75 - 10.0	50	28	21.5	35	SKC10	-
32E	HSK32E-SKA06-50	P2775888	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32E-SKA10-60	P2775889	1.75 - 10.0	60	28	26	35	SKC10	0.70
40E	HSK40E-SKA06-60	P2775890	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40E-SKA10-60	P2775891	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	HSK40E-SKA13-80	P2775892	2.75 - 13.0	80	33	33	43.6	SKC13	1.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

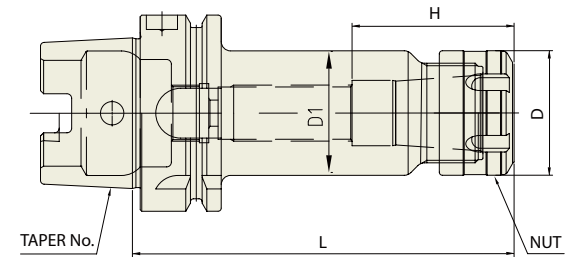


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69893/  
ISO 12164-1-HSK FORM A



Collet, Nut and spanner Refer to page 199-201

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
32A	HSK32A-SKA06-50	P2773502	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32A-SKA10-60	P2773503	1.75 - 10.0	60	28	26	35	SKC10	0.70
40A	HSK40A-SKA06-60	P2773504	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40A-SKA10-60	P2773505	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
50A	HSK40A-SKA13-80	P2773506	2.75 - 13.0	80	33	33	43.6	SKC13	1.00
	HSK50A-SKA06-80	P2773507	1.8 - 6.0	80	20	19.5	31	SKC6	0.90
63A	HSK50A-SKA10-100	P2773508	1.75 - 10.0	100	28	27.5	35	SKC10	1.10
	HSK50A-SKA13-100	P2773509	2.75 - 13.0	100	33	33	43.6	SKC13	1.20
	HSK63A-SKA06-100	P2730492	1.8 - 6.0	100	20	19.5	31	SKC6	1.40
	HSK63A-SKA10-100	P2730494	1.75 - 10.0	100	28	27.5	35	SKC10	1.60
80A	HSK63A-SKA13-100	P2773510	2.75 - 13.0	100	33	33	43.6	SKC13	1.70
	HSK63A-SKA16-120	P2730510	2.75 - 16.0	120	40	40	52	SKC16	1.70
	HSK63A-SKA20-120	P2730515	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.10
	HSK63A-SKA25-150	P2773501	16.0 - 25.4	150	55	55	63.4	SKC25	2.40
	HSK80A-SKA06-120	P2773550	1.8 - 6.0	120	20	19.5	31	SKC6	-
100A	HSK80A-SKA10-120	P2773512	1.75 - 10.0	120	28	27.5	35	SKC10	-
	HSK80A-SKA13-120	P2773513	2.75 - 13.0	120	33	33	43.6	SKC13	-
	HSK80A-SKA16-120	P2773514	2.75 - 16.0	120	40	40	52	SKC16	-
	HSK80A-SKA20-130	P2773515	3.5 - 20.0	130	48.5	48.5	59.6	SKC20	-
	HSK80A-SKA25-150	P2773516	16.0 - 25.4	150	55	55	63.4	SKC25	-
100A	HSK100A-SKA06-120	P2773517	1.8 - 6.0	120	20	19.5	31	SKC6	4.00
	HSK100A-SKA10-150	P2773518	1.75 - 10.0	150	28	27.5	35	SKC10	4.50
	HSK100A-SKA13-150	P2773519	2.75 - 13.0	150	33	33	43.6	SKC13	4.60
	HSK100A-SKA16-150	P2773520	2.75 - 16.0	150	40	40	52	SKC16	5.10
	HSK100A-SKA20-150	P2773521	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	5.40
100A	HSK100A-SKA25-160	P2773522	16.0 - 25.4	160	55	55	63.4	SKC25	5.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

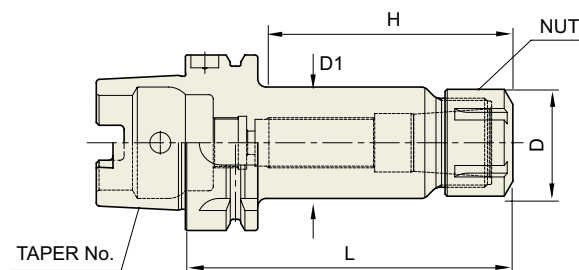


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69893/  
ISO 12164-1-HSK FORM E



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
25E	HSK25E-SKA06-45	P2773523	1.8 - 6.0	45	20	19.5	31	SKC6	-
	HSK25E-SKA10-50	P2773524	1.75 - 10.0	50	28	21.5	35	SKC10	-
32E	HSK32E-SKA06-50	P2773525	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32E-SKA10-60	P2773526	1.75 - 10.0	60	28	26	35	SKC10	0.70
40E	HSK40E-SKA06-60	P2773527	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40E-SKA10-60	P2773528	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	HSK40E-SKA13-80	P2773529	2.75 - 13.0	80	33	33	43.6	SKC13	1.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

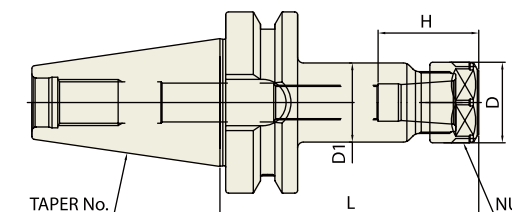


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

CBT  
(BT DUAL CONTACT)



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
30	CBT30-SKA06-60	P2775701	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	CBT30-SKA06-90	P2775702	1.8 - 6.0	90	20	19.5	31	SKC6	0.80
	CBT30-SKA10-60	P2775703	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	CBT30-SKA10-90	P2775704	1.75 - 10.0	90	28	27.5	35	SKC10	1.00
	CBT30-SKA13-60	P2775705	2.75 - 13.0	60	33	33	43.6	SKC13	1.00
	CBT30-SKA13-90	P2775706	2.75 - 13.0	90	33	33	43.6	SKC13	1.10
	CBT30-SKA16-60	P2775707	2.75 - 16.0	60	40	40	52	SKC16	1.10
	CBT30-SKA16-90	P2775708	2.75 - 16.0	90	40	40	52	SKC16	1.20
	CBT30-SKA20-60	P2775709	3.5 - 20.0	60	48.5	40	59.6	SKC20	1.30
	CBT30-SKA20-90	P2775710	3.5 - 20.0	90	48.5	40	59.6	SKC20	1.40
	CBT30-SKA25-90	P2775711	16.0 - 25.4	90	55	45	63.4	SKC25	1.50
	40	CBT40-SKA06-90	P2775712	1.8 - 6.0	90	20	19.5	31	SKC6
CBT40-SKA06-120		P2775713	1.8 - 6.0	120	20	19.5	31	SKC6	1.40
CBT40-SKA06-150		P2775714	1.8 - 6.0	150	20	19.5	31	SKC6	1.50
CBT40-SKA10-90		P2775715	1.75 - 10.0	90	28	27.5	35	SKC10	1.20
CBT40-SKA10-120		P2775716	1.75 - 10.0	120	28	27.5	35	SKC10	1.40
CBT40-SKA10-150		P2775717	1.75 - 10.0	150	28	27.5	35	SKC10	1.60
CBT40-SKA13-90		P2775718	2.75 - 13.0	90	33	33	43.6	SKC13	1.40
CBT40-SKA13-120		P2775719	2.75 - 13.0	120	33	33	43.6	SKC13	1.60
CBT40-SKA13-150		P2775720	2.75 - 13.0	150	33	33	43.6	SKC13	1.80
CBT40-SKA16-90		P2775721	2.75 - 16.0	90	40	40	52	SKC16	1.50
CBT40-SKA16-120		P2775722	2.75 - 16.0	120	40	40	52	SKC16	1.70
CBT40-SKA16-150		P2775723	2.75 - 16.0	150	40	40	52	SKC16	1.90
CBT40-SKA20-90		P2775724	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	1.60
CBT40-SKA20-120		P2775725	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.00
CBT40-SKA20-150		P2775726	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	2.40
CBT40-SKA25-90	P2775727	16.0 - 25.4	90	55	55	63.4	SKC25	1.80	
CBT40-SKA25-120	P2775728	16.0 - 25.4	120	55	55	63.4	SKC25	2.00	
CBT40-SKA25-150	P2775729	16.0 - 25.4	150	55	55	63.4	SKC25	2.30	

▶ CAT(ANSI B5.50) taper and Inch type products are available.



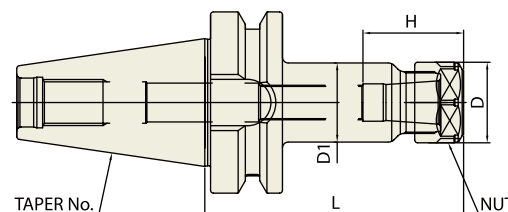


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

CBT  
(BT DUAL CONTACT)



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	CBT50-SKA06-105	P2775730	1.8 - 6.0	105	20	19.5	31	SKC6	3.80
	CBT50-SKA06-135	P2775731	1.8 - 6.0	135	20	19.5	31	SKC6	3.90
	CBT50-SKA06-165	P2775732	1.8 - 6.0	165	20	19.5	31	SKC6	4.00
	CBT50-SKA06-195	P2775733	1.8 - 6.0	195	20	19.5	31	SKC6	4.20
	CBT50-SKA10-105	P2775734	1.75 - 10.0	105	28	27.5	35	SKC10	4.20
	CBT50-SKA10-135	P2775735	1.75 - 10.0	135	28	27.5	35	SKC10	4.40
	CBT50-SKA10-165	P2775736	1.75 - 10.0	165	28	27.5	35	SKC10	4.60
	CBT50-SKA10-195	P2775737	1.75 - 10.0	195	28	27.5	35	SKC10	4.80
	CBT50-SKA13-105	P2775738	2.75 - 13.0	105	33	33	43.6	SKC13	4.50
	CBT50-SKA13-135	P2775739	2.75 - 13.0	135	33	33	43.6	SKC13	4.70
	CBT50-SKA13-165	P2775740	2.75 - 13.0	165	33	33	43.6	SKC13	4.90
	CBT50-SKA13-195	P2775741	2.75 - 13.0	195	33	33	43.6	SKC13	5.20
	CBT50-SKA16-105	P2775742	2.75 - 16.0	105	40	40	52	SKC16	4.70
	CBT50-SKA16-135	P2775743	2.75 - 16.0	135	40	40	52	SKC16	4.90
	CBT50-SKA16-165	P2775744	2.75 - 16.0	165	40	40	52	SKC16	5.10
	CBT50-SKA16-195	P2775745	2.75 - 16.0	195	40	40	52	SKC16	5.50
40	CBT50-SKA20-105	P2775746	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	4.30
	CBT50-SKA20-135	P2775747	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	4.60
	CBT50-SKA20-165	P2775748	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	5.00
	CBT50-SKA20-195	P2775749	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	5.40
	CBT50-SKA25-105	P2775750	16.0 - 25.4	105	55	55	63.4	SKC25	5.20
	CBT50-SKA25-135	P2775751	16.0 - 25.4	135	55	55	63.4	SKC25	5.40
	CBT50-SKA25-165	P2775752	16.0 - 25.4	165	55	55	63.4	SKC25	5.60
	CBT50-SKA25-195	P2775753	16.0 - 25.4	195	55	55	63.4	SKC25	6.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

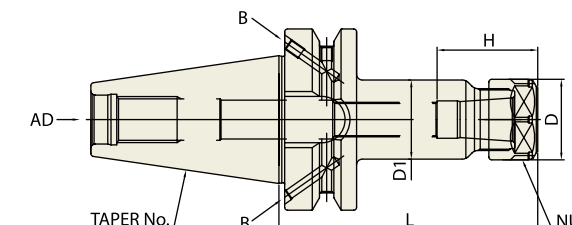


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

JIS B6339/  
MAS 403-BT



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)	
30	BT30-SKA06-60	P2775754A	1.8 - 6.0	60	20	19.5	31	SKC6	0.70	
	BT30-SKA06-90	P2775755A	1.8 - 6.0	90	20	19.5	31	SKC6	0.80	
	BT30-SKA10-60	P2775756A	1.75 - 10.0	60	28	27.5	35	SKC10	0.90	
	BT30-SKA10-90	P2775757A	1.75 - 10.0	90	28	27.5	35	SKC10	1.00	
	BT30-SKA13-60	P2775758A	2.75 - 13.0	60	33	33	43.6	SKC13	1.00	
	BT30-SKA13-90	P2775759A	2.75 - 13.0	90	33	33	43.6	SKC13	1.10	
	BT30-SKA16-60	P2775760A	2.75 - 16.0	60	40	40	52	SKC16	1.10	
	BT30-SKA16-90	P2775761A	2.75 - 16.0	90	40	40	52	SKC16	1.20	
	BT30-SKA20-60	P2775762A	3.5 - 20.0	60	40	48.5	59.6	SKC20	1.30	
	BT30-SKA20-90	P2775763A	3.5 - 20.0	90	40	48.5	59.6	SKC20	1.40	
	BT30-SKA25-90	P2775764A	16.0 - 25.4	90	45	55	63.4	SKC25	1.50	
	40	BT40AD/B-SKA06-90	P2775765	1.8 - 6.0	90	20	19.5	31	SKC6	1.10
		BT40AD/B-SKA06-120	P2775766	1.8 - 6.0	120	20	19.5	31	SKC6	1.40
		BT40AD/B-SKA06-150	P2775767	1.8 - 6.0	150	20	19.5	31	SKC6	1.50
		BT40AD/B-SKA10-90	P2775768	1.75 - 10.0	90	28	27.5	35	SKC10	1.20
		BT40AD/B-SKA10-120	P2775769	1.75 - 10.0	120	28	27.5	35	SKC10	1.40
BT40AD/B-SKA10-150		P2775770	1.75 - 10.0	150	28	27.5	35	SKC10	1.60	
BT40AD/B-SKA13-90		P2775771	2.75 - 13.0	90	33	33	43.6	SKC13	1.40	
BT40AD/B-SKA13-120		P2775772	2.75 - 13.0	120	33	33	43.6	SKC13	1.60	
BT40AD/B-SKA13-150		P2775773	2.75 - 13.0	150	33	33	43.6	SKC13	1.80	
BT40AD/B-SKA16-90		P2775774	2.75 - 16.0	90	40	40	52	SKC16	1.50	
BT40AD/B-SKA16-120		P2775775	2.75 - 16.0	120	40	40	52	SKC16	1.70	
BT40AD/B-SKA16-150		P2775776	2.75 - 16.0	150	40	40	52	SKC16	1.90	
BT40AD/B-SKA20-90		P2775777	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	1.60	
BT40AD/B-SKA20-120		P2775778	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.00	
BT40AD/B-SKA20-150	P2775779	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	2.40		

▶ CAT(ANSI B5.50) taper and Inch type products are available.





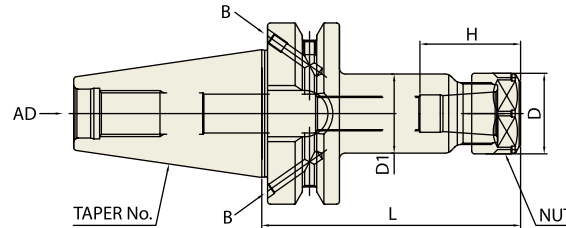


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

JIS B6339/  
MAS 403-BT



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	BT50AD/B-SKA06-105	P2775783	1.8 - 6.0	105	20	19.5	31	SKC6	3.80
	BT50AD/B-SKA06-135	P2775784	1.8 - 6.0	135	20	19.5	31	SKC6	3.90
	BT50AD/B-SKA06-165	P2775785	1.8 - 6.0	165	20	19.5	31	SKC6	4.00
	BT50AD/B-SKA06-195	P2775786	1.8 - 6.0	195	20	19.5	31	SKC6	4.20
	BT50AD/B-SKA10-105	P2775787	1.75 - 10.0	105	28	27.5	35	SKC10	4.20
	BT50AD/B-SKA10-135	P2775788	1.75 - 10.0	135	28	27.5	35	SKC10	4.40
	BT50AD/B-SKA10-165	P2775789	1.75 - 10.0	165	28	27.5	35	SKC10	4.60
	BT50AD/B-SKA10-195	P2775790	1.75 - 10.0	195	28	27.5	35	SKC10	4.80
	BT50AD/B-SKA13-105	P2775791	2.75 - 13.0	105	33	33	43.6	SKC13	4.50
	BT50AD/B-SKA13-135	P2775792	2.75 - 13.0	135	33	33	43.6	SKC13	4.70
	BT50AD/B-SKA13-165	P2775793	2.75 - 13.0	165	33	33	43.6	SKC13	4.90
	BT50AD/B-SKA13-195	P2775794	2.75 - 13.0	195	33	33	43.6	SKC13	5.20
	BT50AD/B-SKA16-105	P2775795	2.75 - 16.0	105	40	40	52	SKC16	4.70
	BT50AD/B-SKA16-135	P2775796	2.75 - 16.0	135	40	40	52	SKC16	4.90
	BT50AD/B-SKA16-165	P2775797	2.75 - 16.0	165	40	40	52	SKC16	5.10
BT50AD/B-SKA16-195	P2775798	2.75 - 16.0	195	40	40	52	SKC16	5.50	
BT50AD/B-SKA20-105	P2775799	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	4.30	
BT50AD/B-SKA20-135	P2775800	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	4.60	
BT50AD/B-SKA20-165	P2775801	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	5.00	
BT50AD/B-SKA20-195	P2775802	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	5.40	
BT50AD/B-SKA25-105	P2775803	16.0 - 25.4	105	55	55	63.4	SKC25	5.20	
BT50AD/B-SKA25-135	P2775804	16.0 - 25.4	135	55	55	63.4	SKC25	5.40	
BT50AD/B-SKA25-165	P2775805	16.0 - 25.4	165	55	55	63.4	SKC25	5.60	
BT50AD/B-SKA25-195	P2775806	16.0 - 25.4	195	55	55	63.4	SKC25	6.00	

▶ CAT(ANSI B5.50) taper and Inch type products are available.

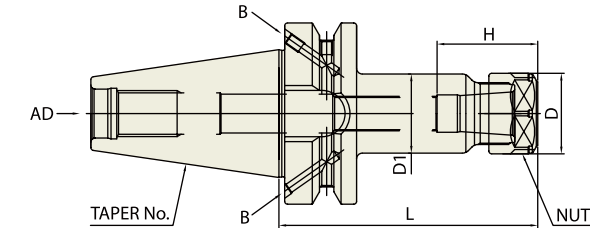


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

JIS B6339/  
MAS 403-BT



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)	
30	BT30-SKA06-60	P2775807	1.8 - 6.0	60	20	19.5	31	SKC6	0.70	
	BT30-SKA06-90	P2775808	1.8 - 6.0	90	20	19.5	31	SKC6	0.80	
	BT30-SKA10-60	P2775809	1.75 - 10.0	60	28	27.5	35	SKC10	0.90	
	BT30-SKA10-90	P2775810	1.75 - 10.0	90	28	27.5	35	SKC10	1.00	
	BT30-SKA13-60	P2775811	2.75 - 13.0	60	33	33	43.6	SKC13	1.00	
	BT30-SKA13-90	P2775812	2.75 - 13.0	90	33	33	43.6	SKC13	1.10	
	BT30-SKA16-60	P2775813	2.75 - 16.0	60	40	40	52	SKC16	1.10	
	BT30-SKA16-90	P2775814	2.75 - 16.0	90	40	40	52	SKC16	1.20	
	BT30-SKA20-60	P2775815	3.5 - 20.0	60	48.5	48.5	59.6	SKC20	1.30	
	BT30-SKA20-90	P2775816	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	1.40	
	BT30-SKA25-90	P2775817	16.0 - 25.4	90	55	55	63.4	SKC25	1.50	
	40	BT40-SKA06-90	P2775818	1.8 - 6.0	90	20	19.5	31	SKC6	1.10
		BT40-SKA06-120	P2775819	1.8 - 6.0	120	20	19.5	31	SKC6	1.40
		BT40-SKA06-150	P2775820	1.8 - 6.0	150	20	19.5	31	SKC6	1.50
		BT40-SKA10-90	P2775821	1.75 - 10.0	90	28	27.5	35	SKC10	1.20
BT40-SKA10-120		P2775822	1.75 - 10.0	120	28	27.5	35	SKC10	1.40	
BT40-SKA10-150		P2775823	1.75 - 10.0	150	28	27.5	35	SKC10	1.60	
BT40-SKA13-90		P2775824	2.75 - 13.0	90	33	33	43.6	SKC13	1.40	
BT40-SKA13-120		P2775825	2.75 - 13.0	120	33	33	43.6	SKC13	1.60	
BT40-SKA13-150		P2775826	2.75 - 13.0	150	33	33	43.6	SKC13	1.80	
BT40-SKA16-90		P2775827	2.75 - 16.0	90	40	40	52	SKC16	1.50	
BT40-SKA16-120		P2775828	2.75 - 16.0	120	40	40	52	SKC16	1.70	
BT40-SKA16-150		P2775829	2.75 - 16.0	150	40	40	52	SKC16	1.90	
BT40-SKA20-90		P2775830	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	1.60	
BT40-SKA20-120		P2775831	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.00	
BT40-SKA20-150		P2775832	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	2.40	
BT40-SKA25-90	P2775833	16.0 - 25.4	90	55	55	63.4	SKC25	1.80		
BT40-SKA25-120	P2775834	16.0 - 25.4	120	55	55	63.4	SKC25	2.00		
BT40-SKA25-150	P2775835	16.0 - 25.4	150	55	55	63.4	SKC25	2.30		

▶ CAT(ANSI B5.50) taper and Inch type products are available.



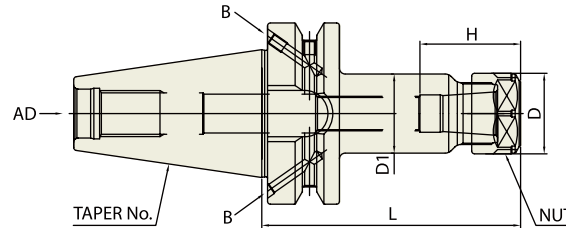


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

JIS B6339/  
MAS 403-BT



Collet, Nut and spanner  
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	BT50-SKA06-105	P2775836	1.8 - 6.0	105	20	19.5	31	SKC6	3.80
	BT50-SKA06-135	P2775837	1.8 - 6.0	135	20	19.5	31	SKC6	3.90
	BT50-SKA06-165	P2775838	1.8 - 6.0	165	20	19.5	31	SKC6	4.00
	BT50-SKA06-195	P2775839	1.8 - 6.0	195	20	19.5	31	SKC6	4.20
	BT50-SKA10-105	P2775840	1.75 - 10.0	105	28	27.5	35	SKC10	4.20
	BT50-SKA10-135	P2775841	1.75 - 10.0	135	28	27.5	35	SKC10	4.40
	BT50-SKA10-165	P2775842	1.75 - 10.0	165	28	27.5	35	SKC10	4.60
	BT50-SKA10-195	P2775843	1.75 - 10.0	195	28	27.5	35	SKC10	4.80
	BT50-SKA13-105	P2775844	2.75 - 13.0	105	33	33	43.6	SKC13	4.50
	BT50-SKA13-135	P2775845	2.75 - 13.0	135	33	33	43.6	SKC13	4.70
	BT50-SKA13-165	P2775846	2.75 - 13.0	165	33	33	43.6	SKC13	4.90
	BT50-SKA13-195	P2775847	2.75 - 13.0	195	33	33	43.6	SKC13	5.20
	BT50-SKA16-105	P2775848	2.75 - 16.0	105	40	40	52	SKC16	4.70
	BT50-SKA16-135	P2775849	2.75 - 16.0	135	40	40	52	SKC16	4.90
	BT50-SKA16-165	P2775850	2.75 - 16.0	165	40	40	52	SKC16	5.10
	BT50-SKA16-195	P2775851	2.75 - 16.0	195	40	40	52	SKC16	5.50
	BT50-SKA20-105	P2775852	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	4.30
	BT50-SKA20-135	P2775853	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	4.60
	BT50-SKA20-165	P2775854	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	5.00
	BT50-SKA20-195	P2775855	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	5.40
BT50-SKA25-105	P2775856	16.0 - 25.4	105	55	55	63.4	SKC25	5.20	
BT50-SKA25-135	P2775857	16.0 - 25.4	135	55	55	63.4	SKC25	5.40	
BT50-SKA25-165	P2775858	16.0 - 25.4	165	55	55	63.4	SKC25	5.60	
BT50-SKA25-195	P2775859	16.0 - 25.4	195	55	55	63.4	SKC25	6.00	

► CAT(ANSI B5.50) taper and Inch type products are available.

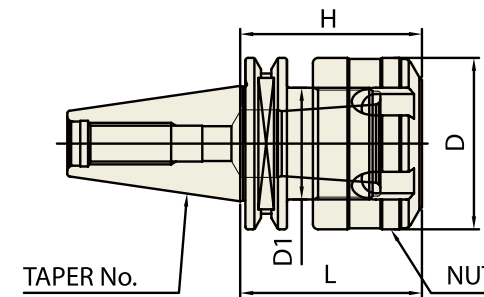


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER  
MANDRIN TYPE SK MINCE  
SK MANDRINI SOTTILI  
PORTAHERRAMIENTAS SK EJE REDUCIDO

ISO 20/25



Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
20	ISO20-SKA10-35	P2773530	1.75 - 10.0	35	33	21.5	35	SKC10	0.50
25	ISO25-SKA10-35	P2773531	1.75 - 10.0	35	33	21.5	35	SKC10	0.70

► Higher balancing grade is available upon request.  
► To be supplied with assembling of pull stud bolt.



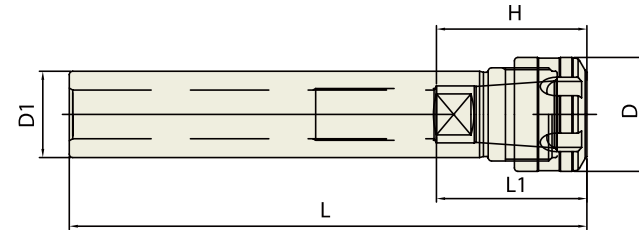


SKA

**SK SLIM CHUCK**

SK SCHLANKE FUTTER - GERADEAUS SCHAFT  
 MANDRIN TYPE SK MINCE - TOUT DROIT TIGE  
 SK MANDRINI SOTTILI - TIBIA DIRITTA  
 PORTAHERRAMIENTAS SK EJE REDUCIDO - CANA RECTA

STRAIGHT-K



Collet, Nut and spanner  
 Refer to page 199-201

Unit : mm

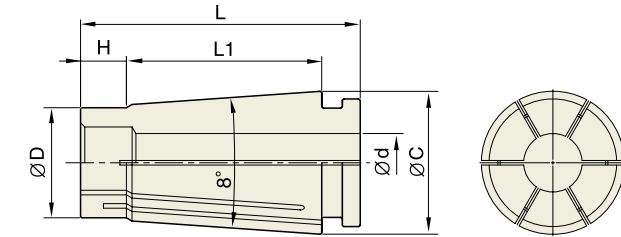
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	L1	D	D1	H	COLLET	WEIGHT (kg)
20	K20-SKA06-100	P2773532	1.8 - 6.0	100	21 - 35	20	20	31	SKC6	0.20
	K20-SKA06-140	P2773533	1.8 - 6.0	140	21 - 35	20	20	31	SKC6	0.30
	K20-SKA10-100	P2773534	1.75 - 10.0	100	30 - 50	28	20	35	SKC10	0.20
	K20-SKA10-140	P2773535	1.75 - 10.0	140	30 - 50	28	20	35	SKC10	0.30
25	K25-SKA06-100	P2773536	1.8 - 6.0	100	21 - 35	20	25	31	SKC6	0.30
	K25-SKA06-140	P2773537	1.8 - 6.0	140	21 - 35	20	25	31	SKC6	0.50
	K25-SKA10-100	P2773538	1.75 - 10.0	100	30 - 50	28	25	35	SKC10	0.30
	K25-SKA10-150	P2773539	1.75 - 10.0	150	30 - 50	28	25	35	SKC10	0.50
32	K25-SKA13-100	P2773540	2.75 - 13.0	100	31 - 65	33	25	43.6	SKC13	0.40
	K25-SKA13-150	P2773541	2.75 - 13.0	150	31 - 65	33	25	43.6	SKC13	0.60
	K32-SKA10-100	P2773542	1.75 - 10.0	100	30 - 50	28	32	35	SKC10	0.50
	K32-SKA10-150	P2773543	1.75 - 10.0	150	30 - 50	28	32	35	SKC10	0.70
	K32-SKA13-100	P2773544	2.75 - 13.0	100	31 - 65	33	32	43.6	SKC13	1.00
	K32-SKA13-150	P2773545	2.75 - 13.0	150	31 - 65	33	32	43.6	SKC13	1.20
	K32-SKA16-100	P2773546	2.75 - 16.0	100	40 - 70	40	32	52	SKC16	1.00
	K32-SKA16-150	P2773547	2.75 - 16.0	150	40 - 70	40	32	52	SKC16	1.20
	K32-SKA20-100	P2773548	3.5 - 20.0	100	47 - 80	48.5	32	59.6	SKC20	1.10
	K32-SKA20-150	P2773549	3.5 - 20.0	150	47 - 80	48.5	32	59.6	SKC20	1.30



SKC

**SK COLLET**

SK SCHLANKE FUTTER SPANNZANGE  
 MANDRIN TYPE SK MINCE PINCE DE SERRAGE  
 SK MANDRINI SOTTILI PINZA DI SERRAGGIO  
 PORTAHERRAMIENTAS SK EJE REDUCIDO PINZA PORTAPIEZAS



◇ T.I.R : ≤0.005mm at 3D

Unit : mm

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)	TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)	TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC6	SKC6-2	P2730780	1.8 - 2.0	SKC10	SKC10-2	P2730790	1.75 - 2.0	SKC13	SKC13-3	P2773656	2.75 - 3.0
	SKC6-2.5	P2773601	2.3 - 2.5		SKC10-2.5	P2773605	2.25 - 2.5		SKC13-3.5	P2773657	3.0 - 3.5
	SKC6-3	P2730782	2.8 - 3.0		SKC10-3	P2730791	2.75 - 3.0		SKC13-4	P2773658	3.5 - 4.0
	SKC6-3.5	P2773602	3.0 - 3.5		SKC10-3.5	P2773606	3.0 - 3.5		SKC13-4.5	P2773659	4.0 - 4.5
	SKC6-4	P2730784	3.5 - 4.0		SKC10-4	P2730792	3.5 - 4.0		SKC13-5	P2773660	4.5 - 5.0
	SKC6-4.5	P2773603	4.0 - 4.5		SKC10-4.5	P2773607	4.0 - 4.5		SKC13-5.5	P2773661	5.0 - 5.5
	SKC6-5	P2730786	4.5 - 5.0		SKC10-5	P2730793	4.5 - 5.0		SKC13-6	P2773662	5.5 - 6.0
	SKC6-5.5	P2773604	5.0 - 5.5		SKC10-5.5	P2773608	5.0 - 5.5		SKC13-6.5	P2773663	6.0 - 6.5
	SKC6-6	P2730788	5.5 - 6.0		SKC10-6	P2730794	5.5 - 6.0		SKC13-7	P2773664	6.5 - 7.0
					SKC10-6.5	P2773609	6.0 - 6.5		SKC13-7.5	P2773665	7.0 - 7.5
			SKC10-7	P2730795	6.5 - 7.0	SKC13-8	P2773666	7.5 - 8.0			
			SKC10-7.5	P2773610	7.0 - 7.5	SKC13-8.5	P2773667	8.0 - 8.5			
			SKC10-8	P2730796	7.5 - 8.0	SKC13-9	P2773668	8.5 - 9.0			
			SKC10-8.5	P2773611	8.0 - 8.5	SKC13-9.5	P2773669	9.0 - 9.5			
			SKC10-9	P2730797	8.5 - 9.0	SKC13-10	P2773670	9.5 - 10.0			
			SKC10-9.5	P2773612	9.0 - 9.5	SKC13-10.5	P2773671	10.0 - 10.5			
			SKC10-10	P2730798	9.5 - 10.0	SKC13-11	P2773672	10.5 - 11.0			
						SKC13-11.5	P2773673	11.0 - 11.5			
						SKC13-12	P2773674	11.5 - 12.0			
						SKC13-12.5	P2773675	12.0 - 12.5			
						SKC13-13	P2773676	12.5 - 13.0			

**SKC COLLET DIMENSION**

Unit : mm

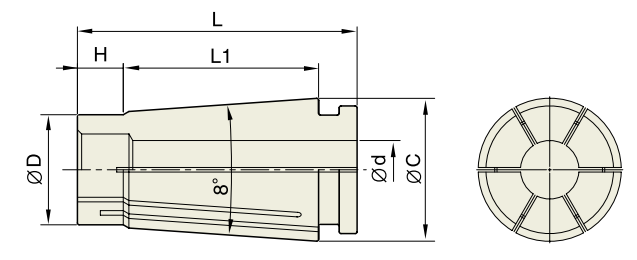
TYPE	D	L	L1	H	C	WEIGHT (kg)
SKC6	7.5	25.7	17.6	3.8	10	0.03
SKC10	12	32	21.3	5	15	0.04
SKC13	15.4	39	28.3	5.5	20	
SKC16	18.8	46	32	8	24	0.06
SKC20	22.5	54.2	41	8	29	
SKC25	28.9	58.2	43	8.5	35	0.10





**SK COLLET**

SK SCHLANKE FUTTER SPANNZANGE  
 MANDRIN TYPE SK MINCE PINCE DE SERRAGE  
 SK MANDRINI SOTTILI PINZA DI SERRAGGIO  
 PORTAHERRAMIENTAS SK EJE REDUCIDO PINZA PORTAPIEZAS



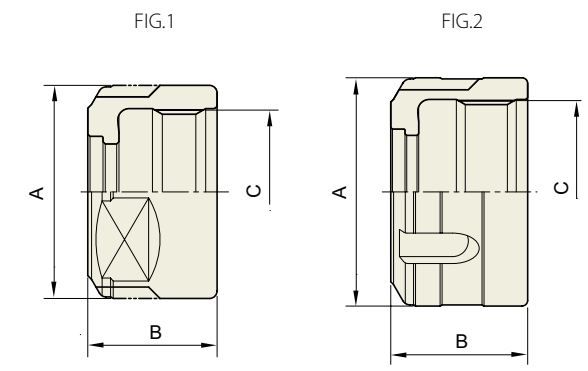
◇ T.I.R : ≤0.005mm at 3D

Unit : mm

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)	TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)	TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC16	SKC16-3	P2730810	2.75 - 3.0	SKC20	SKC20-4	P2730830	3.5 - 4.0	SKC25	SKC25-16.5	P2773677	16.0 - 16.5
	SKC16-3.5	P2773613	3.0 - 3.5		SKC20-4.5	P2773632	4.0 - 4.5		SKC25-17	P2773678	16.5 - 17.0
	SKC16-4	P2730812	3.5 - 4.0		SKC20-5	P2773633	4.5 - 5.0		SKC25-17.5	P2773679	17.0 - 17.5
	SKC16-4.5	P2773614	4.0 - 4.5		SKC20-5.5	P2773634	5.0 - 5.5		SKC25-18	P2773680	17.5 - 18.0
	SKC16-5	P2773615	4.5 - 5.0		SKC20-6	P2730832	5.5 - 6.0		SKC25-18.5	P2773681	18.0 - 18.5
	SKC16-5.5	P2773616	5.0 - 5.5		SKC20-6.5	P2773635	6.0 - 6.5		SKC25-19	P2773682	18.5 - 19.0
	SKC16-6	P2730814	5.5 - 6.0		SKC20-7	P2773636	6.5 - 7.0		SKC25-19.5	P2773683	19.0 - 19.5
	SKC16-6.5	P2773617	6.0 - 6.5		SKC20-7.5	P2773637	7.0 - 7.5		SKC25-20	P2773684	19.5 - 20.0
	SKC16-7	P2773618	6.5 - 7.0		SKC20-8	P2730834	7.5 - 8.0		SKC25-20.5	P2773685	20.0 - 20.5
	SKC16-7.5	P2773619	7.0 - 7.5		SKC20-8.5	P2773638	8.0 - 8.5		SKC25-21	P2773686	20.5 - 21.0
	SKC16-8	P2730816	7.5 - 8.0		SKC20-9	P2773639	8.5 - 9.0		SKC25-21.5	P2773687	21.0 - 21.5
	SKC16-8.5	P2773620	8.0 - 8.5		SKC20-9.5	P2773640	9.0 - 9.5		SKC25-22	P2773688	21.5 - 22.0
	SKC16-9	P2773621	8.5 - 9.0		SKC20-10	P2730836	9.5 - 10.0		SKC25-22.5	P2773689	22.0 - 22.5
	SKC16-9.5	P2773622	9.0 - 9.5		SKC20-10.5	P2773641	10.0 - 10.5		SKC25-23	P2773690	22.5 - 23.0
	SKC16-10	P2730818	9.5 - 10.0		SKC20-11	P2773642	10.5 - 11.0		SKC25-23.5	P2773691	23.0 - 23.5
	SKC16-10.5	P2773623	10.0 - 10.5		SKC20-11.5	P2773643	11.0 - 11.5		SKC25-24	P2773692	23.5 - 24.0
SKC16-11	P2773624	10.5 - 11.0	SKC20-12	P2730838	11.5 - 12.0	SKC25-24.5	P2773693		24.0 - 24.5		
SKC16-11.5	P2773625	10.0 - 11.5	SKC20-12.5	P2773644	12.0 - 12.5	SKC25-25	P2773694		24.5 - 25.0		
SKC16-12	P2730820	11.5 - 12.0	SKC20-13	P2773645	12.5 - 13.0	SKC25-25.4	P2773695		25.0 - 25.4		
SKC16-12.5	P2773626	12.0 - 12.5	SKC20-13.5	P2773646	13.0 - 13.5						
SKC16-13	P2773627	12.5 - 13.0	SKC20-14	P2730840	13.5 - 14.0						
SKC16-13.5	P2773628	13.0 - 13.5	SKC20-14.5	P2773647	14.0 - 14.5						
SKC16-14	P2773822	13.5 - 14.0	SKC20-15	P2773648	14.5 - 15.0						
SKC16-14.5	P2773629	14.0 - 14.5	SKC20-15.5	P2773649	15.0 - 15.5						
SKC16-15	P2773630	14.5 - 15.0	SKC20-16	P2730842	15.5 - 16.0						
SKC16-15.5	P2773631	15.0 - 15.5	SKC20-16.5	P2773650	16.0 - 16.5						
SKC16-16	P2730824	15.5 - 16.0	SKC20-17	P2773651	16.5 - 17.0						
			SKC20-17.5	P2773652	17.0 - 17.5						
			SKC20-18	P2730844	17.5 - 18.0						
			SKC20-18.5	P2773653	18.0 - 18.5						
			SKC20-19	P2773654	18.5 - 19.0						
			SKC20-19.5	P2773655	19.0 - 19.5						
			SKC20-20	P2730846	19.5 - 20.0						

**SK NUT**

SKN NUSS  
 SKN ÉCROU  
 SKN DADO  
 SKN TUERCA



Unit : mm

TYPE	EDP No.	A	B	C	FIG.	WEIGHT (kg)
SKN06	P2773581	20	15	M15.5X1.0	1	0.02
SKN10	P2773582	28	17	M21.5X1.0	1	0.04
SKN13	P2773583	33	21	M27X1.0	2	0.05
SKN16	P2773584	40	24	M32X1.5	2	0.06
SKN20	P2773585	48.5	24	M40X1.0	2	0.08
SKN25	P2773586	55	30	M42X1.5	2	0.10

**SK SPANNER**

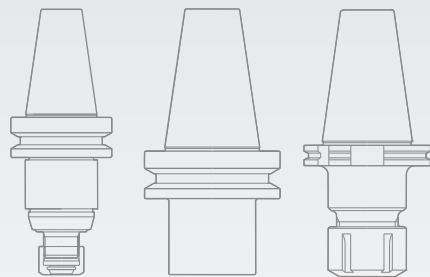


MODEL No.	EDP No.
TSK6	P2773588
TSK10	P2773589
TSK13	P2773590
TSK16	P2773591
TSK20	P2773587
TSK25	P2773592

► Design and shape could be changed without prior notice.



Global Cutting Tool Leader **YG-1**



# TOOLING SYSTEM

## YG-1 TOOLING SYSTEM

# SYNCHRO TAPPING CHUCK

- SYNCHRO GEWINDESCHNEIDFUTTER
- SYNCHRO TARAUDER
- SINCRO MANDRINI PER MASCHIATURA
- SINCRO PORTAMACHOS



### SYNCHRO TAPPING CHUCK (ERTYPE)

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

STRAIGHT-K

### SYNCHRO TAPPING CHUCK (QUICKCHANGETYPE)

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

STRAIGHT-K

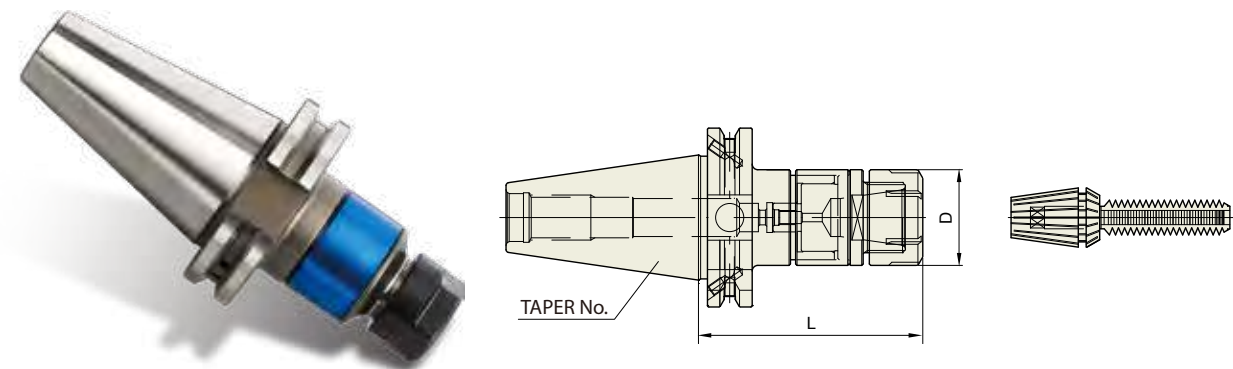
# SYNCHRO TAPPING CHUCK

SYTER

## SYNCHRO TAPPING CHUCK (ER TYPE)

DIN 69871-SK

SYNCHRO GEWINDESCHNEIDFUTTER (ER)  
SYNCHRO TARAUDER (ER)  
SINCRO MANDRINI PER MASCHIATURA (ER)  
SINCRO PORTAMACHOS (ER)



ER collet refer to page 103-107  
Tap ER collet refer to page 108-109

Unit : mm							
TAPER No.	MODEL No.	EDP No.	TAP SIZE	NUT	D	L	WEIGHT (kg)
40	SK40AD/B-SYTER12-79	P2773701	M3-M12	ER16	28	79	1.00
	SK40AD/B-SYTER16-85	P2773702	M3-M16	ER20	34	85	1.08
	SK40AD/B-SYTER20-90	P2773703	M3-M20	ER25	42	90	1.08
	SK40AD/B-SYTER27-100	P2773704	M4-M27	ER32	50	100	1.37
	SK40AD/B-SYTER33-120	P2773705	M4-M33	ER40	63	120	2.16
50	SK50AD/B-SYTER12-79	P2773706	M3-M12	ER16	28	79	2.83
	SK50AD/B-SYTER16-85	P2773707	M3-M16	ER20	34	85	2.86
	SK50AD/B-SYTER20-90	P2773708	M3-M20	ER25	42	90	2.87
	SK50AD/B-SYTER27-100	P2773709	M4-M27	ER32	50	100	3.04
	SK50AD/B-SYTER33-105	P2773710	M4-M33	ER40	63	105	3.93

- Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
  - To compensate for pitch tolerances of taps
  - For machine with synchronized spindle
- CAT(ANSI B5.50) taper and Inch type products are available.

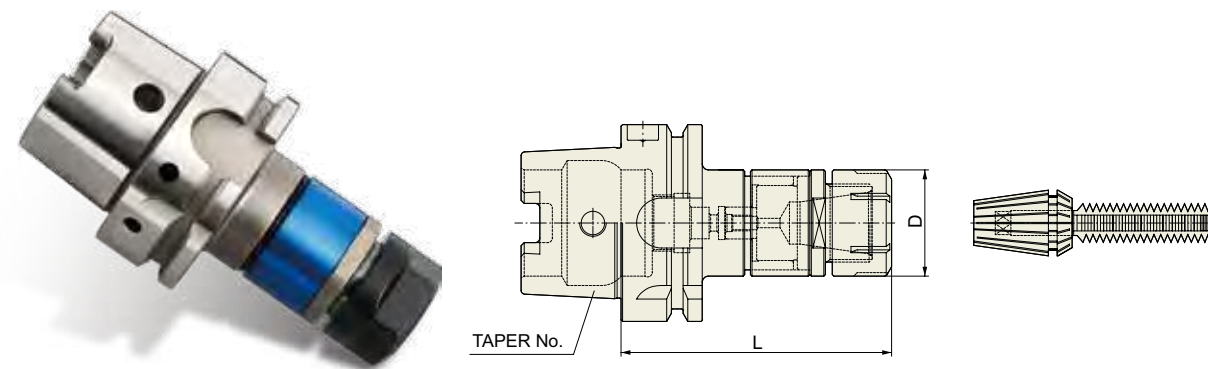
# SYNCHRO TAPPING CHUCK

SYTER

## SYNCHRO TAPPING CHUCK (ER TYPE)

DIN 69893/  
ISO 12164-1-HSK FORM A

SYNCHRO GEWINDESCHNEIDFUTTER (ER)  
SYNCHRO TARAUDER (ER)  
SINCRO MANDRINI PER MASCHIATURA (ER)  
SINCRO PORTAMACHOS (ER)



ER collet refer to page 103-107  
Tap ER collet refer to page 108-109

Unit : mm							
TAPER No.	MODEL No.	EDP No.	TAP SIZE	NUT	D	L	WEIGHT (kg)
63A	HSK63A-SYTER16-90	P2773801	M3-M16	ER20	34	90	0.95
	HSK63A-SYTER20-94	P2773802	M3-M20	ER25	42	94	0.95
	HSK63A-SYTER27-105	P2773803	M4-M27	ER32	50	105	1.34

- Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
  - To compensate for pitch tolerances of taps
  - For machine with synchronized spindle



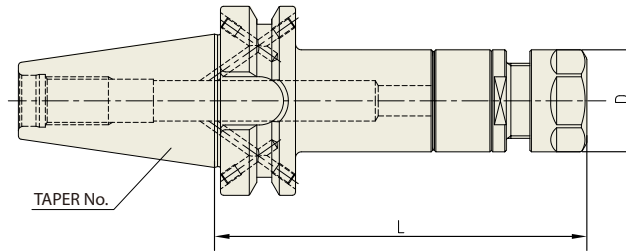
**YIG SYNCHRO TAPPING CHUCK**

**SYTER**

**SYNCHRO TAPPING CHUCK (ER TYPE)**

SYNCHRO GEWINDESCHNEIDFUTTER (ER)  
 SYNCHRO TARAUDER (ER)  
 SINCRO MANDRINI PER MASCHIATURA (ER)  
 SINCRO PORTAMACHOS (ER)

**JIS B6339/  
 MAS 403-BT**



ER collet refer to page 103-107  
 Tap ER collet refer to page 108-109

Unit : mm							
TAPER No.	MODEL No.	EDP No.	TAP SIZE	NUT	D	L	WEIGHT (kg)
40	BT40AD/B-SYTER12-79	P2776301	M2-M8	ER16	28	79	1.14
	BT40AD/B-SYTER16-85	P2776302	M3-M10	ER20	34	85	1.17
	BT40AD/B-SYTER20-90	P2776303	M3-M14	ER25	42	90	1.17
	BT40AD/B-SYTER27-100	P2776304	M4-M18	ER32	50	100	1.45
	BT40AD/B-SYTER33-125	P2776305	M8-M24	ER40	63	125	2.40
50	BT50AD/B-SYTER12-100	P2776306	M2-M8	ER16	28	100	3.79
	BT50AD/B-SYTER16-100	P2776307	M3-M10	ER20	34	100	3.79
	BT50AD/B-SYTER20-100	P2776308	M3-M14	ER25	42	100	3.75
	BT50AD/B-SYTER27-110	P2776309	M4-M18	ER32	50	110	3.99
	BT50AD/B-SYTER33-125	P2776310	M8-M24	ER40	63	125	4.75

- Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
  - To compensate for pitch tolerances of taps
  - For machine with synchronized spindle
- CAT(ANSI B5.50) taper and Inch type products are available.

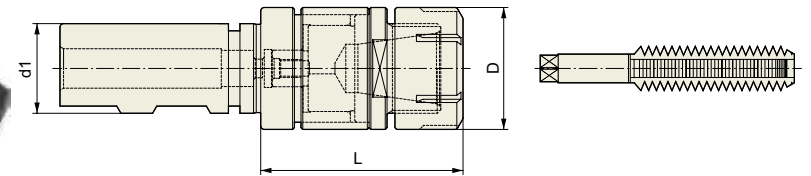
**YIG SYNCHRO TAPPING CHUCK**

**SYTER**

**SYNCHRO TAPPING CHUCK (ER TYPE)**

SYNCHRO GEWINDESCHNEIDFUTTER (ER)  
 SYNCHRO TARAUDER (ER)  
 SINCRO MANDRINI PER MASCHIATURA (ER)  
 SINCRO PORTAMACHOS (ER)

**STRAIGHT-K**



ER collet refer to page 103-107  
 Tap ER collet refer to page 108-109

Unit : mm							
MODEL No.	EDP No.	TAP SIZE	NUT / COLLET	D	L	d1	WEIGHT (kg)
K20-SYTER16	P2773901	M3-M16	ER20	34	58	20	0.33
K25-SYTER16	P2773902	M3-M16	ER20	34	61	25	0.44
K25-SYTER27	P2773903	M4-M27	ER32	50	69	25	0.60

- Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
  - To compensate for pitch tolerances of taps
  - For machine with synchronized spindle

HYDRAULIC CHUCK  
 SHRINK FIT HOLDER  
 ER COLLET CHUCK  
 END MILL HOLDER & SIDE LOCK ARBOR  
 SHELL MILL ARBOR  
 POWER MILLING CHUCK  
 MORSE TAPER ARBOR  
 SK SLIM CHUCK  
 SYNCHRO TAPPING CHUCK  
 ONE STEP TAPPING CHUCK  
 TAPPING ER CHUCK  
 TAPPING CHUCK  
 FACE MILL ARBOR  
 COPY MILL ARBOR & INDEXABLE DRILL HOLDER  
 NC DRILL CHUCK & OTHER TOOL HOLDERS  
 BORING SYSTEM  
 ACCESSORY & OTHERS

HYDRAULIC CHUCK  
 SHRINK FIT HOLDER  
 ER COLLET CHUCK  
 END MILL HOLDER & SIDE LOCK ARBOR  
 SHELL MILL ARBOR  
 POWER MILLING CHUCK  
 MORSE TAPER ARBOR  
 SK SLIM CHUCK  
 SYNCHRO TAPPING CHUCK  
 ONE STEP TAPPING CHUCK  
 TAPPING ER CHUCK  
 TAPPING CHUCK  
 FACE MILL ARBOR  
 COPY MILL ARBOR & INDEXABLE DRILL HOLDER  
 NC DRILL CHUCK & OTHER TOOL HOLDERS  
 BORING SYSTEM  
 ACCESSORY & OTHERS

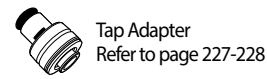
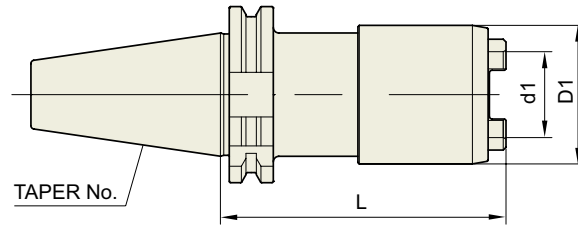
**YIG SYNCHRO TAPPING CHUCK**

**SYTC**

**SYNCHRO TAPPING CHUCK (QUICK CHANGE TYPE)**

**DIN69871-SK**

SYNCHRO GEWINDESCHNEID-SCHNELLWECHSELFUTTER  
SYNCHRO TARAUDER À CHANGEMENT RAPIDE  
SINCRO MANDRINO PER MASCHIARE  
SINCRO PORTAMACHOS DE CAMBIO RAPIDO



Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	MATCHING INSERTS	d1	D1	L	WEIGHT (kg)
30	SK30-SYTC12-65	P2774207	M3-M12	1	19	36	65	0.50
	SK30-SYTC20-89	P2774208	M6-M24	2	31	50	89	1.00
40	SK40-SYTC12-65	P2774201	M3-M12	1	19	36	65	1.10
	SK40-SYTC20-79	P2774202	M6-M24	2	31	50	79	1.50
	SK40-SYTC33-115	P2774203	M18-M38	3	48	74	115	3.30
50	SK50-SYTC12-65	P2774204	M3-M12	1	19	36	65	3.00
	SK50-SYTC20-79	P2774205	M6-M24	2	31	50	79	3.30
	SK50-SYTC33-115	P2774206	M18-M38	3	48	74	115	5.20

- Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
  - To compensate for pitch tolerances of taps
  - For machine with synchronized spindle
- CAT(ANSI B5.50) taper and Inch type products are available.

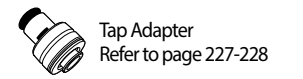
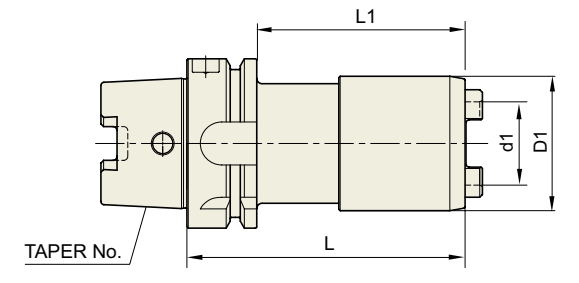
**YIG SYNCHRO TAPPING CHUCK**

**SYTC**

**SYNCHRO TAPPING CHUCK (QUICK CHANGE TYPE)**

**DIN 69893/ ISO 12164-1-HSK FORM A**

SYNCHRO GEWINDESCHNEID-SCHNELLWECHSELFUTTER  
SYNCHRO TARAUDER À CHANGEMENT RAPIDE  
SINCRO MANDRINO PER MASCHIARE  
SINCRO PORTAMACHOS DE CAMBIO RAPIDO



Unit : mm

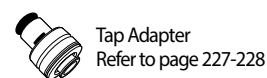
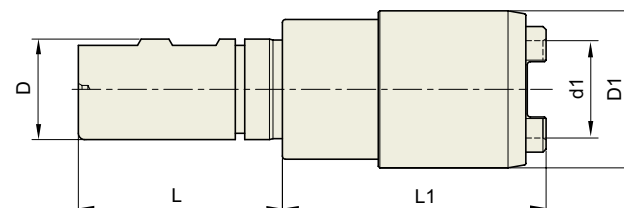
TAPER No.	MODEL No.	EDP No.	TAP SIZE	MATCHING INSERTS	d1	D1	L	L1	WEIGHT (kg)
32A	HSK32A-SYTC12-75	P2774314	M3-M12	1	19	36	75	55	0.32
50A	HSK50A-SYTC12-72	P2774315	M3-M12	1	19	36	72	46	0.54
	HSK50A-SYTC20-91	P2774316	M6-M24	2	31	50	91	65	0.70
63A	HSK63A-SYTC12-75	P2774301	M3-M12	1	19	36	75	49	0.82
	HSK63A-SYTC12-80	P2774302	M3-M12	1	19	36	80	54	0.85
	HSK63A-SYTC12-120	P2774303	M3-M12	1	19	36	120	94	1.08
	HSK63A-SYTC12-152	P2774304	M3-M12	1	19	36	152	126	1.27
	HSK63A-SYTC12-180	P2774305	M3-M12	1	19	36	180	154	1.44
	HSK63A-SYTC20-89	P2774306	M6-M24	2	31	50	89	63	0.84
	HSK63A-SYTC33-121	P2774307	M18-M38	3	48	74	121	95	1.45
100A	HSK100A-SYTC12-75	P2774308	M3-M12	1	19	36	75	43	2.20
	HSK100A-SYTC12-160	P2774309	M3-M12	1	19	36	160	131	2.60
	HSK100A-SYTC20-94	P2774310	M6-M24	2	31	50	94	65	2.39
	HSK100A-SYTC20-160	P2774311	M6-M24	2	31	50	160	131	2.99
	HSK100A-SYTC33-127	P2774312	M18-M38	3	48	74	127	98	3.11
	HSK100A-SYTC33-160	P2774313	M18-M38	3	48	74	160	131	4.03

- Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
  - To compensate for pitch tolerances of taps
  - For machine with synchronized spindle

**SYNCHRO TAPPING CHUCK (QUICK CHANGE TYPE)**

STRAIGHT-K

SYNCHRO GEWINDESCHNEID-SCHNELLWECHSELFUTTER  
 SYNCHRO TARAUDER À CHANGEMENT RAPIDE  
 SINCRO MANDRINO PER MASCHIARE  
 SINCRO PORTAMACHOS DE CAMBIO RAPIDO



Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	MATCHING INSERTS	d1	D1	L	L1	D	WEIGHT (kg)
20	K20-SYTC12-46	P2774401	M3-M12	1	19	36	50	46	20	0.28
	K20-SYTC12-107.5	P2774406	M3-M12	1	19	36	50	107.5	20	0.65
25	K25-SYTC12-46	P2774402	M3-M12	1	19	36	56	46	25	0.37
	K25-SYTC20-74	P2774403	M6-M24	2	31	50	56	74	25	0.69
	K25-SYTC33-107.5	P2774404	M18-M38	3	48	74	56	107.5	25	1.32
32	K32-SYTC12-74	P2774405	M3-M12	1	31	50	60	74	32	0.71

## ► Feature :

- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

## YG-1 TOOLING SYSTEM

# ONE STEP TAPPING CHUCK

- GEWINDE-SCHNELLWECHSELFUTTER
- MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE
- PORTAMASCHI A CAMBIO RAPIDO
- MANDRINO DE CAMBIO RÁPIDO CON ROSCA



DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

STRAIGHT-KW

JIS B6339/MAS 403-BT



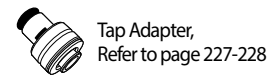
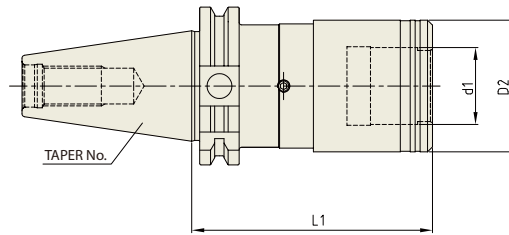
# YIG ONE STEP TAPPING CHUCK

OTC

## ONE STEP TAPPING CHUCK

DIN69871-SK

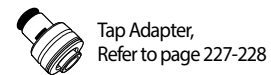
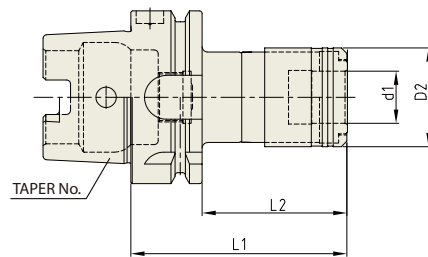
GEWINDE-SCHNELLWECHSELFUTTER  
MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE  
PORTAMASCHI A CAMBIO RAPIDO  
MANDRINO DE CAMBIO RÁPIDO CON ROSCA



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	WEIGHT (kg)
40	SK40-OTC-M3 ~ M12	P2802351	19	36	59	1.10
	SK40-OTC-M6 ~ M20	P2802352	31	53	97	1.50
	SK40-OTC-M24 ~ M33	P2802353	48	78	149	3.30
50	SK50-OTC-M3 ~ M12	P2802354	19	36	59	3.00
	SK50-OTC-M6 ~ M20	P2802355	31	53	83	3.30
	SK50-OTC-M24 ~ M33	P2802356	48	78	138	5.20

## DIN 69893/ ISO 12164-1-HSK



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L1	L2	WEIGHT (kg)
63A	HSK63A-OTC-M3 ~ M12	P2802401	19	36	77	51	-
	HSK63A-OTC-M8 ~ M20	P2802402	31	53	110	84	-
	HSK63A-OTC-M14 ~ M36	P2802403	48	78	155	129	-
100A	HSK100A-OTC-M3 ~ M12	P2802404	19	36	85.5	56.5	-
	HSK100A-OTC-M6 ~ M20	P2802405	31	53	119.5	90.5	-
	HSK100A-OTC-M14 ~ M36	P2802406	48	78	161	132	-



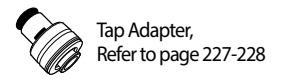
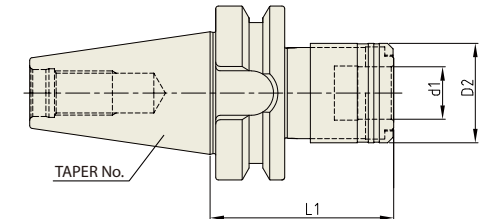
# YIG ONE STEP TAPPING CHUCK

OTC

## ONE STEP TAPPING CHUCK

JIS B6339/ MAS 403-BT

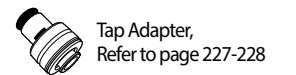
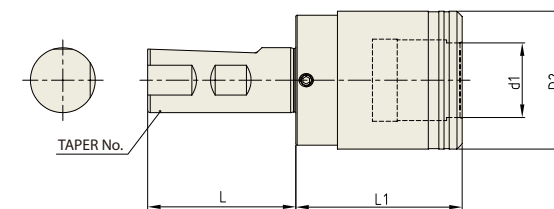
GEWINDE-SCHNELLWECHSELFUTTER  
MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE  
PORTAMASCHI A CAMBIO RAPIDO  
MANDRINO DE CAMBIO RÁPIDO CON ROSCA



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	WEIGHT (kg)
40	BT40-OTC-M3 ~ M12	P2802451	19	36	66.5	1.10
	BT40-OTC-M6 ~ M20	P2802452	31	53	93.5	1.50
	BT40-OTC-M24 ~ M33	P2802453	48	78	162.5	3.30
50	BT50-OTC-M3 ~ M12	P2802454	19	36	85	3.00
	BT50-OTC-M6 ~ M20	P2802455	31	53	101.5	3.30
	BT50-OTC-M24 ~ M33	P2802456	48	78	141	5.20

## STRAIGHT-KW

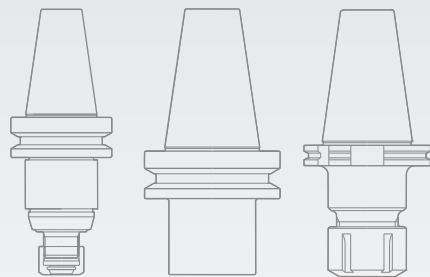


Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L1	L2	WEIGHT (kg)
20	KW20-OTC-M3 ~ M12	P2802457	19	36	51	40	0.80
25	KW25-OTC-M3 ~ M12	P2802458	19	36	57	40	3.00
	KW25-OTC M6 ~ M20	P2802459	31	53	57	64	3.30
32	KW32-OTC-M3 ~ M12	P2802460	19	36	60	39	3.00
	KW32-OTC-M8 ~ M20	P2802461	31	53	60.5	63	3.30
	KW32-OTC-M14 ~ M36	P2802462	48	78	61	124	-



Global Cutting Tool Leader **YG-1**



# TOOLING SYSTEM

YG-1 TOOLING SYSTEM

# TAPPING ER CHUCK

- ER - GEWINDESCHNEIDFUTTER
- MANDRIN DE TARAUDAGE PINCE ER
- MANDRINI PORTAPINZA ER PER MASCHIATURA
- PORTAPINZAS ER PARA MACHOS



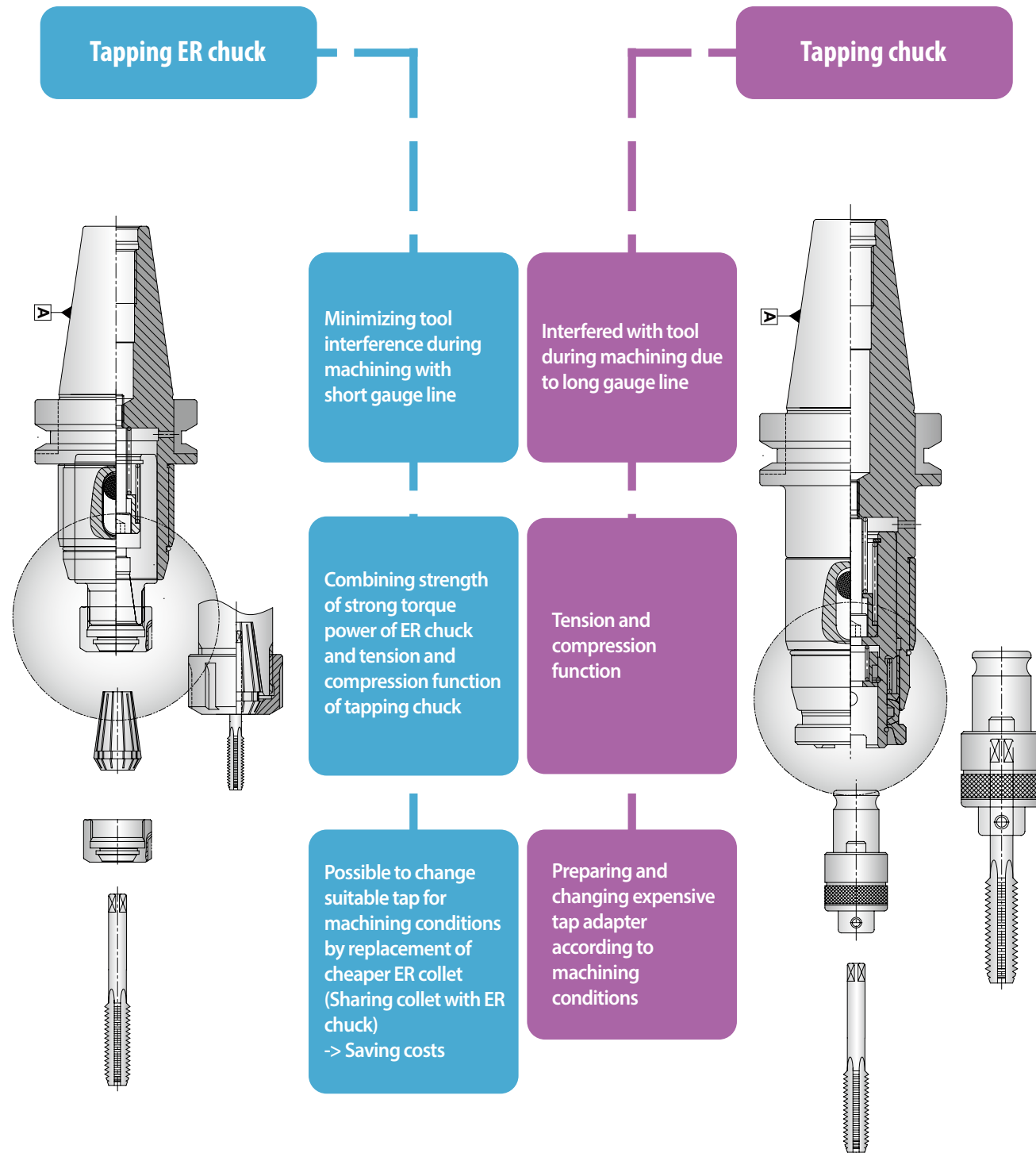
DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

JIS B6339/MAS 403-BT

## TAPPING ER CHUCK

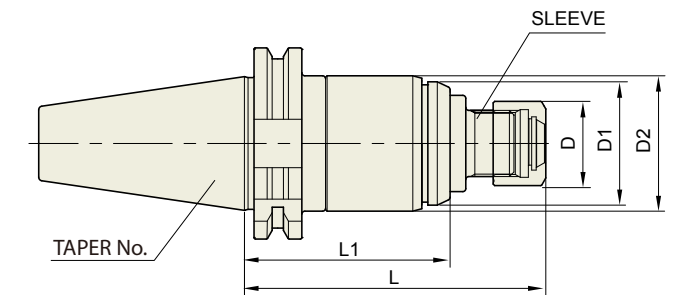


TER

### TAPPING ER CHUCK

DIN 69871-SK

ER - GEWINDESCHNEIDFUTTER  
MANDRIN DE TARAUDAGE PINCE ER  
MANDRINI PORTAPINZA ER PER MASCHIATURA  
PORTAPINZAS ER PARA MACHOS



ER collet refer to page 103-107  
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
40	SK40-TER16-100	P2774001	28	41	45	100	68.4	ER16	1.65
	SK40-TER16-150	P2774002	28	41	45	150	118.4	ER16	1.85
	SK40-TER32-130	P2774003	50	58	63	130	92	ER32	2.10
50	SK40-TER32-150	P2774004	50	58	63	150	112	ER32	2.30
	SK50-TER16-115	P2774005	28	41	45	115	79.4	ER16	4.30
	SK50-TER16-150	P2774006	28	41	45	150	114.4	ER16	4.50
	SK50-TER32-120	P2774007	50	58	63	120	83	ER32	4.65
	SK50-TER32-150	P2774008	50	58	63	150	113	ER32	4.85

▶ CAT(ANSI B5.50) taper and Inch type products are available.

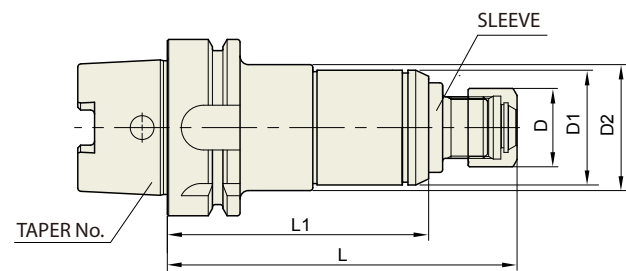
TOOLING SYSTEM  
HYDRAULIC CHUCK  
SHRINK FIT HOLDER  
ER COLLET CHUCK  
END MILL HOLDER & SIDE LOCK ARBOR  
SHELL MILL ARBOR  
POWER MILLING CHUCK  
MORSE TAPER ARBOR  
SK SLIM CHUCK  
SYNCHRO TAPPING CHUCK  
ONE STEP TAPPING CHUCK  
TAPPING ER CHUCK  
TAPPING CHUCK  
FACE MILL ARBOR  
COPY MILL ARBOR & INDEXABLE DRILL HOLDER  
NC DRILL CHUCK & OTHER TOOL HOLDERS  
BORING SYSTEM  
ACCESSORY & OTHERS



**TAPPING ER CHUCK**

ER - GEWINDESCHNEIDFUTTER  
 MANDRIN DE TARAUDAGE PINCE ER  
 MANDRINI PORTAPINZA ER PER MASCHIATURA  
 PORTAPINZAS ER PARA MACHOS

**DIN 69893/  
 ISO 12164-1-HSK FORM A**



ER collet refer to page 103-107  
 Tap ER collet refer to page 108-109

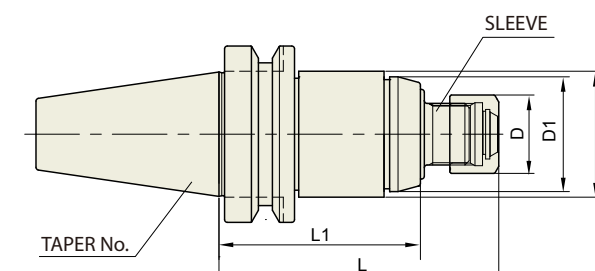
Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
50A	HSK50A-TER16-125	P2774107	28	41	45	125	93.4	ER16	1.20
	HSK50A-TER16-150	P2774108	28	41	45	150	118.4	ER16	1.30
63A	HSK63A-TER16-125	P2774101	28	41	45	125	93.4	ER16	1.70
	HSK63A-TER16-150	P2774102	28	41	45	150	118.4	ER16	1.85
	HSK63A-TER32-150	P2774103	50	58	63	150	112	ER32	2.10
	HSK63A-TER32-180	P2774109	50	58	63	180	142	ER32	2.30
100A	HSK100A-TER16-130	P2774104	28	41	45	130	98.4	ER16	4.00
	HSK100A-TER16-150	P2774105	28	41	45	150	118.4	ER16	4.20
	HSK100A-TER32-150	P2774106	50	58	63	150	112	ER32	4.40
	HSK100A-TER32-180	P2774110	50	58	63	180	142	ER32	4.60

**TAPPING ER CHUCK**

ER - GEWINDESCHNEIDFUTTER  
 MANDRIN DE TARAUDAGE PINCE ER  
 MANDRINI PORTAPINZA ER PER MASCHIATURA  
 PORTAPINZAS ER PARA MACHOS

**CBT  
 (BT DUAL CONTACT)**



ER collet refer to page 103-107  
 Tap ER collet refer to page 108-109

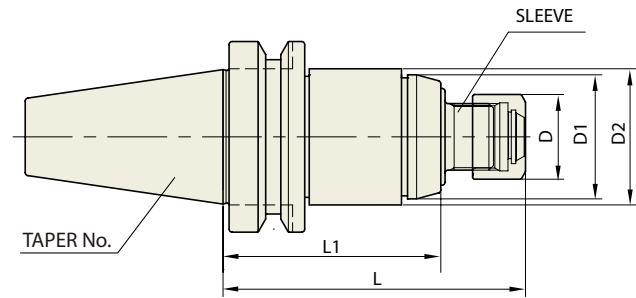
Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
40	CBT40-TER16-100	P2774151	28	41	45	100	68.4	ER16	1.45
	CBT40-TER16-150	P2774152	28	41	45	150	118.4	ER16	2.00
	CBT40-TER32-110	P2774153	50	58	63	110	72	ER32	2.20
	CBT40-TER32-150	P2774154	50	58	63	150	112	ER32	2.70
50	CBT50-TER16-115	P2774155	28	41	45	115	79.4	ER16	3.95
	CBT50-TER16-150	P2774156	28	41	45	150	114.4	ER16	4.35
	CBT50-TER32-120	P2774157	50	58	63	120	83	ER32	4.70
	CBT50-TER32-150	P2774158	50	58	63	150	113	ER32	5.20

**TAPPING ER CHUCK**

ER - GEWINDESCHNEIDFUTTER  
 MANDRIN DE TARAUDAGE PINCE ER  
 MANDRINI PORTAPINZA ER PER MASCHIATURA  
 PORTAPINZAS ER PARA MACHOS

JIS B6339/  
 MAS 403-BT



ER collet refer to page 103-107  
 Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
40	BT40-TER16-100	P2774159	28	41	45	100	68.4	ER16	1.45
	BT40-TER16-150	P2774160	28	41	45	150	118.4	ER16	2.00
	BT40-TER32-110	P2774161	50	58	63	110	72	ER32	2.20
	BT40-TER32-150	P2774162	50	58	63	150	112	ER32	2.70
50	BT50-TER16-115	P2774163	28	41	45	115	79.4	ER16	3.95
	BT50-TER16-150	P2774164	28	41	45	150	114.4	ER16	4.35
	BT50-TER32-120	P2774165	50	58	63	120	83	ER32	4.70
	BT50-TER32-150	P2774166	50	58	63	150	113	ER32	5.20

▶ CAT(ANSI B5.50) taper and Inch type products are available.

YG-1 TOOLING SYSTEM

**TAPPING CHUCK**

- GEWINDESCHNEID - SCHNELLWECHSELFUTTER
- TARAUDER À CHANGEMENT RAPIDE
- MANDRINO PER MASCHIARE
- PORTAMACHOS DE CAMBIO RAPIDO



DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

STRAIGHT-K

DIN 228-MTA

ACCESSORY

TAP ADAPTER

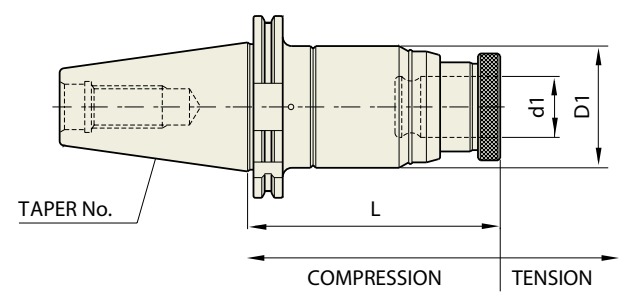


TC

**TAPPING CHUCK**

**DIN 69871-SK**

GEWINDESCHNEID - SCHNELLWECHSELFUTTER  
 TARAUDER À CHANGEMENT RAPIDE  
 MANDRINO PER MASCHIARE  
 PORTAMACHOS DE CAMBIO RAPIDO



Tap Adapter  
 Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
40	SK40-TC12-90	P2520001	M3-M12	5	15	19	45	90	1.30
	SK40-TC12-130	P2520006	M3-M12	5	15	19	45	130	1.80
	SK40-TC24-120	P2520002	M6-M24	5	20	31	63	120	2.50
	SK40-TC24-142	P2520007	M6-M24	5	20	31	63	142	2.80
50	SK50-TC12-130	P2520003	M3-M12	5	15	19	45	130	4.30
	SK50-TC12-175	P2520008	M3-M12	5	15	19	45	175	5.50
	SK50-TC24-142	P2520004	M6-M24	5	20	31	63	142	5.30
	SK50-TC24-187	P2520009	M6-M24	5	20	31	63	187	7.80
	SK50-TC38-175	P2520005	M18-M38	10	25	48	98	175	7.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

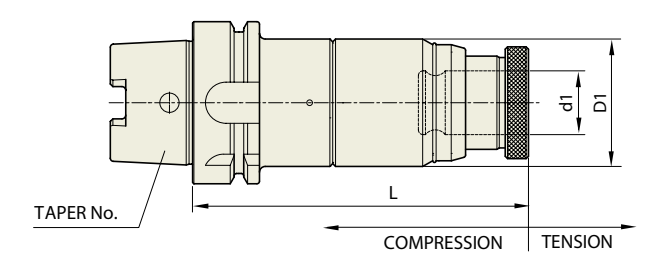


TC

**TAPPING CHUCK**

**DIN 69893/ ISO 12164-1-HSK FORM A**

GEWINDESCHNEID - SCHNELLWECHSELFUTTER  
 TARAUDER À CHANGEMENT RAPIDE  
 MANDRINO PER MASCHIARE  
 PORTAMACHOS DE CAMBIO RAPIDO



Tap Adapter  
 Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
50A	HSK50A-TC12-120	P2774506	M3-M12	5	15	19	45	120	0.80
63A	HSK63A-TC12-120	P2774501	M3-M12	5	15	19	45	120	1.00
	HSK63A-TC12-150	P2774507	M3-M12	5	15	19	45	150	1.70
	HSK63A-TC24-142	P2774502	M6-M24	5	20	31	63	142	2.40
	HSK63A-TC24-172	P2774508	M6-M24	5	20	31	63	172	2.70
100A	HSK100A-TC12-130	P2774503	M3-M12	5	15	19	45	130	4.30
	HSK100A-TC12-175	P2774509	M3-M12	5	15	19	45	175	4.80
	HSK100A-TC12-220	P2774510	M3-M12	5	15	19	45	220	5.30
	HSK100A-TC24-142	P2774504	M6-M24	5	20	31	63	142	5.20
	HSK100A-TC24-187	P2774511	M6-M24	5	20	31	63	187	6.60
	HSK100A-TC38-200	P2774505	M18-M38	10	25	48	98	200	8.00





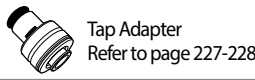
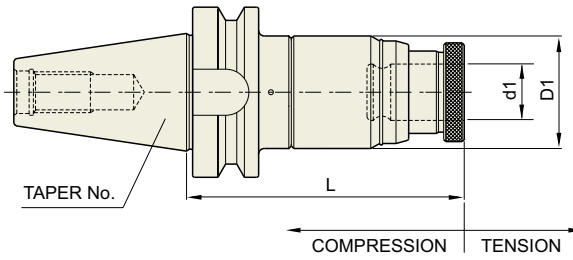


TC

**TAPPING CHUCK**

GEWINDESCHNEID - SCHNELLWECHSELFUTTER  
 TARAUDER À CHANGEMENT RAPIDE  
 MANDRINO PER MASCHIARE  
 PORTAMACHOS DE CAMBIO RAPIDO

JIS B6339/  
 MAS 403-BT



Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
30	BT30-TC12-105	P2778401	M3-M12	5	15	19	45	105	1.00
	BT40-TC12-90	P2540011	M3-M12	5	15	19	45	95	1.50
40	BT40-TC12-130	P2778403	M3-M12	5	15	19	45	130	1.60
	BT40-TC24-100	P2540002	M6-M24	5	20	31	63	100	2.10
	BT40-TC24-142	P2778405	M6-M24	5	20	31	63	142	2.90
	BT50-TC12-130	P2540003	M3-M12	5	15	19	45	130	4.20
50	BT50-TC12-175	P2778407	M3-M12	5	15	19	45	175	4.80
	BT50-TC12-220	P2778408	M3-M12	5	15	19	45	220	5.10
	BT50-TC24-142	P2540004	M6-M24	5	20	31	63	142	5.80
	BT50-TC24-187	P2778410	M6-M24	5	20	31	63	187	6.00
	BT50-TC38-175	P2540005	M18-M38	10	25	48	98	175	8.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

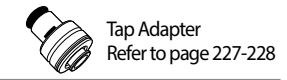
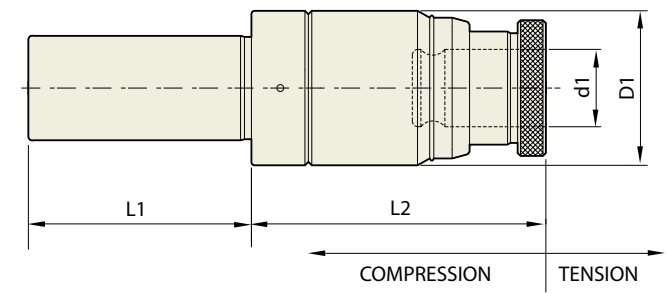


TC

**TAPPING CHUCK**

GEWINDESCHNEID - SCHNELLWECHSELFUTTER - GERADEAUS SCHAFT  
 TARAUDER À CHANGEMENT RAPIDE - TOUT DROIT TIGE  
 MANDRINO PER MASCHIARE - TIBIA DIRITTA  
 PORTAMACHOS DE CAMBIO RAPIDO - CANA RECTA

STRAIGHT-K



Unit : mm

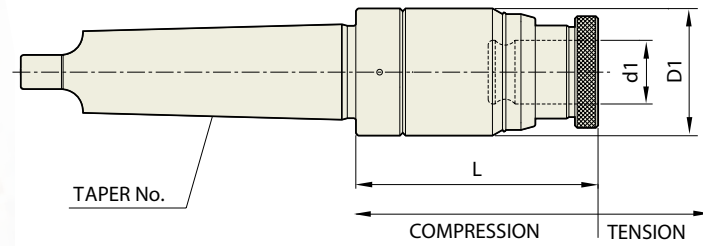
TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L1	L2	WEIGHT (kg)
				Comp.	Ten.					
32	K32-TC12-100	P2774551	M3-M12	5	15	19	45	60	100	0.90
	K32-TC24-120	P2774552	M6-M24	5	20	31	63	60	120	1.40
42	K42-TC12-100	P2774553	M3-M12	5	15	19	45	70	100	1.10
	K42-TC24-120	P2774554	M6-M24	5	20	31	63	70	120	1.60



**TAPPING CHUCK**

GEWINDESCHNEID-SCHNELLWECHSELFUTTER - GERADEAUS SCHAFT  
 TARAUDER À CHANGEMENT RAPIDE - TOUT DROIT TIGE  
 MANDRINO PER MASCHIARE - TIBIA DIRITTA  
 PORTAMACHOS DE CAMBIO RAPIDO - CANA RECTA

**DIN 228-MTA**



Tap Adapter  
Refer to page 227-228

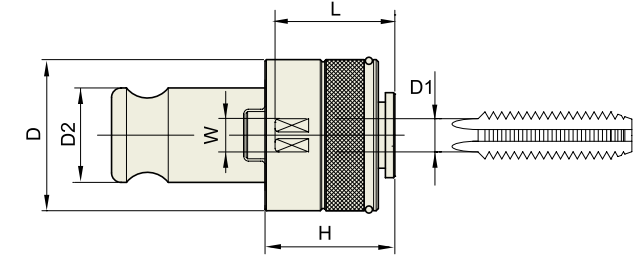
Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
3	MTA3-TC12-90	P2774555	M3-M12	5	15	19	45	90	1.00
	MTA3-TC24-115	P2774556	M6-M24	5	20	31	63	115	2.00
4	MTA4-TC12-105	P2774557	M3-M12	5	15	19	45	105	1.20
	MTA4-TC24-115	P2774558	M6-M24	5	20	31	63	115	2.20
5	MTA5-TC12-145	P2774559	M3-M12	5	15	19	45	145	1.50
	MTA5-TC24-175	P2774560	M6-M24	5	20	31	63	175	2.60

**TAP ADAPTER (JIS)**

SCHNELLWECHSEL-EINSATZ  
 ADAPTATEUR CHANGEMENT RAPIDE  
 BUSSOLA A INNESTO RAPIDO  
 INSERTO DE CAMBIO RAPIDO

**Below standard**  
 Tap Adapter conforms to **JIS**



Unit : mm

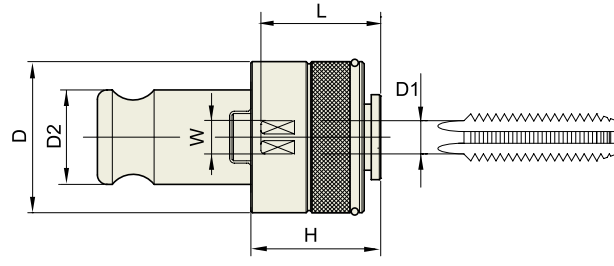
TAPER No.	MODEL No.	EDP No.	D	D1 (Ø)	D2	H	W (□)	L	WEIGHT (kg)
TCS12	TCS12-M3	P2774651	32	4	19	25	3.2	24	0.18
	TCS12-M4	P2774652	32	5	19	25	4.	24	0.18
	TCS12-M5	P2774653	32	5.5	19	25	4.5	24	0.18
	TCS12-M6, U1/4	P2774654	32	6	19	25	4.5	24	0.18
	TCS12-M8	P2774655	32	6.2	19	25	5	25	0.18
	TCS12-M10, U3/8	P2774656	32	7	19	25	5.5	25	0.18
	TCS12-M12	P2774657	32	8.5	19	25	6.5	26	0.18
	TCS24-M6	P2774658	52	6	31	33	4.5	38	0.60
TCS24	TCS24-M8	P2774659	52	6.2	31	33	5	38	0.60
	TCS24-M10	P2774660	52	7	31	33	5.5	38	0.60
	TCS24-M12	P2774661	52	8.5	31	33	6.5	39	0.60
	TCS24-M14, U3/4	P2774662	52	10.5	31	33	8	41	0.60
	TCS24-M16	P2774663	52	12.5	31	33	10	43	0.60
	TCS24-M18, P3/8	P2774664	52	14	31	33	11	43	0.60
	TCS24-M20	P2774665	52	15	31	33	12	43.5	0.60
	TCS24-M22, U7/8	P2774666	52	17	31	33	13	46	0.60
TCS38	TCS24-M24, PF5/8	P2774667	52	19	31	33	15	46	0.60
	TCS38-M18	P2774668	72	14	48	45	11	43	1.80
	TCS38-M20	P2774669	72	15	48	45	12	43.5	1.80
	TCS38-M22	P2774670	72	17	48	45	13	45	1.80
	TCS38-M24	P2774671	72	19	48	45	15	45	1.80
	TCS38-M27, U1	P2774672	72	20	48	45	15	62	1.80
	TCS38-M30, PT3/4	P2774673	72	23	48	45	17	64	1.80
	TCS38-M33	P2774674	72	25	48	45	19	66	1.80
TCS38	TCS38-M36	P2774675	72	28	48	45	21	68	1.80
	TCS38-M38	P2774676	72	28	48	45	21	68	1.80

- ▶ Feature : Quick Change Type with Built-in Torque Safety Device
- ▶ For Pipe Type Tap, please discuss separately.

**TAP ADAPTER (DIN)**

SCHNELLWECHSEL-EINSATZ  
ADAPTATEUR CHANGEMENT RAPIDE  
BUSSOLA A INNESTO RAPIDO  
INSERTO DE CAMBIO RAPIDO

Below standard  
Tap Adapter conforms to **DIN**



**YG-1 TOOLING SYSTEM**

**FACE MILL ARBOR**

- AUFNAHMEDORN FÜR MESSERKÖPFE
- ARBRE PORTE FRAISE À ALÉSAGE
- MANDRINO PORTA FRESE FRONTALE
- EJE PARA PLATOS DE PLACAS



**CBT (BT DUAL CONTACT)**

FMA

**JIS B6339/MAS 403-BT**

FMA

**DIN 69893/ISO 12164-1-HSK**

FMA

**ANSI B5.18-NT**

FMA

**DIN 228-MTA**

**CBT (BT DUAL CONTACT)**

FMB / FMC

**JIS B6339/MAS 403-BT**

FMB / FMC

**DIN 69893/ISO 12164-1-HSK**

FMC

**PARTS**

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1 (Ø)	D2	H	W (□)	L	DIN No.	WEIGHT (kg)
TSC12D	TCS12D-2821	P2774601	32	2.8	19	25	2.1	24	371	0.20
	TCS12D-3527	P2774602	32	3.5	19	25	2.7	24	371	0.20
	TCS12D-4534	P2774603	32	4.5	19	25	3.4	24	371	0.20
	TCS12D-43	P2774604	32	4	19	25	3	24	371	0.20
	TCS12D-5543	P2774605	32	5.5	19	25	4.3	25	376	0.20
	TCS12D-649	P2774606	32	6	19	25	4.9	25	371	0.20
	TCS12D-755	P2774607	32	7	19	25	5.5	25	376	0.20
	TCS12D-862	P2774608	32	8	19	25	6.2	25	371	0.20
	TCS12D-97	P2774609	32	9	19	25	7	26	376	0.20
	TCS12D-108	P2774610	32	10	19	25	8	26	371	0.20
TCS24D	TCS24D-649	P2774612	52	6	31	33	4.9	38	371	0.60
	TCS24D-755	P2774613	52	7	31	33	5.5	38	376	0.60
	TCS24D-862	P2774614	52	8	31	33	6.2	38	371	0.60
	TCS24D-97	P2774615	52	9	31	33	7	38	376	0.60
	TCS24D-108	P2774616	52	10	31	33	8	39	371	0.60
	TCS24D-119	P2774617	52	11	31	33	9	41	376	0.60
	TCS24D-129	P2774618	52	12	31	33	9	43	376	0.60
	TCS24D-1411	P2774619	52	14	31	33	11	43	376	0.60
	TCS24D-1612	P2774620	52	16	31	33	12	46	376	0.60
	TCS24D-18145	P2774621	52	18	31	33	14.5	46	376	0.60
TCS38D	TCS38D-119	P2774622	72	11	48	45	9	43	376	1.80
	TCS38D-129	P2774623	72	12	48	45	9	43	376	1.80
	TCS38D-1411	P2774624	72	14	48	45	11	45	376	1.80
	TCS38D-1612	P2774625	72	16	48	45	12	45	376	1.80
	TCS38D-18145	P2774626	72	18	48	45	14.5	62	376	1.80
	TCS38D-2016	P2774627	72	20	48	45	16	64	376	1.80
	TCS38D-2218	P2774628	72	22	48	45	18	66	376	1.80
	TCS38D-2520	P2774629	72	25	48	45	20	68	376	1.80
TCS38D-2822	P2774630	72	28	48	45	22	68	376	1.80	

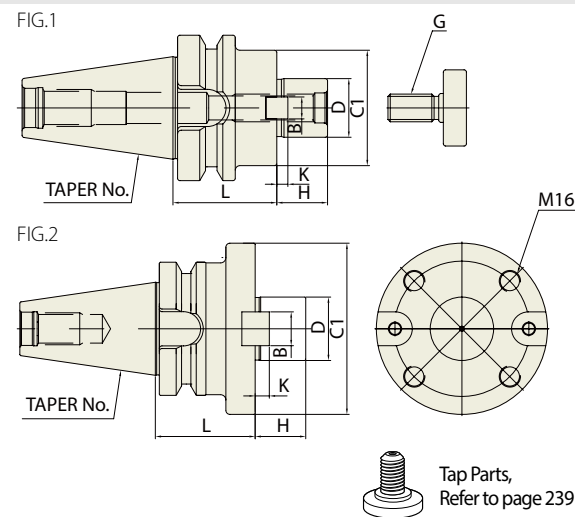
▶ Feature : Quick Change Type with Built-in Torque Safety Device  
▶ For Pipe Type Tap, please discuss separately.



**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

**CBT**  
**(BT DUAL CONTACT)**



Tap Parts, Refer to page 239

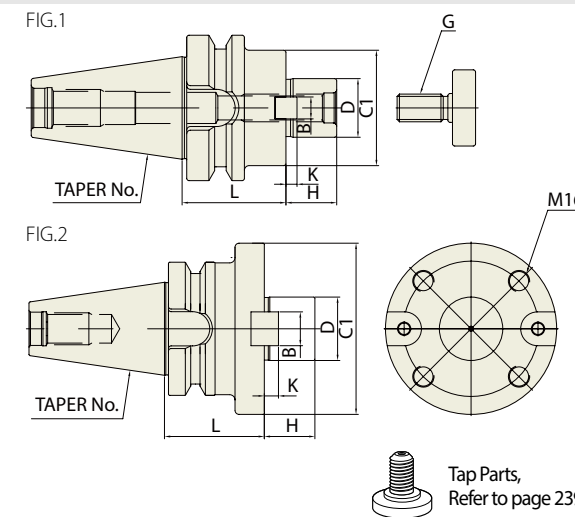
Unit : mm											
TAPER No.	MODEL No.	EDP No.	D	L	C1	H	B	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMA25.4-45	P2779201	25.4	45	50	22	9.5	5	M12	1	1.10
	CBT30-FMA31.75-45	P2779202	31.75	45	60	30	12.7	7	M16	1	1.20
40	CBT40-FMA25.4-45	P2779203	25.4	45	50	22	9.5	5	M12	1	1.50
	CBT40-FMA25.4-90	P2779204	25.4	90	50	22	9.5	5	M12	1	3.10
	CBT40-FMA31.75-45	P2779205	31.75	45	60	30	12.7	7	M16	1	1.90
	CBT40-FMA31.75-75	P2779206	31.75	75	60	30	12.7	7	M16	1	2.70
	CBT40-FMA38.1-60	P2779207	38.1	60	80	34	15.9	9	M20	1	2.90
	CBT50-FMA25.4-45	P2779208	25.4	45	50	22	9.5	5	M12	1	3.70
50	CBT50-FMA25.4-90	P2779209	25.4	90	50	22	9.5	5	M12	1	4.60
	CBT50-FMA25.4-150	P2779210	25.4	150	50	22	9.5	5	M12	1	5.50
	CBT50-FMA31.75-45	P2779211	31.75	45	60	30	12.7	7	M16	1	4.50
	CBT50-FMA31.75-75	P2779212	31.75	75	60	30	12.7	7	M16	1	5.30
	CBT50-FMA31.75-105	P2779213	31.75	105	60	30	12.7	7	M16	1	5.80
	CBT50-FMA31.75-150	P2779214	31.75	150	60	30	12.7	7	M16	1	6.30
	CBT50-FMA38.1-45	P2779215	38.1	45	80	34	15.9	9	M20	1	4.30
	CBT50-FMA38.1-75	P2779216	38.1	75	80	34	15.9	9	M20	1	5.60
	CBT50-FMA38.1-105	P2779217	38.1	105	80	34	15.9	9	M20	1	6.00
	CBT50-FMA38.1-150	P2779218	38.1	150	80	34	15.9	9	M20	1	6.50
	CBT50-FMA50.8-45	P2779219	50.8	45	100	36	19.05	10	M24	1	4.90
	CBT50-FMA50.8-75	P2779220	50.8	75	100	36	19.05	10	M24	1	6.80
CBT50-FMA47.625-75	P2779221	47.625	75	128.57	38	25.4	12.5	-	2	7.70	

▶ Without "Coolant Through".

**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

**JIS B6339/**  
**MAS 403-BT**



Tap Parts, Refer to page 239

Unit : mm											
TAPER No.	MODEL No.	EDP No.	D	L	C1	H	B	K	G	FIG.	WEIGHT (kg)
30	BT30-FMA25.4-45	P2779222	25.4	45	50	22	9.5	5	M12	1	1.10
	BT30-FMA31.75-45	P2779223	31.75	45	60	30	12.7	7	M16	1	1.20
40	BT40-FMA25.4-45	P2779224	25.4	45	50	22	9.5	5	M12	1	1.50
	BT40-FMA25.4-90	P2779225	25.4	90	50	22	9.5	5	M12	1	3.10
	BT40-FMA31.75-45	P2779226	31.75	45	60	30	12.7	7	M16	1	1.90
	BT40-FMA31.75-75	P2779227	31.75	75	60	30	12.7	7	M16	1	2.70
	BT40-FMA38.1-60	P2779228	38.1	60	80	34	15.9	9	M20	1	2.90
	BT50-FMA25.4-45	P2779229	25.4	45	50	22	9.5	5	M12	1	3.70
50	BT50-FMA25.4-90	P2779230	25.4	90	50	22	9.5	5	M12	1	4.60
	BT50-FMA25.4-150	P2779231	25.4	150	50	22	9.5	5	M12	1	5.50
	BT50-FMA31.75-45	P2779232	31.75	45	60	30	12.7	7	M16	1	4.50
	BT50-FMA31.75-75	P2779233	31.75	75	60	30	12.7	7	M16	1	5.30
	BT50-FMA31.75-105	P2779234	31.75	105	60	30	12.7	7	M16	1	5.80
	BT50-FMA31.75-150	P2779235	31.75	150	60	30	12.7	7	M16	1	6.30
	BT50-FMA38.1-45	P2779236	38.1	45	80	34	15.9	9	M20	1	4.30
	BT50-FMA38.1-75	P2779237	38.1	75	80	34	15.9	9	M20	1	5.60
	BT50-FMA38.1-105	P2779238	38.1	105	80	34	15.9	9	M20	1	6.00
	BT50-FMA38.1-150	P2779239	38.1	150	80	34	15.9	9	M20	1	6.50
	BT50-FMA50.8-45	P2779240	50.8	45	100	36	19.05	10	M24	1	4.90
	BT50-FMA50.8-75	P2779241	50.8	75	100	36	19.05	10	M24	1	6.80
BT50-FMA47.625-75	P2779242	47.625	75	128.57	38	25.4	12.5	-	2	7.70	

▶ Without "Coolant Through".

▶ CAT(ANSI B5.50) taper and Inch type products are available.

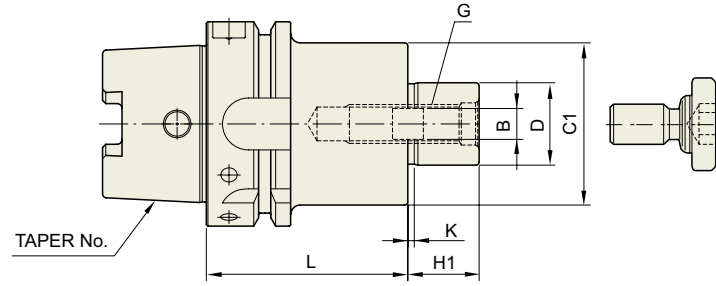
**YG** FACE MILL ARBOR

FMA

**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

DIN 69893/  
ISO 12164-1-HSK FORM A



Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	C1	L	H1	B	K	G	WEIGHT (kg)
40A	HSK40A-FMA25.4-50	P2779243	25.4	50	50	22	9.5	5	M12	0.61
50A	HSK50A-FMA25.4-60	P2779244	25.4	50	60	22	9.5	5	M12	0.90
63A	HSK63A-FMA25.4-45	P2779245	25.4	50	45	22	9.5	5	M12	1.03
	HSK63A-FMA31.75-50	P2779246	31.75	60	50	30	12.7	7	M16	1.26
100A	HSK100A-FMA25.4-45	P2779247	25.4	50	45	22	9.5	5	M12	2.31
	HSK100A-FMA31.75-50	P2779248	31.75	60	50	30	12.7	7	M16	2.61
	HSK100A-FMA38.1-55	P2779249	38.1	80	55	34	15.9	9	M20	3.22
	HSK100A-FMA50.8-60	P2779250	50.8	100	60	36	19.05	10	M24	4.06

▶ Without "Coolant Through".

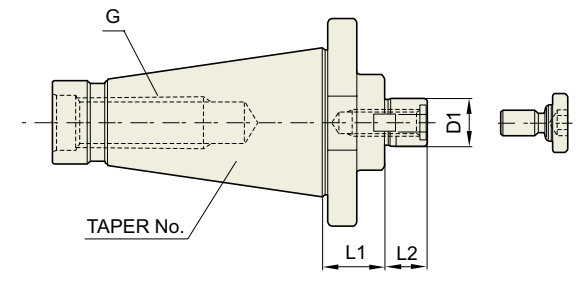
**YG** FACE MILL ARBOR

FMA

**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

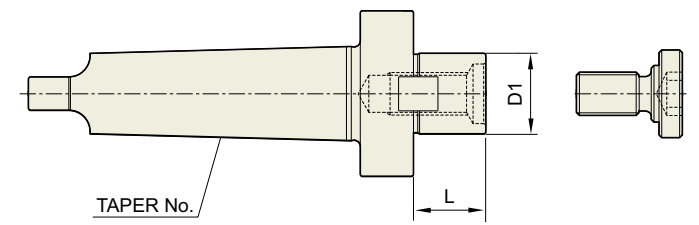
ANSI B5.18-NT



Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	CUTTER (Ø)	D1	L1	L2	DRAW THREAD	OLD MODEL No.	WEIGHT (kg)
40	NT40-FMA25.4	P2779251	3"(75)	25.4	30	22	U5/8-11(M16x2)	NT40-3R	1.45
	NT40-FMA31.75	P2779252	4"(100)	31.75	30	30	U5/8-11(M16x2)	NT40-4R	1.75
	NT40-FMA38.1	P2779253	5"(125)	38.1	30	34	U5/8-11(M16x2)	NT40-5R	1.93
	NT40-FMA50.8	P2779254	6"(150)	50.8	30	36	U5/8-11(M16x2)	NT40-6R	2.55
50	NT50-FMA25.4	P2779255	3"(75)	25.4	30	22	U1-8(M24x3)	NT50-3R	3.30
	NT50-FMA31.75	P2779256	4"(100)	31.75	30	30	U1-8(M24x3)	NT50-4R	3.40
	NT50-FMA38.1	P2779257	5"(125)	38.1	30	34	U1-8(M24x3)	NT50-5R	3.60
	NT50-FMA50.8	P2779258	6"(150)	50.8	30	36	U1-8(M24x3)	NT50-6R	3.90
	NT50-FMA47.625	P2779259	8"(200)	47.625	45	38	U1-8(M24x3)	NT50-8R	4.90



Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	CUTTER (Ø)	D1	L	WEIGHT (kg)
5	MTA5-FMA25.4	P2779260	3"(75)	25.4	22	1.60
	MTA5-FMA31.75	P2779261	4"(100)	31.75	30	1.90
	MTA5-FMA38.1	P2779262	5"(125)	38.1	34	2.20
6	MTA6-FMA25.4	P2779263	3"(75)	25.4	22	3.50
	MTA6-FMA31.75	P2779264	4"(100)	31.75	30	3.80
	MTA6-FMA38.1	P2779265	5"(125)	38.1	34	4.10
	MTA6-FMA50.8	P2779266	6"(150)	50.8	36	4.60
	MTA6-FMA47.625	P2779267	8"(200)	47.625	38	5.40

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

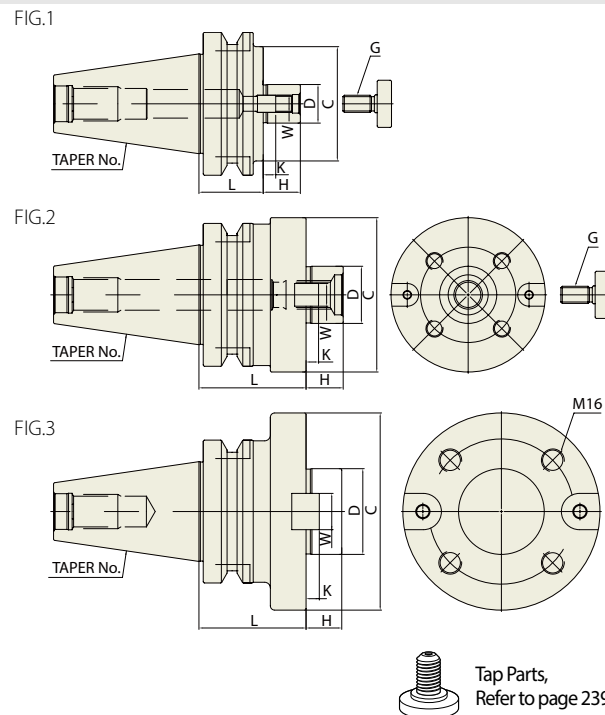
BORING SYSTEM

ACCESSORY & OTHERS

**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

**CBT**  
**(BT DUAL CONTACT)**



Tap Parts, Refer to page 239

◆ METRIC TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMB27-45	P2779316	27	45	80	26	12	6	M12	1	2.10
	CBT40-FMB27-60	P2779269	27	60	80	26	12	6	M12	1	2.50
40	CBT40-FMB27-90	P2779270	27	90	80	26	12	6	M12	1	4.70
	CBT40-FMB40-60	P2779271	40	60	85	26	16	8.5	M20	1	7.40
50	CBT50-FMB27-45	P2779272	27	45	80	26	12	6	M12	1	4.00
	CBT50-FMB27-90	P2779273	27	90	80	26	12	6	M12	1	5.80
	CBT50-FMB27-150	P2779274	27	150	80	26	12	6	M12	1	8.20
	CBT50-FMB40-45	P2779275	40	45	85	26	16	8.5	M20	1	4.70
	CBT50-FMB40-75	P2779276	40	75	85	26	16	8.5	M20	1	6.10
	CBT50-FMB40-105	P2779277	40	105	85	26	16	8.5	M20	1	8.10
	CBT50-FMB40F-75	P2779278	40	75	110	26	16	8.5	M20	2	6.60
	CBT50-FMB60-75	P2779279	60	75	140	25	25.4	12.5	-	3	7.90

◆ INCH TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMB25.4-45	P2779314	25.4	45	80	26	9.5	5	M12	1	2.10
	CBT40-FMB25.4-60	P2779281	25.4	60	80	26	9.5	5	M12	1	2.50
40	CBT40-FMB25.4-90	P2779282	25.4	90	80	26	9.5	5	M12	1	4.70
	CBT40-FMB38.1-60	P2779283	38.1	60	85	26	15.9	9	M20	1	7.40
50	CBT50-FMB25.4-45	P2779284	25.4	45	80	26	9.5	5	M12	1	4.00
	CBT50-FMB25.4-90	P2779285	25.4	90	80	26	9.5	5	M12	1	5.80
	CBT50-FMB25.4-150	P2779286	25.4	150	80	26	9.5	5	M12	1	8.20
	CBT50-FMB38.1-45	P2779287	38.1	45	85	26	15.9	9	M20	1	4.70
	CBT50-FMB38.1-75	P2779288	38.1	75	85	26	15.9	9	M20	1	6.10
	CBT50-FMB38.1-105	P2779289	38.1	105	85	26	15.9	9	M20	1	8.70
	CBT50-FMB38.F-75	P2779290	38.1	75	110	26	15.9	9	M20	2	6.60

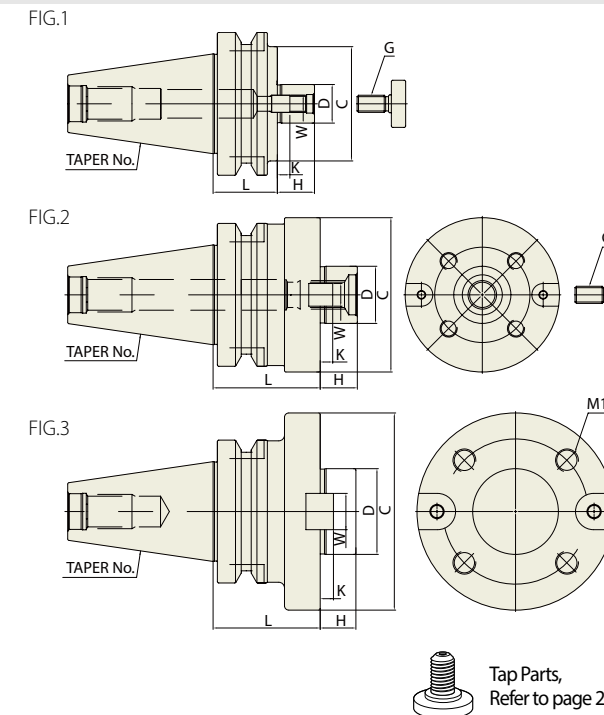
▶ Without "Coolant Through".



**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

**JIS B6339/**  
**MAS 403-BT**



Tap Parts, Refer to page 239

◆ METRIC TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMB27-45	P2779291	27	45	80	26	12	6	M12	1	2.10
	BT40-FMB27-60	P2779292	27	60	80	26	12	6	M12	1	2.50
40	BT40-FMB27-90	P2779293	27	90	80	26	12	6	M12	1	4.70
	BT40-FMB40-60	P2779294	40	60	85	26	16	8.5	M20	1	7.40
50	BT50-FMB27-45	P2779295	27	45	80	26	12	6	M12	1	4.00
	BT50-FMB27-90	P2779296	27	90	80	26	12	6	M12	1	5.80
	BT50-FMB27-150	P2779297	27	150	80	26	12	6	M12	1	8.20
	BT50-FMB40-45	P2779298	40	45	85	26	16	8.5	M20	1	4.70
	BT50-FMB40-75	P2779299	40	75	85	26	16	8.5	M20	1	6.10
	BT50-FMB40-105	P2779300	40	105	85	26	16	8.5	M20	1	8.10
	BT50-FMB40F-75	P2779301	40	75	110	26	16	8.5	M20	2	6.60
BT50-FMB60-75	P2779302	60	75	140	25	25.4	12.5	-	3	7.90	

◆ INCH TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMB25.4-45	P2779315	25.4	45	80	26	9.5	5	M12	1	2.10
	BT40-FMB25.4-60	P2779304	25.4	60	80	26	9.5	5	M12	1	2.50
40	BT40-FMB25.4-90	P2779305	25.4	90	80	26	9.5	5	M12	1	4.70
	BT40-FMB38.1-60	P2779306	38.1	60	85	26	15.9	9	M20	1	7.40
50	BT50-FMB25.4-45	P2779307	25.4	45	80	26	9.5	5	M12	1	4.00
	BT50-FMB25.4-90	P2779308	25.4	90	80	26	9.5	5	M12	1	5.80
	BT50-FMB25.4-150	P2779309	25.4	150	80	26	9.5	5	M12	1	8.20
	BT50-FMB38.1-45	P2779310	38.1	45	85	26	15.9	9	M20	1	4.70
	BT50-FMB38.1-75	P2779311	38.1	75	85	26	15.9	9	M20	1	6.10
	BT50-FMB38.1-105	P2779312	38.1	105	85	26	15.9	9	M20	1	8.70
	BT50-FMB38.F-75	P2779313	38.1	75	110	26	15.9	9	M20	2	6.60

▶ Without "Coolant Through".

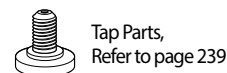
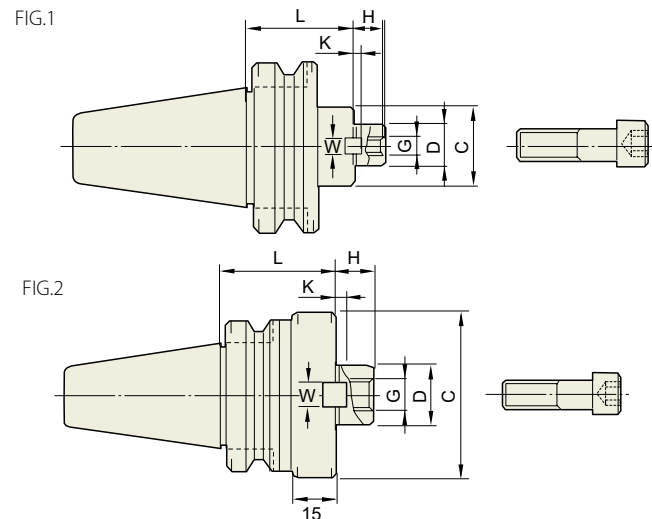
▶ CAT(ANSI B5.50) taper and Inch type products are available.



**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

**CBT**  
**(BT DUAL CONTACT)**



◆ METRIC TYPE

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMC22-45	P2776131	22	45	45	18	10	5	M10	2	0.80
	CBT40-FMC22-45	P2776132	22	45	45	18	10	5	M10	1	1.30
40	CBT40-FMC27-60	P2776133	27	60	70	20	12	6	M12	2	1.50
	CBT40-FMC32-60	P2776134	32	60	85	22	14	7	M16	2	2.30
50	CBT50-FMC22-60	P2776135	22	60	45	18	10	5	M10	1	4.20
	CBT50-FMC22-105	P2776136	22	105	45	18	10	5	M10	1	4.70
	CBT50-FMC22-150	P2776137	22	150	45	18	10	5	M10	1	5.30
	CBT50-FMC27-45	P2776138	27	45	70	20	12	6	M12	1	4.10
	CBT50-FMC27-90	P2776139	27	90	70	20	12	6	M12	1	5.50
	CBT50-FMC27-150	P2776140	27	150	70	20	12	6	M12	1	7.30
	CBT50-FMC32-60	P2776141	32	60	85	22	14	7	M16	1	4.20
	CBT50-FMC32-105	P2776142	32	105	85	22	14	7	M16	1	5.50
	CBT50-FMC32-150	P2776143	32	150	85	22	14	7	M16	1	7.00

◆ INCH TYPE

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMC25.4-45	P2776144	25.4	45	70	20	9.5	6	M12	2	1.10
	CBT40-FMC25.4-60	P2776145	25.4	60	70	20	9.5	6	M12	2	1.50
40	CBT40-FMC25.4-90	P2776146	25.4	90	70	20	9.5	6	M12	2	2.20
	CBT40-FMC38.1-60	P2776147	38.1	60	85	22	15.9	7	M16	2	2.30
	CBT40-FMC38.1-75	P2776148	38.1	75	85	22	15.9	7	M16	2	2.60
50	CBT50-FMC25.4-45	P2776149	25.4	45	70	20	9.5	6	M12	1	4.10
	CBT50-FMC25.4-90	P2776150	25.4	90	70	20	9.5	6	M12	1	5.50
	CBT50-FMC25.4-150	P2776151	25.4	150	70	20	9.5	6	M12	1	7.30
	CBT50-FMC38.1-45	P2776152	38.1	45	85	22	15.9	7	M16	1	4.20
	CBT50-FMC38.1-75	P2776153	38.1	75	85	22	15.9	7	M16	1	5.50
	CBT50-FMC38.1-105	P2776154	38.1	105	85	22	15.9	7	M16	1	7.00

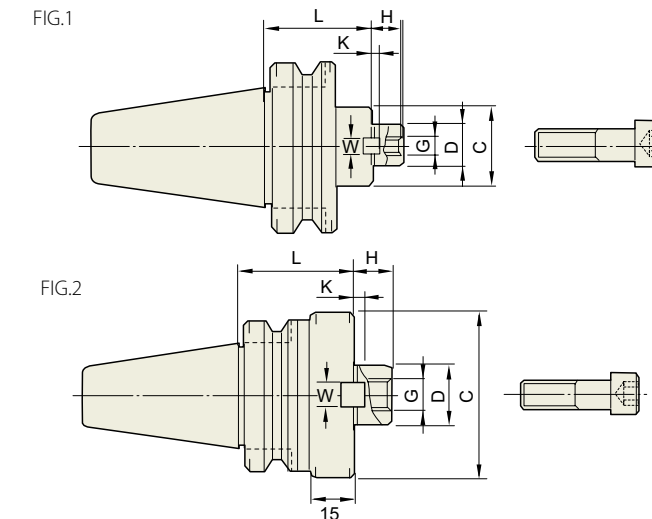
▶ Without "Coolant Through".



**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

**JIS B6339/**  
**MAS 403-BT**



◆ METRIC TYPE

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMC22-45	P2776101	22	45	45	18	10	5	M10	2	0.80
	BT40-FMC22-45	P2776102	22	45	45	18	10	5	M10	1	1.30
40	BT40-FMC27-60	P2776103	27	60	70	20	12	6	M12	2	1.50
	BT40-FMC32-60	P2776104	32	60	85	22	14	7	M16	2	2.30
50	BT50-FMC22-60	P2776105	22	60	45	18	10	5	M10	1	4.20
	BT50-FMC22-105	P2776106	22	105	45	18	10	5	M10	1	4.70
	BT50-FMC22-150	P2776107	22	150	45	18	10	5	M10	1	5.30
	BT50-FMC27-45	P2776108	27	45	70	20	12	6	M12	1	4.10
	BT50-FMC27-90	P2776109	27	90	70	20	12	6	M12	1	5.50
	BT50-FMC27-150	P2776110	27	150	70	20	12	6	M12	1	7.30
	BT50-FMC32-60	P2776111	32	60	85	22	14	7	M16	1	4.20
	BT50-FMC32-105	P2776112	32	105	85	22	14	7	M16	1	5.50
	BT50-FMC32-150	P2776113	32	150	85	22	14	7	M16	1	7.00

◆ INCH TYPE

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMC25.4-45	P2776114	25.4	45	70	20	9.5	6	M12	2	1.10
	BT40-FMC25.4-60	P2776115	25.4	60	70	20	9.5	6	M12	2	1.50
40	BT40-FMC25.4-90	P2776116	25.4	90	70	20	9.5	6	M12	2	2.20
	BT40-FMC38.1-60	P2776117	38.1	60	85	22	15.9	7	M16	2	2.30
	BT40-FMC38.1-75	P2776118	38.1	75	85	22	15.9	7	M16	2	2.60
50	BT50-FMC25.4-45	P2776119	25.4	45	70	20	9.5	6	M12	1	4.10
	BT50-FMC25.4-90	P2776120	25.4	90	70	20	9.5	6	M12	1	5.50
	BT50-FMC25.4-150	P2776121	25.4	150	70	20	9.5	6	M12	1	7.30
	BT50-FMC38.1-45	P2776122	38.1	45	85	22	15.9	7	M16	1	4.20
	BT50-FMC38.1-75	P2776123	38.1	75	85	22	15.9	7	M16	1	5.50
	BT50-FMC38.1-105	P2776124	38.1	105	85	22	15.9	7	M16	1	7.00

▶ Without "Coolant Through".

▶ CAT(ANSI B5.50) taper and Inch type products are available.

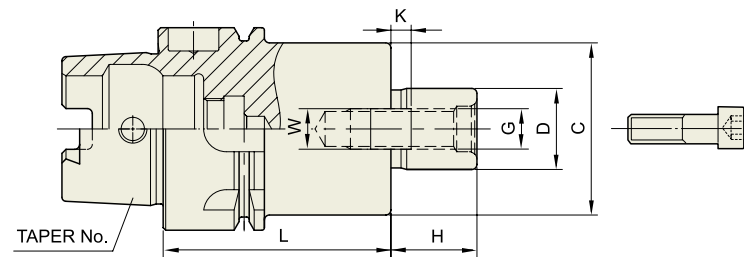
**YG** FACE MILL ARBOR

FMC

**FACE MILL ARBOR**

AUFNAHMEDORN FÜR MESSERKÖPFE  
ARBRE PORTE FRAISE À ALÉSAGE  
MANDRINO PORTA FRESE FRONTALE  
EJE PARA PLATOS DE PLACAS

DIN 69893/  
ISO 12164-1-HSK FORM A



Tap Parts,  
Refer to page 239

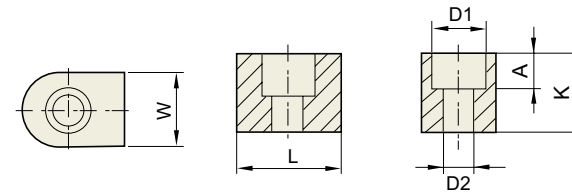
TAPER No.	MODEL No.	EDP No.	D	C	L	H	W	K	G	WEIGHT (kg)
40A	HSK40A-FMC16-45	P2774707	16	34	45	17	8	4	M8	0.43
	HSK40A-FMC22-50	P2774708	22	45	50	18	10	5	M10	0.56
	HSK40A-FMC27-60	P2774709	27	68	60	20	12	7	M12	1.02
50A	HSK50A-FMC16-40	P2774710	16	34	40	17	8	4	M8	0.54
	HSK50A-FMC22-50	P2774711	22	45	50	18	10	5	M10	0.73
	HSK50A-FMC27-60	P2774712	27	70	60	20	12	6	M12	1.20
63A	HSK63A-FMC22-45	P2774701	22	45	45	18	10	5	M10	0.97
	HSK63A-FMC27-60	P2774702	27	70	60	20	12	6	M12	1.57
	HSK63A-FMC32-60	P2774703	32	85	60	22	14	7	M16	1.81
100A	HSK100A-FMC22-50	P2774704	22	45	50	18	10	5	M10	2.33
	HSK100A-FMC27-60	P2774705	27	70	60	20	12	6	M12	3.02
	HSK100A-FMC32-60	P2774706	32	85	60	22	14	7	M16	3.41

▶ Without "Coolant Through".

**YG** FACE MILL ARBOR

PART

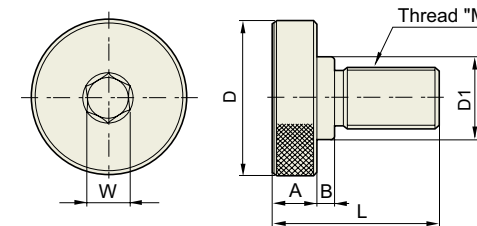
**KEY & BOLT**  
(For FACE MILL ARBOR)



KEY

KEY	EDP No.	W	K	L	D1	D2	A	APPLICABLE ARBOR
8 × 7 × 12.8	P2778857	8	7	12.8	5.8	3.2	3.2	SMA16
10 × 7.8 × 15.5	P2778858	10	7.8	15.5	7.5	4.2	4.3	SMA22
9.52 × 9.52 × 10.2	P2774753	9.52	9.52	10.2	7.5	4.5	5.2	FMA25.4 / FMB25.4
9.5 × 12 × 11	P2774754	9.5	12	11	7.5	4.2	5	FMC25.4
12 × 9 × 18.5	P2778859	12	9	18.5	9	5.3	5.5	SMA27
10 × 10 × 11	P2774756	10	10	11	7.5	4.2	5	FMC22
14 × 11.5 × 20.5	P2778860	14	11.5	20.5	10.5	6.5	6.5	SMA32
12 × 13 × 18	P2774758	12	13	18	9	5.3	8	FMB27 / FMC27
16 × 13.5 × 23.5	P2778861	16	13.5	23.5	10.5	6.5	6.5	SMA40
12.7 × 12.7 × 12.7	P2774760	12.7	12.7	12.7	7.5	4.5	5.2	FMA31.75
15.87 × 15.87 × 18.5	P2774761	15.87	15.87	18.5	10.3	6.6	7.5	FMA38.1 / FMB40 / FMB40F
14 × 15 × 20	P2774762	14	15	20	10.5	6.3	8	FMC32
18 × 18 × 28.5	P2778862	18	18	28.5	10.5	6.5	10	SMA50
19 × 18 × 22	P2774764	19	18	22	10.5	6.3	7	FMA50.8

Unit : mm



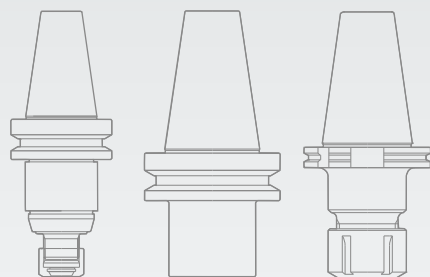
MOUNTING BOLT

MOUNTING BOLT	EDP No.	M	D	D1	L	A	B	W	APPLICABLE ARBOR
MB8	P2774765	8 × 1.25	20	15	23	7	2	6	FMC16
MB10	P2774766	10 × 1.5	28	18	29	9	2	8	FMC22
MB12	P2774767	12 × 1.75	33	23	32	10	2	10	FMC27 / FMB27 / FMA25.4
MB16	P2774768	16 × 2.0	40	23	42	10	6	12	FMC32 / FMA31.75
MB20	P2774769	20 × 2.5	50	27	54	14	6	14	FMC40 / FMA38.1 / FMB40 / FMB40F
MB24	P2774770	24 × 3.0	65	37	62	14	10	17	FMA50.8

Unit : mm



Global Cutting Tool Leader **YG-1**



# TOOLING SYSTEM

## YG-1 TOOLING SYSTEM

# COPY MILL ARBOR & INDEXABLE DRILL HOLDER

- WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE
- MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE
- MANDRINO PER FRESE MODULARI FILETTATE
- PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA & WERKZEUGHALTER FÜR VOLLBOHRER
- MANDRIN POUR FORETS À PLAQUETTES
- MANDRINO PER PUNTE A INSERTI
- SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO



### COPY MILL ARBOR

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

### INDEXABLE DRILL HOLDER

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT



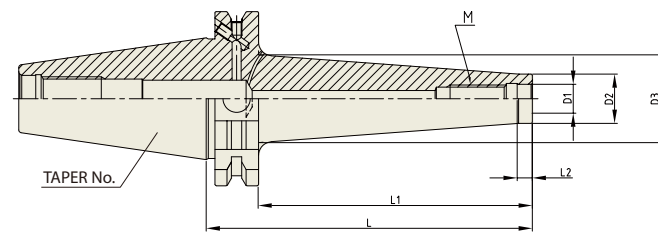
# YG COPY MILL ARBOR & INDEXABLE DRILL HOLDER

M

## COPY MILL ARBOR

DIN 69871-SK

WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE  
MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE  
MANDRINO PER FRESE MODULARI FILETTATE  
PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA



Unit : mm									
TAPER No.	MODEL No. (M-L1)	EDP No.	D1	D2	D3	L	L1	L2	WEIGHT (kg)
40	SK40AD/B-M6-25	P2801701	6.5	10	13	44	25	5	0.80
	SK40AD/B-M8-25	P2801702	8.5	13	15	44	25	5	0.80
	SK40AD/B-M8-50	P2801703	8.5	13	23	69	50	5	0.86
	SK40AD/B-M8-75	P2801704	8.5	13	23	94	75	5	0.90
	SK40AD/B-M8-100	P2801705	8.5	13	25	119	100	5	0.97
	SK40AD/B-M10-5	P2801706	10.5	18	18	24	5	5	0.77
	SK40AD/B-M10-25	P2801707	10.5	18	20	44	25	5	0.79
	SK40AD/B-M10-50	P2801708	10.5	18	23	69	50	5	0.85
	SK40AD/B-M10-75	P2801709	10.5	18	28	94	75	5	0.87
	SK40AD/B-M10-100	P2801710	10.5	18	32	119	100	5	1.12
	SK40AD/B-M10-150	P2801711	10.5	18	36.5	169	150	5	1.38
	SK40AD/B-M12-5	P2801712	12.5	21	21	24	5	5	0.77
	SK40AD/B-M12-25	P2801713	12.5	21	24	44	25	5	0.82
	SK40AD/B-M12-50	P2801714	12.5	21	24	69	50	5	0.85
	SK40AD/B-M12-75	P2801715	12.5	21	31	94	75	5	1.02
	SK40AD/B-M12-100	P2801716	12.5	21	33	119	100	5	1.09
	SK40AD/B-M12-150	P2801717	12.5	21	40	169	150	5	1.53
	SK40AD/B-M16-5	P2801718	17	29	29	24	5	5	0.77
	SK40AD/B-M16-25	P2801719	17	29	29	44	25	5	0.85
	SK40AD/B-M16-50	P2801720	17	29	34	69	50	5	1.00
SK40AD/B-M16-75	P2801721	17	29	34	94	75	5	0.99	
SK40AD/B-M16-100	P2801722	17	29	36	119	100	5	1.34	
SK40AD/B-M16-150	P2801723	17	29	42.5	169	150	5	1.84	
50	SK50AD/B-M8-50	P2801724	8.5	13	23	69	50	5	2.69
	SK50AD/B-M10-50	P2801725	10.5	18	23	69	50	5	2.71
	SK50AD/B-M10-100	P2801726	10.5	18	32	119	100	10	2.88
	SK50AD/B-M10-150	P2801727	10.5	18	36.5	169	150	10	3.17
	SK50AD/B-M12-50	P2801728	12.5	21	24	69	50	5	2.67
	SK50AD/B-M12-100	P2801729	12.5	21	33	119	100	10	2.93
	SK50AD/B-M12-150	P2801730	12.5	21	40	169	150	10	3.33
	SK50AD/B-M16-50	P2801731	17	29	34	69	50	5	2.79
	SK50AD/B-M16-100	P2801732	17	29	36	119	100	10	3.00
	SK50AD/B-M16-150	P2801733	17	29	42.5	169	150	10	3.60



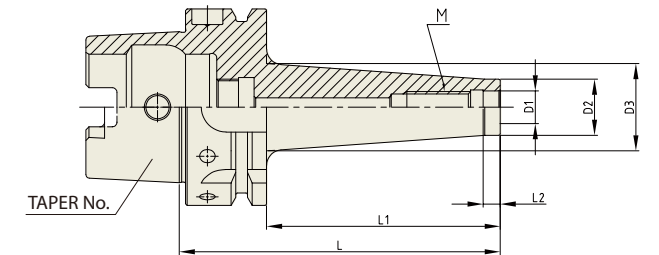
# YG COPY MILL ARBOR & INDEXABLE DRILL HOLDER

M

## COPY MILL ARBOR

DIN 69893/ ISO 12164-1-HSK FORM A

WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE  
MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE  
MANDRINO PER FRESE MODULARI FILETTATE  
PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA



Unit : mm									
TAPER No.	MODEL No. (M-L1)	EDP No.	D1	D2	D3	L	L1	L2	WEIGHT (kg)
63A	HSK63A-M5-25	P2801801	5.5	10	13	51	25	5	0.77
	HSK63A-M6-25	P2801802	6.5	10	13	51	25	5	0.77
	HSK63A-M8-25	P2801803	8.5	13	15	51	25	5	0.81
	HSK63A-M8-50	P2801804	8.5	13	23	76	50	5	1.09
	HSK63A-M8-75	P2801805	8.5	13	23	101	75	5	1.29
	HSK63A-M10-25	P2801806	10.5	18	20	51	25	5	0.90
	HSK63A-M10-50	P2801807	10.5	18	23	76	50	5	1.20
	HSK63A-M10-75	P2801808	10.5	18	28	101	75	5	1.33
	HSK63A-M10-100	P2801809	10.5	18	32	126	100	5	1.45
	HSK63A-M10-150	P2801810	10.5	18	36.5	176	150	5	1.60
	HSK63A-M12-25	P2801811	12.5	21	24	51	25	5	0.98
	HSK63A-M12-50	P2801812	12.5	21	24	76	50	5	1.29
	HSK63A-M12-75	P2801813	12.5	21	31	101	75	5	1.92
	HSK63A-M12-100	P2801814	12.5	21	33	126	100	5	2.48
	HSK63A-M12-150	P2801815	12.5	21	40	176	150	5	4.19
	HSK63A-M16-25	P2801816	17	29	29	51	25	5	0.78
	HSK63A-M16-50	P2801817	17	29	34	76	50	5	1.85
	HSK63A-M16-75	P2801818	17	29	34	101	75	5	2.46
	HSK63A-M16-100	P2801819	17	29	36	126	100	5	3.23
	HSK63A-M16-150	P2801820	17	29	42.5	176	150	5	5.39
100A	HSK100A-M8-50	P2801821	8.5	13	23	79	50	5	2.33
	HSK100A-M10-50	P2801822	10.5	18	23	79	50	5	2.35
	HSK100A-M10-100	P2801823	10.5	18	32	129	100	10	2.59
	HSK100A-M10-150	P2801824	10.5	18	36.5	179	150	10	2.90
	HSK100A-M12-50	P2801825	12.5	21	24	79	50	5	2.37
	HSK100A-M12-100	P2801826	12.5	21	33	129	100	10	2.64
	HSK100A-M12-150	P2801827	12.5	21	40	179	150	10	3.05
	HSK100A-M16-50	P2801828	17	29	34	79	50	5	2.48
	HSK100A-M16-100	P2801829	17	29	36	129	100	10	2.81
	HSK100A-M16-150	P2801830	17	29	42.5	179	150	10	3.32

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

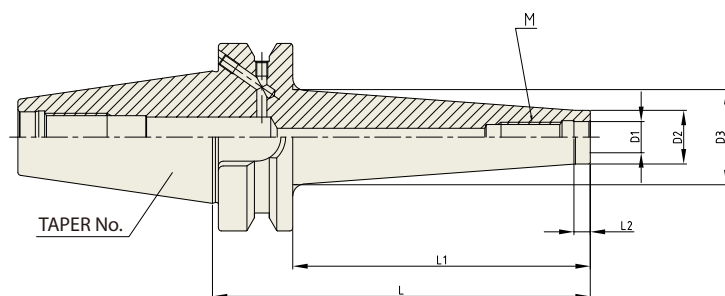
# YG COPY MILL ARBOR & INDEXABLE DRILL HOLDER

M

## COPY MILL ARBOR

WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE  
 MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE  
 MANDRINO PER FRESE MODULARI FILETTATE  
 PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA

JIS B6339/  
 MAS 403-BT



Unit : mm									
TAPER No.	MODEL No. (M-L1)	EDP No.	D1	D2	D3	L	L1	L2	WEIGHT (kg)
40	BT40AD/B-M6-25	P2801901	6.5	10	13	52	25	5	0.94
	BT40AD/B-M6-50	P2801902	6.5	10	20	77	50	5	0.99
	BT40AD/B-M6-75	P2801903	6.5	10	23	102	75	5	1.04
	BT40AD/B-M8-25	P2801904	8.5	13	15	52	25	5	0.95
	BT40AD/B-M8-50	P2801905	8.5	13	23	77	50	5	1.01
	BT40AD/B-M8-75	P2801906	8.5	13	23	102	75	5	1.05
	BT40AD/B-M10-25	P2801907	10.5	18	20	52	25	5	0.97
	BT40AD/B-M10-50	P2801908	10.5	18	23	77	50	5	1.04
	BT40AD/B-M10-75	P2801909	10.5	18	32	102	75	5	1.28
	BT40AD/B-M12-25	P2801910	12.5	21	15	52	25	5	0.98
	BT40AD/B-M12-75	P2801911	12.5	21	23	102	75	5	1.22
	BT40AD/B-M12-125	P2801912	12.5	21	23	152	125	5	1.50
	BT40AD/B-M16-25	P2801913	17	29	29	52	25	5	1.01
	BT40AD/B-M16-75	P2801914	17	29	34	102	75	5	1.32
	BT40AD/B-M16-125	P2801915	17	29	40	152	125	5	1.75
	50	BT50AD/B-M8-50	P2801916	8.5	13	23	88	50	5
BT50AD/B-M10-50		P2801917	10.5	18	23	88	50	5	3.54
BT50AD/B-M10-100		P2801918	10.5	18	32	138	100	10	3.77
BT50AD/B-M12-50		P2801919	12.5	21	24	88	50	10	3.55
BT50AD/B-M12-100		P2801920	12.5	21	33	138	100	10	3.82
BT50AD/B-M16-50		P2801921	17	29	29	88	50	10	3.63
BT50AD/B-M16-100		P2801922	17	29	36	138	100	10	3.98
BT50AD/B-M16-150		P2801923	17	29	42.5	188	150	10	4.48

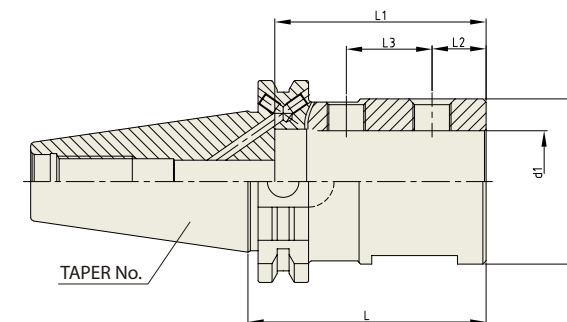
# YG COPY MILL ARBOR & INDEXABLE DRILL HOLDER

SL

## INDEXABLE DRILL HOLDER

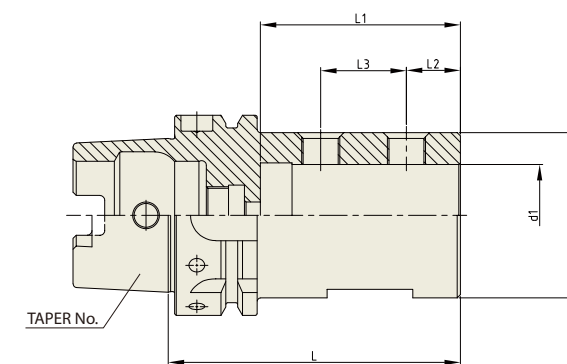
WERKZEUGHALTER FÜR VOLLBOHRER  
 MANDRIN POUR FORETS À PLAQUETTES  
 MANDRINO PER PUNTE A INSERTI  
 SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO

DIN 69871-SK



Unit : mm									
TAPER No.	MODEL No.	EDP No.	d1	D1	L	L1	L2	L3	WEIGHT (kg)
40	SK40AD/B-SL20-65	P2802001	20	40	65	56	15	20	1.07
	SK40AD/B-SL25-70	P2802002	25	45	70	61.5	17	23	1.15
	SK40AD/B-SL32-75	P2802003	32	52	75	66.5	17	27	1.27
	SK40AD/B-SL40-115	P2802004	40	60	115	73	22	28	2.10
50	SK50AD/B-SL20-70	P2802005	20	40	70	54	15	20	3.00
	SK50AD/B-SL25-70	P2802006	25	45	70	64	17	23	3.04
	SK50AD/B-SL32-75	P2802007	32	52	75	68	17	27	3.14
	SK50AD/B-SL40-80	P2802008	40	60	80	77.0	22	28	3.26

## DIN 69893/ ISO 12164-1-HSK FORM A



Unit : mm									
TAPER No.	MODEL No.	EDP No.	d1	D1	L	L1	L2	L3	WEIGHT (kg)
63A	HSK63A-SL20-80	P2802051	20	40	80	54	15	20	1.04
	HSK63A-SL25-90	P2802052	25	45	90	59	17	23	1.21
	HSK63A-SL32-90	P2802053	32	52	90	63	17	27	1.30
	HSK63A-SL40-105	P2802054	40	60	105	73	22	28	1.58
100A	HSK100A-SL20-90	P2802055	20	40	90	54	15	20	2.71
	HSK100A-SL25-95	P2802056	25	45	95	59	17	23	2.84
	HSK100A-SL32-100	P2802057	32	52	100	63	17	27	3.03
	HSK100A-SL40-110	P2802058	40	60	110	73	22	28	3.32



HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

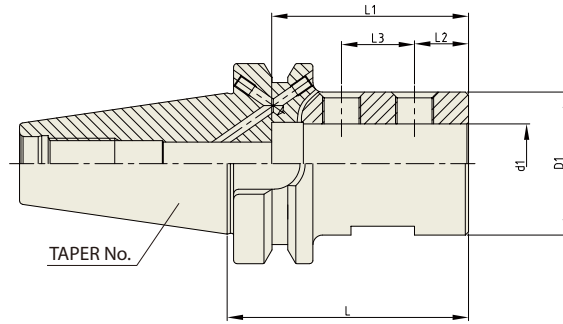
**YG COPY MILL ARBOR & INDEXABLE DRILL HOLDER**

**SL**

**INDEXABLE DRILL HOLDER**

WERKZEUGHALTER FÜR VOLLBOHRER  
 MANDRIN POUR FORETS À PLAQUETTES  
 MANDRINO PER PUNTE A INSERTI  
 SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO

**JIS B6339/  
 MAS 403-BT**



Unit : mm

TAPER No.	MODEL No. (M-L1)	EDP No.	d1	D1	L	L1	L2	L3	WEIGHT (kg)
40	BT40AD/B-SL20-72	P2802101	20	40	72	54	15	20	1.09
	BT40AD/B-SL25-76	P2802102	25	45	76	62	17	23	1.11
	BT40AD/B-SL32-80	P2802103	32	52	80	67	17	27	1.17
	BT40AD/B-SL40-100	P2802104	40	60	100	73	22	28	1.67
50	BT50AD/B-SL20-90	P2802105	20	40	90	54	15	20	3.74
	BT50AD/B-SL25-90	P2802106	25	45	90	59	17	23	3.81
	BT50AD/B-SL32-90	P2802107	32	52	90	70	17	27	3.90
	BT50AD/B-SL40-100	P2802108	40	60	100	80	22	28	4.12

**YG-1 TOOLING SYSTEM**

**NC DRILL CHUCK & OTHER TOOL HOLDERS**

- NC - BOHRFUTTER UND ANDERE WERKZEUGHALTER
- MANDRIN DE PERÇAGE NC ET D'AUTRES PORTE-OUTIL
- NC MANDRINI PORTA PUNTE E ALTRI PORTAUTENSILI
- PORTABROCAS PARA BROCAS NC Y OTRA PORTAHERRAMIENTAS



**NC DRILL CHUCK**

CBT (BT DUAL CONTACT) JIS B6339/MAS 403-BT  
 DIN 69893/ISO 12164-1-HSK STRAIGHT-K  
 DIN 69871-SK

**SIDE CUTTER ARBOR**

JIS B6339/MAS 403-BT

**JACOBS TAPER ADAPTER**

JIS B6339/MAS 403-BT

**BLANK BAR**

DIN 69871-SK JIS B6339/MAS 403-BT  
 DIN 69893/ISO 12164-1-HSK FORM A

**TEST BAR**

DIN69871-SK JIS B6339/MAS 403-BT  
 DIN69893/ISO 12164-1-HSK



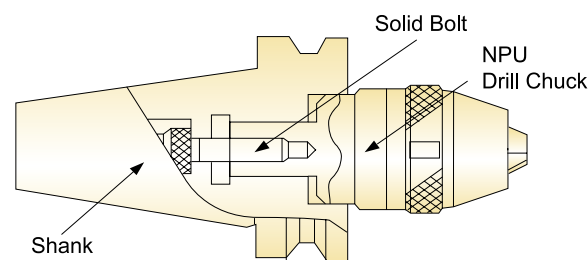
## NC DRILL CHUCK



### FEATURE

YG-1 Drill Chuck is completely tightened with solid bolt, and there is no danger of falling during rotating or cutting.

### HIGH PRECISION



• Drill chuck with excellent high precision (T.I.R 0.05) and shank are integrated, which guarantees excellent T.I.R

### Strong Chucking Power

Drill may be damaged due to reverse thrust during perforation, but with YG-1 Drill Chuck strongly tightened with wrench, there is no possibility of damage to drill.

### Safety

YG-1 NC Drill Chuck with strong rigidity contributes to factory automation by unmanned operation by preventing accident from occurring during operation.

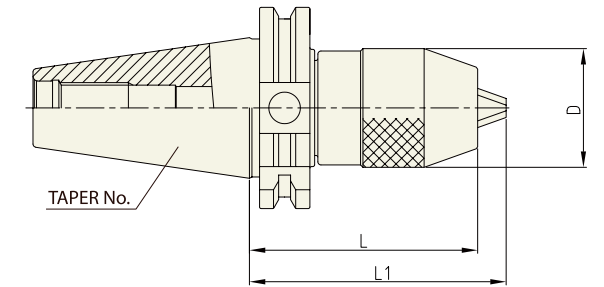
- Falling of drill occurring by sudden stopping
- Falling of drill occurring by rapid rotation
- Damage to drill caused by reverse thrust during perforation process



### NC DRILL CHUCK

NC - BOHRFUTTER  
MANDRIN DE PERÇAGE NC  
NC MANDRINI PORTA PUNTE  
PORTABROCAS PARA BROCAS NC

DIN 69871-SK



Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
40	SK40-NPU8-80	P2802201	0.3 ~ 8	36.5	80	80.7	-
	SK40-NPU8-110	P2802202	0.3 ~ 8	36.5	110	115.7	-
	SK40-NPU8-150	P2802203	0.3 ~ 8	36.5	150	155.7	-
	SK40-NPU13-95	P2802204	1 ~ 13	50	95	100.7	-
	SK40-NPU13-130	P2802205	1 ~ 13	50	130	130.7	-
	SK40-NPU8-150	P2802206	1 ~ 13	50	150	155.7	-
50	SK50-NPU8-80	P2802207	0.3 ~ 8	36.5	80	80.7	-
	SK50-NPU8-110	P2802208	0.3 ~ 8	36.5	110	115.7	-
	SK50-NPU8-150	P2802209	0.3 ~ 8	36.5	150	155.7	-
	SK50-NPU13-95	P2802210	1 ~ 13	50	95	100.7	-
	SK50-NPU13-130	P2802211	1 ~ 13	50	130	130.7	-
	SK50-NPU8-150	P2802212	1 ~ 13	50	150	155.7	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

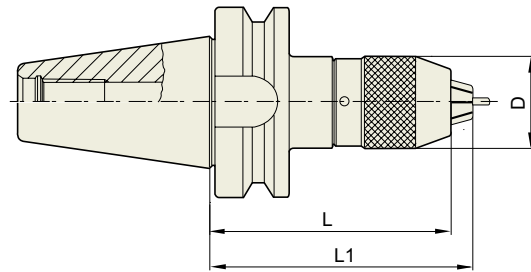
**YG** NC DRILL CHUCK & OTHER TOOL HOLDERS

**NPU**

**NC DRILL CHUCK**

NC - BOHRFUTTER  
MANDRIN DE PERÇAGE NC  
NC MANDRINI PORTA PUNTE  
PORTABROCAS PARA BROCAS NC

**CBT**  
**(BT DUAL CONTACT)**



Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
30	CBT30-NPU8-75	P2776066	0.3 - 8	36.5	75	80.7	0.80
	CBT30-NPU13-105	P2776067	1 - 13	50.4	105	115	1.80
40	CBT40-NPU8-80	P2776068	0.3 - 8	36.5	80	85.7	1.50
	CBT40-NPU8-110	P2776054	0.3 - 8	36.5	110	115.7	1.80
	CBT40-NPU8-150	P2776055	0.3 - 8	36.5	150	155.7	2.60
	CBT40-NPU13-95	P2776069	1 - 13	50.4	95	100.7	2.10
	CBT40-NPU13-130	P2776057	1 - 13	50.4	130	140	2.70
	CBT40-NPU13-150	P2776058	1 - 13	50.4	150	160	3.40
50	CBT50-NPU8-90	P2776059	0.3 - 8	36.5	90	95.7	4.20
	CBT50-NPU8-110	P2776060	0.3 - 8	36.5	110	115.7	4.50
	CBT50-NPU8-170	P2776061	0.3 - 8	36.5	170	180.7	5.20
	CBT50-NPU13-105	P2776070	1 - 13	50.4	105	115	4.80
	CBT50-NPU13-130	P2776063	1 - 13	50.4	130	140	5.20
	CBT50-NPU13-150	P2776064	1 - 13	50.4	150	160	5.50
	CBT50-NPU13-190	P2776065	1 - 13	50.4	190	200	5.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.

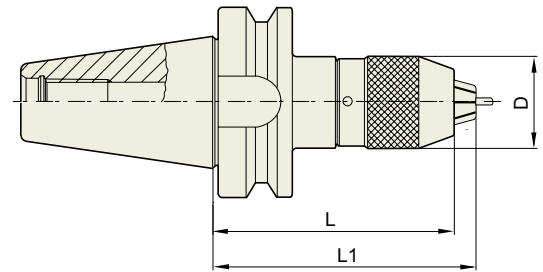
**YG** NC DRILL CHUCK & OTHER TOOL HOLDERS

**NPU**

**NC DRILL CHUCK**

NC - BOHRFUTTER  
MANDRIN DE PERÇAGE NC  
NC MANDRINI PORTA PUNTE  
PORTABROCAS PARA BROCAS NC

**JIS B6339/**  
**MAS403-BT**



Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
30	BT30-NPU8-75	P2776016	0.3 - 8	36.5	75	80.7	0.80
	BT30-NPU13-105	P2776017	1 - 13	50.4	105	115	1.80
40	BT40-NPU8-80	P2776018	0.3 - 8	36.5	80	85.7	1.50
	BT40-NPU8-110	P2776006	0.3 - 8	36.5	110	115.7	1.80
	BT40-NPU8-150	P2776007	0.3 - 8	36.5	150	155.7	2.60
	BT40-NPU13-95	P2776019	1 - 13	50.4	95	100.7	2.10
	BT40-NPU13-130	P2776008	1 - 13	50.4	130	140	2.70
	BT40-NPU13-150	P2776003	1 - 13	50.4	150	160	3.40
50	BT50-NPU8-90	P2776009	0.3 - 8	36.5	90	95.7	4.20
	BT50-NPU8-110	P2776010	0.3 - 8	36.5	110	115.7	4.50
	BT50-NPU8-170	P2776011	0.3 - 8	36.5	170	180.7	5.20
	BT50-NPU13-105	P2776020	1 - 13	50.4	105	115	4.80
	BT50-NPU13-130	P2776013	1 - 13	50.4	130	140	5.20
	BT50-NPU13-150	P2776014	1 - 13	50.4	150	160	5.50
	BT50-NPU13-190	P2776015	1 - 13	50.4	190	200	5.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK

SHRINK FIT HOLDER

ER COLLET CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

SHELL MILL ARBOR

POWER MILLING CHUCK

MORSE TAPER ARBOR

SK SLIM CHUCK

SYNCHRO TAPPING CHUCK

ONE STEP TAPPING CHUCK

TAPPING ER CHUCK

TAPPING CHUCK

FACE MILL ARBOR

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

NC DRILL CHUCK & OTHER TOOL HOLDERS

BORING SYSTEM

ACCESSORY & OTHERS

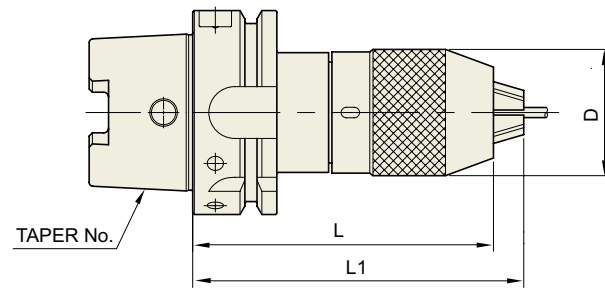
**YG** NC DRILL CHUCK & OTHER TOOL HOLDERS

**NPU**

**NC DRILL CHUCK**

NC - BOHRFUTTER  
MANDRIN DE PERÇAGE NC  
NC MANDRINI PORTA PUNTE  
PORTABROCAS PARA BROCAS NC

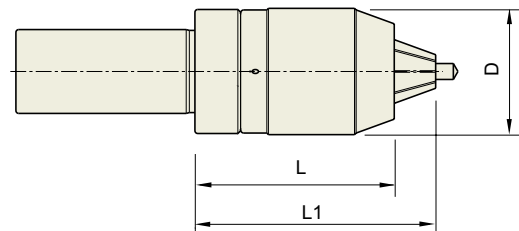
DIN 69893/  
ISO 12164-1-HSK FORM A



Unit : mm

TAPER No.	MODEL No.	EDP No.	CAPACITY	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
40A	HSK40A-NPU 8-120	P2775202	0.3 - 8	36.5	120	125.7	1.00
50A	HSK50A-NPU 8-120	P2775203	0.3 - 8	36.5	120	125.7	1.20
	HSK50A-NPU13-150	P2775201	1 - 13	50.4	150	160	2.10
63A	HSK63A-NPU 8-125	P2775204	0.3 - 8	36.5	125	130.7	2.10
	HSK63A-NPU13-150	P2775205	1 - 13	50.4	150	150	3.00
100A	HSK100A-NPU 8-130	P2775206	0.3 - 8	36.5	130	135.7	4.80
	HSK100A-NPU13-150	P2775207	1 - 13	50.4	150	160	5.50

**STRAIGHT-K**



Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	d	WEIGHT (kg)
32	K32-NPU8-75	P2776021	0.3 - 8	36.5	75	80.7	32	0.70
	K32-NPU13-100	P2775252	1 - 13	50.4	100	110	32	1.50
42	K42-NPU8-70	P2775253	0.3 - 8	36.5	70	75.7	42	0.80
	K42-NPU13-100	P2775254	1 - 13	50.4	100	110	42	1.60

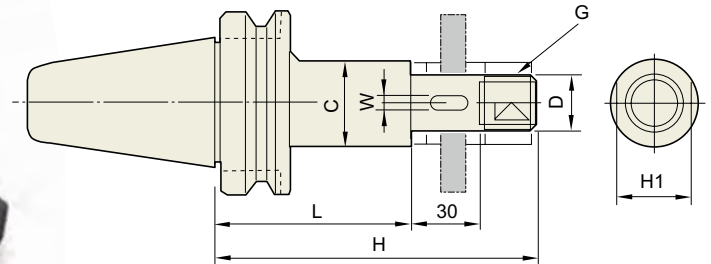
**YG** NC DRILL CHUCK & OTHER TOOL HOLDERS

**SCA**

**SIDE CUTTER ARBOR**

SEITENSCHNEIDER LAUBE  
TONNELLE PINCE COUPANTE  
LATO CUTTER PERGOLATO  
LADO DEL EJE DE CORTE

JIS B6339/  
MAS403-BT



Unit : mm

TAPER No.	MODEL No.	EDP No.	H	H1	C	W	G	D	L	WEIGHT (kg)
30	BT30-SCA12.7-60	P2779141	105	17	20	-	M12	12.7	60	1.00
	BT30-SCA15.875-60	P2779142	106	23	26	3.18	M14	15.875	60	1.10
	BT30-SCA22.225-60	P2779143	110	29	34	3.18	M20	22.225	60	1.20
	BT30-SCA25.4-60	P2779144	115	32	40	6.35	M24	25.4	60	1.30
40	BT40-SCA12.7-75	P2779145	120	17	20	-	M12	12.7	75	1.20
	BT40-SCA12.7-105	P2779146	150	17	20	-	M12	12.7	105	1.30
	BT40-SCA15.875-75	P2779147	121	23	26	3.18	M14	15.875	75	1.40
	BT40-SCA15.875-120	P2779148	151	23	26	3.18	M14	15.875	120	1.50
	BT40-SCA22.225-75	P2779149	126	29	34	3.18	M20	22.225	75	1.70
	BT40-SCA22.225-120	P2779150	171	29	34	3.18	M20	22.225	120	2.00
	BT40-SCA25.4-75	P2779151	130	32	40	6.35	M24	25.4	75	2.00
	BT40-SCA25.4-120	P2779152	175	32	40	6.35	M24	25.4	120	2.40
50	BT40-SCA31.75-90	P2779153	150	41	46	7.92	M30	31.75	90	2.60
	BT50-SCA12.7-75	P2779154	120	17	20	-	M12	12.7	75	4.10
	BT50-SCA12.7-105	P2779155	150	17	20	-	M12	12.7	105	4.20
	BT50-SCA15.875-90	P2779156	136	23	26	3.18	M14	15.875	90	4.20
	BT50-SCA15.875-120	P2779157	166	23	26	3.18	M14	15.875	120	4.20
	BT50-SCA22.225-90	P2779158	144	29	34	3.18	M20	22.225	90	4.40
	BT50-SCA22.225-135	P2779159	186	29	34	3.18	M20	22.225	135	4.70
	BT50-SCA25.4-90	P2779160	145	32	40	6.35	M24	25.4	90	4.50
	BT50-SCA25.4-135	P2779161	190	32	40	6.35	M24	25.4	135	4.90
	BT50-SCA31.75-90	P2779162	150	41	46	7.92	M30	31.75	90	4.70
	BT50-SCA31.75-135	P2779163	195	41	46	7.92	M30	31.75	135	5.20
	BT50-SCA38.1-90	P2779164	156	46	55	9.52	M36	38.1	90	4.90
BT50-SCA38.1-135	P2779165	201	46	55	9.52	M36	38.1	135	5.90	

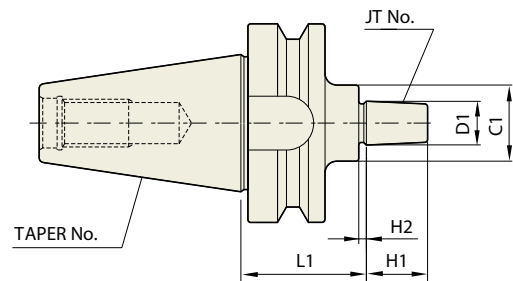




**JACOBS TAPER ADAPTER**

JACOBS KEGELZAPFEN ADAPTER  
 JACOBS ADAPTEUR DE CÔNE  
 JACOBS ADATTATORE DEL CONO  
 JACOBS ADAPTADOR DE LA FORMA CONICA

JIS B6339/  
 MAS 403-BT



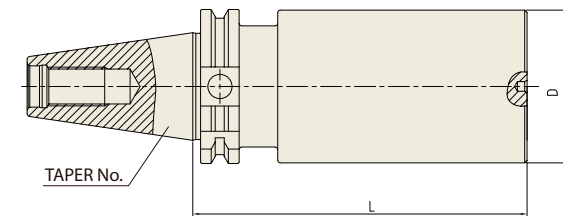
Unit : mm									
TAPER No.	MODEL No.	EDP No.	JT No.	D1	L1	H1	H2	C1	WEIGHT (kg)
30	BT30-JTA1-45	P2779101	1	9.754	45	14	3	30	0.90
	BT30-JTA2-45	P2779102	2	14.199	45	20	4	30	1.00
	BT30-JTA6-45	P2779103	6	17.17	45	24	4	30	1.00
40	BT40-JTA1-45	P2779104	1	9.754	45	14	3	30	1.10
	BT40-JTA1-90	P2779105	1	9.754	90	14	3	30	1.10
	BT40-JTA2S-45	P2779106	2(SHORT)	13.94	45	18	3	30	1.40
	BT40-JTA2S-90	P2779107	2(SHORT)	13.94	90	18	3	30	1.40
	BT40-JTA2-45	P2779108	2	14.199	45	20	4	30	1.10
	BT40-JTA2-90	P2779109	2	14.199	90	20	4	30	1.40
	BT40-JTA33-45	P2779110	33	15.85	45	24	4	30	1.10
	BT40-JTA33-90	P2779111	33	15.85	90	24	4	30	1.40
	BT40-JTA6-45	P2779112	6	17.17	45	24	4	30	1.10
	BT40-JTA6-90	P2779113	6	17.17	90	24	4	30	1.40
50	BT40-JTA3-45	P2779114	3	20.599	45	28	5	35	1.20
	BT40-JTA3-90	P2779115	3	20.599	90	28	5	35	1.50
	BT50-JTA1-45	P2779116	1	9.754	45	14	3	30	4.00
	BT50-JTA1-105	P2779117	1	9.754	105	14	3	30	4.40
	BT50-JTA2S-45	P2779118	2(SHORT)	13.94	45	18	3	30	4.00
	BT50-JTA2S-105	P2779119	2(SHORT)	13.94	105	18	3	30	4.40
	BT50-JTA2-45	P2779120	2	14.199	45	20	4	30	4.00
	BT50-JTA2-105	P2779121	2	14.199	105	20	4	30	4.40
	BT50-JTA33-45	P2779122	33	15.85	45	24	4	30	4.00
	BT50-JTA33-105	P2779123	33	15.85	105	24	4	30	4.40
	BT50-JTA6-45	P2779124	6	17.17	45	24	4	30	4.00
	BT50-JTA6-105	P2779125	6	17.17	105	24	4	30	4.40
	BT50-JTA3-45	P2779126	3	20.599	45	28	5	35	4.00
	BT50-JTA3-105	P2779127	3	20.599	105	28	5	35	4.60

▶ CAT(ANSI B5.50) taper and Inch type products are available.

**BLANK BAR**

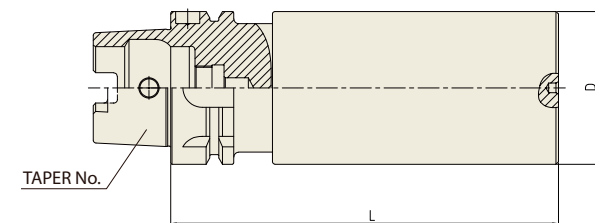
BOHRSTANGENROHLING  
 EBAUCHE DE BARRES D'ALÉSAGE  
 BARRA ALESATRICE GREZZA  
 PIEZA EN BRUTO PARA BARRAS DE MANDRINAR

DIN 69871-SK



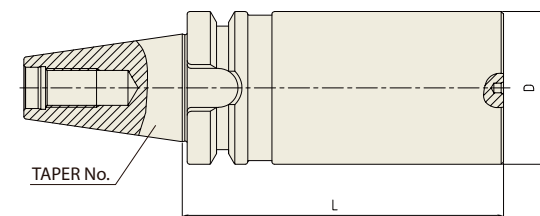
TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
40	SK40A-BL63-250	P2779196	63	160	6.18
50	SK50A-BL97-315	P2779197	97	315	18.67

**DIN 69893/ ISO12164-1-HSK FORM A**



TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
63A	HSK63A-BL63-160	P2779198	63	160	3.91
100A	HSK100A-BL97-250	P2779199	97	250	17.70

**JIS B6339/ MAS 403-BT**



TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
BT40	BT40-BL63-250	P2779191	63	160	6.37
BT50	BT50-BL97-315	P2779351	97	250	19.60



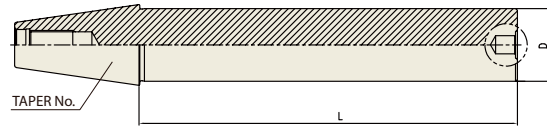
**NC DRILL CHUCK & OTHER TOOL HOLDERS**

**TB**

**TEST BAR**

KONTROLLDORN  
MANDRIN DE CONTROLE  
MANDRINO DI CONTROLLO  
MANDRIL DE CONTROL

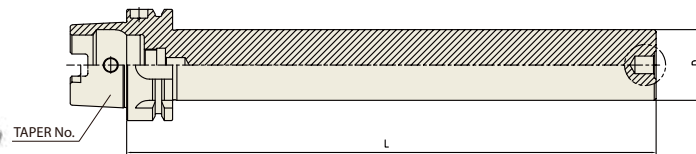
**DIN 69871-SK**



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
40	SK40A-TB40-300	P2802301	40	300	3.45
50	SK50A-TB50-300	P2802302	50	300	6.44

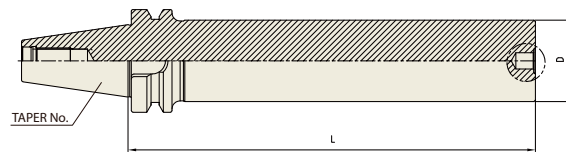
**DIN 69893/ ISO12164-1-HSK FORM A**



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
63A	HSK63A-TB40-300	P2802303	40	300	2.90
100A	HSK100A-TB50-300	P2802304	50	300	6.17

**JIS B6339/ MAS 403-BT**



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
40	BT40-TB50-300	P2802305	40	300	4.59
50	BT50-TB30-200	P2802306	30	200	4.34
	BT50-TB50-300	P2802307	50	300	6.88

**YG-1 TOOLING SYSTEM**

**BORING SYSTEM**

- AUSBOHRSYSTEM
- SYSTÈME D'ALÉSAGE
- SISTEMA DI BARENATURA
- SISTEMAS DE MANDRINADO



**FINE BORING BAR**

BORING BAR SET / BASIC HOLDER / EXTENSION BAR / FINE BORING HEAD

**TWIN BORING BAR**

BORING BAR SET / STRAIGHT TWIN EDGE BORING BAR / BASIC HOLDER  
TWIN BORE HEAD / INSERT HOLDER / REDUCTION / EXTENSION BAR

**MICRO BORING BAR : JIS B6339/MAS 403-BT**

BT / ST (BCA) / MICRO UNIT PARTS

**SQUARE BORING BAR : JIS B6339/MAS 403-BT**

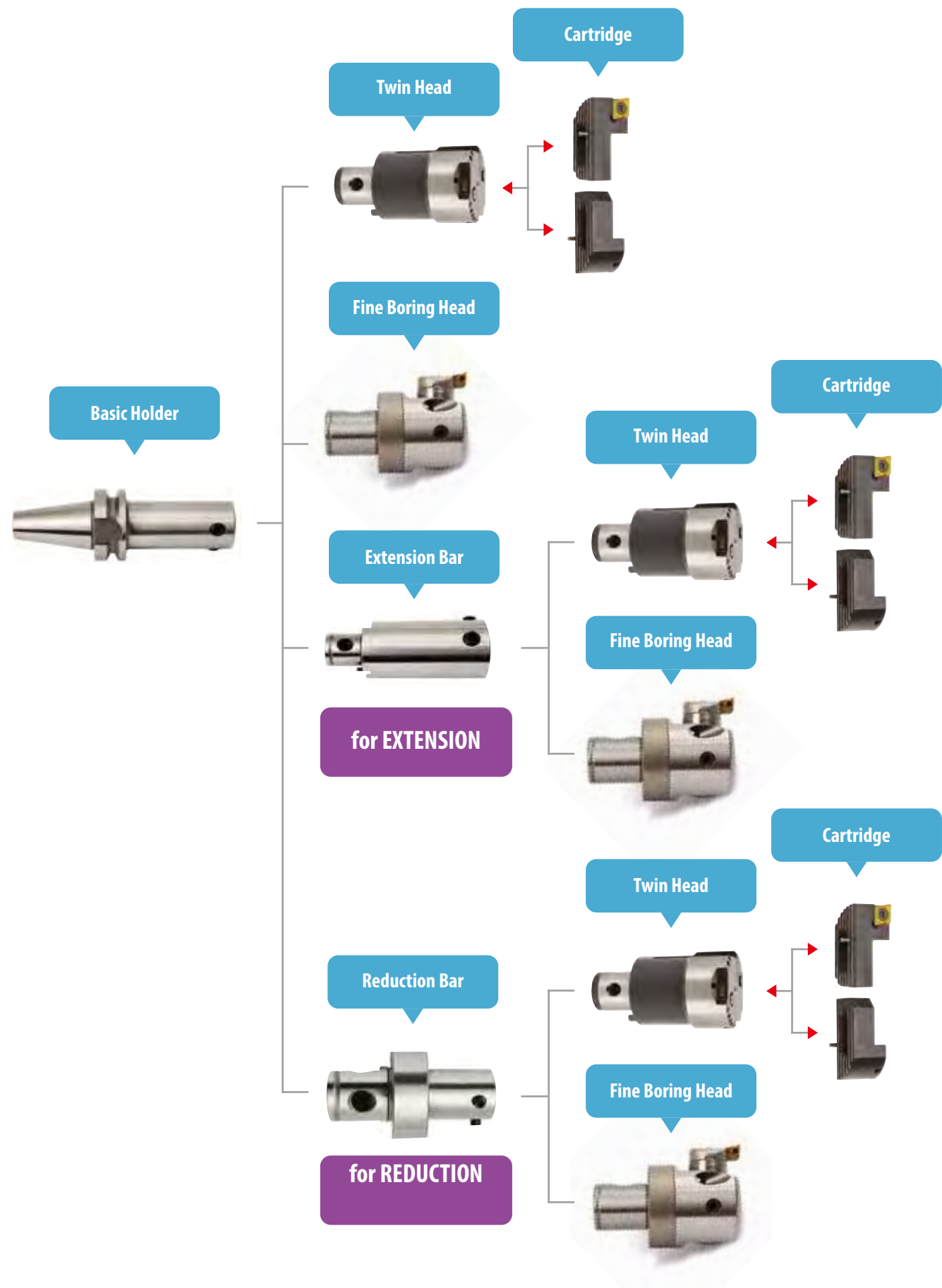
BT (BSA) / BT (BSB) / SQUARE BITE (SBC)

**BIG MICRO CUT BORING BAR : JIS B6339/MAS 403-BT**

BT (BRA) / (RING ADAPTER, RING HEAD)



FINE & TWIN Boring Bar (Small Bore)



FINE & TWIN Boring Bar (Small Bore)

Fine Boring Range : 20mm~153mm



FEATURE

- Excellent roughness of boring surface by precise boring
- Precise boring range adjustment by adjustment Dial with 1/100mm unit
- Ease to adjust length by employing modular system to use extension bar with various size
- Double rigid fixing of extension bar with
  - Side locking
  - Fixing pin inside
- Design to use insert conforming to ISO standard
- **Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar**

Twin Boring Range : 25mm~156mm



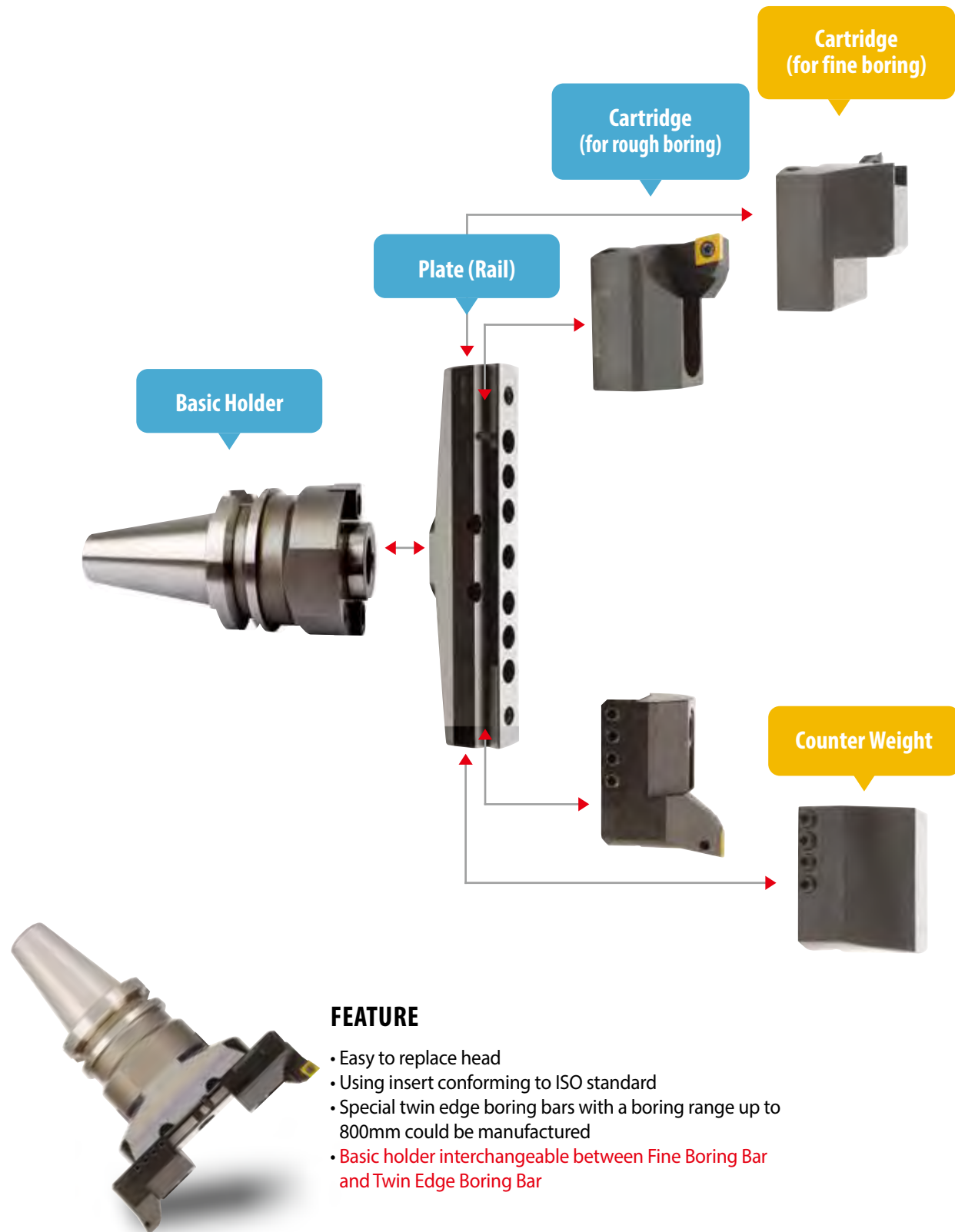
FEATURE

- Easy to replace head
- Extension Bar : Adjusting length according to machining conditions
- Reduction Bar : Adjusting boring range according to machining conditions
- Precision of extension, reduction, and repeatability of assembling and disassembling of Boring Head ;  $\leq 0.002\text{mm}$
- Using insert conforming to ISO standard
- **Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar**



## FINE and TWIN EDGE BORING (Big Bore)

Boring Range : 153mm~576mm (FINE BORING BAR)  
156mm~576mm (TWIN EDGE BORING BAR)



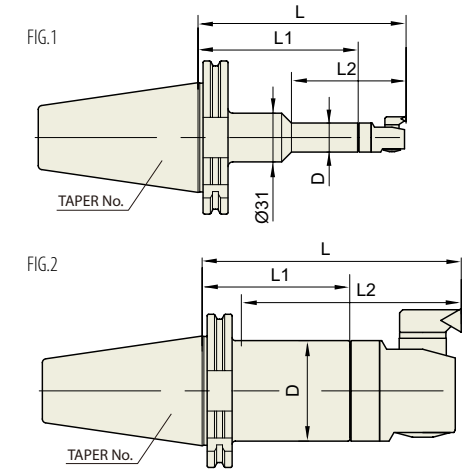
### FEATURE

- Easy to replace head
- Using insert conforming to ISO standard
- Special twin edge boring bars with a boring range up to 800mm could be manufactured
- **Basic holder interchangeable between Fine Boring Bar and Twin Edge Boring Bar**

## FINE BORING BAR (SMALL BORE)

DIN 69871-SK

FEINBOHRHALTER  
ALÉSAGE PROFOND  
BARRA DI ALESATURA FINE  
BARRA DE MANDRINADO FINO



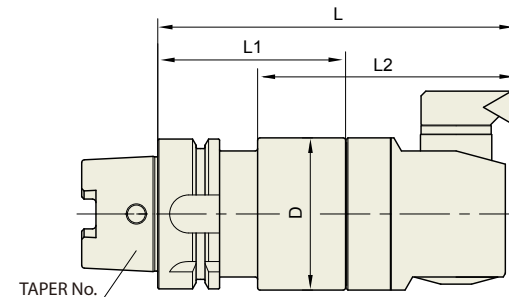
TAPER No.	MODEL No.	EDP No.	BORE RANGE (FRONT)	D	L	L1	L2	FIG.	WEIGHT (kg)
40	SK40-BAH1-105	P2777767	20 - 26	19	104.5	72	73	2	
	SK40-BAH2-80	P2777768	25 - 33	24	78	42.5	48	2	
	SK40-BAH2-120	P2777769	25 - 33	24	118	82.5	88	2	
	SK40-BAH3-85	P2777770	32 - 42	31	84	44	53	2	
	SK40-BAH3-135	P2777771	32 - 42	31	134	94	103	2	
	SK40-BAH4-90	P2777772	41 - 54	39	90	43	58	2	
	SK40-BAH4-135	P2777773	41 - 54	39	135	88	103	2	
	SK40-BAH5-105	P2777774	53 - 70	50	105	48	73	2	
	SK40-BAH5-135	P2777775	53 - 70	50	135	79	103	2	
	SK40-BAH6-135	P2777776	68 - 100	64	135	64	103	2	
50	SK50-BAH1-135	P2777777	20 - 26	19	134.5	102	73	1	
	SK50-BAH2-90	P2777778	25 - 33	24	88	52.5	66	2	
	SK50-BAH2-150	P2777779	25 - 33	24	148	112.5	126	2	
	SK50-BAH3-95	P2777780	32 - 42	31	94	54	71	2	
	SK50-BAH3-165	P2777781	32 - 42	31	164	124	141	2	
	SK50-BAH4-105	P2777782	41 - 54	39	105	58	81	2	
	SK50-BAH4-165	P2777783	41 - 54	39	165	118	141	2	
	SK50-BAH4-225	P2777784	41 - 54	39	225	178	201	2	
	SK50-BAH5-120	P2777785	53 - 70	50	120	63	96	2	
	SK50-BAH5-165	P2777786	53 - 70	50	165	105	141	2	
	SK50-BAH5-240	P2777787	53 - 70	50	240	183	216	2	
	SK50-BAH5-285	P2777788	53 - 70	50	285	228	261	2	
	SK50-BAH6-165	P2777789	68 - 100	64	165	94	141	2	
	SK50-BAH6-240	P2777790	68 - 100	64	240	169	216	2	
	SK50-BAH6-300	P2777791	68 - 100	64	300	229	276	2	
	SK50-BAH7-210	P2777792	100 - 153	90	210	93	191	2	
	SK50-BAH7-360	P2777793	100 - 153	90	360	243	341	2	

► Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar.

**FINE BORING BAR (SMALL BORE)**

FEINBOHRHALTER  
ALÉSAGE PROFOND  
BARRE DI ALESATURA FINE  
BARRA DE MANDRINADO FINO

**DIN 69893/  
ISO 12164-1-HSK FORM A**



Unit : mm								
TAPER No.	MODEL No.	EDP No.	BORE RANGE (FRONT)	D	L	L1	L2	WEIGHT (kg)
40A	HSK40A-BAH1-72.5	P2777736	20 - 26	19	105	72.5	73	
	HSK40A-BAH2-39.5	P2777737	25 - 33	24	75	39.5	44	
	HSK40A-BAH2-84.5	P2777738	25 - 33	24	120	84.5	89	
	HSK40A-BAH3-45	P2777739	32 - 42	31	85	45	57	
	HSK40A-BAH3-80	P2777740	32 - 42	31	120	80	92	
	HSK40A-BAH4-53	P2777741	41 - 54	39	100	53	-	
50A	HSK40A-BAH4-73	P2777742	41 - 54	39	120	73	-	
	HSK50A-BAH1-72.5	P2777743	20 - 26	19	105	72.5	65	
	HSK50A-BAH2-84.5	P2777744	25 - 33	24	117	84.5	80	
	HSK50A-BAH3-80	P2777745	32 - 42	31	120	80	82	
63A	HSK50A-BAH4-73	P2777746	41 - 54	39	120	73	76	
	HSK50A-BAH5-83	P2777747	53 - 70	50	140	83	-	
	HSK63A-BAH1-77.5	P2777748	20 - 26	19	110	77.5	73	
	HSK63A-BAH2-89.5	P2777749	25 - 33	24	125	89.5	88	
100A	HSK63A-BAH3-100	P2777750	32 - 42	31	140	100	103	
	HSK63A-BAH4-93	P2777751	41 - 54	39	140	93	103	
	HSK63A-BAH5-83	P2777752	53 - 70	50	140	83	105	
	HSK63A-BAH6-79	P2777753	68 - 100	64	150	79	-	
100A	HSK100A-BAH1-102.5	P2777754	20 - 26	19	135	102.5	73	
	HSK100A-BAH2-114.5	P2777755	25 - 33	24	150	114.5	107	
	HSK100A-BAH3-125	P2777756	32 - 42	31	165	125	122	
	HSK100A-BAH4-118	P2777757	41 - 54	39	165	118	122	
	HSK100A-BAH4-178	P2777758	41 - 54	39	225	178	182	
	HSK100A-BAH5-108	P2777759	53 - 70	50	165	108	122	
	HSK100A-BAH5-183	P2777760	53 - 70	50	240	183	197	
	HSK100A-BAH5-228	P2777761	53 - 70	50	285	228	242	
	HSK100A-BAH6-94	P2777762	68 - 100	64	165	94	122	
	HSK100A-BAH6-169	P2777763	68 - 100	64	240	169	197	
	HSK100A-BAH6-229	P2777764	68 - 100	64	300	229	257	
	HSK100A-BAH7-123	P2777765	100 - 153	90	210	123	181	
	HSK100A-BAH7-273	P2777766	100 - 153	90	360	273	331	

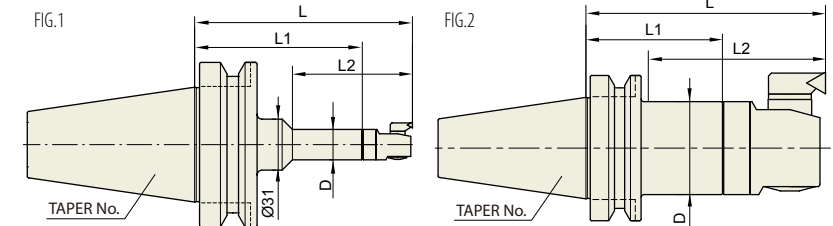
► Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar.



**FINE BORING BAR (SMALL BORE)**

FEINBOHRHALTER  
ALÉSAGE PROFOND  
BARRE DI ALESATURA FINE  
BARRA DE MANDRINADO FINO

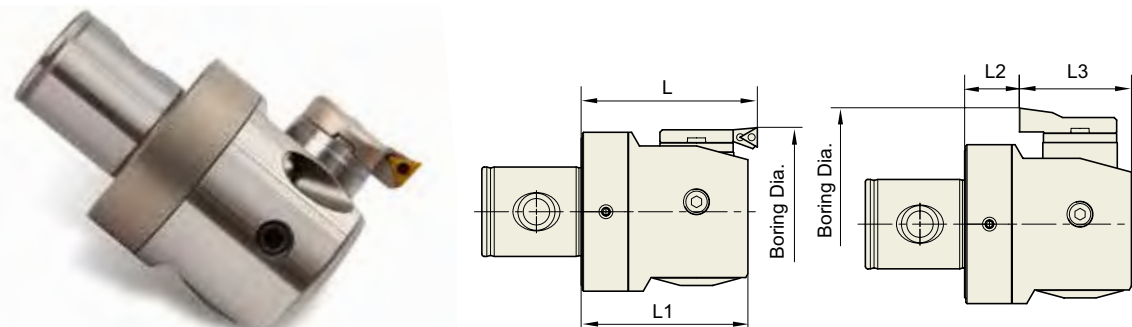
**JIS B6339/  
MAS 403-BT**



Unit : mm									
TAPER No.	MODEL No.	EDP No.	BORE RANGE (FRONT)	D	L	L1	L2	FIG.	WEIGHT (kg)
30	BT30-BAH1-105	P2777701	20 - 26	19	104.5	72	73	1	
	BT30-BAH2-75	P2777702	25 - 33	24	73	37.5	48	2	
	BT30-BAH2-120	P2777703	25 - 33	24	118	82.5	93	2	
	BT30-BAH3-80	P2777704	32 - 42	31	79	39	53	2	
	BT30-BAH3-120	P2777705	32 - 42	31	119	79	93	2	
	BT30-BAH4-85	P2777706	41 - 54	39	85	38	58	2	
40	BT30-BAH4-120	P2777707	41 - 54	39	120	73	93	2	
	BT30-BAH5-120	P2777708	53 - 70	50	120	63	93	2	
	BT40-BAH1-105	P2777709	20 - 26	19	104.5	72	73	2	
	BT40-BAH2-80	P2777710	25 - 33	24	78	42.5	48	2	
	BT40-BAH2-120	P2777711	25 - 33	24	118	82.5	88	2	
	BT40-BAH3-85	P2777712	32 - 42	31	84	44	53	2	
	BT40-BAH3-135	P2777713	32 - 42	31	134	94	103	2	
	BT40-BAH4-90	P2777714	41 - 54	39	90	43	58	2	
	BT40-BAH4-135	P2777715	41 - 54	39	135	88	103	2	
	BT40-BAH5-105	P2777716	53 - 70	50	105	48	73	2	
50	BT40-BAH5-135	P2777717	53 - 70	50	135	79	103	2	
	BT40-BAH6-135	P2777718	68 - 100	64	135	64	103	2	
	BT50-BAH1-135	P2777719	20 - 26	19	134.5	102	73	1	
	BT50-BAH2-90	P2777720	25 - 33	24	88	52.5	47	2	
	BT50-BAH2-150	P2777721	25 - 33	24	148	112.5	107	2	
	BT50-BAH3-95	P2777722	32 - 42	31	94	54	52	2	
	BT50-BAH3-165	P2777723	32 - 42	31	164	124	122	2	
	BT50-BAH4-105	P2777724	41 - 54	39	105	58	62	2	
	BT50-BAH4-165	P2777725	41 - 54	39	165	118	122	2	
	BT50-BAH4-225	P2777726	41 - 54	39	225	178	182	2	
	BT50-BAH5-120	P2777727	53 - 70	50	120	63	77	2	
	BT50-BAH5-165	P2777728	53 - 70	50	165	108	122	2	
	BT50-BAH5-240	P2777729	53 - 70	50	240	183	197	2	
	BT50-BAH5-285	P2777730	53 - 70	50	285	228	242	2	
BT50-BAH6-165	P2777731	68 - 100	64	165	94	122	2		
BT50-BAH6-240	P2777732	68 - 100	64	240	169	197	2		
BT50-BAH6-300	P2777733	68 - 100	64	300	229	257	2		
BT50-BAH7-180	P2777734	100 - 153	90	180	93	142	2		
BT50-BAH7-330	P2777735	100 - 153	90	330	243	292	2		

► Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar.

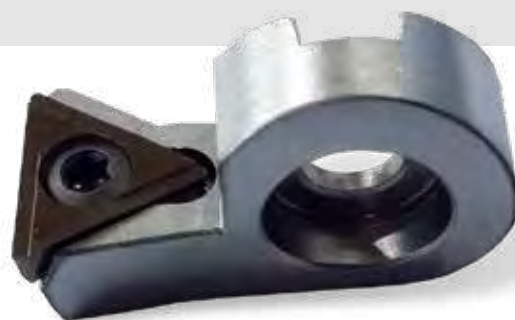
**BORING HEAD**  
(For FINE BORING BAR-SMALL BORE)



Unit : mm

MODEL No.	EDP No.	CARTRIDGE	FRONT BORE			BACK BORE			INSERT	WEIGHT (kg)
			BORE RANGE	L	L1	BORE RANGE	L2	L3		
FBH20	P2777869	FBH1-1	20 - 26	32.5	29.5	-	10.5	19	TP08	
FBH25	P2777870	FBH2-1	25 - 33	35.5	32.5	-	10.5	19	TP08	
FBH32	P2777871	FBH3-1	32 - 42	40	35	-	10	25	TP08	
FBH41	P2777872	FBH4-1	41 - 54	47	43	-	14	29	TP11	
FBH53	P2777873	FBH5-1	53 - 70	57	53	52 - 70	19	34	TP11	
FBH68	P2777874	FBH6-1	68 - 100	71	67.2	80 - 100	22	45.2	TP11	
FBH100	P2777875	FBH6-1	100 - 153	71	67.2	112 - 153	22	45.2	TP11	
FBH100-2	P2777876	FBH6-1	100 - 153	87	83.2	112 - 153	38	45.2	TP11	

**FBH BITE**

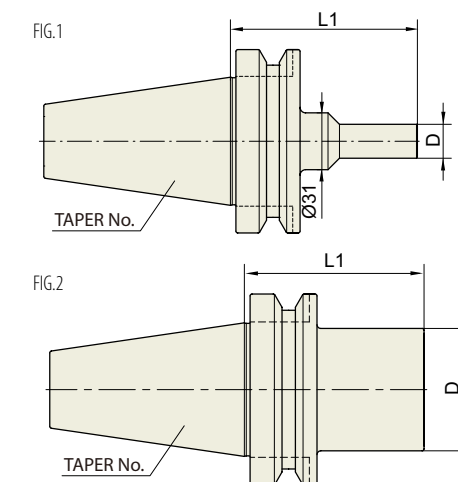


Unit : mm

MODEL No.	EDP No.	INSERT	BORE RANGE	CAMP BOLT	BORING HEAD
FBH20-B	P2802701	TPGT08	20 - 26	FTNA 0204	FBH20
FBH25-B	P2802702	TPGT08	25 - 33	FTNA 0204	FBH25
FBH32-B	P2802703	TPGT08	32 - 42	FTNA 0204	FBH32
FBH41-B	P2802704	TPGT1103	41 - 54	FTNA 0307	FBH41
FBH53-B	P2802705	TPGT1103	53 - 70	FTNA 0307	FBH53
FBH68-B	P2802706	TPGT1103	68 - 100	FTNA 0307	FBH68
FBH100-B	P2802707	TPGT1103	100 - 153	FTNA 0307	FBH100
FBH100-2B	P2802708	TPGT1103	100 - 560	FTNA 0307	FBH100

**BASIC HOLDER**  
(For FINE and TWIN EDGE BORING BAR - SMALL BORE)

JIS B6339/  
MAS 403-BT



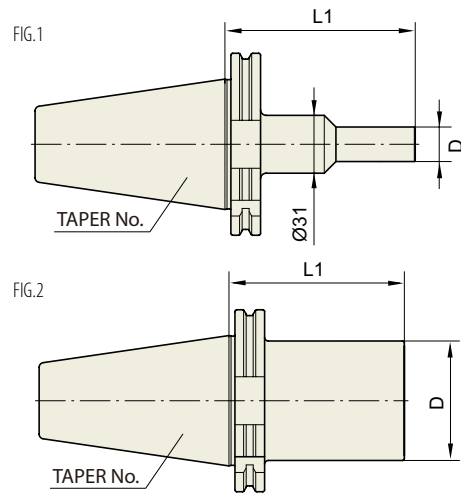
Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L1	FIG.	WEIGHT (kg)
30	BT30-SAS19-72	P2777794	19	72	1	
	BT30-SAS24-37.5	P2777795	24	37.5	2	
	BT30-SAS24-82.5	P2777796	24	82.5	2	
	BT30-SAS31-39	P2777797	31	39	2	
	BT30-SAS31-79	P2777798	31	79	2	
	BT30-SAS39-38	P2777799	39	38	2	
	BT30-SAS39-73	P2777800	39	73	2	
40	BT30-SAS50-63	P2777801	50	63	2	
	BT40-SAS19-72	P2777802	19	72	2	
	BT40-SAS24-42.5	P2777803	24	42.5	2	
	BT40-SAS24-82.5	P2777804	24	82.5	2	
	BT40-SAS31-44	P2777805	31	44	2	
	BT40-SAS31-94	P2777806	31	94	2	
	BT40-SAS39-43	P2777807	39	43	2	
	BT40-SAS39-88	P2777808	39	88	2	
	BT40-SAS50-48	P2777809	50	48	2	
	BT40-SAS50-79	P2777810	50	79	2	
50	BT40-SAS64-64	P2777811	64	64	2	
	BT50-SAS19-102	P2777812	19	102	1	
	BT50-SAS24-52.5	P2777813	24	52.5	2	
	BT50-SAS24-112.5	P2777814	24	112.5	2	
	BT50-SAS31-54	P2777815	31	54	2	
	BT50-SAS31-124	P2777816	31	124	2	
	BT50-SAS39-58	P2777817	39	58	2	
	BT50-SAS39-118	P2777818	39	118	2	
	BT50-SAS39-178	P2777819	39	178	2	
	BT50-SAS50-63	P2777820	50	63	2	
	BT50-SAS50-108	P2777821	50	108	2	
	BT50-SAS50-183	P2777822	50	183	2	
	BT50-SAS50-228	P2777823	50	228	2	
BT50-SAS64-94	P2777824	64	94	2		
BT50-SAS64-169	P2777825	64	169	2		
BT50-SAS64-229	P2777826	64	229	2		
BT50-SAS90-93	P2777827	90	93	2		
BT50-SAS90-243	P2777828	90	243	2		



**BASIC HOLDER**  
(For FINE and TWIN EDGE BORING BAR - SMALL BORE)

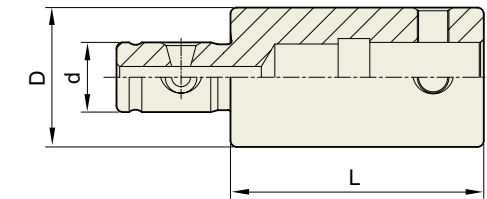
DIN 69871-SK



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L1	FIG.	WEIGHT (kg)	
40	SK40-SAS19-72	P2777829	19	72	2		
	SK40-SAS24-42.5	P2777830	24	42.5	2		
	SK40-SAS24-82.5	P2777831	24	82.5	2		
	SK40-SAS31-44	P2777832	31	44	2		
	SK40-SAS31-94	P2777833	31	94	2		
	SK40-SAS39-43	P2777834	39	43	2		
	SK40-SAS39-88	P2777835	39	88	2		
	SK40-SAS50-48	P2777836	50	48	2		
	SK40-SAS50-79	P2777837	50	79	2		
	SK40-SAS64-64	P2777838	64	64	2		
	50	SK50-SAS19-102	P2777839	19	102	1	
		SK50-SAS24-52.5	P2777840	24	52.5	2	
		SK50-SAS24-112.5	P2777841	24	112.5	2	
		SK50-SAS31-54	P2777842	31	54	2	
SK50-SAS31-124		P2777843	31	124	2		
SK50-SAS39-58		P2777844	39	58	2		
SK50-SAS39-118		P2777845	39	118	2		
SK50-SAS39-178		P2777846	39	178	2		
SK50-SAS50-63		P2777847	50	63	2		
SK50-SAS50-105		P2777848	50	105	2		
SK50-SAS50-183		P2777849	50	183	2		
SK50-SAS50-228		P2777850	50	228	2		
SK50-SAS64-94		P2777851	64	94	2		
SK50-SAS64-169		P2777852	64	169	2		
SK50-SAS64-229		P2777853	64	229	2		
SK50-SAS90-93	P2777854	90	93	2			
SK50-SAS90-243	P2777855	90	243	2			

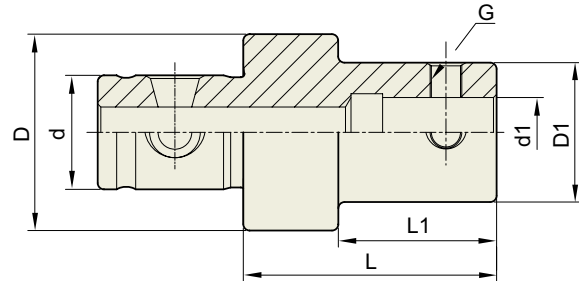
**EXTENSION BAR**  
(For FINE and TWIN EDGE BORING BAR - SMALL BORE)



Unit : mm

MODEL No.	EDP No.	d	D	L	WEIGHT (kg)
E-BAH1-20	P2777856	11	19	20	
E-BAH1-30	P2777857	11	19	30	
E-BAH2-30	P2777858	14	24	30	
E-BAH2-45	P2777859	14	24	45	
E-BAH3-30	P2777860	18	31	30	
E-BAH3-45	P2777861	18	31	45	
E-BAH4-45	P2777862	22	39	45	
E-BAH4-60	P2777863	22	39	60	
E-BAH5-60	P2777864	28	50	60	
E-BAH5-90	P2777865	28	50	90	
E-BAH6-60	P2777866	36	64	60	
E-BAH6-100	P2777867	36	64	100	
E-BAH7-105	P2777868	46	90	105	

**REDUCTION BAR**  
(For FINE and TWIN EDGE BORING BAR-SMALL BORE)



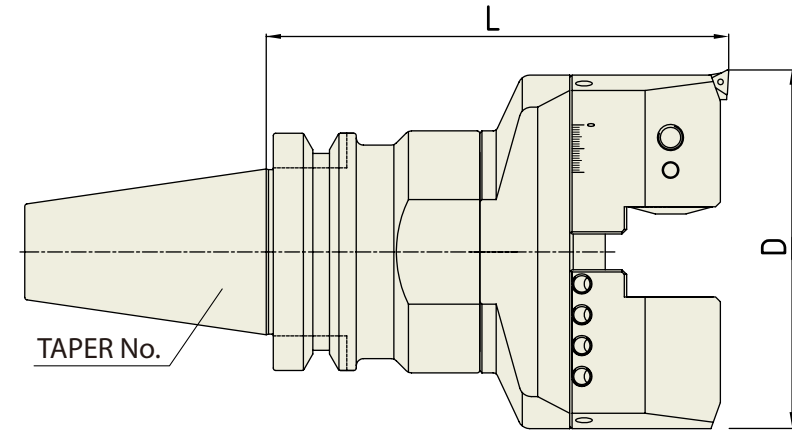
Unit : mm

MODEL No.	EDP No.	d	d1	D	D1	L	L1	G	WEIGHT (kg)
R-SAS24-19-30	P2777912	14	11	24	19	30	20	M5	
R-SAS31-19-30	P2777913	18	11	31	19	30	20	M5	
R-SAS31-24-30	P2777914	18	14	31	24	30	20	M5	
R-SAS39-19-45	P2777915	22	11	39	19	45	25	M5	
R-SAS39-24-45	P2777916	22	14	39	24	45	25	M5	
R-SAS39-31-45	P2777917	22	18	39	31	45	25	M8	
R-SAS50-19-60	P2777918	28	11	50	19	60	35	M5	
R-SAS50-24-60	P2777919	28	14	50	24	60	35	M5	
R-SAS50-31-60	P2777920	28	18	50	31	60	35	M8	
R-SAS50-39-60	P2777921	28	22	50	39	60	35	M8	
R-SAS64-19-60	P2777922	36	11	64	19	60	35	M5	
R-SAS64-24-60	P2777923	36	14	64	24	60	35	M5	
R-SAS64-31-60	P2777924	36	18	64	31	60	35	M8	
R-SAS64-39-60	P2777925	36	22	64	39	60	35	M8	
R-SAS64-50-60	P2777926	36	28	64	50	60	35	M10	
R-SAS90-19-105	P2777927	46	11	90	19	105	75	M5	
R-SAS90-24-105	P2777928	46	14	90	24	105	75	M5	
R-SAS90-31-105	P2777929	46	18	90	31	105	75	M8	
R-SAS90-39-105	P2777930	46	22	90	39	105	75	M8	
R-SAS90-50-105	P2777931	46	28	90	50	105	75	M10	
R-SAS90-64-105	P2777932	46	36	90	64	105	75	M16	

**FINE BORING BAR (BIG BORE)**

FEINBOHRHALTER  
ALÉSAGE PROFOND  
BARRÉ DI ALESATURA FINE  
BARRA DE MANDRINADO FINO

JIS B6339/  
MAS 403-BT

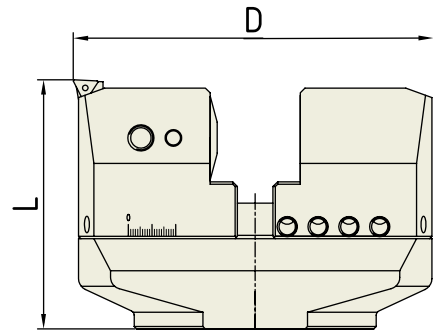


Unit : mm

MODEL No.	EDP No.	D (BORE RANGE)		BODY (BASIC HOLDER)	BORING HEAD	WEIGHT (kg)
		Min.	Max.			
BT50-FBH153-195	P2777877	153	216	BT50-SAS102-90	FBH153S	
BT50-FBH153-265	P2777878			BT50-SAS102-160		
BT50-FBH153-315	P2777879			BT50-SAS102-210		
BT50-FBH153-365	P2777880			BT50-SAS102-260		
BT50-FBH216-195	P2777881	216	276	BT50-SAS102-90	FBH216S	
BT50-FBH216-265	P2777882			BT50-SAS102-160		
BT50-FBH216-315	P2777883			BT50-SAS102-210		
BT50-FBH216-365	P2777884			BT50-SAS102-260		
BT50-FBH276-195	P2777885	276	336	BT50-SAS102-90	FBH276S	
BT50-FBH276-265	P2777886			BT50-SAS102-160		
BT50-FBH276-315	P2777887			BT50-SAS102-210		
BT50-FBH276-365	P2777888			BT50-SAS102-260		
BT50-FBH336-195	P2777889	336	396	BT50-SAS102-90	FBH336S	
BT50-FBH336-265	P2777890			BT50-SAS102-160		
BT50-FBH336-315	P2777891			BT50-SAS102-210		
BT50-FBH336-365	P2777892			BT50-SAS102-260		
BT50-FBH396-195	P2777893	396	456	BT50-SAS102-90	FBH396S	
BT50-FBH396-265	P2777894			BT50-SAS102-160		
BT50-FBH396-315	P2777895			BT50-SAS102-210		
BT50-FBH396-365	P2777896			BT50-SAS102-260		
BT50-FBH456-195	P2777897	456	516	BT50-SAS102-90	FBH456S	
BT50-FBH456-265	P2777898			BT50-SAS102-160		
BT50-FBH456-315	P2777899			BT50-SAS102-210		
BT50-FBH456-365	P2777900			BT50-SAS102-260		
BT50-FBH516-195	P2777901	516	576	BT50-SAS102-90	FBH516S	
BT50-FBH516-265	P2777902			BT50-SAS102-160		
BT50-FBH516-315	P2777903			BT50-SAS102-210		
BT50-FBH516-365	P2777904			BT50-SAS102-260		

► Basic holder interchangeable between Fine Boring Bar and Twin Edge Boring Bar.

**BORING HEAD**  
(For FINE BORING BAR-BIG BORE)



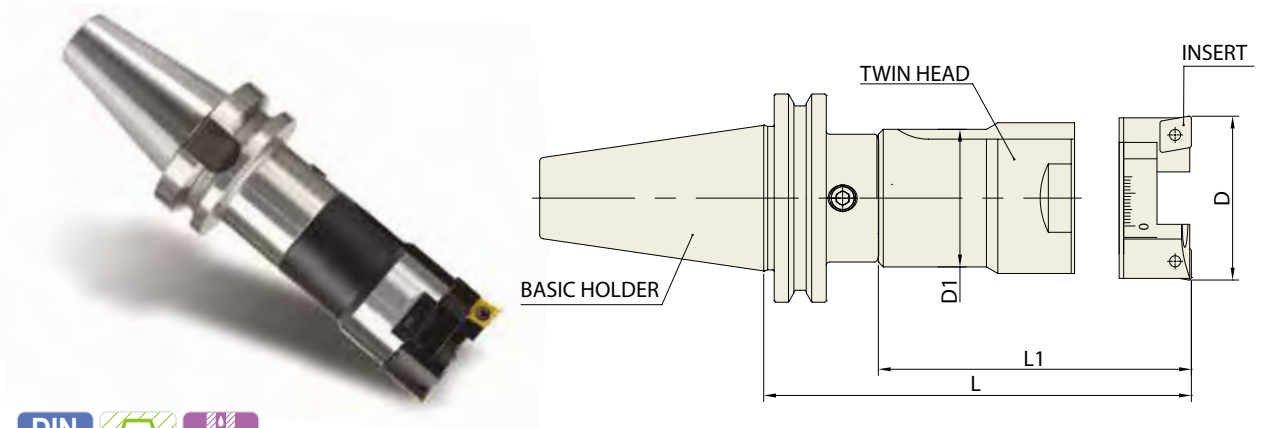
MODEL No.	EDP No.	D (BORE RANGE )		L (HEIGHT )	WEIGHT (kg)
		Min.	Max.		
FBH153S	P2777905	153	216	105	
FBH216S	P2777906	216	276	105	
FBH276S	P2777907	276	336	105	
FBH336S	P2777908	336	396	105	
FBH396S	P2777909	396	456	105	
FBH456S	P2777910	456	516	105	
FBH516S	P2777911	516	576	105	

SPARE PART							
BORING HEAD	PLATE	CARTRIDGE	CLAMPBOLT	COUNTER WEIGHT	WRENCH	CLAMP SCREW	T-WRENCH
FBH153S	PLA153	FTP11	M10*30L	FBB153	L-W 5	FTNA0307	T7
FBH216S	PLA216						
FBH276S	PLA276						
FBH336S	PLA336						
FBH396S	PLA396						
FBH456S	PLA456						
FBH516S	PLA516						

**TWIN EDGE BORING BAR (SMALL BORE)**

DIN 69871-SK

DOPPELSCHNEIDER - BOHRSTANGE  
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE  
PORTA TESTINE BILAMA  
BARRAS DE MANDRINAR DE DOS PLACAS



MODEL No.	EDP No.	D (BORE RANGE)	L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT	WEIGHT (kg)
		Min. - Max.							
SK40-TBH25-122	P2779663	25 - 34	122	SK40-SAS19-72	TBH25-50	22	50	CCMT060204	
SK40-TBH34-104	P2779664	34 - 50	104	SK40-SAS31-44	TBH34-60	31	60	CCMT060204	
SK40-TBH34-154	P2779665	34 - 50	154	SK40-SAS31-94	TBH34-60	31	60	CCMT060204	
SK40-TBH50-123	P2779666	50 - 76	123	SK40-SAS39-43	TBH50-80	42	80	CCMT09T308	
SK40-TBH50-168	P2779667	50 - 76	168	SK40-SAS39-88	TBH50-80	42	80	CCMT09T308	
SK40-TBH76-174	P2779668	76 - 116	174	SK40-SAS64-64	TBH76-110	65	110	CCMT120408	
SK50-TBH25-152	P2779669	25 - 34	152	SK50-SAS19-102	TBH25-50	22	50	CCMT060204	
SK50-TBH34-114	P2779670	34 - 50	114	SK50-SAS31-54	TBH34-60	31	60	CCMT060204	
SK50-TBH34-184	P2779671	34 - 50	184	SK50-SAS31-124	TBH34-60	31	60	CCMT060204	
SK50-TBH50-138	P2779672	50 - 76	138	SK50-SAS39-58	TBH50-80	42	80	CCMT09T308	
SK50-TBH50-198	P2779673	50 - 76	198	SK50-SAS39-118	TBH50-80	42	80	CCMT09T308	
SK50-TBH50-258	P2779674	50 - 76	258	SK50-SAS39-178	TBH50-80	42	80	CCMT09T308	
SK50-TBH76-204	P2779675	76 - 116	204	SK50-SAS64-94	TBH76-110	65	110	CCMT120408	
SK50-TBH76-279	P2779676	76 - 116	279	SK50-SAS64-169	TBH76-110	65	110	CCMT120408	
SK50-TBH76-339	P2779677	76 - 116	339	SK50-SAS64-229	TBH76-110	65	110	CCMT120408	
SK50-TBH116-198	P2779678	116 - 156	198	SK50-SAS90-93	TBH116-105	90	105	CCMT120408	
SK50-TBH116-348	P2779679	116 - 156	348	SK50-SAS90-243	TBH116-105	90	105	CCMT120408	

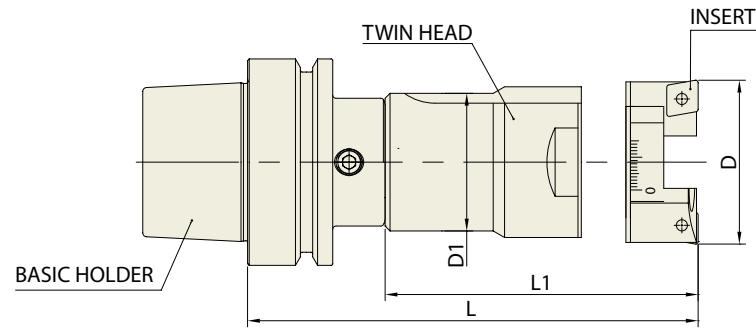
► Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.



**TWIN EDGE BORING BAR (SMALL BORE)**

DOPPELSCHNEIDER - BOHRSTANGE  
 BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE  
 PORTA TESTINE BILAMA  
 BARRAS DE MANDRINAR DE DOS PLACAS

**DIN 69893/  
 ISO 12164-1-HSK FORM A**



Unit : mm

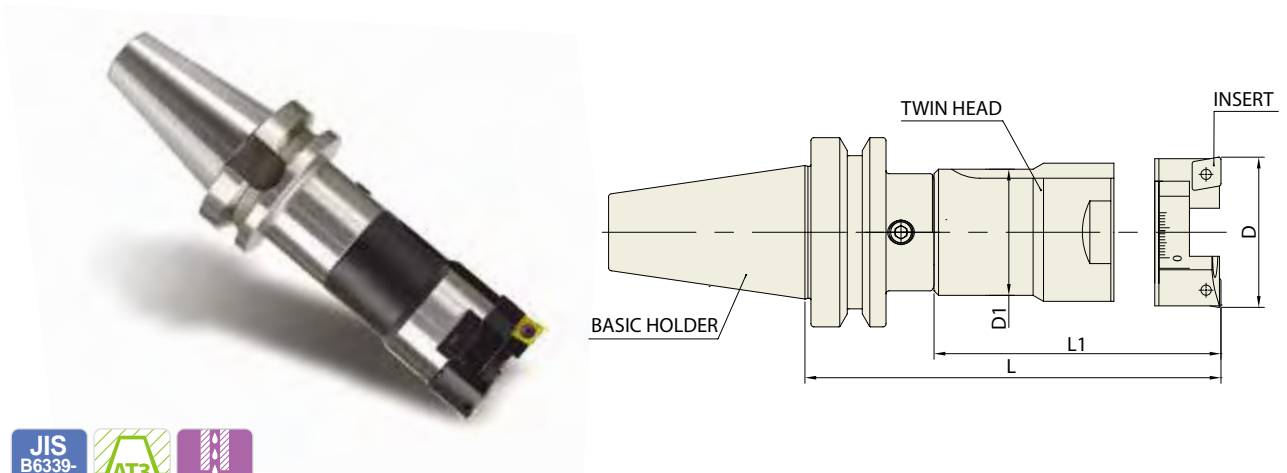
MODEL No.	EDP No.	D (BORE RANGE)		L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT	WEIGHT (kg)
		Min.	Max.							
HSK40A-TBH25-122.5	P2779642	25	34	122.5	HSK40A-SAS19-72.5	TBH25-50	22	50	CCMT060204	
HSK40A-TBH34-105	P2779643	34	50	105	HSK40A-SAS31-45	TBH34-60	31	60	CCMT060204	
HSK40A-TBH34-140	P2779644	34	50	140	HSK40A-SAS31-80	TBH34-60	31	60	CCMT060204	
HSK40A-TBH50-133	P2779645	50	76	133	HSK40A-SAS39-53	TBH50-80	42	80	CCMT09T308	
HSK40A-TBH50-153	P2779646	50	76	153	HSK40A-SAS39-73	TBH50-80	42	80	CCMT09T308	
HSK50A-TBH25-122.5	P2779647	25	34	122.5	HSK50A-SAS19-72.5	TBH25-50	22	50	CCMT060204	
HSK50A-TBH34-140	P2779648	34	50	140	HSK50A-SAS31-80	TBH34-60	31	60	CCMT060204	
HSK50A-TBH50-153	P2779649	50	76	153	HSK50A-SAS39-73	TBH50-80	42	80	CCMT09T308	
HSK63A-TBH25-127.5	P2779650	25	34	127.5	HSK63A-SAS19-77.5	TBH25-50	22	50	CCMT060204	
HSK63A-TBH34-160	P2779651	34	50	160	HSK63A-SAS31-100	TBH34-60	31	60	CCMT060204	
HSK63A-TBH50-173	P2779652	50	76	173	HSK63A-SAS39-93	TBH50-80	42	80	CCMT09T308	
HSK63A-TBH76-189	P2779653	76	116	189	HSK63A-SAS64-79	TBH76-110	65	110	CCMT120408	
HSK100A-TBH19-152.5	P2779654	25	34	152.5	HSK100A-SAS19-102.5	TBH25-50	22	50	CCMT060204	
HSK100A-TBH34-185	P2779655	34	50	185	HSK100A-SAS31-125	TBH34-60	31	60	CCMT060204	
HSK100A-TBH50-198	P2779656	50	76	198	HSK100A-SAS39-118	TBH50-80	42	80	CCMT09T308	
HSK100A-TBH50-258	P2779657	50	76	258	HSK100A-SAS39-178	TBH50-80	42	80	CCMT09T308	
HSK100A-TBH76-204	P2779658	76	116	204	HSK100A-SAS64-94	TBH76-110	65	110	CCMT120408	
HSK100A-TBH76-279	P2779659	76	116	279	HSK100A-SAS64-169	TBH76-110	65	110	CCMT120408	
HSK100A-TBH76-339	P2779660	76	116	339	HSK100A-SAS64-229	TBH76-110	65	110	CCMT120408	
HSK100A-TBH116-228	P2779661	116	156	228	HSK100A-SAS90-123	TBH116-105	90	105	CCMT120408	
HSK100A-TBH116-378	P2779662	116	156	378	HSK100A-SAS90-273	TBH116-105	90	105	CCMT120408	

▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

**TWIN EDGE BORING BAR (SMALL BORE)**

DOPPELSCHNEIDER - BOHRSTANGE  
 BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE  
 PORTA TESTINE BILAMA  
 BARRAS DE MANDRINAR DE DOS PLACAS

**JIS B6339/  
 MAS 403-BT**

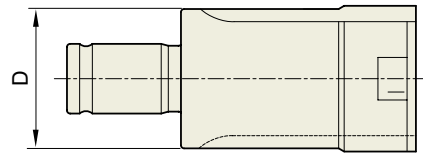


Unit : mm

MODEL No.	EDP No.	D (BORE RANGE)		L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT	WEIGHT (kg)
		Min.	Max.							
BT30-TBH25-122	P2779620	25	34	122	BT30-SAS19-72	TBH25-50	22	50	CCMT060204	
BT30-TBH34-99	P2779621	34	50	99	BT30-SAS31-39	TBH34-60	31	60	CCMT060204	
BT30-TBH34-139	P2779622	34	50	139	BT30-SAS31-79	TBH34-60	31	60	CCMT060204	
BT30-TBH50-118	P2779623	50	76	118	BT30-SAS39-38	TBH50-80	42	80	CCMT09T308	
BT30-TBH50-153	P2779624	50	76	153	BT30-SAS39-73	TBH50-80	42	80	CCMT09T308	
BT40-TBH25-122	P2779625	25	34	122	BT40-SAS19-72	TBH25-50	22	50	CCMT060204	
BT40-TBH34-104	P2779626	34	50	104	BT40-SAS31-44	TBH34-60	31	60	CCMT060204	
BT40-TBH34-154	P2779627	34	50	154	BT40-SAS31-94	TBH34-60	31	60	CCMT060204	
BT40-TBH50-123	P2779628	50	76	123	BT40-SAS39-43	TBH50-80	42	80	CCMT09T308	
BT40-TBH50-168	P2779629	50	76	168	BT40-SAS39-88	TBH50-80	42	80	CCMT09T308	
BT40-TBH76-174	P2779630	76	116	174	BT40-SAS64-64	TBH76-110	65	110	CCMT120408	
BT50-TBH25-152	P2779631	25	34	152	BT50-SAS19-102	TBH25-50	22	50	CCMT060204	
BT50-TBH34-114	P2779632	34	50	114	BT50-SAS31-54	TBH34-60	31	60	CCMT060204	
BT50-TBH34-184	P2779633	34	50	184	BT50-SAS31-124	TBH34-60	31	60	CCMT060204	
BT50-TBH50-138	P2779634	50	76	138	BT50-SAS39-58	TBH50-80	42	80	CCMT09T308	
BT50-TBH50-198	P2779635	50	76	198	BT50-SAS39-118	TBH50-80	42	80	CCMT09T308	
BT50-TBH50-258	P2779636	50	76	258	BT50-SAS39-178	TBH50-80	42	80	CCMT09T308	
BT50-TBH76-204	P2779637	76	116	204	BT50-SAS64-94	TBH76-110	65	110	CCMT120408	
BT50-TBH76-279	P2779638	76	116	279	BT50-SAS64-169	TBH76-110	65	110	CCMT120408	
BT50-TBH76-339	P2779639	76	116	339	BT50-SAS64-229	TBH76-110	65	110	CCMT120408	
BT50-TBH116-198	P2779640	116	156	198	BT50-SAS90-93	TBH116-105	90	105	CCMT120408	
BT50-TBH116-348	P2779641	116	156	348	BT50-SAS90-243	TBH116-105	90	105	CCMT120408	

▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

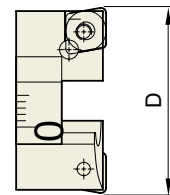
**BORING HEAD**  
(For TWIN EDGE BORING BAR-SMALL BORE)



Unit : mm

MODEL No.	EDP No.	D	WEIGHT (kg)
SAS22-TBH25-50	P2779529	22	
SAS31-TBH34-60	P2779530	31	
SAS42-TBH50-80	P2779531	42	
SAS65-TBH76-110	P2779532	65	
SAS84-TBH116-145	P2779533	84	

**INSERT HOLDER**  
(CARTRIDGE For TWIN EDGE BORING BAR-SMALL BORE)



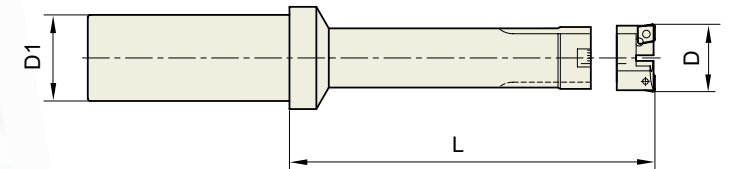
Unit : mm

MODEL No.	EDP No.	D (BORE RANGE)	WEIGHT (kg)
		Min. - Max.	
TBH25-CC06	P2779534	25 - 34	
TBH34-CC06	P2779535	34 - 50	
TBH50-CC09	P2779536	50 - 76	
TBH76-CC12	P2779537	76 - 116	
TBH116-CC12	P2779538	116 - 156	

**TWIN EDGE BORING BAR**

**STRAIGHT-ST**

DOPPELSCHNEIDER - BOHRSTANGE - GERADEAUS SCHAFT  
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE - TOUT DROIT TIGE  
PORTA TESTINE BILAMA - TIBIA DIRITTA  
BARRA S DE MANDRINAR DE DOS PLACAS - CANA RECTA



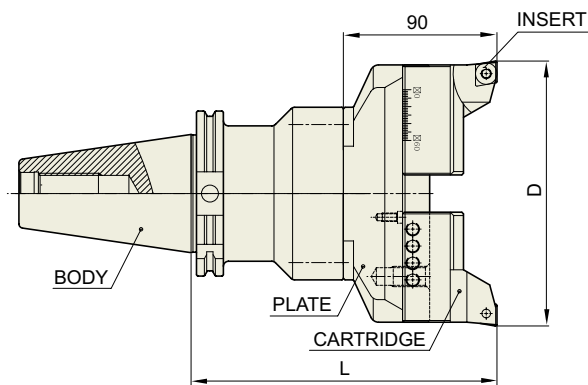
Unit : mm

TYPE	MODEL No.	EDP No.	D (BORE RANGE)	L	D1	INSERT	WEIGHT (kg)
			Min. - Max.				
32	ST32-TBH25-125	P2779559	25 - 34	125	32	CCMT060200	
	ST32-TBH34-130	P2779560	34 - 50	130	32	CCMT060200	
	ST32-TBH50-155	P2779561	50 - 76	155	32	CCMT09T300	
40	ST40-TBH76-185	P2779562	76 - 116	185	40	CCMT120400	
42	ST42-TBH76-185	P2779563	76 - 116	185	42	CCMT120400	

**TWIN EDGE BORING BAR (BIG BORE)**

DIN 69871-SK

DOPPELSCHNEIDER - BOHRSTANGE  
 BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE  
 PORTA TESTINE BILAMA  
 BARRAS DE MANDRINAR DE DOS PLACAS



Unit : mm

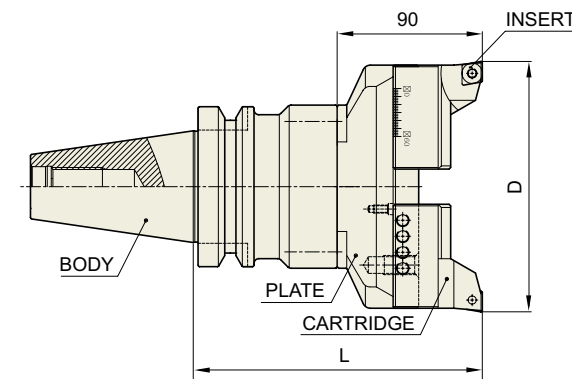
MODEL No.	EDP No.	D (BORE RANGE)		L	BODY	PLATE	INSERT	WEIGHT (kg)
		Min. - Max.						
SK50-TBH156-180	P2779585	156 - 216		180	SK50-SAS102-90	PLA156	CCMT120400	
SK50-TBH156-230	P2779586	156 - 216		230	SK50-SAS102-140	PLA156	CCMT120400	
SK50-TBH156-280	P2779587	156 - 216		280	SK50-SAS102-190	PLA156	CCMT120400	
SK50-TBH216-180	P2779588	216 - 276		180	SK50-SAS102-90	PLA216	CCMT120400	
SK50-TBH216-230	P2779589	216 - 276		230	SK50-SAS102-140	PLA216	CCMT120400	
SK50-TBH216-280	P2779590	216 - 276		280	SK50-SAS102-190	PLA216	CCMT120400	
SK50-TBH276-180	P2779591	276 - 336		180	SK50-SAS102-90	PLA276	CCMT120400	
SK50-TBH276-230	P2779592	276 - 336		230	SK50-SAS102-140	PLA276	CCMT120400	
SK50-TBH276-280	P2779593	276 - 336		280	SK50-SAS102-190	PLA276	CCMT120400	
SK50-TBH336-180	P2779594	336 - 396		180	SK50-SAS102-90	PLA336	CCMT120400	
SK50-TBH336-230	P2779595	336 - 396		230	SK50-SAS102-140	PLA336	CCMT120400	
SK50-TBH336-280	P2779596	336 - 396		280	SK50-SAS102-190	PLA336	CCMT120400	
SK50-TBH396-180	P2779597	396 - 456		180	SK50-SAS102-90	PLA396	CCMT120400	
SK50-TBH396-230	P2779598	396 - 456		230	SK50-SAS102-140	PLA396	CCMT120400	
SK50-TBH396-280	P2779599	396 - 456		280	SK50-SAS102-190	PLA396	CCMT120400	
SK50-TBH456-180	P2779600	456 - 516		180	SK50-SAS102-90	PLA456	CCMT120400	
SK50-TBH456-230	P2779601	456 - 516		230	SK50-SAS102-140	PLA456	CCMT120400	
SK50-TBH456-280	P2779602	456 - 516		280	SK50-SAS102-190	PLA456	CCMT120400	
SK50-TBH516-180	P2779603	516 - 576		180	SK50-SAS102-90	PLA516	CCMT120400	
SK50-TBH516-230	P2779604	516 - 576		230	SK50-SAS102-140	PLA516	CCMT120400	
SK50-TBH516-280	P2779605	516 - 576		280	SK50-SAS102-190	PLA516	CCMT120400	

- ▶ Upon request, special twin edge boring bars with a boring range up to 800mm could be manufactured and supplied.
- ▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

**TWIN EDGE BORING BAR (BIG BORE)**

JIS B6339/  
MAS 403-BT

DOPPELSCHNEIDER - BOHRSTANGE  
 BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE  
 PORTA TESTINE BILAMA  
 BARRAS DE MANDRINAR DE DOS PLACAS



Unit : mm

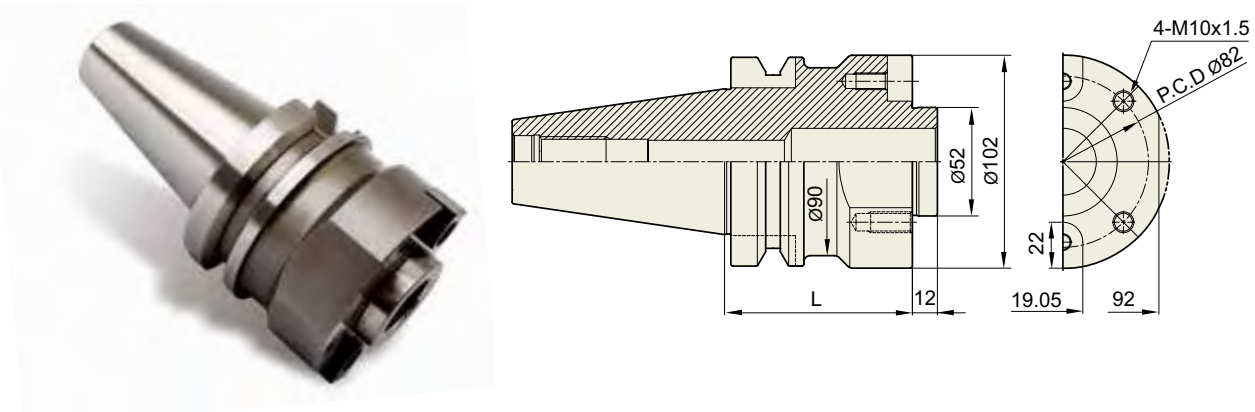
MODEL No.	EDP No.	D (BORE RANGE)		L	BODY	PLATE	INSERT	WEIGHT (kg)
		Min. - Max.						
BT50-TBH156-180	P2779564	156 - 216		180	BT50-SAS102-90	PLA156	CCMT120400	
BT50-TBH156-230	P2779565	156 - 216		230	BT50-SAS102-140	PLA156	CCMT120400	
BT50-TBH156-280	P2779566	156 - 216		280	BT50-SAS102-190	PLA156	CCMT120400	
BT50-TBH216-180	P2779567	216 - 276		180	BT50-SAS102-90	PLA216	CCMT120400	
BT50-TBH216-230	P2779568	216 - 276		230	BT50-SAS102-140	PLA216	CCMT120400	
BT50-TBH216-280	P2779569	216 - 276		280	BT50-SAS102-190	PLA216	CCMT120400	
BT50-TBH276-180	P2779570	276 - 336		180	BT50-SAS102-90	PLA276	CCMT120400	
BT50-TBH276-230	P2779571	276 - 336		230	BT50-SAS102-140	PLA276	CCMT120400	
BT50-TBH276-280	P2779572	276 - 336		280	BT50-SAS102-190	PLA276	CCMT120400	
BT50-TBH336-180	P2779573	336 - 396		180	BT50-SAS102-90	PLA336	CCMT120400	
BT50-TBH336-230	P2779574	336 - 396		230	BT50-SAS102-140	PLA336	CCMT120400	
BT50-TBH336-280	P2779575	336 - 396		280	BT50-SAS102-190	PLA336	CCMT120400	
BT50-TBH396-180	P2779576	396 - 456		180	BT50-SAS102-90	PLA396	CCMT120400	
BT50-TBH396-230	P2779577	396 - 456		230	BT50-SAS102-140	PLA396	CCMT120400	
BT50-TBH396-280	P2779578	396 - 456		280	BT50-SAS102-190	PLA396	CCMT120400	
BT50-TBH456-180	P2779579	456 - 516		180	BT50-SAS102-90	PLA456	CCMT120400	
BT50-TBH456-230	P2779580	456 - 516		230	BT50-SAS102-140	PLA456	CCMT120400	
BT50-TBH456-280	P2779581	456 - 516		280	BT50-SAS102-190	PLA456	CCMT120400	
BT50-TBH516-180	P2779582	516 - 576		180	BT50-SAS102-90	PLA516	CCMT120400	
BT50-TBH516-230	P2779583	516 - 576		230	BT50-SAS102-140	PLA516	CCMT120400	
BT50-TBH516-280	P2779584	516 - 576		280	BT50-SAS102-190	PLA516	CCMT120400	

- ▶ Upon request, special twin edge boring bars with a boring range up to 800mm could be manufactured and supplied.
- ▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.



**BORING HEAD**  
(For FINE and TWIN EDGE BORING BAR-BIG BORE)

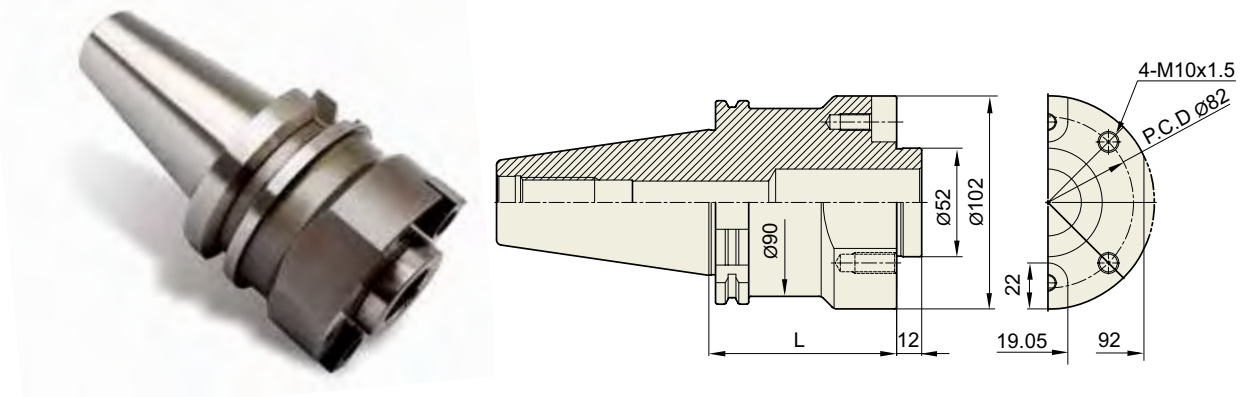
JIS B6339/  
MAS 403-BT



Unit : mm

MODEL No.	EDP No.	L	WEIGHT (kg)
BT50-SAS102-90	P2779606	90	
BT50-SAS102-140	P2779607	140	
BT50-SAS102-190	P2779608	190	

**DIN 69871-SK**

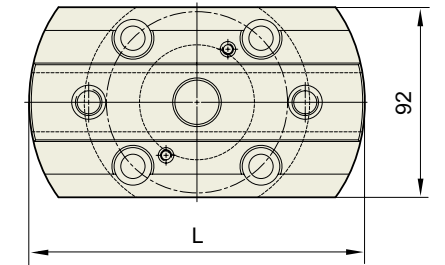


Unit : mm

MODEL No.	EDP No.	L	WEIGHT (kg)
SK50-SAS102-90	P2779609	90	
SK50-SAS102-140	P2779610	140	
SK50-SAS102-190	P2779611	190	

► Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

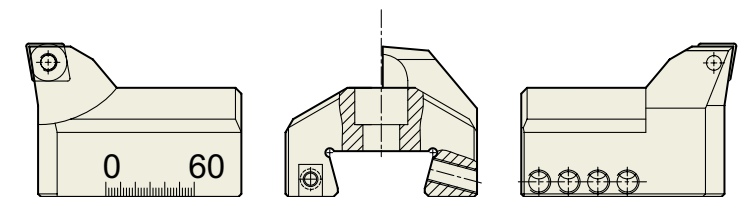
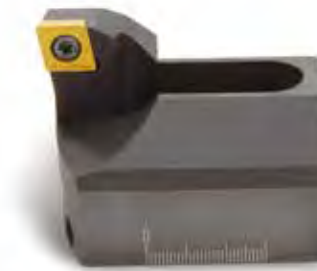
**PLATE**  
(For TWIN EDGE BORING BAR-BIG BORE)



Unit : mm

PLATE	EDP No.	D	WEIGHT (kg)
PLA156	P2779612	152	
PLA216	P2779613	212	
PLA276	P2779614	272	
PLA336	P2779615	332	
PLA396	P2779616	392	
PLA456	P2779617	452	
PLA516	P2779618	512	

**INSERT HOLDER**  
(CARTRIDGE For TWIN EDGE BORING BAR-BIG BORE)



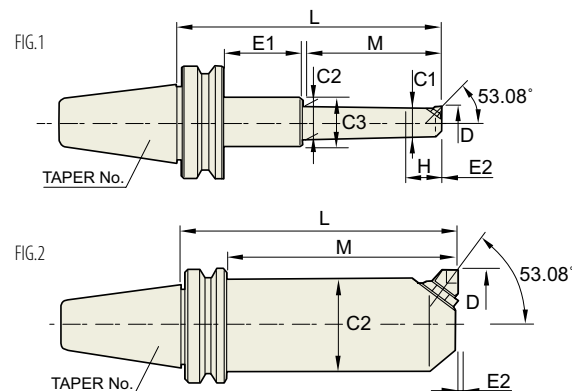
Unit : mm

CARTRIDGE (For Rough Cutting)	EDP No.	WEIGHT (kg)
CN120	P2779619	

**MICRO BORING BAR**

MIKRO - BOHRSTANGE  
 BARRE D'ALÉSAGE MICRO  
 PORTA TESTINE MICROREGISTRABILI  
 BARRAS DE MANDRINAR MICRO

JIS B6339/  
 MAS 403-BT



Unit : mm

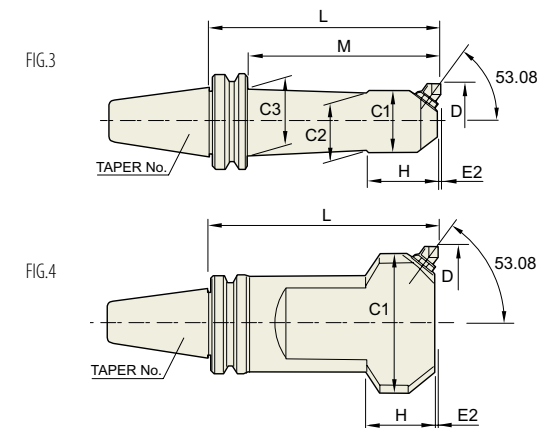
TAPER No.	MODEL No.	EDP No.	D (BORE RANGE)		L	M	C1	C2	C3	H	E1	E2	UNIT	INSERT	FIG.	WEIGHT (kg)
			Min.	Max.												
30	BT30-BCA13.5-105	P2779701	13.5	16	105	68	12	13.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT30-BCA14.5-105	P2779702	14.5	17	105	68	13	14.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT30-BCA16-105	P2779703	16	22.5	105	73	14	15	-	18	-	0.2	M1A2E/F	BRAZED TYPE	3	
	BT30-BCA19-120	P2779704	19	23	120	85	16	18	44	23	3	0.2	M2B2CC	CCGT0401	1	0.70
	BT30-BCA23-135	P2779705	23	29	135	105	19	22	-	24	-	0.2	M3B2TC	TBGT0601	3	0.70
	BT30-BCA29-150	P2779706	29	41	150	115	25	28	44	30	8	0.2	M3A2TC	TBGT0601	1	0.90
	BT30-BCA29-195	P2779707	29	41	195	115	25	28	44	30	53	0.2	M3A2TC	TBGT0601	1	
	BT30-BCA38-150	P2779708	38	49	150	115	33	35	55	41	8	0.2	M5B2TC	TCGT1102	1	1.40
	BT30-BCA38-210	P2779709	38	49	210	175	33	37	55	41	8	0.2	M5B2TC	TCGT1102	1	
	BT30-BCA46-150	P2779710	46	66	150	115	38	41	55	45	8	0.2	M5A2TC	TCGT1102	1	2.10
	BT30-BCA46-210	P2779711	46	66	210	175	38	45	55	45	8	0.2	M5A2TC	TCGT1102	1	
	BT30-BCA62-165	P2779712	62	87	165	135	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	
40	BT40-BCA13.5-105	P2779713	13.5	16	105	68	12	13.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT40-BCA14.5-105	P2779714	14.5	17	105	68	13	14.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT40-BCA16-105	P2779715	16	22.5	105	73	14	15	-	18	-	0.2	M1A2E/F	BRAZED TYPE	3	
	BT40-BCA19-120	P2779716	19	23	120	85	16	18	44	23	3	0.2	M2B2CC	CCGT0401	1	1.50
	BT40-BCA23-135	P2779717	23	29	135	105	19	22	-	24	-	0.2	M3B2TC	TBGT0601	3	1.50
	BT40-BCA29-150	P2779718	29	41	150	115	25	28	44	30	8	0.2	M3A2TC	TBGT0601	1	1.50
	BT40-BCA29-195	P2779719	29	41	195	115	25	28	44	30	53	0.2	M3A2TC	TBGT0601	1	2.00
	BT40-BCA38-150	P2779720	38	49	150	115	33	35	55	41	8	0.2	M5B2TC	TCGT1102	1	1.80
	BT40-BCA38-210	P2779721	38	49	210	175	33	37	55	41	8	0.2	M5B2TC	TCGT1102	1	2.20
	BT40-BCA46-150	P2779722	46	66	150	115	38	41	55	45	8	0.2	M5A2TC	TCGT1102	1	2.10
	BT40-BCA46-210	P2779723	46	66	210	175	38	45	55	45	8	0.2	M5A2TC	TCGT1102	1	2.30
	BT40-BCA62-165	P2779724	62	87	165	135	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	2.90
BT40-BCA62-210	P2779725	62	87	210	180	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	3.60	
BT40-BCA83-150	P2779726	83	108	150	120	63	-	-	-	-	0.2	M7A2TC	TCGT16T3	2		
BT40-BCA83-210	P2779727	83	108	210	180	63	-	-	-	-	0.2	M7A2TC	TCGT16T3	2		
BT40-BCA98-150	P2779728	98	142	150	120	83	-	-	85	-	0.2	M10A2TC	TCGT16T3	4		



**MICRO BORING BAR**

MIKRO - BOHRSTANGE  
 BARRE D'ALÉSAGE MICRO  
 PORTA TESTINE MICROREGISTRABILI  
 BARRAS DE MANDRINAR MICRO

JIS B6339/  
 MAS 403-BT



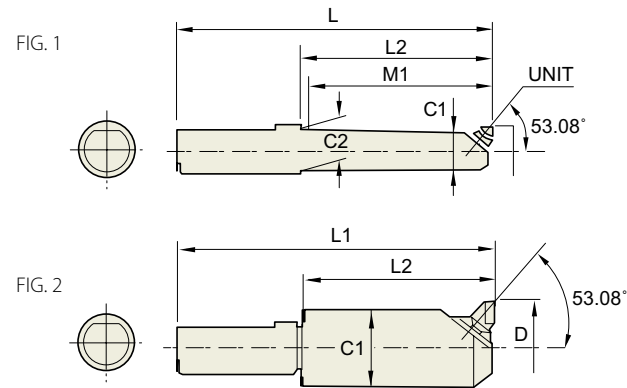
Unit : mm

TAPER No.	MODEL No.	EDP No.	D (BORE RANGE)		L	M	C1	C2	C3	H	E1	E2	UNIT	INSERT	FIG.	WEIGHT (kg)
			Min.	Max.												
50	BT50-BCA13.5-120	P2779729	13.5	16	120	67	12	13	44	15	10	0.2	M1B2E/F	-	1	
	BT50-BCA13.5-195	P2779730	13.5	16	195	67	12	13	44	15	85	0.2	M1B2E/F	-	1	
	BT50-BCA14.5-120	P2779731	14.5	17	120	67	13	14	44	15	10	0.2	M1B2E/F	-	1	
	BT50-BCA14.5-195	P2779732	14.5	17	195	67	13	14	44	15	85	0.2	M1B2E/F	-	1	
	BT50-BCA16-120	P2779733	16	22.5	120	73	14	15	44	18	4	0.2	M1A2E/F	-	1	
	BT50-BCA16-195	P2779734	16	22.5	195	73	14	15	44	18	79	0.2	M1A2E/F	-	1	
	BT50-BCA19-135	P2779735	19	23	135	86	16	18	44	23	6	0.2	M2B2CC	CCGT0401	1	3.80
	BT50-BCA19-210	P2779736	19	23	210	86	16	18	44	23	81	0.2	M2B2CC	CCGT0401	1	
	BT50-BCA23-150	P2779737	23	29	150	105	19	22	44	24	2	0.2	M3B2TC	TBGT0601	1	3.90
	BT50-BCA23-225	P2779738	23	29	225	105	19	22	44	24	77	0.2	M3B2TC	TBGT0601	1	
	BT50-BCA29-165	P2779739	29	41	165	115	25	28	44	30	7	0.2	M3A2TC	TBGT0601	1	4.50
	BT50-BCA29-225	P2779740	29	41	225	165	25	28	44	30	67	0.2	M3A2TC	TBGT0601	1	
BT50-BCA38-165	P2779741	38	49	165	115	33	35	55	41	7	0.2	M5B2TC	TCGT1102	1		
BT50-BCA38-225	P2779742	38	49	225	172	33	37	55	41	10	0.2	M5B2TC	TCGT1102	1	5.00	
BT50-BCA46-165	P2779743	46	66	165	115	38	41	55	45	7	0.2	M5A2TC	TCGT1102	1	5.20	
BT50-BCA46-225	P2779744	46	66	225	182	38	-	-	45	-	0.2	M5A2TC	TCGT1102	3		
BT50-BCA46-255	P2779745	46	66	255	206	38	-	55	45	6	0.2	M5A2TC	TCGT1102	1	5.70	
BT50-BCA62-180	P2779746	62	87	180	137	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	7.00	
BT50-BCA62-240	P2779747	62	87	240	184	51	57	70	60	13	0.2	M7A2TC	TCGT16T3	1	7.60	
BT50-BCA62-330	P2779748	62	87	330	280	51	60	70	60	7	0.2	M7A2TC	TCGT16T3	1	9.50	
BT50-BCA83-165	P2779749	83	108	165	122	63	-	-	-	-	0.2	M7A2TC	TCGT16T3	2		
BT50-BCA83-240	P2779750	83	108	240	190	63	62	90	95	7	0.2	M7A2TC	TCGT16T3	1		
BT50-BCA83-345	P2779751	83	108	345	295	63	62	90	95	7	0.2	M7A2TC	TCGT16T3	1		
BT50-BCA98-165	P2779752	98	142	165	122	83	-	-	-	-	0.2	M10A2TC	TCGT16T3	2		
BT50-BCA98-240	P2779753	98	142	240	197	83	-	-	-	-	0.2	M10A2TC	TCGT16T3	2		
BT50-BCA98-345	P2779754	98	142	345	302	83	92	-	85	-	0.2	M10A2TC	TCGT16T3	3		
BT50-BCA132-210	P2779755	132	176	210	-	108	-	-	65	-	0.2	M10A2TC	TCGT16T3	4		
BT50-BCA132-315	P2779756	132	176	315	-	108	-	-	65	-	0.2	M10A2TC	TCGT16T3	4		
BT50-BCA166-225	P2779757	166	210	225	-	142	-	-	70	-	0.2	M10A2TC	TCGT16T3	4		
BT50-BCA166-315	P2779758	166	210	315	-	142	-	-	70	-	0.2	M10A2TC	TCGT16T3	4		
BT50-BCA200-210	P2779759	200	244	210	-	176	-	-	75	-	0.2	M10A2TC	TCGT16T3	4		

**MICRO BORING BAR**

**STRAIGHT-ST**

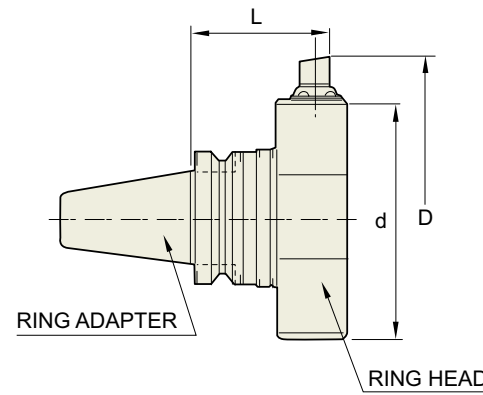
MIKRO - BOHRSTANGE  
 BARRE D'ALÉSAGE MICRO  
 PORTA TESTINE MICROREGISTRABILI  
 BARRAS DE MANDRINAR MICRO



TYPE	MODEL No.	EDP No.	D (BORE RANGE)		L1	L2	M1	C1	C2	UNIT	FIG.	WEIGHT (kg)
			Min.	Max.								
32	ST32-BCA13.5-75	P2779760	13.5	16	135	75	67	12	13	M1B2E/F	1	0.50
	ST32-BCA14.5-75	P2779761	14.5	17	145	75	67	12	14	M1B2E/F	1	0.50
	ST32-BCA16-90	P2779762	16	22.5	160	90	82	14	15	M1A2E/F	1	0.50
	ST32-BCA19-90	P2779763	19	23.0	160	90	82	16	18	M2B-2CC	1	0.50
	ST32-BCA23-120	P2779764	23	29.0	190	120	110	19	22	M3B-2TC	1	1.00
	ST32-BCA29-120	P2779765	29	41.0	190	120	110	25	28	M3A-2TC	1	1.00
	ST32-BCA38-120	P2779766	38	49.0	190	120	115	33	35	M5B-2TC	2	1.50
	ST32-BCA46-120	P2779767	46	66	190	120	115	38	-	M5A-2TC	2	1.50
	ST32-BCA62-120	P2779768	62	87.0	190	120	115	51	-	M7A-2TC	2	2.50
	42	ST42-BCA13.5-85	P2779769	13.5	16	165	85	67	12	13	M1B2E/F	1
ST42-BCA14.5-85		P2779770	14.5	17	165	85	67	12	14	M1B2E/F	1	1.00
ST42-BCA16-100		P2779771	16	22.5	180	100	82	14	15	M1A2E/F	1	1.00
ST42-BCA19-100		P2779772	19	23.0	180	100	82	16	18	M2B2E/F	1	1.00
ST42-BCA23-120		P2779773	23	29.0	200	120	110	19	22	M3B-2TC	1	1.50
ST42-BCA29-120		P2779774	29	41.0	200	120	110	25	28	M3A-2TC	1	1.50
ST42-BCA38-130		P2779775	38	49.0	210	130	125	33	35	M5B-2TC	1	1.50
ST42-BCA46-135		P2779776	46	66.0	215	135	130	38	44	M5A-2TC	1	1.50
ST42-BCA62-135		P2779777	62	87.0	215	135	130	51	-	M7A-2TC	2	2.50
ST42-BCA83-150		P2779778	83	108	230	150	145	63	-	M7A-2TC	2	3.00

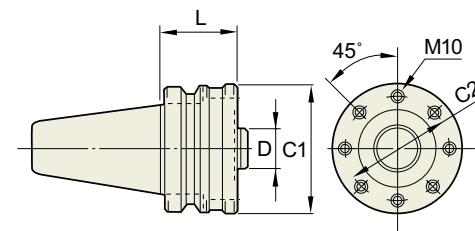
**BIG SIZE MICRO CUT BORING BAR**

**JIS B6339/  
MAS 403-BT**



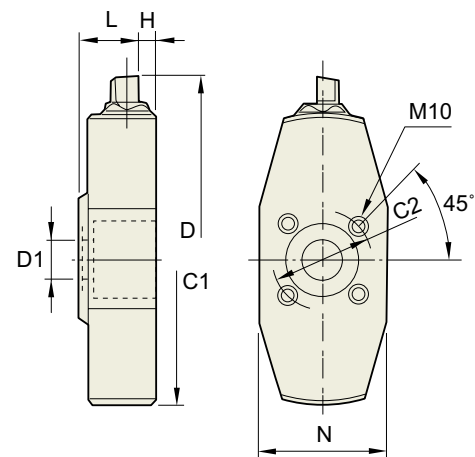
**BORING RING HOLDER**

MODEL No.	EDP No.	d	D	L
BT50-BRA140-105	P2779779	140	197	105
BT50-BRA140-165	P2779780	140	197	165
BT50-BRA191-105	P2779781	191	248	105
BT50-BRA191-165	P2779782	191	248	165
BT50-BRA242-105	P2779783	242	299	105
BT50-BRA242-165	P2779784	242	299	165
BT50-BRA293-105	P2779785	293	350	105
BT50-BRA293-165	P2779786	293	350	165
BT50-BRA344-105	P2779787	344	401	105
BT50-BRA344-165	P2779788	344	401	165
BT50-BRA395-105	P2779789	395	452	105
BT50-BRA395-165	P2779790	395	452	165



**RING ADAPTER**

MODEL No.	EDP No.	D (h6)	L	C1	C2
BT50-RAA32-60	P2779791	32	60	102	82
BT50-RAA32-120	P2779792	32	120	102	82

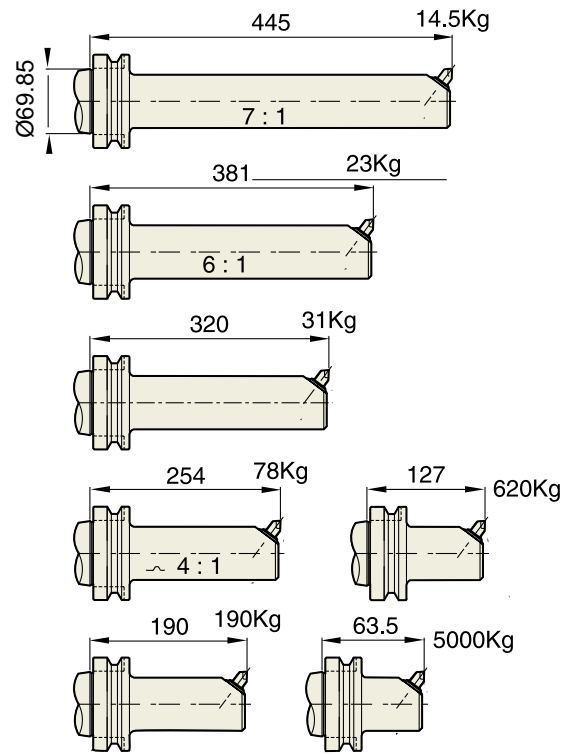
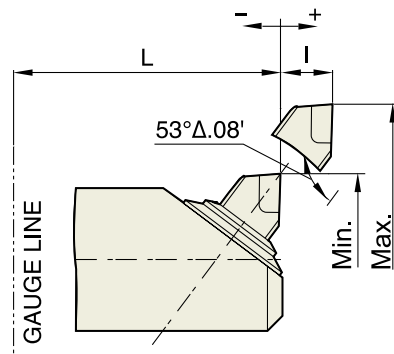


**RING HEAD**

MODEL No.	EDP No.	D1 (h7)	D (BORE RANGE)		L	C1	C2	H	N	UNIT
			Min.	Max.						
RH32-BCA140	P2779793	32	140	197	45	102	82	14	-	M10A2TC
RH32-BCA191	P2779794	32	191	248	45	136	82	14	-	M10A2TC
RH32-BCA242	P2779795	32	242	299	45	184	82	14	103	M10A2TC
RH32-BCA293	P2779796	32	293	350	45	234	82	14	103	M10A2TC
RH32-BCA344	P2779797	32	344	401	45	284	82	14	103	M10A2TC
RH32-BCA395	P2779798	32	395	452	45	36	82	14	103	M10A2TC

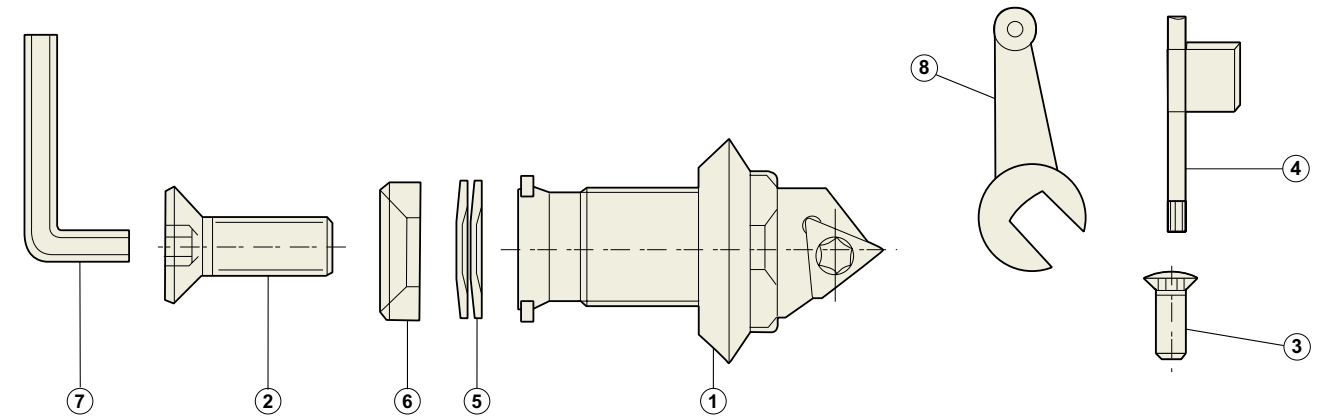


**Strength of BORING BAR and Comparison Table of MICRO UNITS**

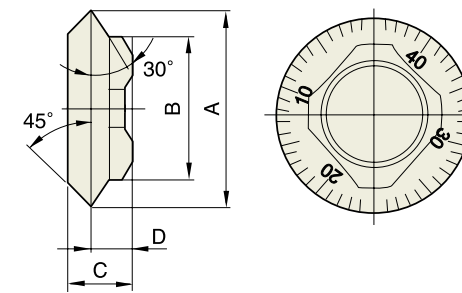


BORING BAR MODEL No.	BRAZED TYPE B EF		SCREW ON TYPE			INSERT SPEC.
	Min.	Max.	Min.	Max.	ΔL	
BCA19	M2B2	M2B2	-	-	-	CCGT0401
	19	23	-	-	-1.9	CCGT0401
BCA23	M3B2	M3B2	M3B2TC	M3B2TC	M3B2TC	TBGT060102
	23	29	24.9	30.9	-1.9	TBGT060102
BCA29	M3A2	M3A2	M3A2TC	M3A2TC	M3A2TC	TBGT060102
	29	41.8	30.9	43.8	-1.9	TBGT060102
BCA38	M5B2	M5B2	M5B2TC	M5B2TC	M5B2TC	TCGT110204
	38	49.2	40.9	52.1	-1.9	TCGT110204
BCA46	M5A2	M5A2	M5A2TC	M5A2TC	M5A2TC	TCGT110204
	46	66.6	48.9	69.5	-1.9	TCGT110204
BCA62	M7A2	M7A2	M7A2TC	M7A2TC	M7A2TC	TCGT16T304
	62	87.4	62	87.4	0	TCGT16T304
BCA83	M7A2	M7A2	M7A2TC	M7A2TC	M7A2TC	TCGT16T304
	83	108.4	83	108.4	0	TCGT16T304
BCA98	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	98	142.4	98	142.4	0	TCGT16T304
BCA132	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	132	176.4	132	176.4	0	TCGT16T304
BCA166	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	166	210.4	166	210.4	0	TCGT16T304
BCA200	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	200	244.4	200	244.4	0	TCGT16T304

**MICRO UNIT SPARE PART**

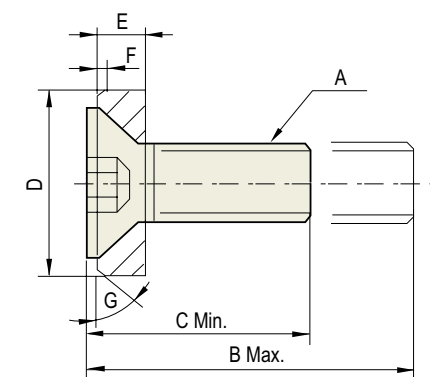


PART NAME	ORDER No. No.	M1A-B	M2A-B	M3A-B	M5A-B	M5A-B	M7A-B	M10A-B
1 DIAL NUT	Slant Angle	1-40	2-40	3-40	5-40	5-40	7-80	10-80
	Right Angle	1-50	2-50	3-50	5-50	5-50	7-100	10-100
2 CARTRIDGE BOLT	M-A	F-M3-0.5-8	F-M3-0.5-12	F-M4-0.7-15	F-M6-1.0-25	F-M6-1.0-25	F-M10-1.5-30	M12-1.75-50
	M-B	M-M3-0.5-6	M-M3-0.5-10	M-M4-0.7-12	M-M6-1.0-20	M-M6-1.0-20	M-M10-1.5-25	M12-1.75-35
3 INSERT SCREW		S1845L5	S1845L5	S2045L6	S2555L6	S2555L6	S4095L6	S4095L6
4 T-WRENCH		T6	T6	T6	T8	T8	T15	T15
5 SPRING WASHER			CB-2	CB-3	CB-5	CB-5	CB-7	CB-10
6 MOUNTING WASHER			2306	3306	5306	5306	7306	10306
7 L-WRENCH		WR-2	WR-2	WR-2.5	WR-4	WR-4	WR-6	WR-8
8 SPANNER		GS12	GS12	GS35	GS35	GS35	GS710	GS710



**GRADUATED DIAL UNIT**

SIZE	A	B	C	D
M1	9.53	6.99	4.45	2.54
M2	12.7	9.53	5.08	3.30
M3	15.88	11.3	5.59	3.56
M5	25.4	19.05	8.76	4.83
M7	34.93	25.40	11.68	7.11
M10	44.45	34.93	13.84	7.49



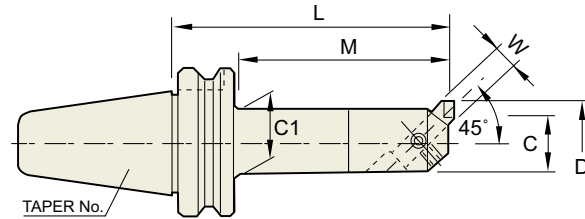
**LOCK SCREW AND WASHER**

SIZE	A	B	C	D	E	F	G
M1	M3	8	6	-	-	-	-
M2	M3	12	10	7.82	1.83	0.5	45°
M3	M4	15	12	10.9	2.46	1.0	45°
M5	M6	25	20	15.7	4.32	0.8	37°
M7	M10	30	25	23.7	6.35	1.30	37°
M10	M12	50	35	31.6	7.92	2.5	37°

**SQUARE BORING BAR (45°)**

VIERKANT - BOHRSTANGE  
 BARRE D'ALÉSAGE CARRÉ  
 BARRA PORTA TESTINE  
 BARRAS DE MANDRINAR CUADRADAS

JIS B6339/  
 MAS 403-BT



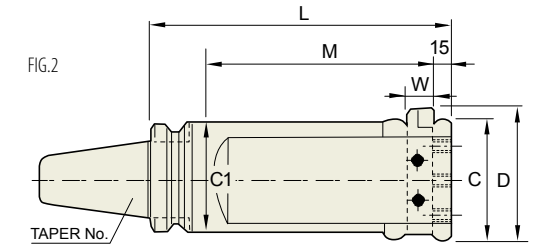
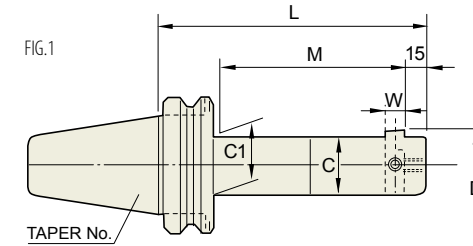
Unit : mm

TAPER No.	MODEL No.	EDP No.	D (BORE RANGE)		L	C	C1	W	M	WEIGHT (kg)
			Min.	Max.						
30	BT30-BSA25-120	P2775401	25	38	120	20	22	8	90	1.00
	BT30-BSA30-135	P2775402	30	42	135	24	26	8	105	1.10
	BT30-BSA38-150	P2775403	38	52	150	30	33	10	120	1.40
	BT30-BSA42-150	P2775404	42	56	150	34	37	10	125	1.60
	BT30-BSA50-150	P2775405	50	65	150	40	44	13	125	1.80
40	BT40-BSA25-135	P2775406	25	38	135	20	22	8	108	1.30
	BT40-BSA30-165	P2775407	30	42	165	24	26	8	138	1.50
	BT40-BSA38-180	P2775408	38	52	180	30	33	10	153	1.80
	BT40-BSA42-210	P2775409	42	56	210	34	37	10	183	2.30
	BT40-BSA50-180	P2775410	50	65	180	40	44	13	153	2.40
	BT40-BSA50-225	P2775411	50	65	225	40	44	13	198	2.90
	BT40-BSA62-180	P2775412	62	90	180	50	54	16	153	3.20
	BT40-BSA62-240	P2775413	62	90	240	50	54	16	213	4.20
	BT40-BSA72-180	P2775414	72	110	180	60	63	19	153	4.40
	BT40-BSA72-240	P2775415	72	110	240	60	63	19	213	5.70
50	BT40-BSA90-180	P2775416	90	125	180	75	63	19	153	5.40
	BT50-BSA25-135	P2775417	25	38	135	20	22	8	95	4.40
	BT50-BSA30-165	P2775418	30	42	165	24	26	8	125	4.60
	BT50-BSA38-180	P2775419	38	52	180	30	33	10	140	4.80
	BT50-BSA42-210	P2775420	42	56	210	34	37	10	170	5.00
	BT50-BSA50-180	P2775421	50	65	180	40	44	13	140	5.40
	BT50-BSA50-240	P2775422	50	65	240	40	44	13	200	5.70
	BT50-BSA62-195	P2775423	62	90	195	50	54	16	155	6.10
	BT50-BSA62-270	P2775424	62	90	270	50	54	16	230	7.50
	BT50-BSA72-195	P2775425	72	110	195	60	66	19	155	6.90
	BT50-BSA72-285	P2775426	72	110	285	60	66	19	245	9.30
	BT50-BSA90-210	P2775427	90	125	210	75	80	19	170	9.20
	BT50-BSA90-300	P2775428	90	125	300	75	80	19	260	12.30
	BT50-BSA105-195	P2775429	105	160	195	90	90	25	157	10.50
	BT50-BSA105-285	P2775430	105	160	285	90	90	25	247	14.80

**SQUARE BORING BAR (90°)**

VIERKANT - BOHRSTANGE  
 BARRE D'ALÉSAGE CARRÉ  
 BARRA PORTA TESTINE  
 BARRAS DE MANDRINAR CUADRADAS

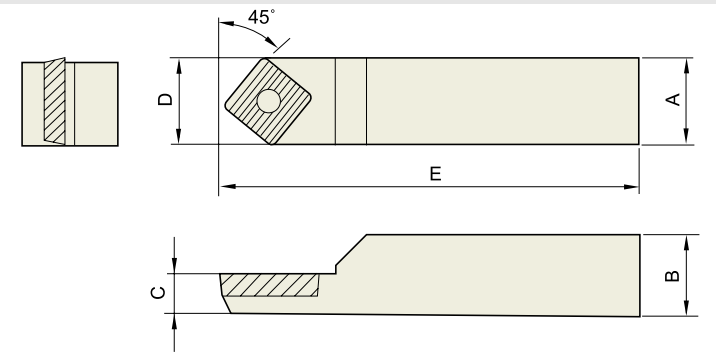
JIS B6339/  
 MAS 403-BT



Unit : mm

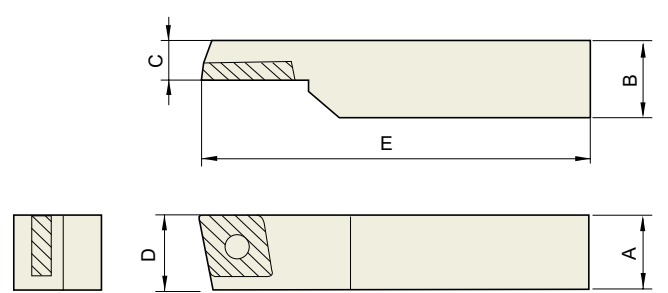
TAPER No.	MODEL No.	EDP No.	D (BORE RANGE)		L	C	C1	W	M	WEIGHT (kg)	FIG.
			Min.	Max.							
30	BT30-BSB25-120	P2775431	25	50	120	20	22	8	90	1.10	1
	BT30-BSB38-150	P2775432	38	70	150	30	33	10	120	1.50	1
	BT30-BSB50-150	P2775433	50	90	150	40	44	13	125	2.20	1
40	BT40-BSB25-135	P2775434	25	50	135	20	22	8	108	1.30	1
	BT40-BSB38-180	P2775435	38	70	180	30	33	10	153	1.90	1
	BT40-BSB50-180	P2775436	50	90	180	40	44	13	153	2.60	1
	BT40-BSB50-225	P2775437	50	90	225	40	44	13	198	3.10	1
	BT40-BSB62-180	P2775438	62	115	180	50	56	16	153	3.40	1
	BT40-BSB62-225	P2775439	62	115	225	50	56	16	198	4.10	1
	BT40-BSB72-180	P2775440	72	135	180	60	66	19	153	4.70	1
	BT40-BSB72-225	P2775441	72	135	225	60	66	19	198	5.60	1
	BT40-BSB90-180	P2775442	90	150	180	75	80	19	153	5.70	1
	BT40-BSB90-225	P2775443	90	150	225	75	80	19	198	6.60	1
50	BT50-BSB25-135	P2775444	25	50	135	20	22	8	95	4.10	1
	BT50-BSB38-180	P2775445	38	70	180	30	33	10	140	4.80	1
	BT50-BSB50-180	P2775446	50	90	180	40	44	13	140	5.50	1
	BT50-BSB50-240	P2775447	50	90	240	40	44	13	200	5.70	1
	BT50-BSB62-195	P2775448	62	115	195	50	56	16	155	6.40	1
	BT50-BSB62-270	P2775449	62	115	270	50	56	16	230	7.90	1
	BT50-BSB72-195	P2775450	72	135	195	60	66	19	155	7.30	1
	BT50-BSB72-285	P2775451	72	135	285	60	66	19	245	9.60	1
	BT50-BSB90-210	P2775452	90	150	210	75	80	19	170	9.60	1
	BT50-BSB90-300	P2775453	90	150	300	75	80	19	260	12.60	1
	BT50-BSB105-195	P2775454	105	190	195	90	-	25	155	11.10	2
	BT50-BSB105-285	P2775455	105	190	285	90	94	25	245	15.40	2

**SQUARE BITE**



Unit : mm

SIZE	CLASSIFICATION	EDP No.	A	B	C	D	E	SCREW	WRENCH	INSERT
SBC08-45	P2775456		08	08	6.3	8.39	70	SSB-2506	T7	CCMT0602
SBC10-45	P2775457		10	10	7	10.39	70	SSB-2506	T7	CCMT0602
SBC13-45	P2775458		13	13	10	13.6	80	SSB-4009	T15	CCMT09T3
SBC16-45	P2775459		16	16	11	16.68	100	SSB-5012	T15	CCMT1204
SBC19-45	P2775460		19	19	11	19.68	100	SSB-5012	T15	CCMT1204
SBC25-45	P2775461		25	25	12.5	25.68	120	SSB-5012	T15	CCMT1204



Unit : mm

SIZE	CLASSIFICATION	EDP No.	A	B	C	D	E	SCREW	WRENCH	INSERT
SBC08-90	P2775462		08	08	6.3	8.4	70	SSB-2506	T7	CCMT0602
SBC10-90	P2775463		10	10	7	10.4	70	SSB-2506	T7	CCMT0602
SBC13-90	P2775464		13	13	10	13.6	80	SSB-4009	T15	CCMT09T3
SBC16-90	P2775465		16	16	11	16.7	100	SSB-5012	T15	CCMT1204
SBC19-90	P2775466		19	19	11	19.7	100	SSB-5012	T15	CCMT1204
SBC25-90	P2775467		25	25	12.5	25.7	120	SSB-5012	T15	CCMT1204

**YG-1 TOOLING SYSTEM**

**ACCESSORY & OTHERS**



**PULL STUD BOLT**  
PULL STUD BOLT & SPANNER

**TOOL CLAMP**

**HEIGHT PRESETTER**

**COOLANT TUBE & SPANNER**

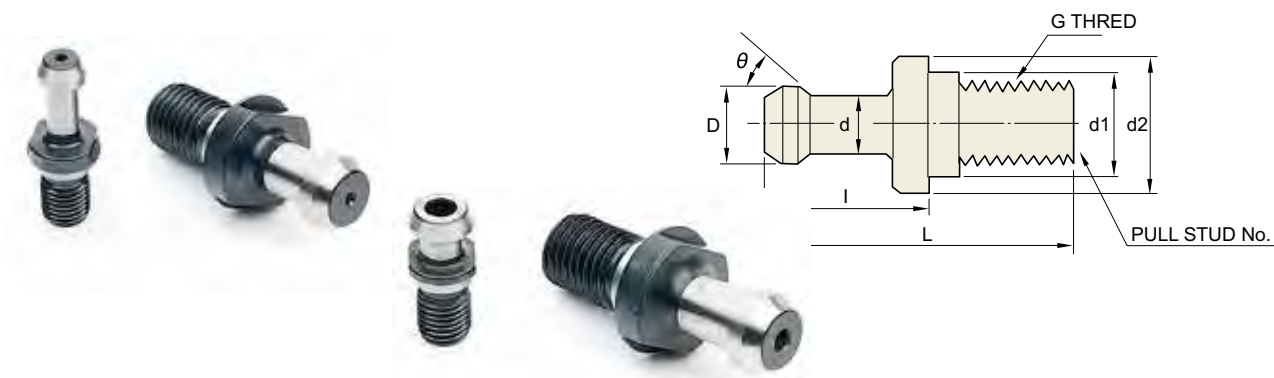


**TECHNICAL DATA : SHANK STANDARD**  
DIN 69871-SK / JIS B6339/MAS 403-BT / DIN 69893/ISO 12164-1-HSK  
ANSI/ASME B5.50-CAT  
DIN 228 (MORSE TAPER) : TANG / SCREW TYPE



**PULL STUD BOLT & SPANNER**

ANZUGBOLZEN  
BOULONS DE SERRAGE  
TIRANTI PER MANDRINI UNIVERSALI  
TIRANTES PARA PORTAHERRAMIENTAS

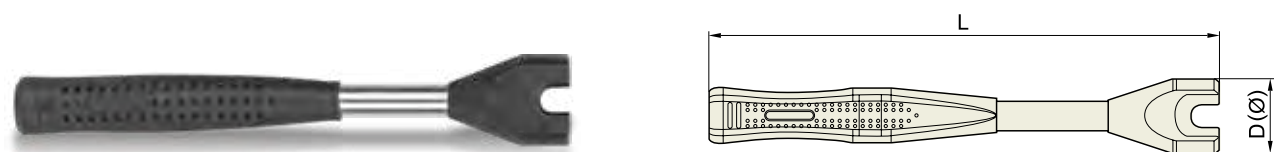


**PULL STUD BOLT**

Unit : mm

MODEL No.	EDP No.	D	d2	d1	d	L	l	G	O	TYPE
PS-1	P2775051	15	23	17	10	60	35	M16	45°	BT40-I STANDARD TYPE
PS-2	P2775052	15	23	17	10	60	35	M16	60°	BT40-II STANDARD TYPE
PS-805	P2775101	19	23	17	14	54	29	M16	75°	BT40
PS-806	P2775102	19	23	17	14	54	29	M16	75°	BT40 (Through Hole)
PS-5	P2775053	23	38	25	17	85	45	M24	45°	BT50-I STANDARD TYPE
PS-6	P2775054	23	38	25	17	85	45	M24	60°	BT50-II STANDARD TYPE
PS-16	P2775055	11	16.5	12.5	7	43	23	M12	45°	BT30-I STANDARD TYPE
PS-17	P2775056	11	16.5	12.5	7	43	23	M12	60°	BT30-II STANDARD TYPE
PS-0	P2506706	23	38	25	17	85	45	M24	90°	for BT50 OKK
PS-08	P2506703	15	23	17	10	60	35	M16	90°	for BT40 OKK
PS-P	P2775057	24	36	25	18	71	31	M24	90°	for BT50 MITISUI SEIKI
PS-PS	P2775058	15	23	17	10	50	25	M16	90°	for BT40 MITISUI SEIKI
PS-G41	P2775059	29	37	25	21	65.2	25.2	M24	45°	for BT50 MAZAK
PS-G51	P2775060	18.8	22	17	12.45	44.1	19.1	M16	45°	for BT40 MAZAK
PS-S2	P2775061	25	39	25	18	95	55	M24	60°	for SHIN NIPPON KOKI
PS-F1	P2775062	23	39	25	18	104	64	M24	45°	for MITSUBISHI
PS-B1	P2775063	22	38	25	16	112	72	M24	60°	for OKUMA
PSS-1	P2506707	19	23	17	14	54	26	M16	75°	for SK40
PSS-5	P2506708	28	36	25	21	74	34	M24	75°	for SK50

- ▶ Upon requests, other pull stud bolts with special dimensions could be produced and supplied.
- ▶ Through hole type ("H" Type) is available upon request.



**PULL STUD BOLT SPANNER**

Unit : mm

MODEL No.	EDP No.	D	L	WEIGHT (kg)	TYPE
PSWB-30	P2775064	27	210	0.30	BT30
PSWB-40	P2775065	37	230	0.40	BT40
PSWB-50	P2775066	49	280	0.78	BT50

**PULL STUD BOLT**

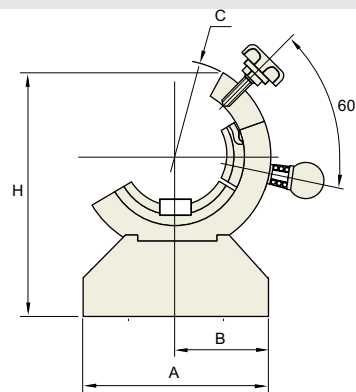
ANZUGBOLZEN  
BOULONS DE SERRAGE  
TIRANTI PER MANDRINI UNIVERSALI  
TIRANTES PARA PORTAHERRAMIENTAS

**APPLICATION TABLE OF PULL STUD BOLT**

MACHINE MANUFACTURER	MACHINE MODEL No.	TAPER No.	PS BOLT
DOOSAN	T 4000	BT30	PS-16
	DT 360D	BT30	PS-16
	DNM 400  /500  / 650	BT40	PSS-1
	DNM 750  /40	BT40	PSS-1
	DNM 750  /50	BT50	PS-5
	Mynx 6500	BT50	PS-5
	Mynx 7500	BT50	PS-5
	VM 5400/6500	BT40	PSS-1
	VM 750	BT50	PS-5
	VM 960	BT50	PS-5
	VM 1260	BT50	PS-5
	VC 430	BT40	PSS-1
	VC 510	BT40	PSS-1
	DVM 500	BT40	PSS-1
	DVM 5650	BT40	PSS-1
	NX 4500	BT40	PSS-1
NX 5500	BT40	PSS-1	
NX 6500	BT40	PSS-1	
NHM 5000	BT50	PS-5	
NHM 6300	BT50	PS-5	
NHM 8000	BT50	PS-5	
NHM 1000	BT50	PS-5	
NHM 1250	BT50	PS-5	
NHP 5000	BT50	PS-5	
NHP 6300	BT50	PS-5	
HC 400	BT40	PSS-1	
HC 500	BT40	PSS-1	
i-CUT 380T/420T	BT30	PS-16	
i-CUT 400T/M	BT30	PS-16	
F 400/500/650	BT40	PS-1	
F 500/650	BT50	PS-5	
F 510M/550M/660M	BT40	PS-1	
F 510B	BT40	PS-1	
F 600B/750B/960B	BT50	PS-5	
KH 50G/63G	BT50	PS-5	
KH 80G/1000	BT40	PS-1	
HS 5000	BT40	PS-1	
HS 5000/6300/8000	BT50	PS-5	
SEMCO	Any Mill LCV30A/B	BT30	PS-17
	Any Mill LCV55S	BT50	PS-6
	Any Mill LCV650S	BT50	PS-5
	Any Mill ICV66	BT50	PS-5
	Any Mill ICV80	BT50	PS-5
	DMC-3000	BT50	PS-0
	PCH40	BT40	PS-1
	PCH50	BT50	PS-5
	SIRIUS-1	BT30	PS-16
	SIRIUS-550	BT40	PS-1
HWACHEON	SIRIUS-UL/ULG	BT40	PS-1
	SIRIUS-7040	BT50	PS-0
	SIRIUS-650/650N	BT50	PS-0
	SIRIUS-850/850N	BT50	PS-0
	SIRIUS-700	BT50	PS-0
	SIRIUS-12580	BT50	PS-0
	TCH-45	BT40	PS-1
	TCH-50	BT50	PS-6
S&T	TCH-80	BT50	PS-6
	TCH-80TS	BT50	PS-6
	FX-500H	BT40	PS-2
	TNV-40A	BT40	PS-1
	TNV-80A	BT40	PS-1
	TNV-650V	BT50	PS-6
HASS	TM-1/2	BT40	PS-1
	VF-4SS/3SS/2SS	BT40	PS-1
	VF-2TR	BT40	PS-1
	VF-5/50TR	BT50	PS-5
	VF-9/50	BT50	PS-5
MAZAK	VF-8/50	BT50	PS-5
		BT40	PS-G51
MORI SEKI		BT50	PS-G41
		BT40	PS-08
		BT50	PS-51

**TOOL CLAMP**

MONTAGEVORRICHTUNGEN  
DISPOSITIF DE MONTAGE  
ATTREZZO PER IL MONTAGGIO DI MANDRINI  
SOPORTE PARA MONTAJE



• Flange Clamping Design

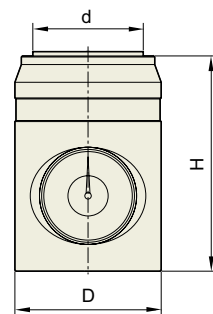
Unit : mm

TAPER No.	MODEL No	EDP No.	A	B	C	H	WEIGHT (kg)
BT30	TCP30	P2775067	125	65	108	135	3.00
BT40	TCP40	P2775068	160	80	138	180	7.60
BT50	TCP50	P2775069	180	90	165	205	8.60
SK30	TSK30	P2775070	125	65	108	135	3.00
SK40	TSK40	P2775071	160	80	138	180	7.60
SK50	TSK50	P2775072	180	90	165	205	8.60
HSK32	THSK32	P2775073	125	65	108	135	-
HSK40	THSK40	P2775074	-	-	-	-	-
HSK50	THSK50	P2775075	-	-	-	-	-
HSK63	THSK63	P2775076	160	80	138	180	-
HSK100	THSK100	P2775077	180	90	165	205	-

▶ Tool clamp for CAT taper available.

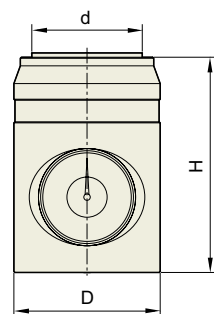
**HEIGHT PRESETTER**

**MAGNETIC HEIGHT PRESETTER**



- Both vertical and horizontal type usable
- Slim design

**HEIGHT PRESETTER**

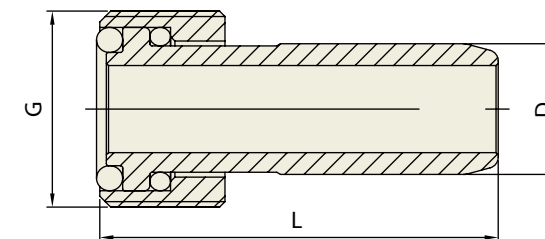


- Exclusively for vertical

Unit : mm

MODEL No.	EDP No.	D	H	d	DIAL
MHP-100 (magnetic)	P2591001	76	100	33	0.01
HP-100	P2775901	68	100 / - 0.01	33	0.01

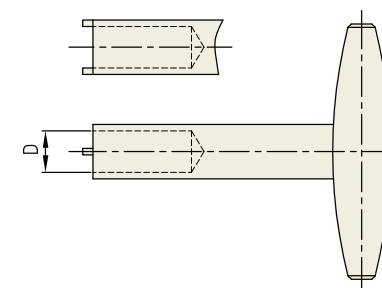
**COOLANT TUBE**



Unit : mm

TAPER No.	EDP No.	G	D	WEIGHT (kg)
32A	P2775078	M10	6	
40A	P2775079	M12	8	
50A	P2775080	M16	10	
63A	P2775081	M18	12	
80A	P2775106	M20	14	
100A	P2775082	M24	16	

**COOLANT TUBE SPANNER**



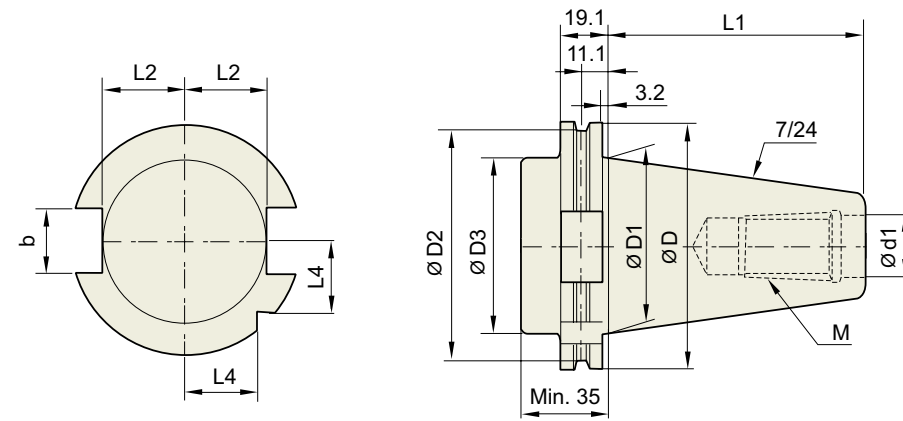
Unit : mm

TAPER No.	EDP No.	D
HSK32	P2775103	6
HSK40	P2775104	8
HSK50	P2775089	10
HSK63	P2775087	12
HSK80	P2775105	14
HSK100	P2775090	16

▶ Design and shape could be changed without prior notice.

**TECHNICAL DATA : SHANK STANDARD**

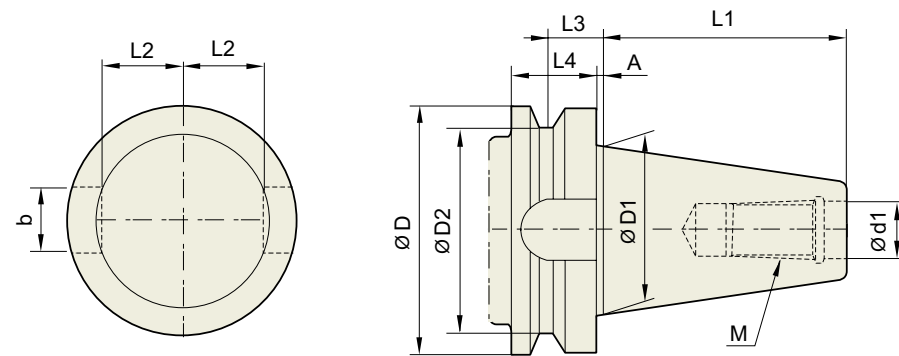
DIN 69871-SK



Unit : mm

TAPER No.	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	L4	b	M
SK30	50	31.75	44.3	45	13	47.8	16.4	19	15	16.1	M12×1.75
SK40	63.55	44.45	56.25	50	17	68.4	22.8	25	18.5	16.1	M16×2.0
SK50	97.5	69.85	91.25	80	25	101.75	35.5	37.7	30	25.7	M24×3.0

**JIS B6339/  
MAS 403-BT**

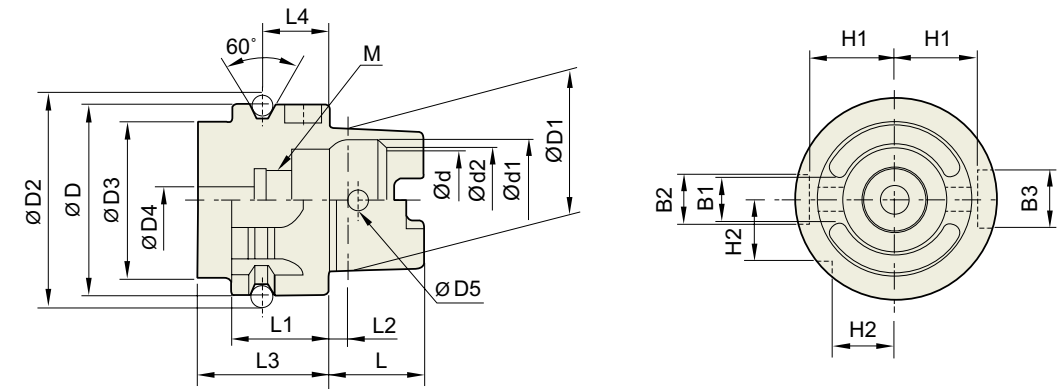


Unit : mm

TAPER No.	ØD	ØD1	ØD2	Ød13.	L1	L2	L3	L4	A	b	M
BT30	46	31.75	38	12.5	48.4	16.3	13.6	20	2	16.1	M12×1.75
BT40	63	44.45	53	17	65.4	22.6	16.6	25	2	16.1	M16×2
BT50	100	69.85	85	25	101.8	35.4	23.2	35	3	25.7	M24×3
BT60	155	107.95	135	31	161.8	60.1	28.2	45	3	25.7	M30×3.5

**TECHNICAL DATA : SHANK STANDARD**

DIN 69893/  
ISO12164-1-HSK



Unit : mm

TAPER No.	ØD	ØD1	ØD2	ØD3	ØD4	ØD5	L	L1	L2	L3	L4
HSK32A	32	24	37.00	26	4.2	4.0	16	20	3.2	35	16
HSK40A	40	30	45.00	34	5.0	4.6	20	20	4.0	35	16
HSK50A	50	38	59.30	42	6.8	6.0	25	26	5.0	42	18
HSK63A	63	48	72.30	53	8.4	7.5	32	26	6.3	42	18
HSK80A	80	60	88.8	68	10.2	8.5	40	26	8	42	18
HSK100A	100	75	109.75	85	12.0	12.0	50	29	10.0	45	20

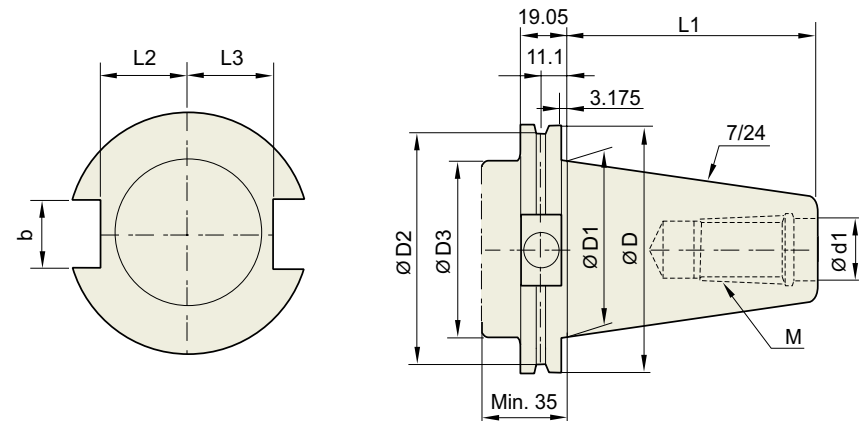
Unit : mm

TAPER No.	Ød	Ød1	Ød2	B1	B2	B3	H1	H2	L4
HSK32A	17	20.5	19	7.05	7	9	13.0	9.5	M10×1.0
HSK40A	21	25.5	23	8.05	9	11	17.0	12.0	M12×1.0
HSK50A	26	32.0	29	10.54	12	14	21.0	15.5	M16×1.0
HSK63A	34	40.0	37	12.54	16	18	26.5	20.0	M18×1.0
HSK80A	42	50	46	16.04	18	20	34	25	M20×1.5
HSK100A	53	63.0	58	20.02	20	22	44.0	31.5	M24×1.5



**TECHNICAL DATA : SHANK STANDARD**

ANSI/  
ASME B5.50-CAT (OLD : 1978)

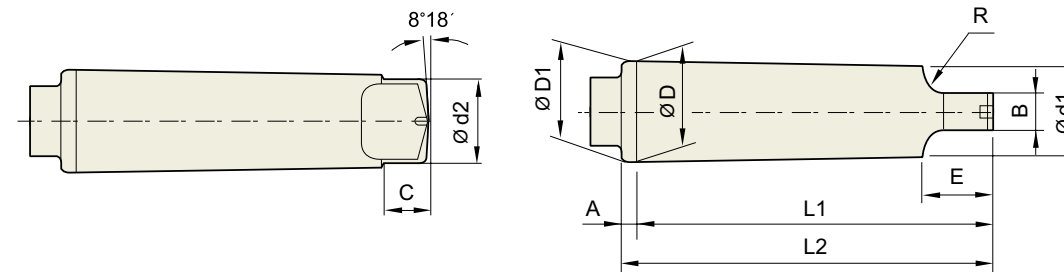


Unit : mm

TAPER No	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	b	M
CAT30	50	31.75	44.3	31.75	13	47.625	16.25	18.67	16.1	UNC1/2-13
CAT40	63.55	44.45	56.25	44.45	17	68.25	22.60	25	16.1	UNC5/8-11
CAT50	97.5	69.85	91.25	70.1	25	101.6	35.3	37.7	25.7	UNC1-18
CAT60	155	107.95	132.56	108	32	161.93	54	59.3	25.7	UNC1,1/4-7

**TECHNICAL DATA : SHANK STANDARD**

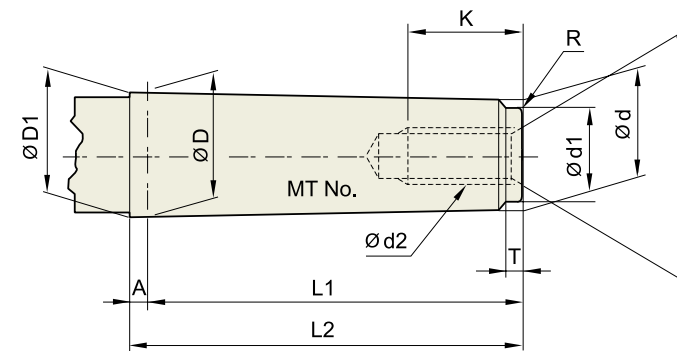
DIN 228 (MORSE TAPER)  
TANG TYPE (MTA)



Unit : mm

TAPER No.	TAPER RATIO (Rad)	TAPER ANGLE (α)	ØD	A3	ØD1	Ød1	L1	L2	Ød2	B	C	E	R
MT0	1/19.212	1°29'27"	9.045	3	9.045	6.104	56.5	59.5	6.0	3.9	6.5	10.5	4
MT1	1/20.047	1°25'43"	12.065	3.5	12.065	8.972	62.0	65.5	8.7	5.2	8.5	13.5	5
MT2	1/20.020	1°25'50"	17.780	5	17.780	14.034	75.0	80.0	13.5	6.3	10	16	6
MT3	1/19.922	1°26'16"	23.825	5	23.825	19.107	94.0	99.0	18.5	7.9	13	20	7
MT4	1/19.254	1°29'15"	31.267	6.5	31.267	25.164	117.5	124.0	24.5	11.9	16	24	8
MT5	1/19.002	1°30'26"	44.399	6.5	44.399	36.531	149.5	156.0	35.7	15.9	19	29	10
MT6	1/19.180	1°29'36"	63.348	8	63.348	52.399	210.0	218.0	51.0	19.0	27	40	13
MT7	1/19.231	1°29'22"	83.058	10	83.058	68.186	286.0	296.0	66.8	28.6	35	54	19

**DIN 228 (MORSE TAPER)  
SCREW TYPE (MTB)**



Unit : mm

TAPER No.	TAPER RATIO (Rad)	TAPER ANGLE (α)	ØD	A	ØD1	d	L1	L2	Ød1	d2	K	T	R
MT0	1/19.212	1°29'27"	9.045	3	9.201	6.442	50	53	6.4	-	-	4	0.2
MT1	1/20.047	1°25'43"	12.065	3.5	12.230	9.396	53.5	57	9.4	M6	16	5	0.2
MT2	1/20.020	1°25'50"	17.780	5	18.030	14.583	64	69	14.6	M10	24	5	0.2
MT3	1/19.922	1°26'16"	23.825	5	24.076	19.759	81	86	19.8	M12	28	7	0.6
MT4	1/19.254	1°29'15"	31.267	6.5	31.605	25.943	102.5	109	25.9	M16	32	9	1
MT5	1/19.002	1°30'26"	44.399	6.5	44.741	37.584	129.5	136	37.6	M20	40	9	2.5
MT6	1/19.180	1°29'36"	63.348	8	63.765	53.859	182	190	53.9	M24	50	12	4
MT7	1/19.231	1°29'22"	83.058	10	83.578	70.058	250	260	70.0	M33	80	18.5	5

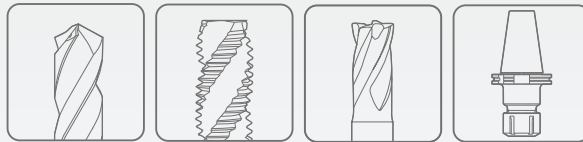
**ANSI/  
ASME B5.50-CAT (NEW : Revision 2009)**

Unit : mm

TAPER No.	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	b	P	M
CAT30	46.02	31.75	38.89	46.02	13	47.625	16.25	18.67	16.1	-	UNC1/2-13
CAT40	63.5	44.45	56.36	63.5	17	68.25	22.6	25	16.1	-	UNC5/8-11
CAT50	98.43	69.85	91.29	98.43	25	101.6	35.3	37.7	25.7	-	UNC1-18
CAT60	139.7	107.95	132.56	139.7	32	161.93	54	59.3	25.7	-	UNC1 1/4-7



Global Cutting Tool Leader **YG-1**





## HEAD OFFICE

13-40, Songdogwahak-ro 16beon-gil, Yeonsu-gu, Incheon 21984, South Korea

**Notice** YG-1 Global head office is relocating from December 2020 to a new address as above;

**Phone:** +82-32-526-0909

**Https://www.yg1.kr** **E-mail:** yg1@yg1.kr

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