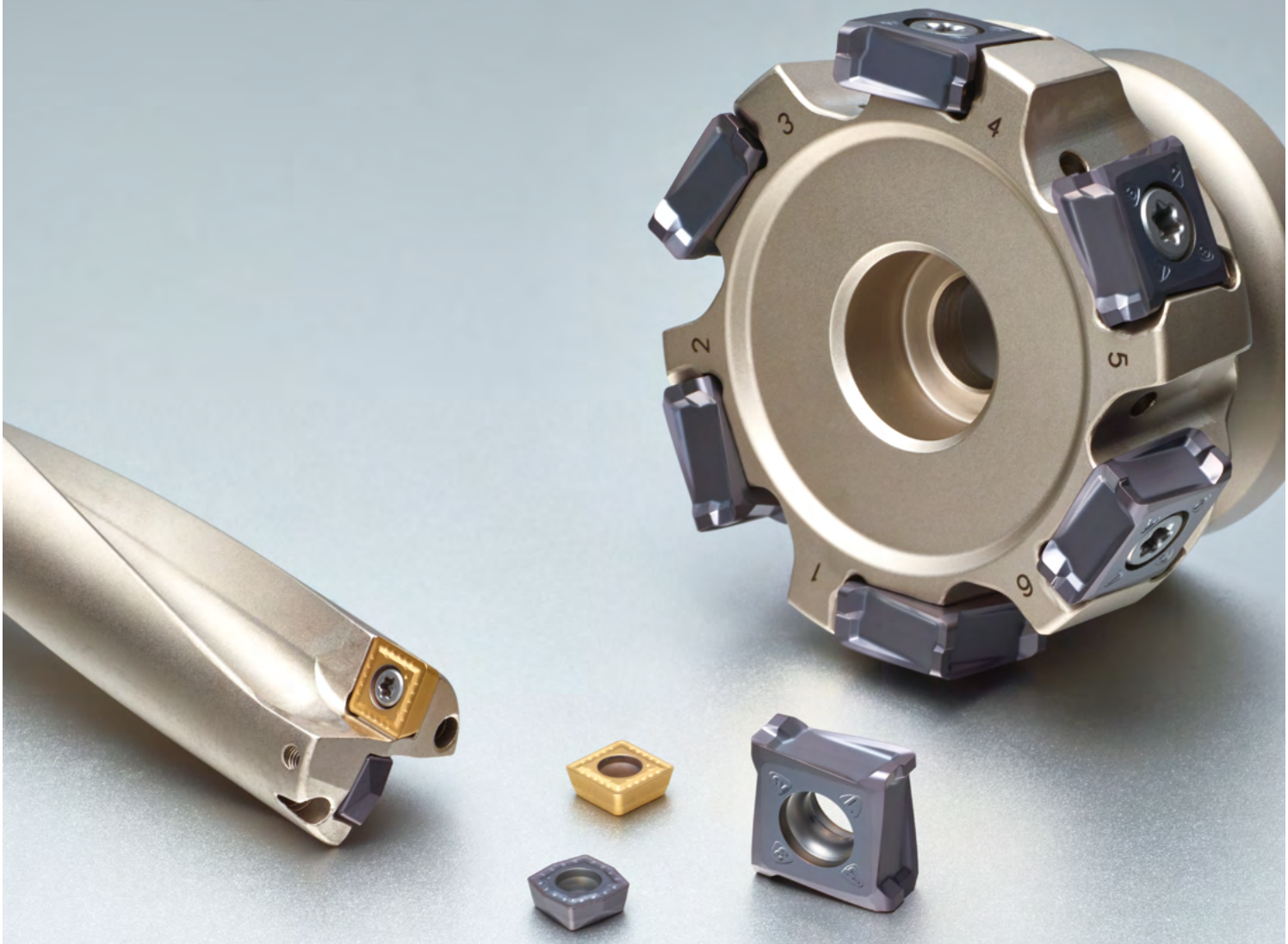
Cutting Tools



2025 **ROTATING** 2026

TURNING / ROTATING / SOLID

BROTECH КОМПЛЕКСНЫЕ РЕШЕНИЯ МЕТАЛЛООБРАБОТКИ

KORLOY

BROTECH

2025▸2026
KORLOY ROTATING TOOLS

CONTENTS

A GRADES

Grades

A2 KORLOY Grade Index
A3 Grade System
A4 Milling Grade selections

Rotating Grades

A5 CVD Coated Grades
A6 PVD Coated Grades
A14 Uncoated Carbide Grades
A15 Cermet Grade
A16 Diamond Coated Grades
A17 DLC Coated Grades
A18 PCD Insert Grades
A19 Chip Breakers for Milling
A26 Chip Breakers for Drilling

B MILLING

Inserts

B2 Milling Insert Code System (ISO)
B4 Milling Inserts
B34 KORLOY Cutters
B41 KORLOY Shanks
B45 KORLOY Modular Adaptors

Face Milling Cutters

B47 Mill Max / Mill Max Plus
B57 Mill Max Heavy
B59 Turbo Mill
B62 Double Mill
B64 Power Buster
B70 Rich Mill
B148 Aero Mill / Aero Mill Plus / Aero Mill Mini
B157 PCD Face Cutter

Cutters for Molds

B158 Alpha Mill-X
B166 Alpha Mill / Alpha Mill Nick
B203 Future Mill / FMR P-Positive
B256 Triple Mill
B263 HFMD
B277 HFM
B283 HRMD
B300 HRM
B306 Tank Mill
B307 TP2P
B316 TP8P
B320 Laser Mill / GBE / BRE
B339 HAVE(Single-edge, Multi-edge)
B343 BT/HSK Tooling System(Alpha Mill, Mono Tool)
B355 HSK Tooling System(Alpha Mill, Mono Tool, Pro-V Mill)
B367 O-ring Cutters
B369 Chamfer Tool
B374 T-Cutter

B MILLING

Milling Cutter for Aluminum

B375 Pro-A Mill
B380 Pro-X Mill
B387 Pro-L Mill
B393 Pro-XL Mill
B395 Pro-V Mill
B400 Modular Adaptor

Side Milling Cutters

B404 Adjusting Side Cutter
B410 Side Cutter
B413 Wind Mill

High feed Cutter

B417 High feed Cutter
B419 Cube Mill
B420 Couple Mill
B422 Shave Mill
B424 Shave Mill Ultra

Gear Tools

B425 Gear Cutter Applicable Example
B426 Gear Cutter Table
B427 Gear Cutter
B434 Gear Cutter Order Form
B435 Indexable HOB
B436 Indexable HOB Cutter Order Form

C THREADING

Technical Information for Threading

C2 Thread Milling Holders Code System
C2 Thread Milling Inserts Code System
C3 Technical Information for Thread Milling

Thread Milling Inserts

C12 ISO Metric
C13 American UNC
C14 UNJ(Unified Constant Thread)
C15 Whitworth(BSW, BSF, BSP, BSB)
C16 NPT
C16 NPTF
C16 BSPT

Thread Milling Holders

C17 Standard Type
C17 Long Type
C17 Tapered Type

CONTENTS

D DRILL

D2 KORLOY Drills

Indexable Drills

D3 Technical Information for KING Drill
D9 KING Drill
D20 Technical Inforamation for KING Drill (For through coolant system with a lathe)
D21 KING Drill (For through coolant system with a lathe)
D24 Technical Information for KING Drill (For large diameter drilling)
D25 KING Drill (For large diameter drilling)
D26 Technical Information for KED Plus Drill
D29 KED Plus Drill
D37 Technical Information for TPDC Plus Drill
D45 TPDC Plus Drill
D52 Technical Information for TPDB Plus Drill
D58 TPDB Plus Drill
D65 Technical Information for TPDB-DS
D67 TPDB-DS
D69 Technical Information for TPDB-H
D72 TPDB-H
D75 Technical Information for TPDB-F
D77 TPDB-F
D79 Technical Information for WPDC
D82 Center Drill
D83 WPDC
D85 Technical Information for Multi Turn
D87 Multi Turn

Indexable Reamers

D88 Technical Information for Indexable Reamer
D91 Indexable Reamers

E TOOLING SYSTEM

E2 Tooling System Index
E4 DINOX MAP
E8 DHE
E15 DHE/S
E18 DHE/G
E20 DHC/DHJ Collet
E22 DZC
E24 DSC
E33 NPM
E39 DCL
E40 DCJ
E44 SDC/P
E53 SDC/PL
E56 GERC
E60 ER Collet
E64 ER/L
E65 RTJW
E67 DSK
E70 GSK
E74 HC Collet
E78 DTN
E81 TCA Tap Adapter
E82 DST
E85 TER Tap Collet
E86 THE
E88 STER PAT.
E89 OFH
E90 SLA
E93 MTA/TMTA
E94 FMA
E96 FMC
E99 MD
E105 EXT/RDC
E106 FBH/B
E112 FBH
E113 FBH/D
E117 DBCA
E121 DBC
E123 SMB
E125 KMB

E TOOLING SYSTEM

E127 SMH
E129 BKA
E131 FZ UNIT
E132 Angular head
E134 KAH
E136 KHU
E138 KAG
E140 HRAG
E142 MAH
E144 KAC
E146 SAH
E148 POSITIONING BLOCK
E150 ATM
E153 ATM(U) SPARE PART
E154 ATU
E156 Damping Pro
E163 Pull Stud Bolt
E164 HT

F TECHNICAL INFORMATION

Technical Information I

F2 Workpiece Material Grades
F6 Steel, Non-Ferrous Metal Symbol List
F7 SI Unit Conversion Table
F8 Hardness Calculating Table

Technical Information II

F9 Inch
F10 Metric - ISO6462, DIN138
F11 Clamping Part of Milling Cutter (Oil-hole)
F12 Technical Information for Milling
F16 Technical Information for Tapers
F19 The Comparison of Grade for Milling

G INDEX

G2 Index

SAFETY GUIDE OF CARBIDE PRODUCTS

KORLOY Inc. is continuously trying to develop safer and higher quality products
Please be aware of the safety guidelines below prior to using KORLOY Inc. products

---

* It is generally accepted that the proper handling of cemented carbide tools requires awareness of safety as noted above. For more information, please contact us.
* KORLOY does not accept any responsibility for any accident caused by inappropriate use, abuse of tools, or changes to the products.

1 PL (Product Liability)

In accordance with the PL (Product Liability) law, we have attached a WARNING label on the case of KORLOY products.
There is no warning on the surface of the tools. Please read this safety guidelines before using carbide tools and provide safety education to all users.

2 Basic characteristics of CEMENTED CARBIDE tools

Cemented carbide tools are made of carbides, nitrides, carbonitrides, oxides of Tungsten (W), Titanium (Ti), Aluminium (Al), Silicon (Si), Tantalum (Ta), Boron (B) etc.
and metal component like Cobalt (Co), Nickel (Ni), Chromium (Cr), Molybdenum (Mo) as binder. Cemented carbides tools have high hardness and specific gravity.
Generally there's no smell but according to usage and treatment, appearance and color could be changed

3 Precaution for CEMENTED CARBIDE tools

1) Cemented carbides are extremely hard and brittle at the same time. Impact shock or excessive clamping power could cause fracture or breaking of the tool.
2) Cemented carbides have large specific gravity, thus they require special attention as a heavy material when you handle big sizes or large quantities.
3) Cemented carbides have different thermal expansion coefficient with steel and ferrous materials. Shrink fit or swell fit products may cause trouble if they are used at undesirable conditions like extremely high or low temperatures.
4) There are several cemented carbide products having sharp cutting edges. Be careful not to handle the tools with bare hands which may cause cuts or injury, especially when removing the tools from the case, do not touch the cutting edge and be careful not to drop it.
5) Storing carbide tools in a corrosive atmosphere may cause erosion which can reduce toughness.
6) Please refer to the catalog safety guidance prior to handling the tools.
7) Do not abuse tools under inappropriate conditions.

4 Precaution for machining (grinding, welding, EDM) of CEMENTED CARBIDE tools

1) Surface condition can affect the toughness of the tool, so it is recommended to use a diamond grinding wheel.
2) Grinding of cemented carbide creates mist and dust. It contains harmful compositions like Cobalt (Co), thus it is recommended to use a mask, mist collection, and other protective facilities. If the dust gets in your skin or eye, rinse immediately with continuously running water.
3) In case of grinding with coolant, coolant contains harmful metal components which cause environmental problems. Handle the coolant according to the manufacturer's recommendations.
4) Check for cracks after re-grinding carbide tool and reuse.
5) Marking with laser or electric pen may cause cracks on the carbide tool. The crack can shortened tool life.
6) EDM of carbide may cause residual cracks on the carbide tool, so if necessary, remove the crack with a grinding process.
7) Brazing of carbide tools at extremely high or low temperatures compare with the melting point of brazing materials may cause loosening or breakage.
8) Overheating an oil base coolant may cause a fire or flames, thus be prepared for fire prevention.

5 METALCUTTING SAFETY

	DANGEROUS FACTOR
Cutting tools	• Sharp cutting edge of cutting tools may cut your bare-hand
	• Inappropriate conditions or usage may cause fragmentation and expel parts of tools which may cause injury
	• Severe load on tool and premature wear of cutting edge may bring excessive cutting force on tool, causing fracture of the tool and may cause injury
	• Chips evacuated during cutting are hot and sharp and may cause burns and cuts
	• Touching the workpiece immediately after cutting may cause burns
	• Be aware of sparks, fire, or explosion of hot chips generated during the cutting operation
	• In case of high RPM machining, vibration and chattering may occur due to the improper balance of the machine
	• Touching a burr remaining on the workpiece with a bare-hand may cause a cut
	• Loose clamping of the workpiece may cause the fracture to tool and result in damage to the cutter body and possible injury
	• Tools are operated to right-Handed direction normally • Left-Handed direction operation can cause fracture of tool and body damage
Indexable tools	• Loose clamping of inserts and parts may result in ejection of the tool during cutting and may cause serious injury
	• Over loaded clamping of inserts by a lever (such as a pipe) may cause dangerous fracturing of parts and inserts
	• In case of high speed machining, parts and inserts can be forced out by centrifugal force
Rotating tools	• Since cutter has sharp cutting edges touching with a bare-hand may cause a cut
	• It is dangerous to use glove with rotating machine • Contact with body or clothes is dangerous with rotating parts
	• Vibration generated by balancing trouble may cause a fracture and ejection of the tool which may cause serious injury
	• In case of drilling, the uncut bottom core can fly out of the part with high speed and cause serious injury
	• The edges of small diameter drill are sharp and easy to break
Brazed tools	• Fragmentation and ejection of brazed carbide tip may cause injury
ETC	• There is a possibility that the carbide tip may break after multiple brazing operations
	• Abusing may cause fragmentation of tool and is very dangerous

	SAFETY COUNTERPLAN
Cutting tools	• Use gloves when pulling out the insert from the case or mounting it on the machine
	• Use glasses or safety cover for your safety • Use the tools within the recommended range • Please refer to catalog and safety guidelines first
	• Use glasses or safety cover for your safety • Change the tool as required before excessive wear or fracture
	• Use glasses or safety cover for your safety • Stop machining and put safety glove on and use a hook tool to remove chips
	• Use gloves or safety cover for your safety
	• Do not use at the place where having explosive materials • Prepare for fire extinguishments
	• Use glasses or safety cover for your safety • Check first if there's any chattering, vibration or strange noises prior to your main cutting operation
	• Do not touch the burr with bare-hand · Use gloves or safety cover for your safety
	• Clamp the workpiece tightly
	• Do not use left-hand direction without notice • Check the package of product to check the availability of left-hand operation
Indexable tools	• Check the clamping of inserts and parts prior to machining, and use original parts only
	• Do not use lever inappropriately
	• Use within recommended condition · Use glasses or safety cover for your safety
Rotating tools	• Use gloves or safety cover for your safety
	• Do not wear gloves when you work with rotating machine • Keep your body and clothes away from rotating machine
	• RPM should be controlled within recommended condition • Check the balance of rotating part periodically
	• Use gloves or safety cover for your safety
	• Concentrate on safety regulation in using tools. • Use glove or safety cover for your safety.
Brazed tools	• Check the brazed tip before using • Do not use at high temperature cutting condition
ETC	• Do not use brazing a tip that has been brazed several times
	• Stick to safety regulations and guidelines

INTRODUCTION OF HOMEPAGE

1) Get on the homepage through the internet

» **https://www.korloy.com/en** (KORLOY Homepage)

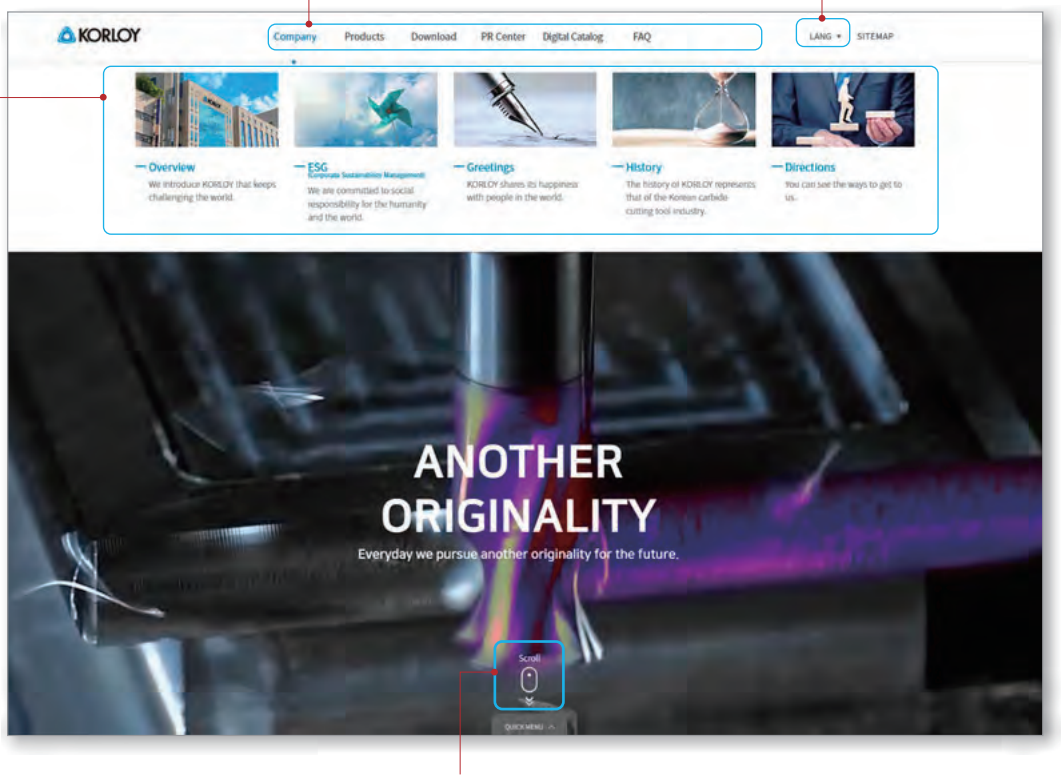
2) Choose a category and click that

Main screen guide

Browse all types of items by category
You can search desired items here

Selection by each language
Moving on to the site in each language

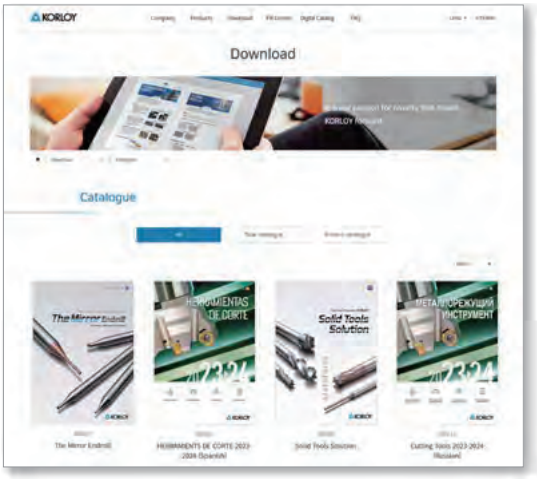
Detailed screen
Selecting detailed screen by each category



Quick menu
Checkable product information and KORLOY news quickly by scrolling the mouse

Search the necessary materials in the detailed search screen.

» Downloading technical materials

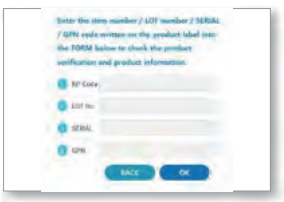


Downloading technical materials:
Downloading and searching by sections of various technical materials are available

» Shortcut to KOMS



» Shortcut to genuine product certification



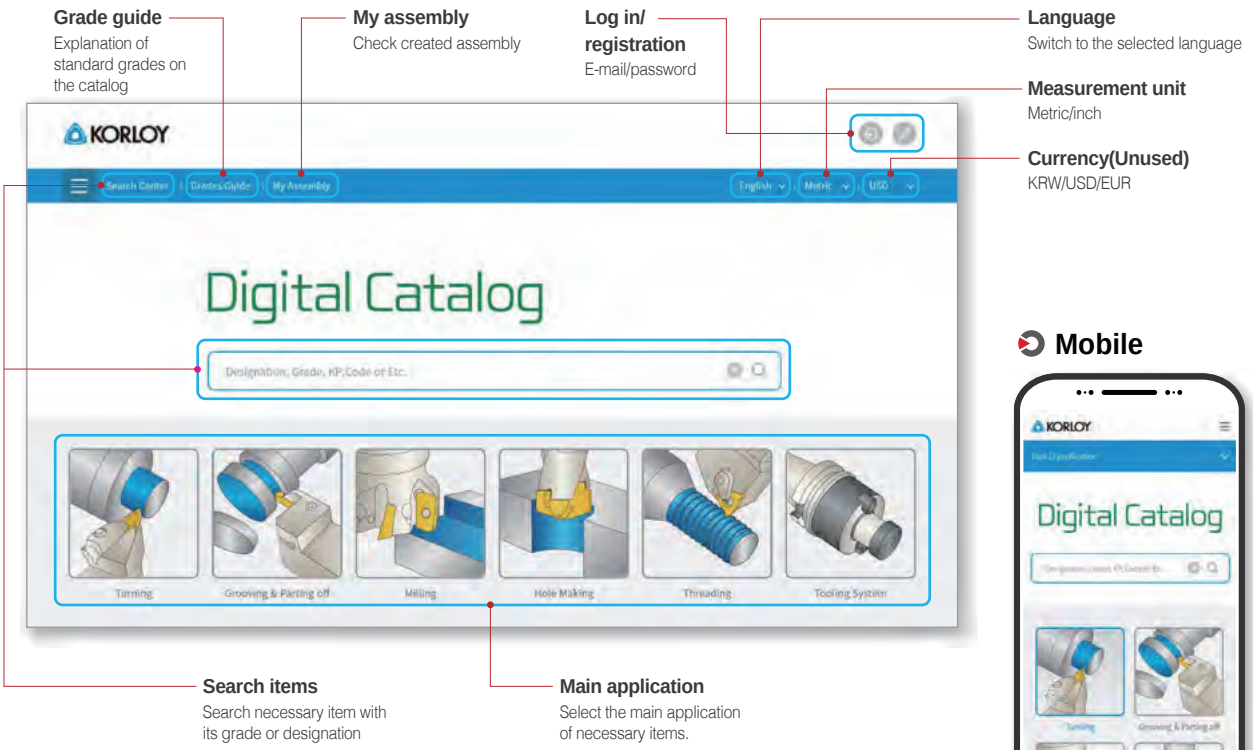
INTRODUCTION OF DIGITAL CATALOG

1) Connect to the digital catalog on PC or mobile

» https://catalog.korloy.com

2) Guideline for main screen

PC

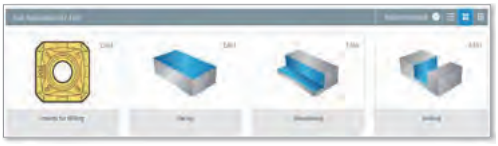


Mobile



Details

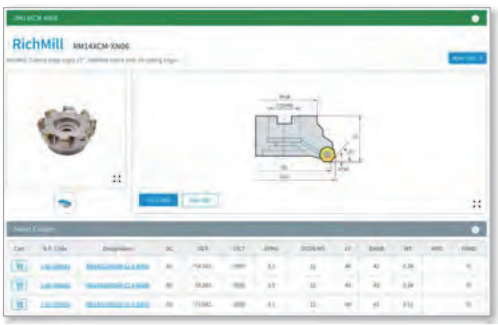
» Sub application



» Item group



» Item



» Item data, 2/3D modeling, etc.



INTRODUCTION OF ONLINE EXHIBITION

1) Get on the online exhibition hall on the PC or mobile.

» https://www.korloy.com/ko/prcenter/media_list.do#online

2) Main screen guide



① **Mini map |** Move the wanted hall

② **Information desk |** Introduction in Korean/English

③ **Side menu |** Searchable wanted sections

④ **Product names / Explanation |** In Korean/English

⑤ **Video |** Item promotion video

⑥ **Tech news |** Checking tech news

⑦ **Detailed information of product |** Checking the information of product and promotion video

⑧ **3D modeling |** Checking 3D modeling view

* **Connectable on mobile**

Detailed screen

» **New product hall**



» **Industry hall**



» **Tooling guide**



» **History hall**



» **Smart factory**



» **Poster**



TOOL KEEPER C/L(COIL/LOCKER) TYPE SYSTEM

The smart tool storage control system which is a 24-hour running unmanned system that can simultaneously store and manage tools and tool holders in real time. It is designed to improve the efficiency and security of tool management in operation sites and other industrial settings.

Efficient and transparent hybrid tool management control system + customer-customized S/W applied

C/L Type



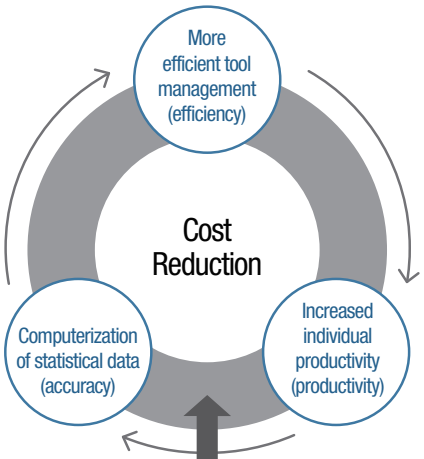
- Storage CAPA: Coils (81 types) + Lockers (21 types)
- Transparent Shipping (Packaging Units)

[Option] L Type



- Storage CAPA: 59 types
- Maximum Length: Up to 380mm
- Can Add Up to: 10 units

- Monthly performance data search (quantity / sum)
- Warehousing history and status search
- Computerization of statistical data (application history, etc.)



- Excess inventory prevented
- Safety stock secured
- Real-time inventory check

- No need for the tool release log
- Less operational redundancy of the tool manager

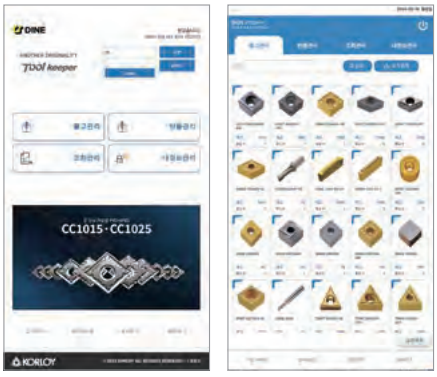
External I/F Interworking

Software Configuration: Administrator Program + User Program

» Administrator Program



» User Program

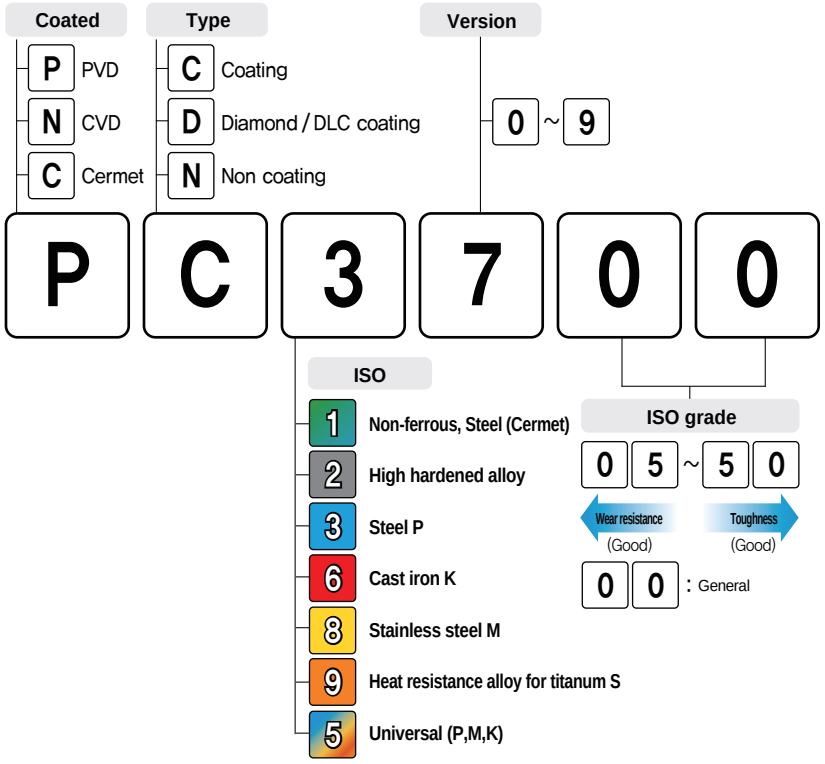


Key features

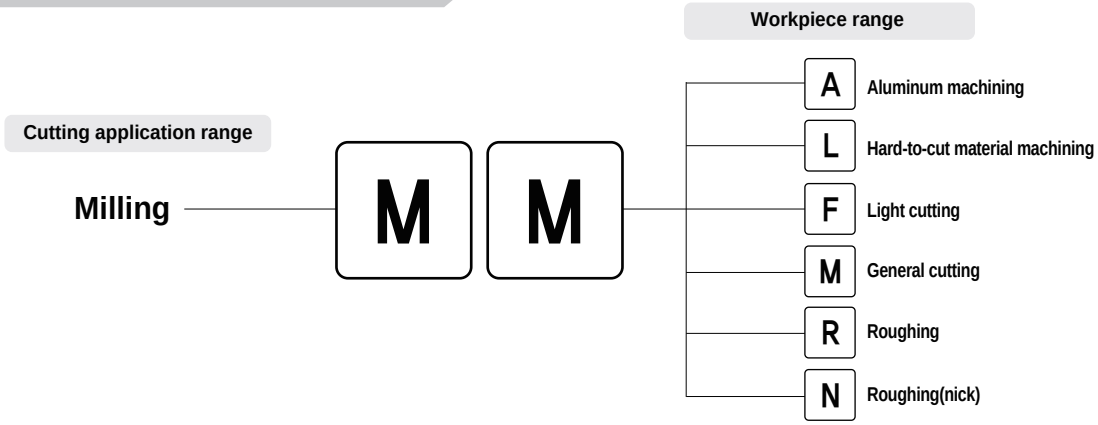
1. Safety Stock Alert Management (Automatic Email/SMS Notifications)
2. Multilingual Language Settings/Remote Diagnosis/SW
3. Automatic Updates Monthly Tool Usage(Average)/Expenditure/Inbound Quantity Management

INTRODUCTION OF ONLINE EXHIBITION

1 Grade name for coated carbide



2 Chip breaker



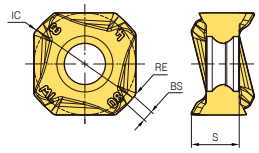
3 Terminology of tool formula

TERM	CODE	UNIT
Tool diameter	D	mm
Cutting speed	vc	m/min
Revolution per minute	n	min^{-1}
Feed per minute	vf	mm/min
Feed per revolution	fn	mm/rev
Feed per tooth	fz	mm/t
Tooth	z	-
Axial depth of cut	ap	mm
Radial depth of cut	ae	mm
Peak feed	pf	mm

TERM	CODE	UNIT
Horse power requirement	Pc	kW
Specific cutting resistance	kc	MPa
Torque	TQ	N.m
Thrust	Tc	N
Cycle time	tc	min
Tool life	T	min
Flank wear	V_B	mm
Crater wear	Kt	mm
Nose radius	RE	mm

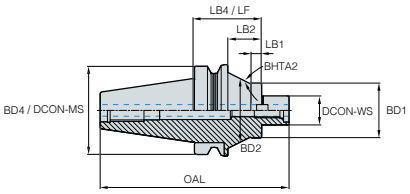
ISO13399 GLOSSARY

Insert



ISO13399 Property Symbols	Property Name
AN	Clearance Angle Major
APMX	Depth of Cut Maximum
BS	Wiper Edge Length
CBMD	Chip Breaker Manufacturers Designation
CHW	Corner Chamfer Width
CW	Cutting Width
DC	Cutting Diameter
IC	Inscribed Circle Diameter
IH	Insert Hand
INSL	Insert Length
KCH	Corner Chamfer
KAPR	Tool cutting edge angle
LE	Cutting Edge Effective Length
RE	Corner Radius
S	Insert Thickness
SC	Insert Shape Code
TQ	Torque
W1	Insert Width

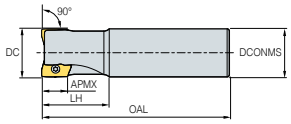
Tooling System



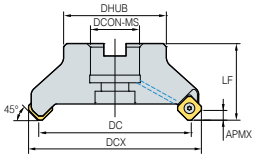
ISO13399 Property Symbols	Property Name
ADJ	Adjust Screw
BD	Body Diameter
CCKZ	Cutter Connecter Key Size
CRKS	Connection Retention Knob Thread Size
DC	Cutting Diameter
DCON-WS	Connection Diameter Workpiece Side
DCX	Cutting Diameter Maximum
H	Shank Height
HF	Functional Height
LB	Body Length
LF	Functional Length
MBCB	Mount Bolt, Clamp Bolt
SSL	Set Screw Length
SSZ	Set Screw Size
WF	Functional Width

Holder

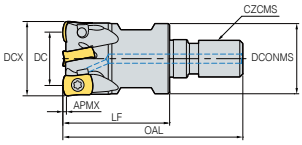
[shank]



[Cutter]



[Modular]



ISO13399 Property Symbols	Property Name
APMX	Depth of Cut Maximum
BD	Body Diameter
BHTA	Body Half Taper Angle
CBDP	Connection Bore Depth
CDX	Cutting Depth Maximum
CICT	Cutting Item Count
CW	Cutting Width
CXSC	Coolant Exit Style Code
CZC-MS	Connection Moduler Machine Side
CZC-WS	Connection Moduler Work Side
DC	Cutting Diameter
DCON-MS	Connection Diameter Machine Side
DCX	Cutting Diameter Maximum
DHUB	Hub Diameter
KAPR	Tool Cutting Edge Angle
KWW	Keyway Width
LF	Functional Length
LH	Head Length
LU	Usable length
MIID	Master Insert Identification
NOF	Flute Count
OAL	Overall Length
RE	Corner Radius
RMPX	Maximum Ramping Angle
SC	Insert Shape Code
THUB	Hub Thickness
WT	Weight of Item
ZEFF	Effective Cutting Edge Count

PART A

GRADES & CHIP BREAKERS

KORLOY's new grades are designed with optimal substrate for each application and are PVD coated for high temperature, high hardness and oxidation resistance, or CVD coated for high tempeure and wear resistance. Additionally, the improved post-coating treatment provides superior surface finishes to ensure the highest levels of quality and productivity

Technical Information for GRADES & CHIP BREAKERS

Grades

A2 KORLOY Grade Index
A3 Grade System
A4 Milling Grade selections

Rotating Grades

A5 CVD Coated Grades
A6 PVD Coated Grades
A14 Uncoated Carbide Grades
A15 Cermet Grade
A16 Diamond Coated Grades
A17 DLC Coated Grades
A18 PCD Insert Grades
A19 Chip Breakers for Milling
A26 Chip Breakers for Drilling

KORLOY Grade Index

Grade index

Workpiece	Coated	Grade	ISO						Milling	Multi functional tools	Thread (Milling)
			P	M	K	S	N	H			
			Steel	Stainless steel	Cast iron	HRSA	Non-ferrous	Hardened			
Coated carbide	CVD	NCM325	P30-P40	M25-M35					•		
		NCM335	P35-P45	M30-M40					•		
		NCM535	P30-P40		K20-K30				•	•	
		NCM545	P40-P50		K25-K35				•		
		NC5330	P25-P35	M20-M30	K15-K25				•	•	
	PVD	PC210F	P10-P20	M10-M20	K10-K20			H10-H20	•		
		PC2005	P01-P10		K01-K10			H01-H10	•		
		PC2010	P05-P15		K05-K15			H05-H15	•		
		PC2015	P10-P20	M10-M20	K10-K20			H10-H20	•		
		PC2505	P01-P10					H01-H10	•		
		PC2510	P05-P15					H05-H15	•		
		PC3700	P30-P40						•	•	
		PC5335	P30-P40	M20-M30						•	
		PC5300	P30-P40	M20-M30	K20-K30	S15-S25			•	•	•
		PC5400	P35-P45	M30-M40	K25-K35	S25-S35			•	•	
		PC5535	P30-P40	M25-M35	K15-K25	S20-S30		H15-H25	•		
		PC6100			K05-K15				•	•	
		PC9530		M25-M35		S20-S30			•		
		PC9540		M35-M45		S30-S40			•	•	
		PC9570T	P25-P35	M20-M30	K15-K25						•
	Non-coated	ST30A	P25-P35						•		
		H01			K05-K10		N10-N20		•	•	
		H05			K10-K15		N15-N25		•		
		G10			K15-K20				•		
Cermet	Non-coated	CN30	P25-P35						•		
Dia coated	CVD	ND3000					N01-N05		•		
DLC coated	PVD	PD1005					N05-N10		•		
		PD1010					N10-N15		•		
PCD	Non-coated	DP90					N01-N20		•		
		DP150					N05-N25		•		
		DP200					N10-N30		•		

Grade System

Cutting tool

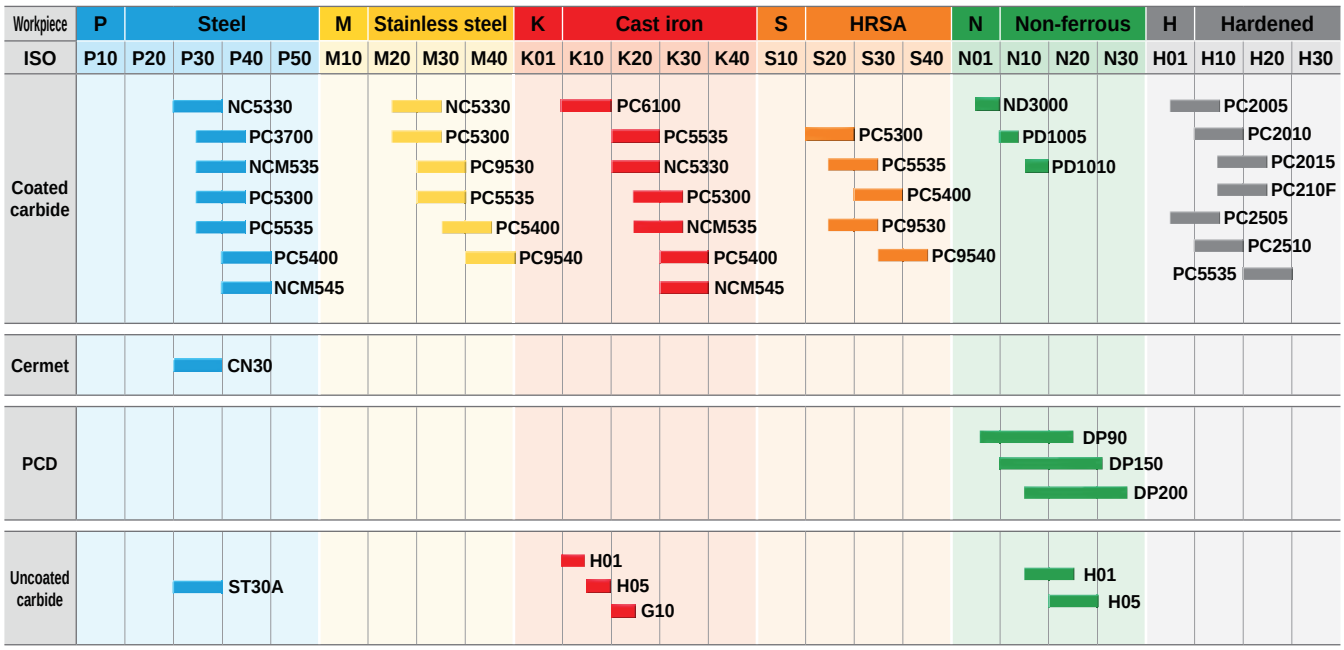
Uncoated carbide	P	Steel	ST30A		
	K	Cast iron	H01	H05	G10
	N	Aluminum alloy/ Copper alloy	H01	H05	
Cermet	P	Steel	CN30		
Dia coated	N	Non-ferrous	ND3000		
DLC coated	N	Non-ferrous	PD1005	PD1010	
PCD	N	Non-ferrous	DP90	DP150	DP200

Applications

Milling coated	P	Steel	NC5330	NCM535	NCM545	NCM325	NCM335	PC3700	PC5300	PC5535	PC5400	
	M	Stainless steel	NC5330	NCM325	NCM335	PC9530	PC9540	PC5300	PC5535	PC5400	PC210F	
	K	Cast iron	NC5330	NCM535	NCM545	PC6100	PC5300	PC5535	PC5400	PC2005	PC2010	PC2015	PC210F
	S	HRSA	PC9530	PC9540	PC5300	PC5535	PC5400					
	N	Non-ferrous	ND3000	PD1005	PD1010							
	H	Hardened	PC2005	PC2010	PC2015	PC210F	PC2505	PC2510				
Indexable drill coated	P	Steel	NC5330	NCM535	PC3700	PC5300	PC5335	PC9540				
	M	Stainless steel	NC5330	PC5300	PC5335	PC9540						
	K	Cast iron	NC5330	NCM535	PC6100	PC5300	PC5335	PC9540				
	S	HRSA	PC5300	PC5335	PC9540							
	N	Non-ferrous	H01									
Thread coated	P	Steel	PC9570T									
	K	Cast iron	PC9570T									

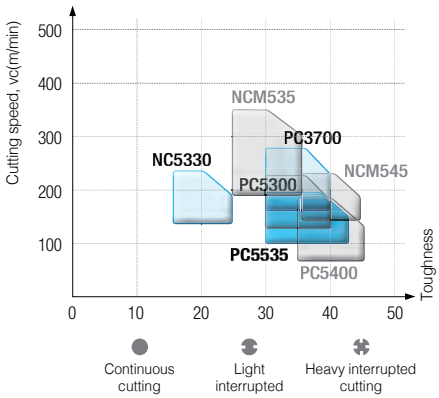
Milling Grade selections

Selection system

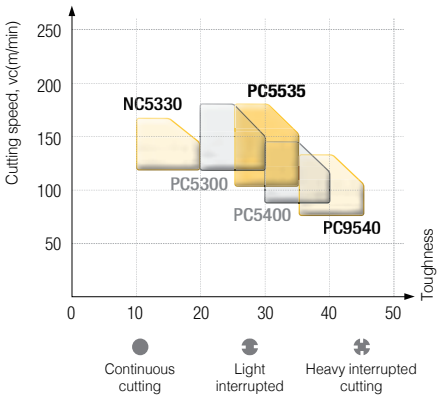


Application range of milling grades

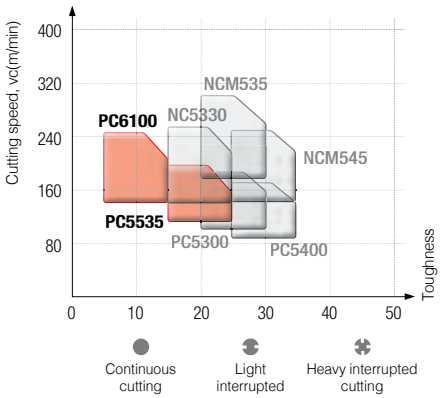
P Steel



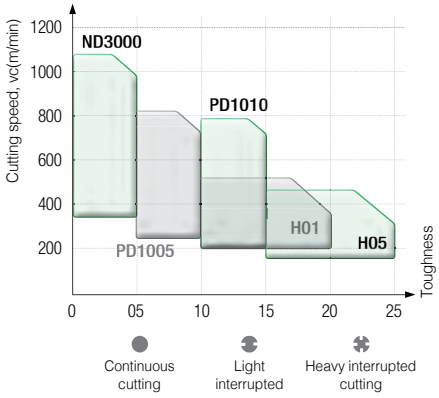
M Stainless steel



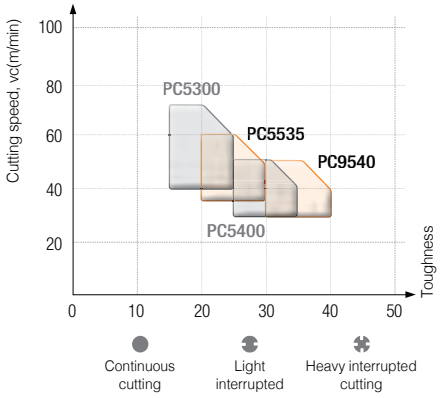
K Cast iron



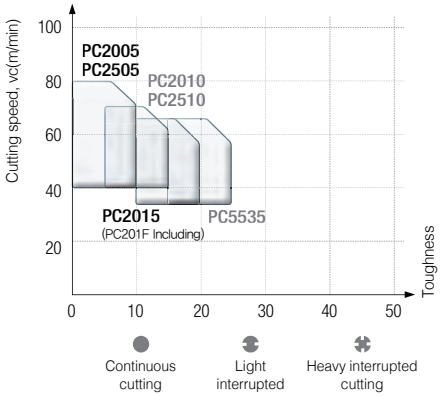
N Non-ferrous metal



S Heat resistant alloy



H Hardened steel



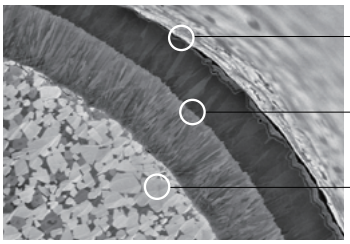
CVD Coated Grades

Milling Solutions for Steel and Cast Iron

NCM535 / NCM545

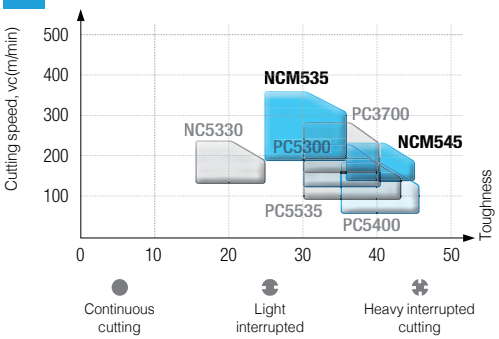
- Improved chipping resistance / heat and crack resistance: Applied after treatment with good chipping resistance and heat and crack resistance
- Improved wear and heat resistance: Applied high toughness substrate and high functional CVD alumina

Features

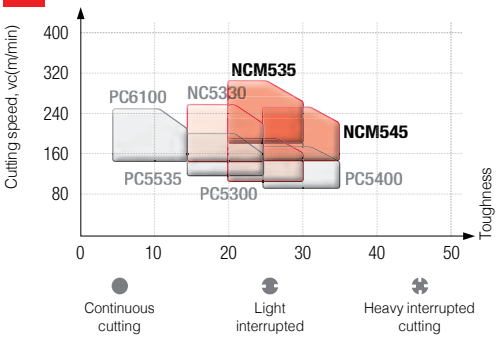


Application range

P Steel



K Cast iron



Selection system of CVD coated grades

Workpiece		Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	NC5330	300 (200 ~ 400)	P20	NC5330
					P25	
		Continuous cutting	NCM535	300 (200 ~ 400)	P30	NCM535
					P35	
		Interrupted cutting	NCM545	200 (150 ~ 250)	P40	NCM545
					P45	
M	Stainless steel	Continuous cutting	NC5330	150 (120 ~ 180)	M20	NC5330
					M30	
K	Cast iron	Continuous cutting	NC5330	250 (200 ~ 300)	K10	NC5330
					K20	
			NCM535	250 (200 ~ 300)	K30	NCM535
		General cutting	NCM545	200 (150 ~ 250)	K40	NCM545

The features of CVD milling grades

CVD Coated grades	ISO	Features
NC5330	P25 ~ P35 M20 ~ M30 K15 ~ K25	• For high speed milling of steel and stainless steel • Superior wear resistance and chipping resistance grade for steel and stainless steel • MT-TiCN + Al_2O_3 + TiN
NCM535	P30 ~ P40 K20 ~ K30	• Rising CVD milling grade for high productivity in large steel and cast iron machining at high speed • High toughness and thermal conductivity substrate and high functional CVD coating layer with heat resistance • High chipping resistance and heat and crack resistance from excellent after treatment • MT-TiCN + Al_2O_3
NCM545	P40 ~ P50 K25 ~ K35	• For steel and cast iron milling with high toughness • High toughness substrate and high functional CVD coating layer • High chipping resistance and heat and crack resistance from excellent after treatment • MT-TiCN + Al_2O_3

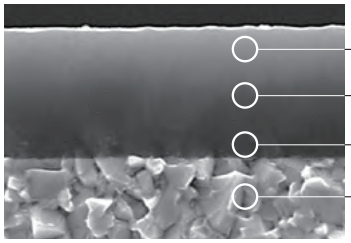
PVD Coated Grades

PVD insert for cast iron Milling

PC6100

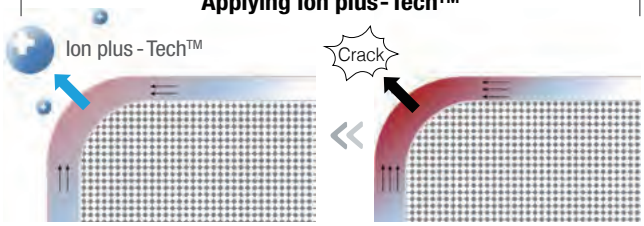
- Optimally designed PVD coating grade in cast iron milling
- Applying Ion plus - Tech™ increasing hardness and adherence of layer ensures wear resistance and thermal crack resistance
- Coating surface treatment technology prevents chipping and unexpected fracture
- The optimal substrate for cast iron cutting enhances wear resistance and fracture resistance

Features



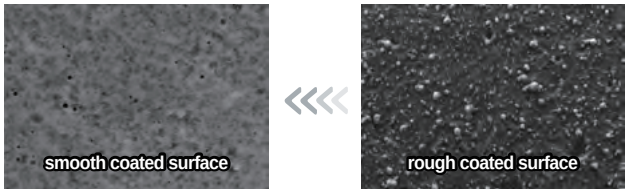
- Applying coating surface reinforced technology on the cutting edge
- Applying high thermal crack resistance coating
- Enhanced adherence on the cutting edge
- Applying optimal wear resistance and fracture resistance in cast iron cutting

Applying Ion plus-Tech™



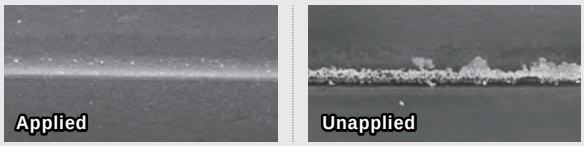
[PC6100] [Unapplied]

Applying smooth coating surface



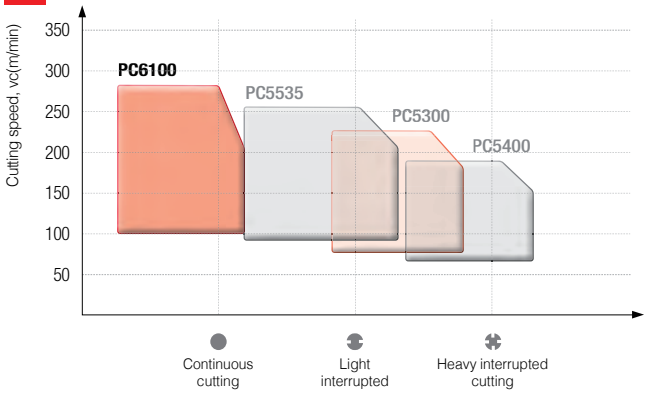
[PC6100] [Existing]

* Effect of applying Ion Plus - Tech™ (wear in cutting)



Application range

K Cast iron



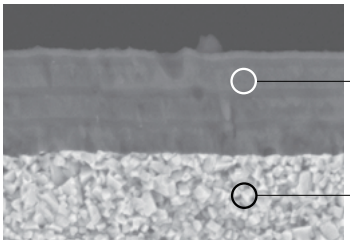
PVD Coated Grades

Milling grade specialized for steel

PC3700

- Excellent chip removal rate due to a tough substrate specialized for steel, and lubricative PVD coating of high-hardness
- A highly chipping-resistant grade for minimized deviation and extended tool life under various cutting conditions

Features



Substrate for general milling applications of steel and PVC coating treatment

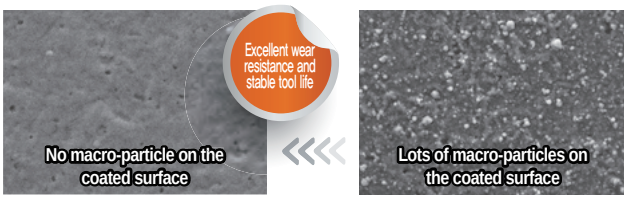
Stronger resistance to welding and chipping due to the multi-layer coating technology with high hardness and lubricating treatment

Ensuring general machinability due to wear and breakage resistant materials optimized for milling applications of steel

- Smooth surface due to special surface treatment

→ Smooth chip evacuation, improved chipping resistance and surface finish of the workpiece

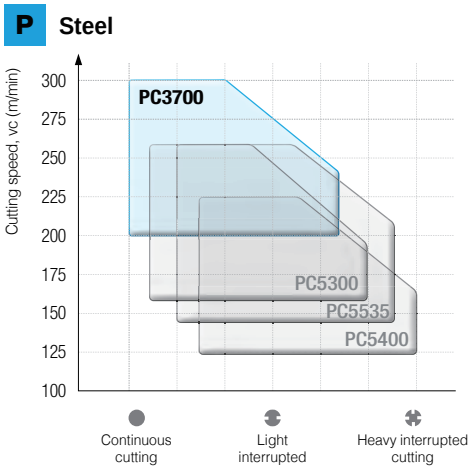
Special coating surface treatment

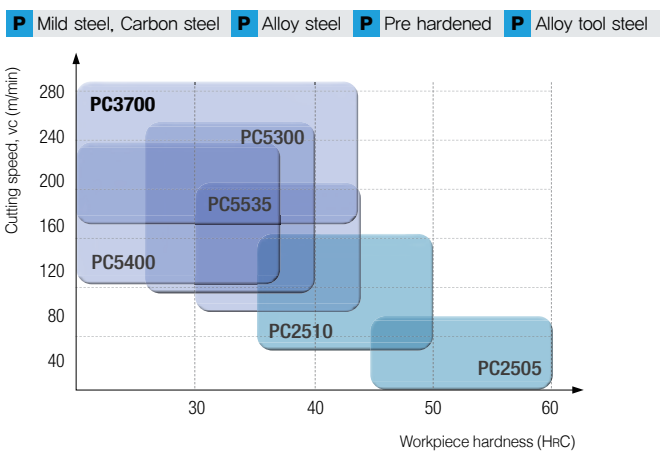


[PC3700] [Existing products]

Application range

Recommended grades and cutting conditions for p-type milling application





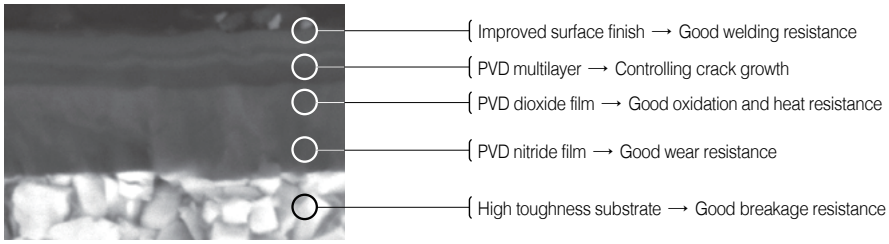
PVD Coated Grades

PVD Coated Grades for hard-to-cut stainless steel milling

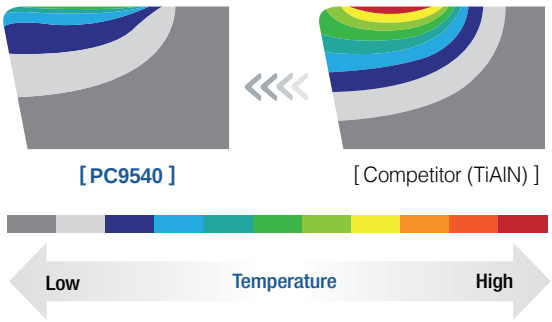
PC9540

- Optimal PVD grade for medium to rough cutting and highly interrupted milling in stainless steel
- Longer tool life due to higher breakage resistance applying high toughness substrate controlling crack growth
- Excellent and new PVD oxide film with oxidation and heat resistance overcoming the limit of hard-to-cut materials machining
- Stable machinability by preventing welding and chipping due to applying special coating surface treatment

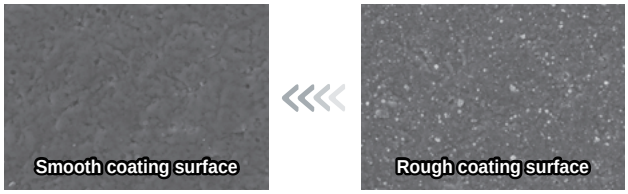
Features



New PVD dioxide film (comparison of thermal conductivity)

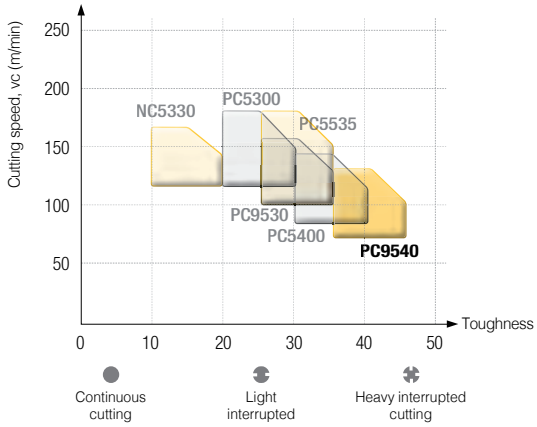


Special coating surface treatment technology

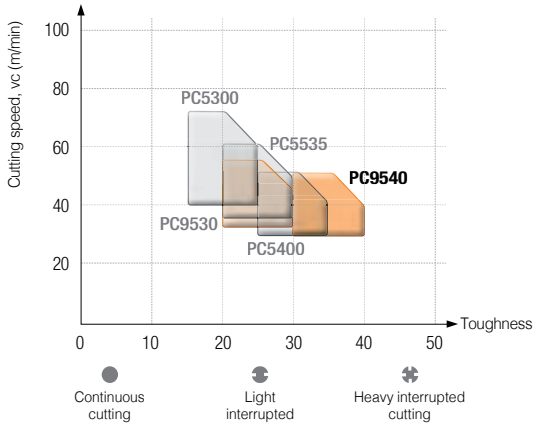


Application range

M Stainless steel



S Heat resistant alloy



PVD Coated Grades

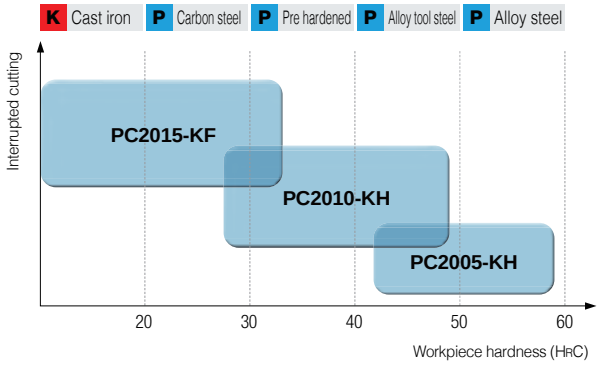
PVD coated grades for finishing high hardened steel

PC2005 / PC2010 / PC2015

- Finishing grade lineup for tool steel and plastic die steel
- PC2005 with extremely hard substrate and coatings
- PC2010 with high hardened cutting edges, ideally suited for pre-hardened steel and interrupted cutting
- PC2015 for carbon steel and casting machining, demonstrating excellent performance in hard-to-cut materials

Application guideline per workpiece

Recommended grade and chip breaker



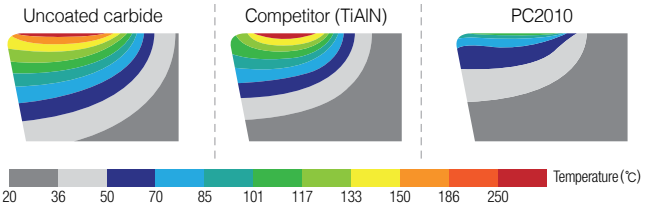
Features

Wear comparison



[PC2010] [Competitor]

Result of heat conductivity



- Heat shield coating was applied to prevent thermal crack
- Ultra fine WC was combined with high contents cobalt to be optimized for machining pre hardened steel

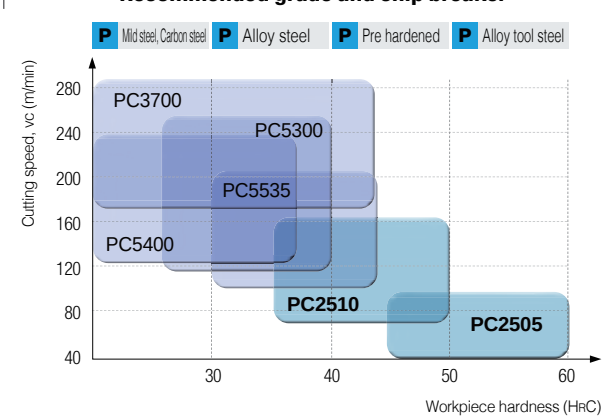
PVD coated grades for roughing high hardened steel

PC2505 / PC2510

- Roughing grade series for high hardened steel
- PC2505 with excellent wear resistance, ideal for machining die steel and high hardened steels over HRC50
- PC2510 with stabilized toughness, ideal for interrupted cutting of high hardened steel and wet cutting accompanied by massive thermal shock

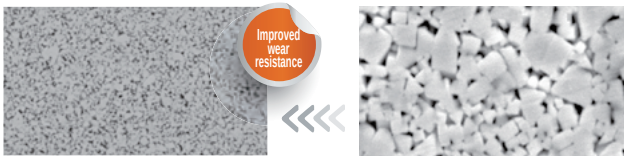
Application guideline per workpiece

Recommended grade and chip breaker



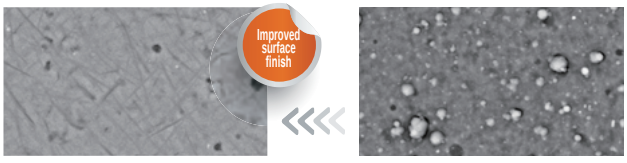
Features

Ultra fine substrate with high toughness



Ultra fine grade Fine grade

Surface Treatment



After surface treatment Normal coating

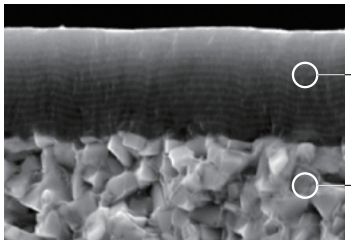
PVD Coated Grades

Universal PVD grade

PC5400

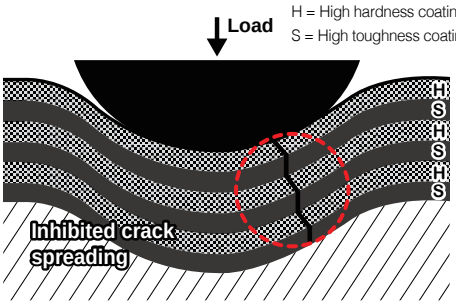
- New PVD coating layer with high toughness and lubrication
- High adhesive strength and toughness between the substrate and coating layer
- Excellent cutting edge strength and chipping resistance ensure stable machinability for P, M, K, S.

Features

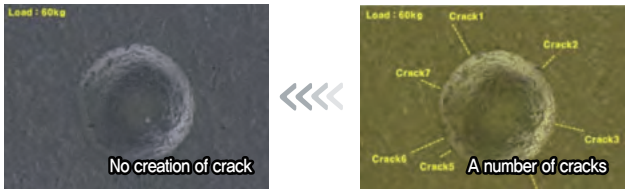


Improved lubrication
High toughness and strong adhesion

Ultra fine substrate of high toughness



Crack creation on the coating surface after leaving an indentation by 60kg

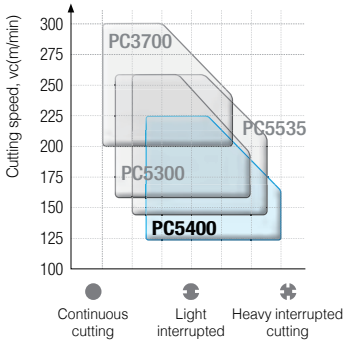


High toughness coating

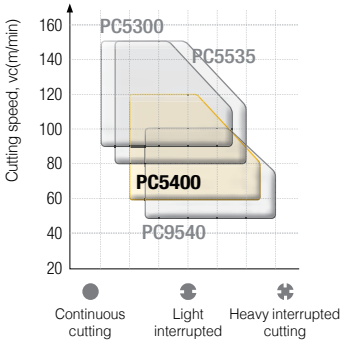
Normal coating

Application range

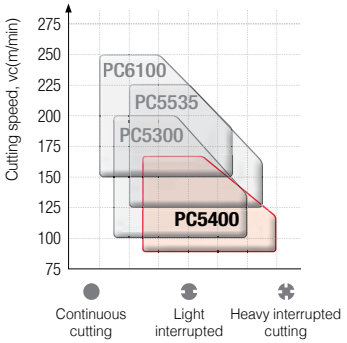
P Steel



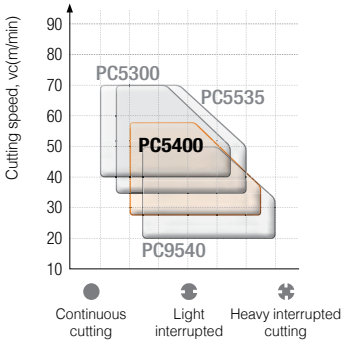
M Stainless steel



K Cast iron



S Heat resistant alloy



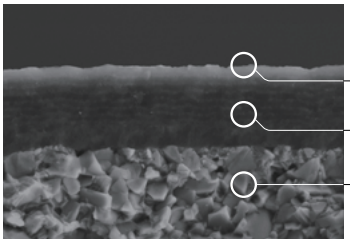
PVD Coated Grades

Exclusive universal grade for indexable drill insert

PC5335

- Excellent machining stability due to high toughness ultra-fine substrate
- Enhanced cutting due to high lubricated coating layer with welding resistance
- Optimal and general grade in various drilling

Features



Applying exclusive PVD coating KROEX-tech™ and optimal substrate in drilling

- Good welding resistance due to applying lubricated coating layer
- Balance of wear resistance and chipping resistance from high hardness layer and high toughness layer
- Good fracture resistance and cutting stability due to optimal high toughness substrate in drilling

Point polishing-Tech™



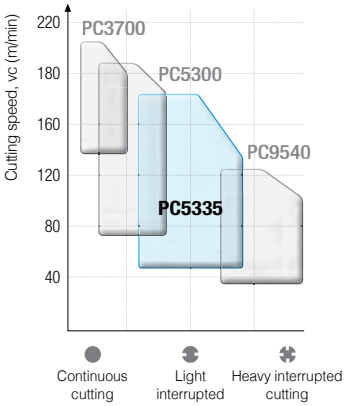
[PC5335] » Stable shape of cutting edge

[Competitor] » Fracture of cutting edge due to brittleness wear

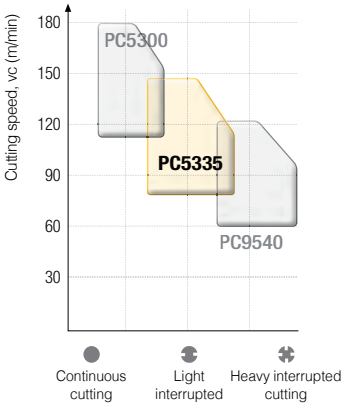
- Cutting stability by point polishing tech, special cutting edge treatment technology

Application range

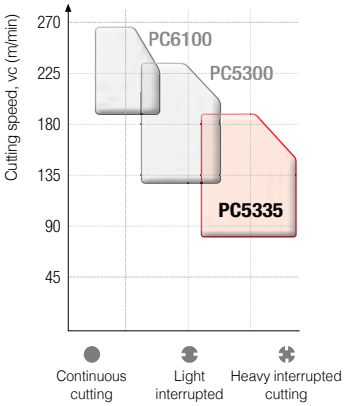
P Steel



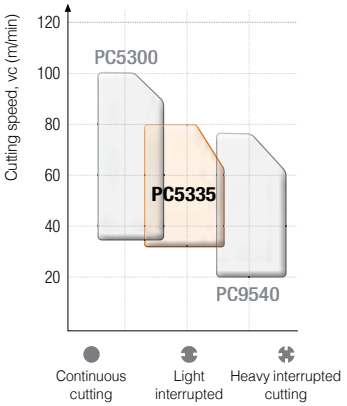
M Stainless steel



K Cast iron



S Heat resistant alloy



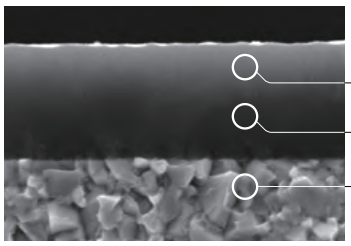
PVD Coated Grades

PVD insert for general milling

PC5535

- General use due to high toughness substrate with balance of wear resistance and toughness
- Maximized tool life by applying the omega tech overcoming primary troubles in milling
- Achieved stable cutting by implementing Edge tech and preventing welding, chipping and unexpected fracture
- PVD coated grade optimized for general milling

Features

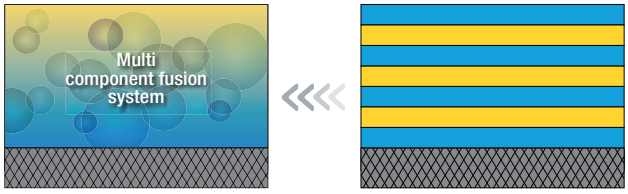


Omega-Tech™ - PVD applying PVD fusion coating technology

- Maximized coating performance by applying exclusive PVD fusion coating technology
- Increased adherence between substrate and coating layer with the application of newly designed layer
- Fine substrate with balance of wear resistance and toughness



Omega-Tech™



[PC5535] [Competitor]

- One strong coating layer unifying various components
- Enhanced general use and cutting performance due to increased mechanical and chemical stability

Edge-Tech™ - Applying high lubricated edge technology

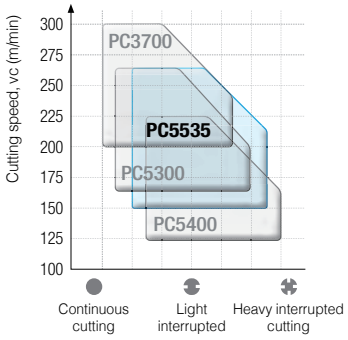


[PC5535] [Competitor]

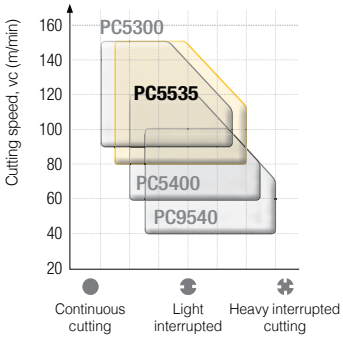
- Preventing welding, chipping and unexpected fracture
- Longer tool life and stable cutting

Application range

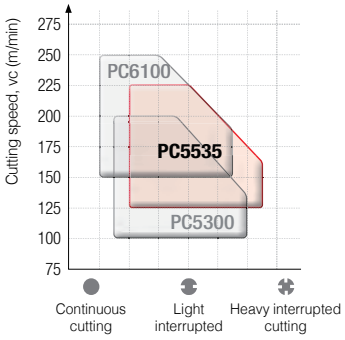
P Steel



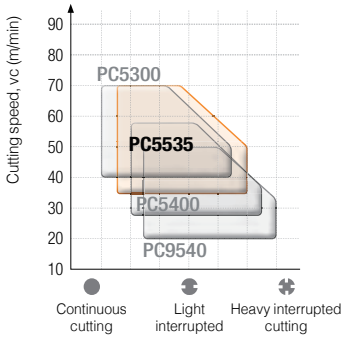
M Stainless steel



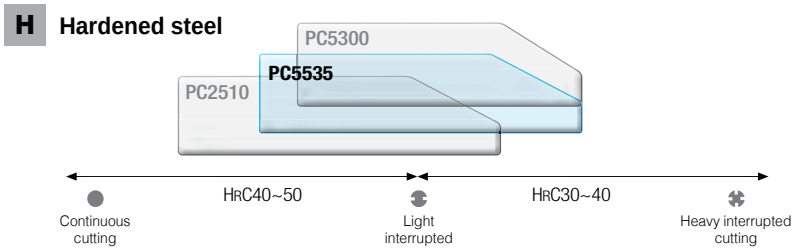
K Cast iron



S Heat resistant alloy



H Hardened steel



Selection system of PVD coated grades

Workpiece		Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	PC3700	235 (180 ~ 290)	P30	PC3700 PC5300 PC5535 PC5400
		Interrupted cutting	PC5300	195 (150 ~ 240)	P40	
			PC5400	145 (80 ~ 210)	P50	
M	Stainless steel	Continuous cutting	PC5300	130 (100 ~ 160)	M20	PC5300 PC9530 PC5535 PC5400 PC9540
			PC9530	130 (100 ~ 160)	M30	
		Interrupted cutting	PC5400	120 (95 ~ 155)	M40	
			PC9540	110 (80 ~ 140)	M50	
K	Cast iron	Continuous cutting	PC6100	180 (140 ~ 230)	K10	PC6100 PC5535 PC5300 PC5400
		Interrupted cutting	PC5300	145 (110 ~ 180)	K20	
			PC5400	125 (85 ~ 160)	K30	
S	HRSA	Continuous cutting	PC5300	55 (40 ~ 70)	S20	PC5300 PC9530 PC5535 PC5400 PC9540
		Interrupted cutting	PC5400	40 (30 ~ 50)	S30	
			PC9540	40 (30 ~ 50)	S40	
H	High hardness steel	Continuous cutting	PC2005	60 (40 ~ 80)	H01	PC2005 PC2010 PC2015 PC210F PC2505 PC2510
			PC2010	55 (40 ~ 70)	H10	
			PC2015	50 (35 ~ 65)	H20	
			PC210F	50 (35 ~ 65)	H30	

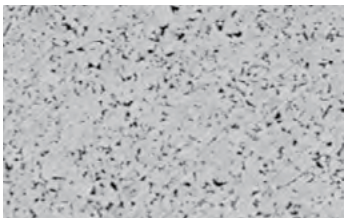
The features of PVD coated grades

PVD Coated grades	ISO	Features
PC3700	P30 ~ P40	• Exclusive grade for steel milling • Lubricated and high hardness multi-layered coating
PC5300	P30 ~ P40 K20 ~ K30 M20 ~ M30 S15 ~ S25	• Superior universal grade for steel, cast iron, hard to cut material, stainless steel • New coating and ultra fine grain provide wear resistance and oxidation resistance • TiAlN Series new coating
PC5535	P30 ~ P40 S20 ~ S30 M25 ~ M35 H15 ~ H25 K15 ~ K25	• General use for all kinds of workpiece materials milling; P, M, K, H and S • Long tool life and stable machining due to PVD Omega tech and Edge tech
PC5400	P35 ~ P45 K25 ~ K35 M30 ~ M40 S25 ~ S35	• Universal grade for interrupted machining of steel, cast iron, hard-to-cut materials and stainless steel with stable machinability • New coating layer with high toughness and lubrication on ultra fine grain substrate with high toughness • AlCiN series new coating
PC6100	K05 ~ K15	• PVD Ion plus-Tech™ provides long tool life and stability • The optimal substrate for cast iron cutting with coating adherence technology ensures regular tool life
PC9530	M25 ~ M35 S20 ~ S30	• Medium to rough cutting of hard to cut materials such as stainless steel, Cr-Ni steel, etc. • The toughest sub-micron substrate provides excellent cutting performance at high feed • TiAlN coating
PC9540	M35 ~ M45 S30 ~ S40	• Exclusive high toughness grade for stainless steel milling • PVD dioxide film with good heat resistance
PC2005	H01 ~ H10 P01 ~ P10 K01 ~ K10	• Exclusive for Laser Mill in milling of high hardness workpieces and press mold steel • Utmost wear resistance due to high hardness substrate and coating • Ultra high hardness K-Brown coating
PC2010	H05 ~ H15 P05 ~ P15 K05 ~ K15	• Exclusive for Laser Mill in milling of pre hardened steel and plastic mold steel • High hardness enhanced cutting edges due to ultra fine WC and high contents binder for expanding application range to high hardness steel and pre hardened steel • Ultra high hardness K-Brown coatin
PC2015	H10 ~ H20 P10 ~ P20 M10 ~ M20 K10 ~ K20	• Exclusive for Laser Mill in milling of carbon steel and cast • Highly lubricative K-silver coating • Lubricative coating layer and high contents substrate for machining mild steel and hard-to-cut cast materials
PC210F	H10 ~ H20 P10 ~ P20 M10 ~ M20 K10 ~ K20	• High speed milling grade for hardened steel, cast iron, and stainless steel(Laser Mill) • New coating and ultra fine grain provide wear resistance and oxidation resistance • TiAlN Series new coating
PC2505	H01 ~ H10 P01 ~ P10	• Roughing grade for high hardened steel and pressed die steel • Excellent wear resistance ideal for machining die steel and high hardened steel over HRC50
PC2510	H05 ~ H15 P05 ~ P15	• Roughing grade for pre-hardened steel and plastic die steel • Stabilized toughness ideal for interrupted cutting of high hardened steel and wet cutting accompanied by massive thermal shock

Uncoated Carbide Grades

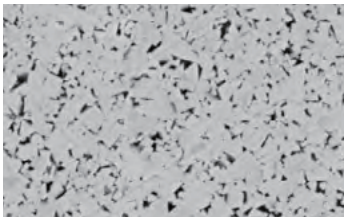
Uncoated carbide grades for turning application of titanium

H01



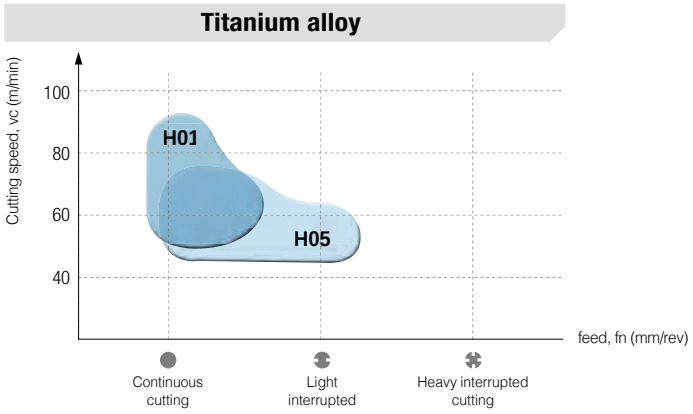
- Increased wear resistance and chipping resistance with the use of ultra fine substrate
- Improved welding resistance and chipping resistance with the use of special surface treatment and sharp cutting edge of VP chip breaker
- Excellent tool life when finishing titanium alloy at high speed

H05



- The 1st recommended grade for machining titanium alloy in a variety of cutting conditions
- Improved welding resistance and chipping resistance with the use of special surface treatment and sharp cutting edge of VP chip breaker
- Ideal for medium cutting of titanium alloy

Grades line-up



Selection system of uncoated carbide grades

Workpiece		Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	ST30A	80(60 ~ 100)	P30	ST30A
K	Cast iron	H01	120(90 ~ 150)	K01	H01
		H05	105(80 ~ 130)	K10	H05
		G10	90(65 ~ 115)	K20	G10
N	Non-ferrous metal (Aluminum alloy, Copper alloys)	H01	440(220 ~ 660)	N10	H01
		H05	395(195 ~ 595)	N20	H05

Main composition and application range

Workpiece	Composition	Features	Workpiece
P	WC-TiC-TaC-Co	Heat resistance, excellent plastic deformation resistance	Carbon steel, Alloy steel, Stainless steel
M	WC-TiC-TaC-Co	General tools stable heat resistance with strength	Carbon steel, Alloy steel, Stainless steel, Cast steel
K	WC-Co	High strength and superior wear resistance	Cast iron, Non-ferrous metal, Plastic, etc.
S	WC-Co	Excellent wear resistance and chipping resistance	Titanium alloy

Cermet Grade

Cermet grade for Milling of steel

CN30

- High hardness substrate ensures long tool life in high speed milling
- High toughness cutting edge ensures long tool life even in high impact machining
- Chemically stable substrate provides excellent surface finish of the workpiece

Selection system

Workpiece		Machining types	Grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Interrupted cutting	CN30	150 (100 ~ 200)	P30	CN30

The features of cermet grades

Grade	ISO	Features
CN30	P25 ~ P35	• For milling of steel • Cermet with high toughness

The physical properties of cermet grades

Workpiece		Grade	Hardness (Hv)	TRS (kgf/mm²)	SG (g•cm-3)
P	Steel	CN30	< 1500	240 <	7.0 ~ 7.3

Diamond Coated Grades

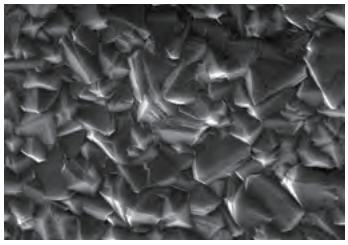
Diamond coating grade for Non-ferrous steel

ND3000

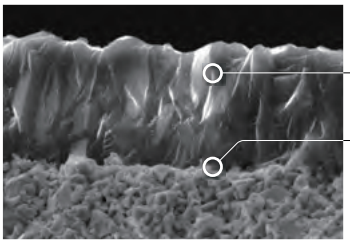
- SP3-crystalline diamond coatings of high purity and high hardness
- Improved adhesion between coated layers and the substrate that is specialized for diamond coatings
- Excellent tool life when machining graphite and ceramic

Features

ND3000

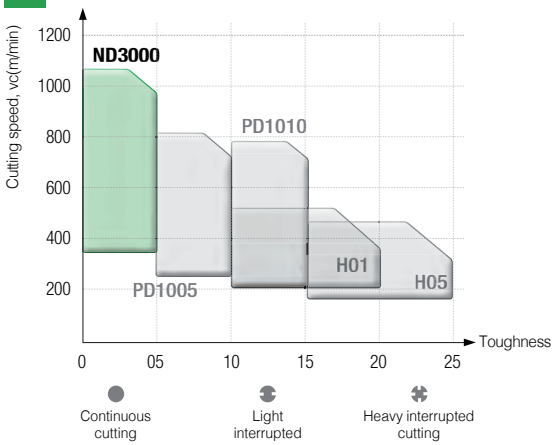


Cross section of ND3000's coated layers



Application range

N Non-ferrous metal



Selection system

Workpiece			Grade	ISO	Application range
N	Non-ferrous	Graphite/ Ceramic	**ND3000**	N01	ND3000
		Al alloy	**ND3000**	N05	

The features of diamond coated grades

Grade	ISO	Features
ND3000	N01 ~ N05	• For continuous roughing of graphite, ceramic, and Al alloy at high speeds • Exceptional cutting performance due to high resistance to wear and flaking • High hardness diamond coatings of high purity SP3-crystalline structure

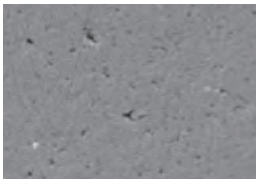
DLC Coated Grades

DLC-Coated Inserts for Non-ferrous steel

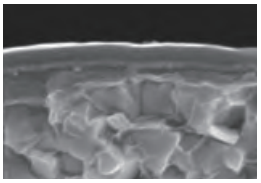
PD1005 / PD1010

- High hardness and low friction DLC coating technology
- Lubrication and maximized wear resistance increase machinability and machining quality
- Optimal substrate for each workpiece ensures stable and long tool life
- For non-ferrous metals such as aluminum, Al-Si alloy, copper and etc. machining

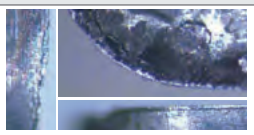
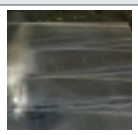
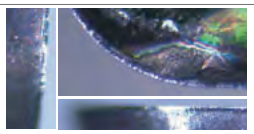
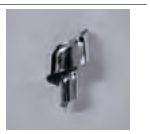
Features



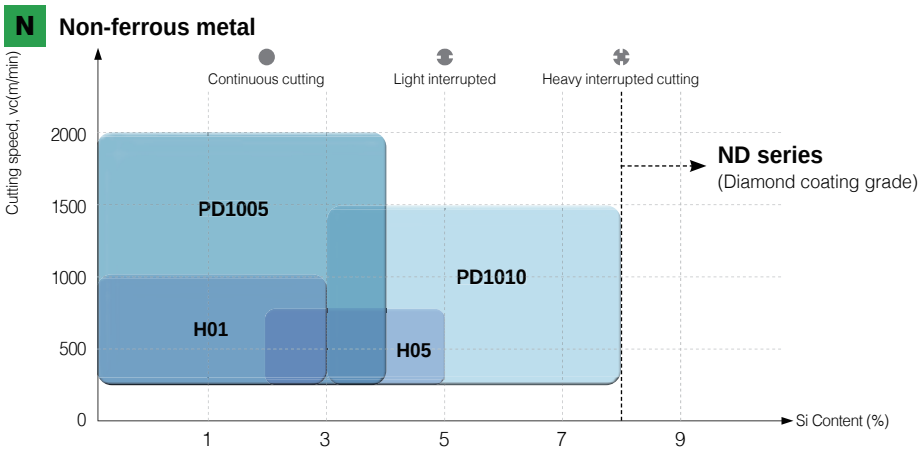
Smooth coating surface



Hard DLC coating

Grade	Wear resistance and Welding resistance	Surface finish	Chip curl
Carbide non coated			
DLC PD1010			

Application range



Selection system

Workpiece			Grade	ISO	Application range
N	Non-ferrous	Aluminum and copper (Soft non-ferrous metals)	**PD1005**	N05	PD1005
		Aluminum alloy	**PD1005 PD1010**	N10	
		Al-Si alloy (Hardened non-ferrous metals)	**PD1010**	N15	PD1010

The features of DLC coating grades

Grade	ISO	Features
PD1005	N05~N10	• For high speed and continuous machining of Aluminum and copper • High wear and welding resistance realize good machinability • High performance of DLC coating with high hardness and low friction
PD1010	N10~N15	• For medium to high and interrupted machining of aluminum alloy and Al-Si alloy • Stable tool life due to substrate with chipping resistance • High performance DLC coating with high hardness and low friction

PCD Insert Grades

PCD Insert grade for Non-ferrous steel

DP90 / DP150 / DP200

- Excellent tool life for aluminum alloy and copper alloy
- Excellent tool life for ceramic, high-silicon aluminum and rock or stone
- Excellent tool life for rubber, carbon, graphite and wood

Features

KORLOY PCD products are manufactured by using high quality PCD tips under ultra high temperatures and pressure. The PCD tip is welded on the qualified KORLOY carbide insert
KORLOY high quality PCD products meet a wide range of application needs in turning, milling, and endmills

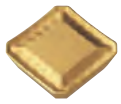
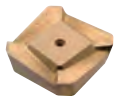
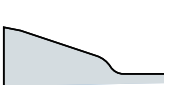
PCD grade

Grade	Features	Application	Grain size (㎛)	Force of resistance(Gpa)
DP90	Coarse diamond grain has been used to get excellent wear resistance enough to machine cemented-carbide, high Si aluminum alloy	Cemented carbide Ceramic roughing High Si aluminum alloy Rock, Stone	25 ~ 30	≒1.10
DP150	By use of fine diamond grain having good bonding property, it is suitable for machining of Non-ferrous metal, graphite	High Si aluminum alloy Copper, Bronze alloy Rubber, Wood, Carbon	5 ~ 10	≒1.95
DP200	By use of ultra fine diamond grain, it is possible to make sharp cutting edge. Thus it is appropriate grade to machine Non-ferrous material	Plastic Wood Precise finishing of aluminum	~ 2	≒2.45

Recommended cutting condition

Workpiece	Cutting speed (m/min)	Feed Turning(mm/rev) Milling(mm/t)	Depth of cut (mm)	Recommended grade	
				1st	2nd
Aluminum alloy (4%~8%Si)	1000 ~ 3000	0.1 ~ 0.6	~ 3	DP150	DP200
Aluminum alloy (9%~14%Si)	600 ~ 2500	0.1 ~ 0.5	~ 3	DP150	DP200
Aluminum alloy (15%~18%Si)	300 ~ 700	0.1 ~ 0.4	~ 3	DP150	DP200
Copper, Bronze alloy	~ 1000	0.05 ~ 0.2	~ 3	DP150	DP200
Reinforced plastic	~ 1000	0.1 ~ 0.3	~ 2	DP150	DP200
Wood	~ 4000	0.1 ~ 0.4	-	DP150	DP200
Cemented carbide	10 ~ 30	~ 0.2	~ 0.5	DP90	DP150

Chip Breakers for Milling

Picture	Cutting edge	Application range (feed rate fn (mm/rev): 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.80 1.20 1.40 1.60 / depth of cut ap (mm): 0.1 0.5 1 2 3 4 5 6 8 10 15 20)	Features
MX series — MX			**For Roughing** • Possible to increase productivity through increase feed and depth • Excellent heat resistance due to the special chip breaker design of top face of insert
Mill-max Heavy — MM			**For Roughing** • Specialized tool for high depth of cut roughing with high rigidity cutting edge ensures stable machining.
Rich Mill series-RM3 — MA			**For Aluminum machining** • Sharp cutting edge for low cutting load, which is ideal for machining steel, hard-to-cut materials and aluminum
ML			**For machining hard-to-cut materials** • Low cutting resistance for light cutting and machining hard-to-cut materials with excellent tool life and surface roughness
MM			**For General cutting** • Available for most of applications with universal design for general milling
Rich Mill series-RM4 — MA			**For Aluminum machining** • Sharp cutting edge design ensures low cutting resistance and excellent machining in difficult-to-cut materials, aluminum and light machining
MF			**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
MM			**For General cutting** • Suitable geometry design for general milling has wider ranges of machining

Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

	Picture	Cutting edge	Application range (feed rate fn (mm/rev): 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.80 1.20 1.40 1.60 / depth of cut ap (mm): 0.1 0.5 1 2 3 4 5 6 8 10 15 20)	Features
Rich Mill series-RM6	MA		0.05~0.20 1.0~8.2	**For Aluminum machining** • Specialized sharp cutting edge for aluminum machining ensures machinability. • Buffing treatment on the surface realizes good chip flow and welding resistance.
	ML		0.05~0.25 1.0~8.2	**For Machining hard-to-cut materials** • Low cutting load chip breaker for light cutting • Long tool life and high quality of machining in hard-to cut material cutting
	MM		0.05~0.25 1.0~8.2	**For General cutting** • Optimally designed shape for general shoulder milling in various cutting ranges
Rich Mill series-RM8	MA		0.05~0.35 0.3~6.0	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
	MF		0.05~0.35 0.3~6.0	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	ML		0.05~0.30 0.3~6.0	**For Machining hard-to-cut materials** • Chip breaker with low cutting load resistance ensures long tool life and high quality in light and difficult-to-cut material cutting.
	MM		0.10~0.40 0.5~6.0	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
Rich Mill series-RMT8	MF		0.05~0.20 0.5~5.0	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining

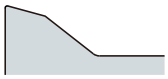
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

Picture	Cutting edge	Application range (feed rate fn (mm/rev): 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.80 1.20 1.40 1.60 / depth of cut ap (mm): 0.1 0.5 1 2 3 4 5 6 8 10 15 20)	Features
Rich Mill series-RMT8 — MM		0.05~0.30; 0.5~8.0	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
Rich Mill series-RM8-X — ML		0.05~0.30; 0.5~5.5	**For Machining hard-to-cut materials** • Stable tool life and good cutting quality in hard-to-cut material cutting due to double reverse positive relief surface and low cutting load chip breaker
Rich Mill series-RM8-X — MM — SAGX		0.05~0.30; 0.5~5.5	**For high hardness cutting** • Stable tool life and good cutting quality due to double reverse positive relief surface and high rigidity chip breaker
Rich Mill series-RM8-X — MM — SNMX		0.10~0.30; 0.5~5.5	**For General cutting** • For general cutting range with optimal shape for general milling
Rich Mill series-RM14 — ML — Neutral		0.05~0.30; 1.0~3.0	**For HRSA cutting** • Excellent cutting performance in heat resistance STS cutting from neutral type flat cutting edge and sharp chip breaker
Rich Mill series-RM14 — ML — Right-handed		0.05~0.30; 1.0~3.0	**For cast iron and STS cutting** • Excellent cutting performance in general STS and cast iron cutting from right-handed helix cutting edge and sharp chip breaker
Rich Mill series-RM16 — MA		0.05~0.30; 0.3~5.5	**For Aluminum machining** • Sharp cutting edge design ensures low cutting resistance and excellent machining in difficult–to–cut materials, aluminum and light machining
Rich Mill series-RM16 — MF		0.05~0.40; 0.3~5.5	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult–to–cut material and light machining

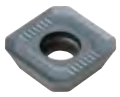
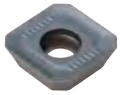
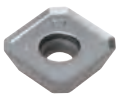
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

		Picture	Cutting edge	Application range (feed rate fn (mm/rev): 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.80 1.20 1.40 1.60 / depth of cut ap (mm): 0.1 0.5 1 2 3 4 5 6 8 10 15 20)	Features
Rich Mill series-RM16	ML			0.05~0.35 0.3~5.5	**For Machining hard-to-cut materials** • Low cutting resistance for excellent tool life and surface roughness in machining hard-to-cut materials
	MM			0.10~0.45 0.5~5.5	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
	W			0.05~0.30 0.3~2.0	**For Finishing of milling (Wiper)** • Wiper insert provides improved surface roughness due to special cutting edge
Rich Mill series-RMR	ML			0.05~0.40 1.0~3.0	**For Machining hard-to-cut materials** • Stable tool life and cutting performance in hard-to-cut material cutting from hard clamping side preventing reverse positive revolution and low cutting resistance chip breaker
Alpha Mill series	MA			0.10~0.40 0.5~16	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
	MF			0.05~0.15 0.5~16	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	MM			0.10~0.25 0.5~16	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
	ML			0.05~0.15 0.5~16	**For Machining hard–to–cut materials** • The chip breaker with low cutting resistance ensures superior machinability in hard-to-cut materials

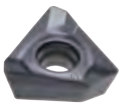
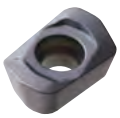
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

		Picture	Cutting edge	Application range (feed rate fn (mm/rev): 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.80 1.20 1.40 1.60 / depth of cut ap (mm): 0.1 0.5 1 2 3 4 5 6 8 10 15 20)	Features
Alpha Mill series	MN			0.10~0.25 0.5~16	**For Roughing (nick)** • Design for easy chip cutting ensures high machinability in roughing
Alpha Mill-X series	MM			0.05~0.35 1.0~16.5	**For General cutting** • Shape for general milling with most cutting range
	ML			0.05~0.30 1.0~16.5	**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load guarantees long tool life and qualified machining in light cutting and HRSA machining
Future Mill series	MF			0.05~0.20 0.5~5.0	**For Light cutting** • Special design for light cutting of gummy materials like stainless steel and hard to machine material provide fine surface finish and longer tool life
	MM			0.05~0.30 1.0~5.0	**For General cutting** • Chip breaker design to cover general cutting condition provides wide available application range • Ground type and sintered type are
	MR			0.05~0.35 1.5~5.0	**For Roughing** • Strongest cutting edge strength provide stable tool life even in case of severe cutting with heavy intermittent and heavy roughing
	MA			0.10~0.35 0.5~5.0	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
Future Mill series P-posi	MA			0.30~0.60 0.3~6.0	**For Aluminum machining** • Excellent surface roughness due to buffed surface in machining aluminumt

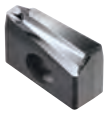
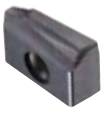
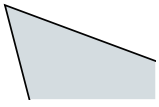
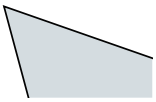
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

		Picture	Cutting edge	Application range	Features
				feed rate fn (mm/rev): 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.80 1.20 1.40 1.60 depth of cut ap (mm): 0.1 0.5 1 2 3 4 5 6 8 10 15 20	
Future Mill series P-posi	ML			0.30~0.50 0.3~3.0	**For Hard-to-cut material machining** • Low cutting resistance and high hardness cutting edges for excellent surface roughness in machining titanium and Inconel
	MF			0.12~0.50 0.3~6.0	**For Light cutting** • Low cutting resistance for light cutting
	MM			0.20~0.70 0.3~6.0	**For General cutting** • Universal purpose for most of milling applications
	None C/B			0.30~0.50 0.3~0.5	**For Machining high hardness steel** • Ideal for machining high hardness mold steel and heat resistant alloy
Triple Mill series	ML			0.05~0.20 1.0~15.5	**For Hard-to-cut material machining** • Stable tool life and cutting performance in hard–to–cut material cutting due to low cutting load chip breaker
	MM			0.10~0.30 1.0~15.5	**For General cutting** • For general cutting range with optimal shape for general milling
HFM	MF			0.30~1.0 0.1~0.4	**For Light cutting** • Chip breaker for cutting with low cutting load is optimal for light cutting
	None C/B			0.30~0.80 0.1~0.4	**For Machining high hardness steel** • Shape with hard cutting edge is optimal for high hardness alloy steel machining

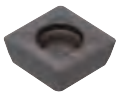
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

		Picture	Cutting edge	Application range (feed rate fn (mm/rev): 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.80 1.20 1.40 1.60 / depth of cut ap (mm): 0.1 0.5 1 2 3 4 5 6 8 10 15 20)	Features
HFMD	ML			0.30~0.80 0.2~1.0	**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load and hard cutting edge ensure high qualified machining
	MF			0.30~1.0 0.2~1.0	**For Light cutting** • Chip breaker for cutting with low cutting load is for light cutting
	MM			0.30~1.20 0.2~1.0	**For General cutting** • Shape for general machining with high feed is available for most machining range
TP2P	MA			0.05~0.25 1.0~16.5	**For Aluminum machining** • Sharp cutting edge for aluminum machining ensures good machinability • Buffed surface realizes chip flow and welding resistance
	ML			0.05~0.25 1.0~16.5	**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load guarantees long tool life and qualified machining in light cutting and HRSA machining
	MM			0.05~0.25 1.0~16.5	**For General cutting** • Specialized shape for general slotting is applicable in most cutting ranges
Pro-XL Mill	MA			0.05~0.20 10~57	**For Aluminum machining** • Sharp cutting edge with buffing on the surface for aluminum machining ensures chip flow and welding resistance
Pro-V Mill	MA			0.10~0.30 1.0~17	**For Aluminum machining** • Shape for general slotting is applicable in most cutting ranges

Notice: Application ranges are based on main cutting material

Chip Breakers for Drilling

Picture	Cutting edge	Application range	Features
King Drill series PD			**For General cutting** • Chip breaker with strong cutting edge for universal applications with steel, stainless steel, and cast iron
LD			**For Light cutting** • Superior chip control in machining of mild steel, forged steel and stainless steel
RD			**Reinforced chipping resistance** • Improved central chipping resistance due to reinforced corners of the King Drill central inserts • Excellent cutting performance even in machining where there is frequent corner breakage of central inserts • e.g. Machining heat-treated steel or stainless steel, and high feed machining, etc.
ND			**Non-ferrous metals** • Chip breaker with sharp and polished cutting edge for aluminum and Non-ferrous metals. Machining with King Drill ensures good chip flow and resistance to chip welding

Notice: Application ranges are based on main cutting material

PART B

MILLING

Milling tools that provide the best quality and improve productivity for every customer needs.

Technical Information for MILLING

Inserts

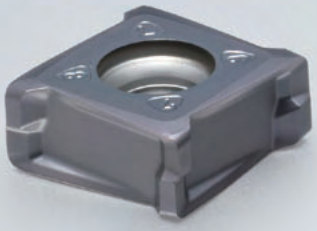
B2 Milling Insert Code System (ISO)
B4 Milling Inserts
B34 KORLOY Cutters
B41 KORLOY Shanks
B45 KORLOY Modular Adaptors

Face Milling Cutters

B47 Mill Max / Mill Max Plus
B57 Mill Max Heavy
B59 Turbo Mill
B62 Double Mill
B64 Power Buster
B70 Rich Mill
B148 Aero Mill / Aero Mill Plus / Aero Mill Mini
B157 PCD Face Cutter

Cutters for Molds

B158 Alpha Mill-X
B166 Alpha Mill / Alpha Mill Nick
B203 Future Mill / FMR P-Positive
B256 Triple Mill
B263 HFMD
B277 HFM
B283 HRMD
B300 HRM
B306 Tank Mill
B307 TP2P
B316 TP8P
B320 Laser Mill / GBE / BRE
B339 HAVE(Single-edge, Multi-edge)
B343 BT/HSK Tooling System(Alpha Mill, Mono Tool)
B355 HSK Tooling System(Alpha Mill, Mono Tool, Pro-V Mill)
B367 O-ring Cutters
B369 Chamfer Tool
B374 T-Cutter



BROTECH

2025·2026
KORLOY ROTATING TOOLS

Milling Cutter for Aluminum

B375 Pro-A Mill
B380 Pro-X Mill
B387 Pro-L Mill
B393 Pro-XL Mill
B395 Pro-V Mill
B400 Modular Adaptor

Side Milling Cutters

B404 Adjusting Side Cutter
B410 Side Cutter
B413 Wind Mill

High feed Cutter

B417 High feed Cutter
B419 Cube Mill
B420 Couple Mill
B422 Shave Mill
B424 Shave Mill Ultra

Gear Tools

B425 Gear Cutter Applicable Example
B426 Gear Cutter Table
B427 Gear Cutter
B434 Gear Cutter Order Form
B435 Indexable HOB
B436 Indexable HOB Cutter Order Form



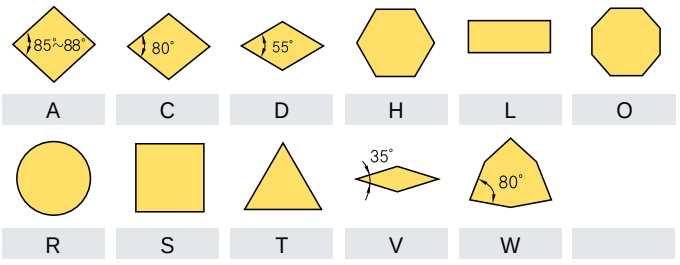


S P K R 12

1	2	3	4	5
Insert shape	Relief angle	Tolerance	Cross section type	Cutting-edge length, diameter of inscribed circle

1 Insert shape

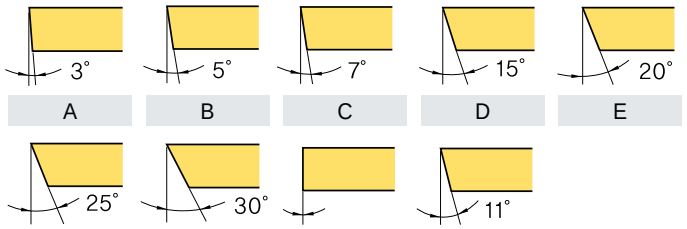
S P K R 12 03 ED 08 S R - MX



A	C	D	H	L	O
R	S	T	V	W	

2 Relief angle

S P K R 12 03 ED 08 S R - MX

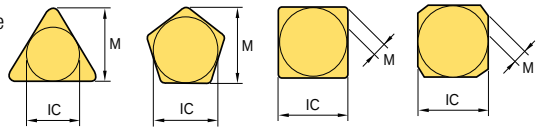


A	B	C	D	E
F	G	N	P	

3 Tolerance

S P K R 12 03 ED 08 S R - MX

IC : Inscribed circle
S : Thickness
M : Refer to figure



(mm)

Class	IC	M	S
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.05~±0.15	±0.005	±0.025
K	±0.05~±0.15	±0.013	±0.025
L	±0.05~±0.15	±0.025	±0.025
M	±0.05~±0.15	±0.08~±0.20	±0.13
U	±0.08~±0.25	±0.13~±0.38	±0.13

Tolerance on C,E,H,M,O,P,R,S,T,W Insert Shape (exceptional case)

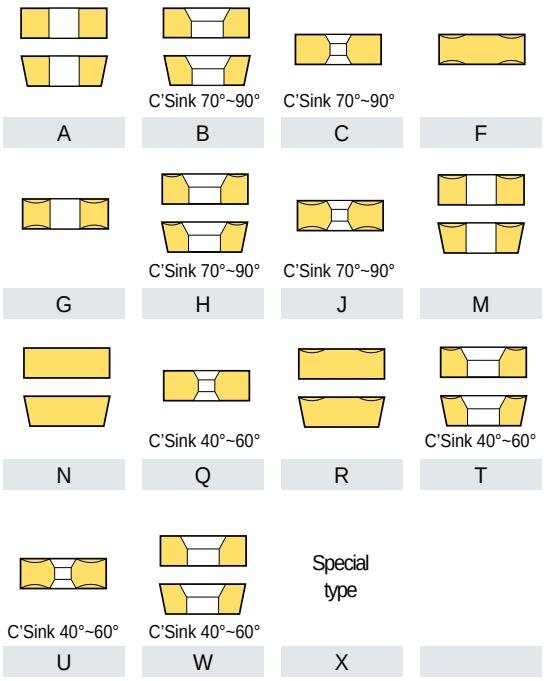
IC	Tolerance on IC		Tolerance on M	
	J,K,L,M,N	U	M,N	U
6.35	±0.05	±0.08	±0.08	±0.13
9.525	±0.05	±0.08	±0.08	±0.13
12.7	±0.08	±0.13	±0.13	±0.20
15.875	±0.10	±0.18	±0.15	±0.27
19.05	±0.10	±0.18	±0.15	±0.27
25.4	±0.13	±0.25	±0.18	±0.38

Tolerance on D Insert Shape (exceptional case)

IC	Tolerance on IC	Tolerance on M
6.35	±0.05	±0.11
9.525	±0.05	±0.11
12.7	±0.08	±0.15
15.875	±0.10	±0.18
19.05	±0.10	±0.18

4 Cross section type

S P K R 12 03 ED 08 S R - MX

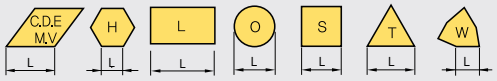


A	B	C	F
G	H	J	M
N	Q	R	T
U	W	X	

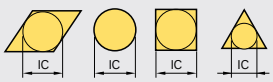
5 Cutting-edge length, diameter of inscribed circle

S P K R 12 03 ED 08 S R - MX

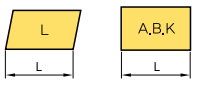
■ Metric system ※ Decimal integer constant



■ Inch system



· Use 1/32″ unit for a insert having smaller I.C under 1/4″
· Use 1/8″ unit for a insert having larger I.C over 1/4″



※ In case of rectangular and rhombic insert indicate cutting-edge length instead of inscribed circle.

■ Cross over chart for "Metric" and "Inch" system

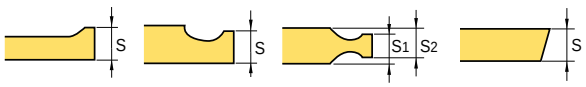
△	06	09	11	16	22	27	33	44
□ ▭	03	05	06	09	12	15	19	25
55°	04	06	07	11	15	19	232	31
80°	03	05	06	09	12	16	19	25
Inscribed circle(IC)	5/32″	7/32″	1/4″	3/8″	1/2″	5/8″	3/4″	1″
Inch system	5	7	2(8)	3	4	5	6	8

03 ED 08 S R - MX

6	7	8	9	10
Height of cutting-edge	Nose radius (Nose R)	Edge preparation	Hand	Chip breaker for milling

6 Height of cutting-edge

S P K R 12 **03** ED 08 S R - MX

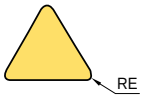


Symbol		Height of cutting-edge (t)	
Metric	Inch	Metric	Inch
01	1(2)	1.59	1/16
T0	1.125	1.79	9/128
T1	1.2	1.98	5/64
02	1.5(3)	2.38	3/32
T2	1.75	2.78	7/64
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
122	8(16)	12.70	1/2

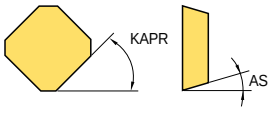
( ) Symbol for small size insert

7 Nose radius (Nose R)

S P K R 12 03 **ED 08** S R - MX



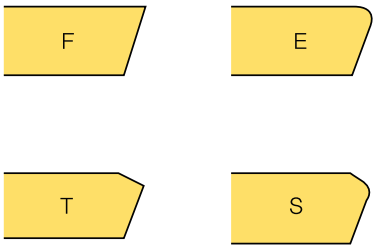
Symbol		RE		Symbol		RE	
Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch
00	0	0.0		12	3	1.2	3/64
02		0.2		15		1.5	
04	1	0.4	1/64	16	4	1.6	4/64
05		0.5		24	6	2.4	6/64
08	2	0.8	2/64	32	8	3.2	8/64
10		1.0		40		4.0	



Parallel Land	Relief Angle	
KAPR	AS	
A - 45°	A - 3°	F - 25°
D - 60°	B - 5°	G - 30°
E - 75°	C - 7°	N - 0°
F - 85°	D - 15°	P - 11°
P - 90°	E - 20°	
Z - Special		

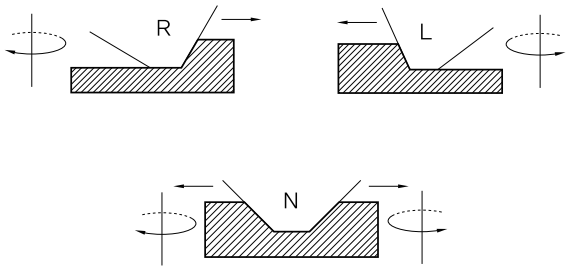
8 Edge preparation

S P K R 12 03 ED 08 **S** R - MX



9 Hand

S P K R 12 03 ED 08 S **R** - MX



10 Chip breaker for milling

S P K R 12 03 ED 08 S R - **MX**



MA MF MM MX



MF MM MR MA



MA MF MM ML

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

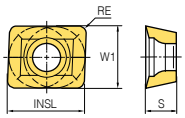
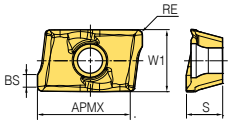
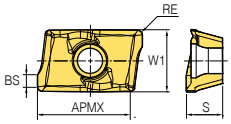
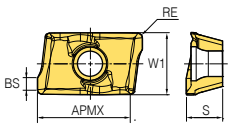
Picture	Designation	Cermet	Coated								Uncoated			Dimension (mm)							Geometry	Page
		CN30	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	G10	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR(°)	
ADKA	150308R															15	9.525	3.18	0.8	-	-	-	
	150308SR															15	9.525	3.18	0.8	-	-	-	
	150308TR	●														15	9.525	3.18	0.8	-	-	-	-
ADKT-ML	10T304PEER-ML				●	●	●		●	●	●	●				11.7	6.424	3.819	0.4	0.96	9.5	90	
	120408PESR-ML				●	●	●		●	●	●	●				14.5	7.813	4.824	0.8	1.71	11.5	90	
	170608PESR-ML				●	●	●		●	●	●	●				19.665	10.843	6.529	0.8	3.5	16.5	90	B162 ~ B165
ADKT-MM	10T304PESR-MM				●	●	●		●	●	●	●				11.7	6.424	3.819	0.4	1.2	9.5	90	
	10T308PESR-MM									●		●				11.7	6.424	3.819	0.8	0.8	9.5	90	
	10T312PESR-MM									●		●				11.7	6.424	3.819	1.2	0.4	9.5	90	
	120408PESR-MM				●	●	●		●	●	●	●				14.5	7.813	4.824	0.8	1.71	11.5	90	
	120412PESR-MM					●	●			●		●				14.5	7.813	4.824	1.2	1.21	11.5	90	
	120416PESR-MM					●	●			●		●				14.5	7.813	4.824	1.6	0.85	11.5	90	
	170604PESR-MM					●				●						19.665	10.843	6.529	0.4	3.17	16.5	90	
	170608PESR-MM				●	●	●		●	●	●	●				19.665	10.843	6.529	0.8	3.3	16.5	90	
	170616PESR-MM					●				●		●				19.665	10.843	6.529	1.6	2.5	16.5	90	
	170620PESR-MM					●				●		●				19.665	10.843	6.529	2	2.1	16.5	90	B162 ~ B165
ADLT	150308R		●							●						15	9.525	3.18	0.8	-	-	88	
	150308SR					●										15	9.525	3.18	0.8	-	-	88	
	150308TR															15	9.525	3.18	0.8	-	-	88	B306
APKT	1604PDSR		●			●										16.9	9.525	4.76	0.8	2.263	16.4	90	B177 B190
APKT-MA	1604PDFR-MA												●	●		16.9	9.525	4.76	0.2	1.915	16.4	90	
	160416FR-MA												●			16.9	9.525	5.67	1.6	-	16.4	90	B177 B190
APKT-MA2	1604PDFR-MA2												●			17.317	9.518	5.67	0.8	-	16.5	90	
	160416FR-MA2															16.51	9.518	5.553	1.6	-	16.5	90	
	160432FR-MA2															16.544	9.518	5	3.2	-	16.5	90	B177 B190
APKT-MA3	1604PDFR-MA3												●	●	●	17	9.44	5	0.8	2.15	16.4	90	
	160420FR-MA3															17	9.44	5	2	-	16	90	B177 B190
APKT-MF	1604PDSR-MF		●							●						17.04	9.525	5	0.8	2.15	16.4	90	B177 B190 B199
APKT-MM	1604PDSR-MM		●	●		●		●		●						17.04	9.525	5	0.8	2.15	16.4	90	B177 B190 B199

● : Stock item

Workpiece			NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05
	Steel	P	⇔	●	●	●	⇔	⇔			⇔	⇔	✱		
	Stainless steel	M		●					⇔	✱	⇔	⇔	✱		
	Cast iron	K		●	●	⇔	⇔	●			⇔	⇔	✱	●	●
	Non-ferrous metal	N												●	⇔
	Heat resistant alloy, Titanium alloy	S								✱	⇔	⇔	✱		
	Hardened steel	H			●	⇔					⇔	⇔	✱		

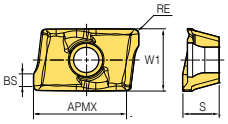
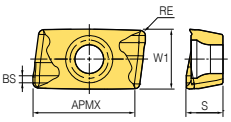
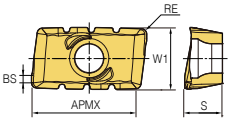
Machining types

● Continuous cutting
⇔ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated											Uncoated		Dimension (mm)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR(°)		
APLT	070304R															7	6.35	3.18	0.4	-	-	88		B306
APMT-MA	0602PDFR-MA													●		6.876	4.24	2.6	0.4	0.786	6	90		B173 ~ B202 B344 ~ B364
	060208PDFR-MA															6.876	4.24	2.6	0.8	0.443	6	90		
	0903PDFR-MA													●		10.908	6.21	3.6	0.4	1.477	9.4	90		
	090308PDFR-MA															10.908	6.21	3.6	0.8	1.092	9.4	90		
	11T3PDFR-MA													●		12.145	6.467	3.6	0.5	1.092	11.2	90		
	11T308PDFR-MA															12.145	6.467	3.6	0.8	0.797	11.2	90		
	160404PDFR-MA															18.262	9.41	5.76	0.4	1.414	16.4	90		
	1604PDFR-MA													●		17.815	9.41	5.76	0.8	0.9849	16.4	90		
	180604PDFR-MA													●		18.808	10.98	6.35	0.4	2.512	17.4	90		
	1806PDFR-MA													●		18.808	10.98	6.35	0.8	2.269	17.4	90		
	180612PDFR-MA															18.808	10.98	6.35	1.2	1.698	17.4	90		
	180616PDFR-MA															18.808	10.98	6.35	1.6	1.299	17.4	90		
	180620PDFR-MA													●		18.808	10.98	6.35	2	0.899	17.4	90		
	180624PDFR-MA															18.808	10.98	6.35	2.4	0.459	17.4	90		
	180630R-MA													●		18.808	10.98	6.35	3	-	17.4	90		
APMT-MF	11T3PDSR-MF		●				●	●			●	●	●			12.045	6.467	3.6	0.5	1.2	11.2	90		B175 ~ B202 B346 ~ B364
	1604PDSR-MF		●				●	●			●	●	●			17.62	9.41	5.76	0.8	1.1	16.4	90		
	1806PDSR-MF							●			●					18.7	10.98	6.35	0.8	2.2	17.4	90		
	180612PDSR-MF															18.7	10.98	6.35	1.2	1.8	17.4	90		
APMT-ML	0903PDER-ML										●	●				10.908	6.21	3.6	0.4	1.477	9.4	90		B174 ~ B202 B345 ~ B362
	090308PDER-ML										●					10.908	6.21	3.6	0.8	1.092	9.4	90		
	11T3PDER-ML										●	●				12.145	6.467	3.6	0.5	1.092	11.2	90		
	11T308PDER-ML										●	●				12.145	6.467	3.6	0.8	0.797	11.2	90		

● : Stock item

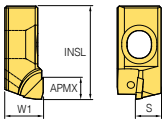
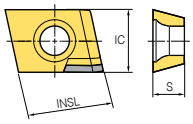
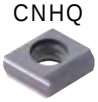
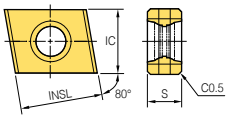
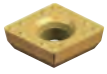
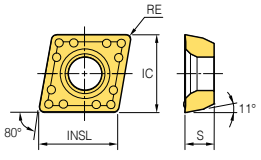
Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR(°)		
APMT-ML	160404PDER-ML										●		●			17.815	9.41	5.76	0.4	1.414	16.4	90		B176 ~ B199 B347 ~ B364
	1604PDER-ML										●		●			17.815	9.41	5.76	0.8	0.9849	16.4	90		
	180604PDER-ML										●					18.808	10.98	6.35	0.4	2.512	17.4	90		
	1806PDER-ML										●		●			18.808	10.98	6.35	0.8	2.269	17.4	90		
	180612PDER-ML										●		●			18.808	10.98	6.35	1.2	1.698	17.4	90		
	180616PDER-ML															18.808	10.98	6.35	1.6	1.299	17.4	90		
	180620PDER-ML										●		●			18.808	10.98	6.35	2	0.899	17.4	90		
	180624PDER-ML															18.808	10.98	6.35	2.4	0.459	17.4	90		
	180630R-ML															18.808	10.98	6.35	3	-	17.4	90		
APMT-MM	060202PDSR-MM		●				●				●		●			6.79	4.24	2.6	0.2	1.1	6	90		B173 ~ B202 B344 ~ B364
	0602PDSR-MM		●		●	●	●	●			●	●	●			6.79	4.24	2.6	0.4	0.9	6	90		
	060208PDSR-MM		●				●				●	●	●			6.79	4.24	2.6	0.8	0.5	6	90		
	060212R-MM		●								●		●			6.79	4.24	2.6	1.2	0.1	6	90		
	060216R-MM *										●		●			6.79	4.24	2.6	1.6	-	6	90		
	0903PDSR-MM		●		●	●	●	●			●	●	●			10.84	6.21	3.6	0.4	0.9	9.4	90		
	090308PDSR-MM		●				●				●	●	●			10.84	6.21	3.6	0.8	0.5	9.4	90		
	090312R-MM						●				●					10.84	6.21	3.6	1.2	-	9.4	90		
	090316R-MM						●				●		●			10.84	6.21	3.6	1.6	-	9.4	90		
	090320R-MM						●				●	●	●			10.84	6.21	3.6	2	-	9.2	90		
	090332R-MM *										●					10.84	6.21	3.6	3.2	-	9.2	90		
	11T3PDSR-MM		●	●	●	●	●	●	●		●	●	●			12.045	6.467	3.6	0.5	1.2	11.2	90		
	11T308PDSR-MM		●				●		●	●	●	●	●			12.045	6.467	3.6	0.8	0.9	11.2	90		
	11T312PDSR-MM		●				●		●		●	●	●			12.045	6.467	3.6	1.2	0.5	11.2	90		
	11T316R-MM		●				●				●	●	●			12.045	6.467	3.6	1.6	-	11	90		
	11T318R-MM															12.045	6.467	3.6	1.8	-	11	90		
	11T324R-MM		●				●				●	●	●			12.045	6.467	3.6	2.4	-	11	90		
	160404PDSR-MM										●	●	●			17.62	9.41	5.76	0.4	1.9	16.4	90		
	1604PDSR-MM		●	●	●	●	●	●	●	●	●	●	●			17.62	9.41	5.76	0.8	1.1	16.4	90		
	160410PDSR-MM				●		●				●	●	●			17.62	9.41	5.76	1	0.9	16.4	90		
	160416PDSR-MM						●				●	●	●			17.62	9.41	5.76	1.6	0.3	16.4	90		
	160420R-MM										●					17.62	9.41	5.76	2	-	16	90		
	160424R-MM						●				●	●	●			17.62	9.41	5.76	2.4	-	16	90		
	160430R-MM						●				●	●	●			17.62	9.41	5.76	3	-	16	90		
	160432R-MM		●				●				●	●	●			17.62	9.41	5.76	3.2	-	16	90		
	160450R-MM *						●				●	●	●			17.62	9.41	5.76	5	-	16	90		
	160464R-MM *										●					17.62	9.41	5.76	6.4	-	16	90		
	1806PDSR-MM		●			●	●	●	●	●	●	●	●			18.7	10.98	6.35	0.8	2.2	17.4	90		
	180612PDSR-MM		●				●				●	●	●			18.7	10.98	6.35	1.2	1.8	17.4	90		
	180616PDSR-MM										●		●			18.7	10.98	6.35	1.6	1.4	17.4	90		
	180620PDSR-MM															18.7	10.98	6.35	2	1	17.4	90		
	180624PDSR-MM						●				●		●			18.7	10.98	6.35	2.4	0.6	17.4	90		
	180630R-MM										●		●			18.7	10.98	6.35	3	-	16.7	90		
	180632R-MM		●								●		●			18.7	10.98	6.35	3.2	-	16.7	90		
	180640R-MM *										●		●			18.7	10.98	6.35	4	-	16.7	90		
	180648R-MM *												●			18.7	10.98	6.35	4.8	-	16.7	90		
	180650R-MM *										●		●			18.7	10.98	6.35	5	-	16.7	90		
	180660R-MM *															18.7	10.98	6.35	6	-	16.7	90		
	180664R-MM *										●					18.7	10.98	6.35	6.4	-	16.7	90		
APMT-MN	11T3PDSR-MN2										●					12.045	6.467	3.6	0.5	1.2	11.2	90		B175 ~ B202 B346 ~ B364
	11T3PDSR-MN3										●					12.045	6.467	3.6	0.5	1.2	11.2	90		
	1604PDSR-MN3										●					17.62	9.41	5.76	0.8	1.1	16.4	90		
	1604PDSR-MN4										●					17.62	9.41	5.76	0.8	1.1	16.4	90		
	1806PDSR-MN3										●					18.7	10.98	6.35	0.8	2.2	17.4	90		
	1806PDSR-MN4										●					18.7	10.98	6.35	0.8	2.2	17.4	90		

* Inserts marked with an asterisk(*) require a custom - made order for special holders.

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

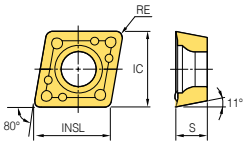
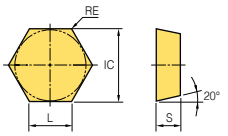
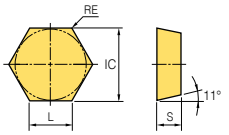
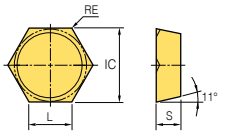
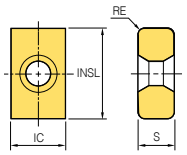
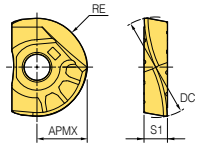
Picture	Designation	Cermet	Coated							Uncoated		PCD			Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM535	PC3700	PC6100	PC9540	PC5300	PC5535	PC5400	G10	H01	DP90	DP150	DP200	INSL	IC	S/S1	RE	APMX	W1		
BAMPR-XAF 	**BAMPR-XAF**												●			25.6	-	7	0.2	5.9	10.5		B152 ~ B153
BAMPR-XAW 	**BAMPR-XAW**												●	●		25.6	-	7	-	5.9	10		
BAMPR-XAWR 	**BAMPR-XAWR**												●	●		25.6	-	7	0.2	5.9	10		
CDEW-NAF  Strengthened Edge	**1204R-NAF**												●			12.7	9.525	4.76	0.2	-	-		
	1204L-NAF															12.7	9.525	4.76	0.2	-	-		
CDEW-NAW  Strengthened Edge Wiper Insert	**1204R-NAW**															12.7	9.525	4.76	0.2	-	-		
	1204L-NAW															12.7	9.525	4.76	0.2	-	-		
CDEW-XAW  Sharp Edge Wiper Insert	**1204R-XAW**												●	●		12.7	9.525	4.76	0.2	-	-		B150
	1204L-XAW															12.7	9.525	4.76	0.2	-	-		
CDEW-XAF  Sharp Edge	**1204R-XAF**												●	●		12.7	9.525	4.76	0.2	-	-		
	1204L-XAF															12.7	9.525	4.76	0.2	-	-		
CDEW-XCF  Sharp Edge	**1204R-XCF**										●					12.7	9.525	4.76	-	-	-		
	1204L-XCF															12.7	9.525	4.76	-	-	-		
CNHQ 	**1005-C0.5**															10	10	5.4	-	-	-		B405 B428
	1305-C0.5															12.7	10	5.4	-	-	-		
	1606-C0.5															16	12	6.4	-	-	-		
CPMH 	**120408-MM**			●												12.7	-	4.76	0.8	18	12.7		B374

● : Stock item

Workpiece			PC2005	PC2010	PC2015	PC210F	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	H01	H05
Steel	P		●	●	⇔	⇔	⇔			⇔	⇔	⇔			
Stainless steel	M				⇔	⇔			⇔	⇔	⇔	⇔			
Cast iron	K		●	●	⇔	⇔		●		⇔	⇔	⇔		●	●
Non-ferrous metal	N												●	●	⇔
Heat resistant alloy, Titanium alloy	S				⇔	⇔				⇔	⇔	⇔			
Hardened steel	H		●	●	⇔	⇔				⇔	⇔	⇔			

Machining types

● Continuous cutting
⇔ General cutting
⇔ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated		Dimension (mm)						Geometry	Page
		CN30	PC2005	PC2010	PC2015	PC210F	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	H01	H05	DC	INSL	IC	S/S1	RE	APMX		
CPMT	060204-MM						●									-	6.35	6.35	2.38	0.4	9		B374
	080308-MM						●									-	7.938	7.938	3.18	0.8	11		
	09T308-MM						●									-	9.525	9.525	3.97	0.8	14		
HECN	090408FN															-	9	15.875	4.76	0.8	-		-
	090408SN															-	9	15.875	4.76	0.8	-		
	090408TN															-	9	15.875	4.76	0.8	-		
	110412FN															-	11	19.05	4.76	1.2	-		
	110412TN															-	11	19.05	4.76	1.2	-		
HPEN	090408FN															-	9	15.875	4.76	0.8	-		-
	090408SN															-	9	15.875	4.76	0.8	-		
	090408EN															-	9	15.875	4.76	0.8	-		
	110412FN															-	11	19.05	4.76	1.2	-		
HPEN-WC	090408-WC															-	9	15.875	4.76	0.8	-		-
	110412-WC															-	11	19.05	4.76	1.2	-		
KEL-MF	150608-MF															-	15.875	9.525	6.35	0.8	-		-
	150608-ML															-	15.875	9.525	6.35	0.8	-		
KEL-QNN	1506QNN-MF															-	15.875	9.525	6.35	0.8	-		-
	1506QNN-ML															-	15.875	9.525	6.35	0.8	-		
KEL-ANN	1506ANN-MF															-	15.875	9.525	6.35	0.8	-		-
	1506ANN-ML															-	15.875	9.525	6.35	0.8	-		
LBH	080					●										8	-	-	2.4	4	4		B324 ~ B328
	100					●										10	-	-	2.6	5	5		
	120					●										12	-	-	3	6	6		
	160					●										16	-	-	4	8	8		
	200					●										20	-	-	5	10	10		
	250					●										25	-	-	6	12.5	12.5		
	300					●										30	-	-	7	15	15		
	320					●										32	-	-	7	16	16		
	330															33	-	-	7	16.5	16.5		
LBH-KF	080-KF												●			8	-	-	2.4	4	4		
	100-KF				●								●			10	-	-	2.6	5	5		
	120-KF				●								●			12	-	-	3	6	6		
	130-KF															13	-	-	3	6.5	6.5		
	160-KF				●								●			16	-	-	4	8	8		
	170-KF															17	-	-	4	8.5	8.5		
	200-KF				●								●			20	-	-	5	10	10		
	210-KF															21	-	-	5	10.5	10.5		
	250-KF				●											25	-	-	6	12.5	12.5		
	300-KF				●											30	-	-	7	15	15		
	320-KF															32	-	-	7	16	16		
	330-KF															33	-	-	7	16.5	16.5		

● : Stock item

Workpiece			Machining types
	Steel	P	
	Stainless steel	M	
	Cast iron	K	
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

● Continuous cutting
⬬ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated		Dimension (mm)				Geometry	Page
		CN30	PC2005	PC2010	PC2015	PC210F	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	H01	H05	DC	S/S1	RE	APMX		
LBH-KH	080-KH			●												8	2.4	4	4		
	100-KH		●	●												10	2.6	5	5		
	120-KH		●	●												12	3	6	6		
	130-KH															13	3	6.5	6.5		
	160-KH		●	●												16	4	8	8		
	170-KH		●	●												17	4	8.5	8.5		
	200-KH		●	●												20	5	10	10		
	210-KH			●												21	5	10.5	10.5		
	250-KH															25	6	12.5	12.5		
	260-KH			●												26	6	13	13		
	300-KH		●	●												30	7	15	15		
	320-KH			●												32	7	16	16		
	330-KH															33	7	16.5	16.5		B324 ~ B328
LBS	080															8	2.4	4	4		
	090															9	2.4	4.5	4.5		
	100															10	2.6	5	5		
	110															11	2.6	5.5	5.5		
	120															12	3	6	6		
	130															13	3	6.5	6.5		
	160															16	4	8	8		
	170															17	4	8.5	8.5		
	200															20	5	10	10		
	210															21	5	10.5	10.5		
	250															25	6	12.5	12.5		
	260															26	6	13	13		
	300															30	7	15	15		
	310															31	7	15.5	15.5		
	320															32	7	16	16		
LCF	160-D90					●										16	4	-	7.7		
	200-D90					●										20	5	-	9.66		
	250-D90															25	6	-	11.8		B324 ~ B328
LFH	100															10	2.6	-	0.62		
	120															12	3	-	0.71		
	160					●										16	4	-	1.02		
	200															20	5	-	1.14		
	250															25	6	-	1.56		
	300															30	7	-	1.66		
	320															32	7	-	1.83		B324 ~ B328
LRH	100-R05					●										10	2.6	0.5	3		
	100-R10					●										10	2.6	1	3		
	100-R20															10	2.6	2	3		
	110-R05															11	2.6	0.5	3		
	120-R05					●										12	3	0.5	4		
	120-R10					●										12	3	1	4		
	120-R20															12	3	2	4		
	130-R05															13	3	0.5	4		
	130-R10															13	3	1	4		
	160-R05					●										16	4	0.5	5		
	160-R10					●										16	4	1	5		
	160-R20															16	4	2	5		
	160-R30					●										16	4	3	5		
	170-R05															17	4	0.5	5		
	170-R10															17	4	1	5		
	200-R05					●										20	5	0.5	7		
	200-R10					●										20	5	1	7		
	200-R20					●										20	5	2	7		
	200-R30					●										20	5	3	7		
	210-R05															21	5	0.5	7		B324 ~ B328

LRH type

LR type

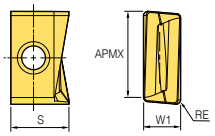
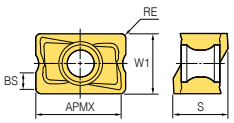
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)							Geometry	Page
		CN30	PC2005	PC2010	PC2015	PC210F	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	H01	H05	DC/ INSL	IC/W1	S/S1	RE	BS	APMX	KAPR (°)		
LRH	210-R10															15.5	-	5	1	-	7	-	LRH type	B324 ~ B328
	250-R05															15.5	-	6	0.5	-	9	-		
	250-R10					●										15.5	-	6	1	-	9	-		
	250-R20															18.5	-	6	2	-	9	-		
	250-R30															18.5	-	6	3	-	9	-		
	260-R05															19	-	6	0.5	-	9	-		
	260-R10															19	-	6	1	-	9	-		
	300-R10															22.5	-	7	1	-	11	-		
	300-R20															22.5	-	7	2	-	11	-		
	300-R30															22.5	-	7	3	-	11	-		
	310-R05															23	-	7	0.5	-	11	-		
	320-R10					●										23.5	-	7	1	-	12	-		
	320-R20					●										23.5	-	7	2	-	12	-		
	320-R30															23.5	-	7	3	-	12	-		
	330-R05															24	-	7	0.5	-	12	-		
	330-R10															24	-	7	1	-	12	-		
	330-R20															24	-	7	2	-	12	-		
	330-R30															24	-	7	3	-	12	-	LR type	
LDET-MA	650540PPFR-MA															57	15	5.625	4	-	57	90		B394
	650550PPFR-MA															57	15	5.625	5	-	57	90		
LNCS	1907-C1.5-WC															14.3	19.05	7	-	16.05	0.5	-		-
LNCS	1907-R3.0-WC															14.3	19.05	7	-	14.05	0.5	-		-
LNE	324-R0.8															15.875	9.525	6.35	0.8	-	-	-		-
	324-C1.0															15.875	9.525	6.35	0.8	-	-	-		
LNKT-MA	080404PNR-MA															8.593	4.2	6.6	0.4	1.117	8	90		B310 ~ B315
	080408PNR-MA															8.593	4.2	6.6	0.8	0.717	8	90		
	080412PNR-MA															8.593	4.2	6.6	1.2	0.559	8	90		
	080416PNR-MA															8.593	4.2	6.6	1.6	-	8	90		
	140604PNR-MA															13.745	6.65	10	0.4	1.531	12	90		
	140608PNR-MA															13.745	6.65	10	0.8	1.1273	12	90		
	140612PNR-MA															13.745	6.65	10	1.2	0.7249	12	90		
	140616PNR-MA															13.745	6.65	10	1.6	0.318	12	90		
	170704PNR-MA															17.126	7	11	0.4	1.332	16.5	90		
	170708PNR-MA															17.126	7	11	0.8	0.932	16.5	90		
	170712PNR-MA															17.126	7	11	1.2	0.532	16.5	90		
	170716PNR-MA															17.126	7	11	1.6	0.132	16.5	90		
	170720PNR-MA															17.126	7	11	2	-	16.5	90		

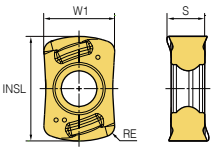
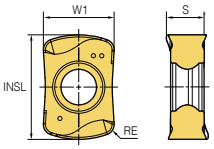
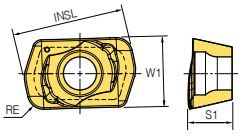
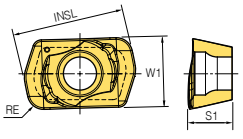
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬣ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated										Uncoated		Dimension (mm)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	DC/ INSL	IC/W1	S/S1	RE	BS	APMX	KAPR (°)		
LNKT-ML 	080404PNR-ML															8.593	4.2	6.6	0.4	1.117	8	90		B310 ~ B315
	080408PNR-ML															8.593	4.2	6.6	0.8	0.717	8	90		
	080412PNR-ML															8.593	4.2	6.6	1.2	0.559	8	90		
	080416PNR-ML															8.593	4.2	6.6	1.6	-	8	90		
	140604PNR-ML															13.745	6.65	10	0.4	1.534	12	90		
	140608PNR-ML															13.745	6.65	10	0.8	1.1273	12	90		
	140612PNR-ML															13.745	6.65	10	1.2	0.7249	12	90		
	140616PNR-ML															13.745	6.65	10	1.6	0.346	12	90		
	170704PNR-ML															17.276	7	11	0.4	1.332	16.5	90		
	170708PNR-ML										●		●			17.276	7	11	0.8	0.932	16.5	90		
	170712PNR-ML															17.157	7	11	1.2	0.532	16.5	90		
	170716PNR-ML															17.157	7	11	1.6	0.132	16.5	90		
	170720PNR-ML															17.157	7	11	2	-	16.5	90		
LNKT-MM 	080404PNR-MM															8.593	4.2	6.6	0.4	1.117	8	90		
	080408PNR-MM															8.593	4.2	6.6	0.8	0.717	8	90		
	080412PNR-MM															8.593	4.2	6.6	1.2	0.559	8	90		
	080416PNR-MM															8.593	4.2	6.6	1.6	-	8	90		
	140604PNR-MM															13.745	6.65	10	0.4	1.531	12	90		
	140608PNR-MM															13.745	6.65	10	0.8	1.1273	12	90		
	140612PNR-MM															13.745	6.65	10	1.2	0.7249	12	90		
	140616PNR-MM															13.745	6.65	10	1.6	0.318	12	90		
	170704PNR-MM															17.126	7	11	0.4	1.332	16.5	90		
	170708PNR-MM										●		●			17.126	7	11	0.8	0.932	16.5	90		
	170712PNR-MM															17.126	7	11	1.2	0.532	16.5	90		
	170716PNR-MM															17.126	7	11	1.6	0.132	16.5	90		
	170720PNR-MM															17.126	7	11	2	-	16.5	90		
LNEX-MA 	100605PNR-MA													●		10	6.5	6.5	0.5	1.7	9	90		B92 ~ B106
	151004PNR-MA													●		15	10	10	0.4	3.1	14	90		
	151008PNR-MA													●		15	10	10	0.8	2.7	14	90		
LNM(E)X -MF 	LNMX 100605PNR-MF							●			●					10	6.5	6.5	0.5	1.7	9	90		
	100608PNR-MF							●			●	●	●			10	6.5	6.5	0.8	1.4	9	90		
	151004PNR-MF						●	●			●					15	10	10	0.4	3.1	14	90		
	151008PNR-MF			●			●	●			●		●			15	10	10	0.8	2.7	14	90		
	151016PNR-MF							●			●					15	10	10	1.6	1.9	14	90		
	LNEX 100605PNR-MF							●			●					10	6.5	6.5	0.5	1.7	9	90		
	100608PNR-MF						●						●			10	6.5	6.5	0.8	1.4	9	90		
	151004PNR-MF							●			●					15	10	10	0.4	3.1	14	90		
	151008PNR-MF							●			●					15	10	10	0.8	2.7	14	90		
	151016PNR-MF							●								15	10	10	1.6	1.9	14	90		
LNM(E)X -MM 	LNMX 100605PNR-MM						●	●	●		●	●	●			10	6.5	6.5	0.5	1.7	9	90		
	100608PNR-MM						●				●	●	●			10	6.5	6.5	0.8	1.4	9	90		
	100605PNL-MM						●	●			●		●			10	6.5	6.5	0.5	1.7	9	90		
	151004PNR-MM							●					●			15	10	10	0.4	3.1	14	90		
	151008PNR-MM			●			●	●	●		●	●	●			15	10	10	0.8	2.7	14	90		
	151016PNR-MM						●	●			●		●			15	10	10	1.6	1.9	14	90		
	151008PNL-MM										●					15	10	10	0.8	2.7	14	90		
	LNEX 100605PNR-MM						●	●			●					10	6.5	6.5	0.5	1.7	9	90		
	100608PNR-MM							●			●					10	6.5	6.5	0.8	1.4	9	90		
	100605PNL-MM							●			●					10	6.5	6.5	0.5	1.7	9	90		
	151004PNR-MM							●			●					15	10	10	0.4	3.1	14	90		
	151008PNR-MM						●	●			●		●			15	10	10	0.8	2.7	14	90		
	151016PNR-MM															15	10	10	1.6	1.9	14	90		
	151008PNL-MM							●								15	10	10	0.8	2.7	14	90		

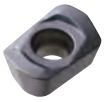
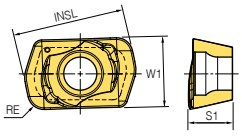
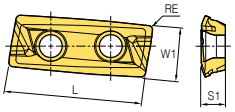
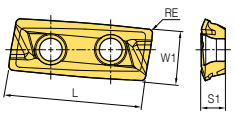
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)					Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	APMX		
LNMX-MF	060310R-MF					●	●				●	●	●			10	6.8	3.6	1	1		B267 ~ B276
	100412R-MF					●	●			●	●	●	●			12.2	10	4.2	1.2	1.5		
LNMX-ML	040205R-ML										●		●			6.2	4.2	2.35	0.5	0.5		
	060310R-ML										●	●	●			10	6.8	3.6	1	1		
	100412R-ML									●	●	●	●			12.2	10	4.2	1.2	1.5		
LNMX-MM	040205R-MM				●	●	●				●		●			6.2	4.2	2.35	0.5	0.5		
	060310R-MM				●	●	●				●	●	●			10	6.8	3.6	1	1		
	100412R-MM				●	●	●				●	●	●			12.2	10	4.2	1.2	1.5		
LPEW	040210R				●						●					6.773	4.2	2.6	1	0.5		B280 ~ B282
	040220R										●					6.4	4.2	2.6	2	0.5		
LPMT-MF	040210R-MF						●	●			●		●			6.773	4.2	2.6	1	0.5		B280 ~ B282
	040220R-MF						●	●			●		●			6.4	4.2	2.6	2	0.5		

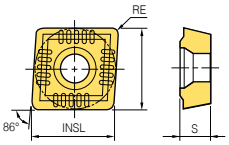
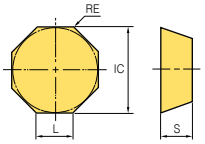
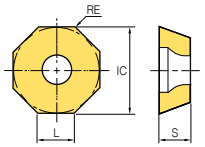
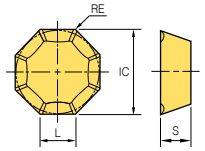
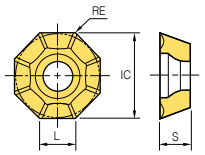
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR(°)		
LPMW 	040210R				●	●					●					6.773	4.2	2.6	1	-	0.5	13		B280 ~ B282
	040220R				●	●					●					6.7	4.2	2.6	2	-	0.5	13		
LXET-MA 	250404PEFR-32-MA															28.21	10.775	4.76	0.4	2.6	25	90		B389 ~ B392
	2504PEFR-32-MA													●		28.21	10.775	4.76	0.8	2.7	25	90		
	250412PEFR-32-MA															28.09	10.775	4.76	1.2	1.8	25	90		
	250416PEFR-32-MA															28.09	10.775	4.76	1.6	1.4	25	90		
	250404PEFR-40-MA															28.02	10.618	4.76	0.4	2.6	25	90		
	2504PEFR-40-MA															28.02	10.618	4.76	0.8	2.7	25	90		
	250412PEFR-40-MA															28.1	10.618	4.76	1.2	1.8	25	90		
	250416PEFR-40-MA															28.1	10.618	4.76	1.6	1.4	25	90		
	340504PEFR-50-MA															37.85	13.765	5.56	0.4	3.1	34	90		
	3405PEFR-50-MA													●		37.85	13.765	5.56	0.8	2.7	34	90		
	340512PEFR-50-MA															37.68	13.765	5.56	1.2	2.3	34	90		
	340516PEFR-50-MA															37.68	13.765	5.56	1.6	1.9	34	90		
	340504PEFR-63-MA															37.59	13.803	5.56	0.4	3.1	34	90		
	3405PEFR-63-MA															37.59	13.803	5.56	0.8	2.7	34	90		
	340512PEFR-63-MA															37.77	13.803	5.56	1.2	2.3	34	90		
	340516PEFR-63-MA															37.77	13.803	5.56	1.6	1.9	34	90		
LXET-ML 	250404PEER-32-ML															28.21	10.775	4.76	0.4	2.6	25	90		B389 ~ B392
	2504PEER-32-ML															28.21	10.775	4.76	0.8	2.7	25	90		
	250412PEER-32-ML															28.09	10.775	4.76	1.2	1.8	25	90		
	250416PEER-32-ML															28.09	10.775	4.76	1.6	1.4	25	90		
	250404PEER-40-ML															28.02	10.618	4.76	0.4	2.6	25	90		
	2504PEER-40-ML															28.02	10.618	4.76	0.8	2.7	25	90		
	250412PEER-40-ML															28.1	10.618	4.76	1.2	1.8	25	90		
	250416PEER-40-ML															28.1	10.618	4.76	1.6	1.4	25	90		
	340504PEER-50-ML															37.85	13.765	5.56	0.4	3.1	34	90		
	3405PEER-50-ML										●					37.85	13.765	5.56	0.8	2.7	34	90		
	340512PEER-50-ML															37.68	13.765	5.56	1.2	2.3	34	90		
	340516PEER-50-ML															37.68	13.765	5.56	1.6	1.9	34	90		
	340504PEER-63-ML															37.59	13.803	5.56	0.4	3.1	34	90		
	3405PEER-63-ML															37.59	13.803	5.56	0.8	2.7	34	90		
	340512PEER-63-ML															37.77	13.803	5.56	1.2	2.3	34	90		
	340516PEER-63-ML															37.77	13.803	5.56	1.6	1.9	34	90		

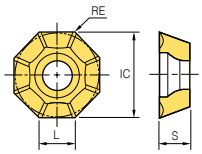
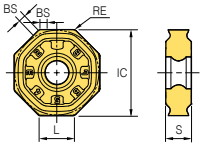
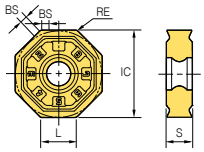
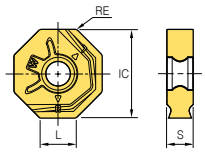
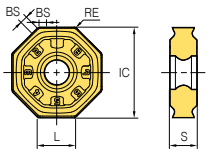
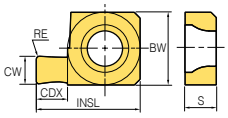
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)								Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	L	INSL	IC	S/S1	RE	BS	APMX	KAPR(°)		
MPMT 	090308															-	9.525	9.525	3.18	0.8	-	-	90		-
	120408							●								-	12.7	12.7	4.76	0.8	-	-	90		
OFCN 	0704SN								●							7.4	18.02	18	4.86	0.8	1.8	7.4	45		B63
	070408SN															7.4	18.02	18	4.86	0.8	-	7.4	45		
OFCW 	05T3SN															5.2	12.756	12.7	3.85	0.5	1.5	5.2	45		B62
OFKR-MA 	0704FN-MA													●		7.4	17.941	18	4.76	0.5	1.8	7.4	45		B63
OFKR-MF 	0704SN-MF			●	●											7.4	17.941	18	4.76	0.5	1.8	7.4	45		
	070408SN-MF															7.4	17.941	18	4.76	0.8	-	7.4	45		
OFKR-MM 	0704SN-MM			●	●			●	●	●		●				7.4	17.941	18	4.76	0.5	1.8	7.4	45		
	070408SN-MM			●												5.2	17.941	18	4.76	0.8	-	7.4	45		
OFKT-MA 	05T3FN-MA													●		5.2	12.7	12.7	3.85	0.5	1.5	5.2	45		B62 B63
	05T3EN-MA															5.2	12.756	12.7	3.85	0.5	1.5	5.2	45		
	0704FN-MA													●		7.4	17.941	18	4.74	0.5	1.8	7.4	45		
OFKT-MF 	05T3SN-MF								●							5.2	12.724	12.7	3.85	0.5	1.5	5.2	45		
	05T308SN-MF															5.2	12.724	12.7	3.85	0.8	-	5.2	45		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)								Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	L	IC /BW	S/S1	RE	BS	APMX /INSL	KAPR (°)	CW		
OFKT-MM	05T3SN-MM			●			●		●							5.2	12.7	3.85	0.5	1.5	5.2	45	-		B62 B63
	05T308SN-MM															5.2	12.7	3.85	0.8	-	5.2	45	-		
	0704SN-MM															7.4	18	4.74	0.5	1.8	7.4	45	-		
ONHX-MF	060608-MF															6.627	16	6	0.8	-	4	45	-		
	080608-MF							●			●					8.367	20.2	6	0.8	-	5.5	45	-		
	0606ANN-MF							●			●					6.627	16	6	0.8	1.035	4	45	-		
	0806ANN-MF							●			●					8.367	20.2	6	0.8	1.531	5.5	45	-		
ONHX-ML	060608-ML										●	●				6.627	16	6	0.8	-	4	45	-		
	080608-ML										●	●				8.367	20.2	6	0.8	-	5.5	45	-		
ONHX-MM	060608-MM							●			●	●				6.627	16	6	0.8	-	4	45	-		
	080608-MM							●			●					8.367	20.2	6	0.8	-	5.5	45	-		
	0606ANN-MM							●			●					6.627	16	6	0.8	1.035	4	45	-		
	0806ANN-MM							●								8.367	20.2	6	0.8	1.531	5.5	45	-		
ONHX-MA	060608-MA													●		6.627	16	6	0.8	-	4	45	-		B142 B143
	080608-MA													●		8.367	20.2	6	0.8	-	5.5	45	-		
ONHX-W	060608-W							●								6.478	16	6	0.8	6.036	4	45	-		
	080608-W															8.217	20.2	6	0.8	7.775	5.5	45	-		
ONMX-MF	060608-MF							●			●					6.627	16	6	0.8	-	4	45	-		
	080608-MF				●			●			●		●			8.367	16	6	0.8	-	4	45	-		
	0606ANN-MF							●	●		●	●	●			6.627	16	6	0.8	1.035	4	45	-		
	0806ANN-MF				●		●	●			●					8.367	20.2	6	0.8	1.531	5.5	45	-		
ONMX-MM	060608-MM				●		●	●		●	●	●	●			6.627	16	6	0.8	-	4	45	-		
	080608-MM				●		●	●	●		●	●	●			8.367	20.2	6	0.8	-	5.5	45	-		
	0606ANN-MM				●		●	●			●	●	●			6.627	16	6	0.8	1.035	4	45	-		
	0806ANN-MM				●			●			●	●	●			8.367	20.2	6	0.8	1.531	5.5	45	-		
ORG	265															-	7	3	0.3	-	10	-	2.65		B368
	325						●									-	7	3	0.3	-	10	-	3.25		
	405															-	12	4.5	0.5	-	15	-	4.05		
	470						●									-	12	4.5	0.5	-	15	-	4.7		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)				Geometry	Page
		CN30	NC5330	PC210F	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	IC	S/S1	RE		
PNEJ	1223N						●									-	12.7	2.3	-		
	1225N															-	12.7	2.5	-		
	1230N										●					-	12.7	3	-		
	1235N						●				●					-	12.7	3.5	-		
	1240N						●				●					-	12.7	4	-		
	1245N						●				●					-	12.7	4.5	-		
	1250N															-	12.7	5	-		
	1255N						●									-	12.7	5.5	-		
	1260N															-	12.7	6	-		
	1265N										●					-	12.7	6.5	-		
	1270N															-	12.7	7	-		
	1275N										●					-	12.7	7.5	-		
	1285N															-	12.7	8.5	-		
PNEJ-C	1223N-C03															-	12.7	2.3	-		
	1230N-C03															-	12.7	3	-		
	1235N-C03															-	12.7	3.5	-		
	1240N-C05															-	12.7	4	-		
	1245N-C05															-	12.7	4.5	-		
	1250N-C05															-	12.7	5	-		
	1255N-C05															-	12.7	5.5	-		
	1260N-C05															-	12.7	6	-		
	1265N-C05															-	12.7	6.5	-		
	1270N-C05															-	12.7	7	-		
	1275N-C05															-	12.7	7.5	-	※ C03 : chamfer 0.3 mm C05 : chamfer 0.5 mm	
RC	16			●												-	16	3.5	8		
	20			●												-	20	4	10		
	25			●												-	25	5	12.5		
	30															-	30	6	15		
	32															-	32	6	16		
RDCT-MA	10T3M0-MA													●		-	10	3.97	5		
	1204M0-MA													●		-	12	4.76	6		
RDHW	0501M0F															-	5	1.59	2.5		
	0501M0E								●							-	5	1.59	2.5		
	0501M0S															-	5	1.59	2.5		
	06T1M0F															-	6	1.98	3		
	06T1M0E								●							-	6	1.98	3		
	06T1M0S															-	6	1.98	3		
	0702M0F															-	7	2.38	3.5		
	0702M0E								●							-	7	2.38	3.5		
	0702M0S															-	7	2.38	3.5		
	0803M0F															-	8	3.18	4		
	0803M0E								●							-	8	3.18	4		
	0803M0S															-	8	3.18	4		
	1605M0F															-	16	5.56	8		
	1605M0E															-	16	5.56	8		
	1605M0S															-	16	5.56	8		
	2006M0F															-	20	6.35	10		
	2006M0E															-	20	6.35	10		
	2006M0S															-	20	6.35	10		

Page
B410 B411
B410 B411
B329
B225 B226 B231 B232 B237 B238
B227 ~ B238

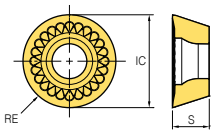
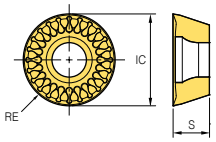
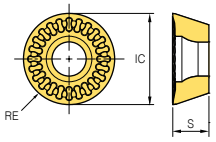
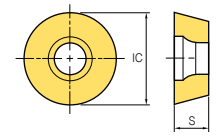
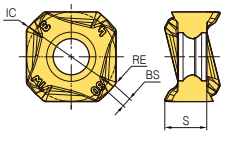
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬢ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated										Uncoated		Dimension (mm)		Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	
RDKT-MF	10T3M0-MF								●		●					10	3.97	B225 ~ B227 B231 ~ B238
	1204M0-MF						●		●		●					12	4.76	
	1605M0-MF															16	5.56	
RDKT-ML	1605M0-ML															16	5.56	B227 B233 B238
RDKT-MM	10T3M0-MM			●			●	●			●	●				10	3.97	B225 ~ B228 B231 ~ B238
	1204M0-MM			●			●	●			●	●				12	4.76	
	1605M0-MM						●									16	5.56	
	2006M0-MM						●									20	6.35	
RDKW	0501M0E						●									5	1.59	B229 B230 B235 B236
	06T1M0E						●									6	1.98	
	0702M0E						●									7	2.38	
	0803M0E						●									8	3.18	
REKR-MM	170400-MM															17.8	4.76	B63
RNMX-ML	1204M0E-ML						●			●	●					12	4.75	B146 B147
RPCT-MA	10T3M0-MA													●		8	3.97	B244 ~ B255
	1204M0-MA													●		12	4.76	
	1606M0-MA													●		16	6.35	
	2007M0-MA													●		20	7	

● : Stock item

Workpiece			Machining types
Steel	P	⬌ ● ● ● ⬌ ⬌ ⬌ ⬌ ⬌ ✱	● Continuous cutting
Stainless steel	M	● ⬌ ✱ ⬌ ⬌ ⬌	⬌ General cutting
Cast iron	K	● ● ⬌ ⬌ ● ⬌ ⬌ ⬌ ✱ ● ●	✱ Interrupted cutting
Non-ferrous metal	N	● ⬌	
Heat resistant alloy, Titanium alloy	S	✱ ⬌ ⬌ ✱	
Hardened steel	H	● ⬌ ⬌ ⬌ ✱	

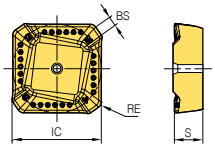
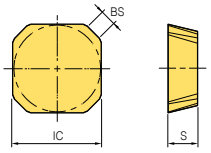
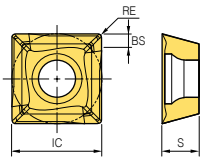
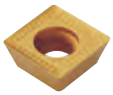
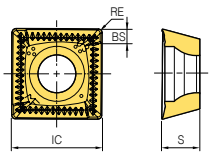
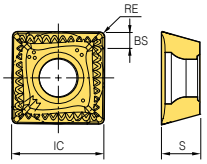
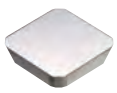
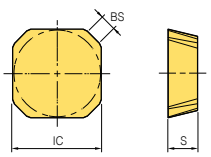
Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
RPMT-MF	0803M0E-MF										●		●			8	3.18	4	-	4	-		B244 ~ B255
	10T3M0E-MF										●	●	●			10	3.97	5	-	5	-		
	1204M0E-MF									●	●		●			12	4.76	6	-	6	-		
	1606M0E-MF										●		●			16	6.35	8	-	8	-		
	2007M0E-MF										●					20	7	10	-	10	-		
RPET-ML	0803M0E-ML										●					8	3.18	4	-	4	-		B244 ~ B255
	10T3M0E-ML										●					10	3.97	5	-	5	-		
	1204M0E-ML										●		●			12	4.76	6	-	6	-		
	1606M0E-ML										●		●			16	6.35	8	-	8	-		
	2007M0E-ML										●		●			20	7	10	-	10	-		
RPMT-MM	0803M0S-MM				●	●					●					8	3.18	4	-	4	-		B244 ~ B255
	10T3M0S-MM					●	●				●	●	●			10	3.97	5	-	5	-		
	1204M0S-MM				●	●	●			●	●	●	●			12	4.76	6	-	6	-		
	1606M0S-MM					●	●				●	●	●			16	6.35	8	-	8	-		
	2007M0S-MM				●	●	●				●		●			20	7	10	-	10	-		
RPMW	0803M0E1										●		●			8	3.18	4	-	4	-		B244 ~ B255
	10T3M0E1					●					●		●			10	3.97	5	-	5	-		
	1204M0S1				●	●	●				●					12	4.76	6	-	6	-		
	1204M0S2										●		●			12	4.76	6	-	6	-		
	1606M0S1												●			16	6.35	8	-	8	-		
	2007M0S1					●					●		●			20	7	10	-	10	-		
SAGX-ML	140808ANER-ML							●		●	●					14	6.56	0.8	1.21	5.5	45		B136
SAGX-MM	140808ANER-MM							●			●					14	6.56	0.8	1.21	5.5	45		
SNMX-MM	140808ANER-MM						●	●			●					14	6.56	0.8	1.21	5.5	45		

● : Stock item

Workpiece			
Steel	P	● ✱ ● ● ● ●	●
Stainless steel	M	✱ ● ● ●	
Cast iron	K	● ● ● ●	● ● ●
Non-ferrous metal	N	✱	● ●
Heat resistant alloy, Titanium alloy	S	● ●	
Hardened steel	H	● ●	

Machining types

● Continuous cutting
● General cutting
✱ Interrupted cutting

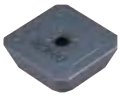
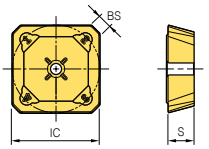
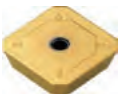
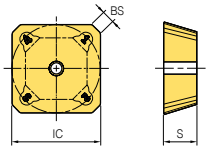
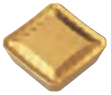
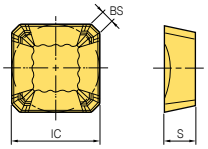
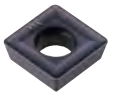
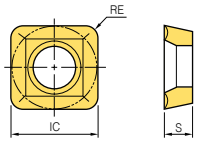
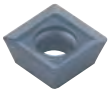
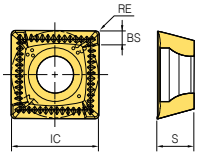
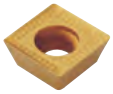
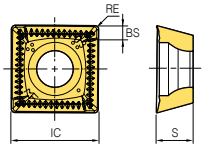
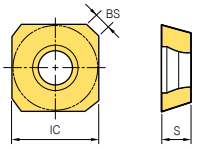
Picture	Designation	Cermet	Coated								Uncoated				Dimension (mm)						Geometry	Page
		CN30	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC5300	PC5535	PD1010	ST30A	G10	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
SCKN 	220715DDSR-MM				●	●										22	7.65	1.5	2.563	10.5	55		B58
	280920DDSR-MM															28	7.65	1.5	3.095	14.5	55		
SDCN 	42M												●			12.7	3.18	-	1.46	6	45	 ▶Cutting-edge geometry · G: Light Side, Sharpe Edge · S20: STS · RH: Strengthened edge ▶Sub-cutting-edge geometry · M: AEFN · MT: AETN	B47 B48 B59 B60
	42M-G													●		12.7	3.18	-	1.46	6	45		
	42MT	●		●								●				12.7	3.18	-	1.46	6	45		
	42MT-RH															12.7	3.18	-	1.43	6	45		
	42MT-S20						●									12.7	3.18	-	1.46	6	45		
	53M												●			15.875	4.76	-	1.46	8	45		
	53M-G													●		15.875	4.76	-	1.46	8	45		
	53MT	●		●								●				15.875	4.76	-	1.46	8	45		
	53MT-RH															15.875	4.76	-	1.43	8	45		
	53MT-S20						●									15.875	4.76	-	1.46	8	45		
	1203AEEN-RH															12.7	3.18	1	1.43	9	45		
	1203AESN															12.7	3.18	-	1.46	6	45		
	1203AESN-RH															12.7	3.18	1	1.43	6	45		
	1504AEEN-RH						●		●							15.875	4.76	1	1.43	8	45		
	1504AESN															15.875	4.76	-	1.46	8	45		
	1504AESN-RH						●									15.875	4.76	1	1.43	8	45		
SDET-MA 	09M402R-MA												●	●		9.525	3.923	0.2	-	7	90		B212 ~ B217
	09M404R-MA															9.525	3.923	0.4	-	7	90		
	09M405R-MA															9.525	3.923	0.5	-	7	90		
	130504R-MA										●		●	●		13.5	5.56	0.4	-	11	90		
SDET-MF 	09M405R-MF															9.525	3.923	0.5	-	7	90		
	130508R-MF															13.5	5.56	0.8	-	11	90		
SDET-MM 	09M405R-MM															9.525	3.923	0.5	-	7	90		
	130508R-MM															13.5	5.56	0.8	-	11	90		
SDKN-CM 	42MT-CM	●														12.7	3.18	-	1.49	6	45		-

● : Stock item

Workpiece			NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05
	Steel	P	⇔	●	●	✱	●	⇔	⇔		⇔	⇔	✱		
	Stainless steel	M		●		✱				⇔	⇔	⇔	✱		
	Cast iron	K		●			●	⇔		●	⇔	⇔	✱	●	●
	Non-ferrous metal	N												●	⇔
	Heat resistant alloy, Titanium alloy	S									⇔	⇔	✱		
	Hardened steel	H					⇔				⇔	⇔	✱		

Machining types

● Continuous cutting
⇔ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated											Uncoated		Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
SDKN-MU 	**1203AESN-MU**							●								12.7	3.18	0.5	2.181	6	45		B47 B48 B59 B60
	1504AESN-MU							●								15.875	4.76	0.5	2.096	8	45		
SDKN-SU 	**1203AESN-SU**							●		●		●				12.7	3.18	1	1.75	6	45		
	1504AESN-SU							●		●		●				15.875	4.76	1.2	1.69	8	45		
SDKR-MX 	**1203AESN-MX**															12.7	3.18	2.1	1.46	6	45		
	1203AEN-MX			●												12.7	3.18	2.1	1.46	6	45		
	1504AESN-MX				●											15.875	4.76	0.8	0	8	45		
	1504AEN-MX			●												15.875	4.76	2.1	1.46	8	45		
SDMT-MM 	**090308-MM**							●			●					9.525	3.18	9	-	9.5	90		B306 B338
SDXT-MA 	**09M405R-MA**													●		9.525	3.923	0.5	-	7	90		E212 ~ E217
	130508R-MA													●	●	9.525	3.923	0.5	-	11	90		
SDXT-MF 	**09M403R-MF**															13.5	5.56	0.8	-	7	90		B212 ~ B217
	09M403L-MF															9.525	3.923	0.3	-	7	90		
	09M404R-MF															9.525	3.923	0.4	-	7	90		
	09M404L-MF															9.525	3.923	0.4	-	7	90		
	09M405R-MF			●				●	●	●	●		●			9.525	3.923	0.5	-	7	90		
	09M405L-MF															9.525	3.923	0.5	-	7	90		
	130508R-MF			●					●	●	●		●			13.5	5.56	0.8	-	11	90		
SDXT-MM 	**09M405R-MM**			●	●			●	●	●	●		●			9.525	3.923	0.5	-	7	90		
	09M405L-MM								●							9.525	3.923	0.5	-	7	90		
	130508R-MM			●	●			●	●	●	●		●			13.5	5.56	0.8	-	11	90		
	130508L-MM															13.5	5.56	0.8	-	11	90		
	130538-MM															13.5	5.56	3.8	-	11	90		
SECA 	**1204AFSN**			●												12.7	4.76	-	2.66	-	45		-
	1204AFTN	●						●		●						12.7	4.76	-	2.66	-	45		
	1204AFFN															12.7	4.76	-	2.66	-	45		
	1204AFEN															12.7	4.76	-	2.66	-	45		
	1504AFSN															15.875	4.76	-	2.8	-	45		
	1504AFTN															15.875	4.76	-	2.8	-	45		
	1504AFFN															15.875	4.76	-	2.8	-	45		

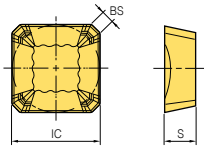
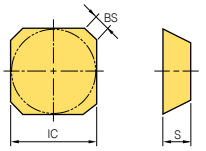
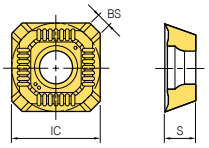
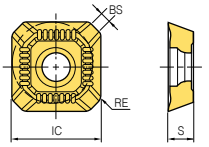
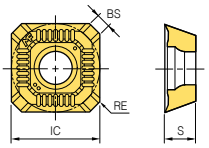
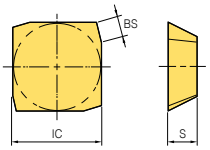
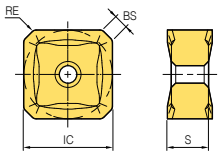
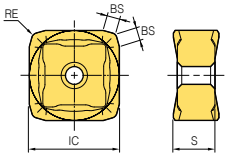
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⇔ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated								Uncoated				Dimension (mm)						Geometry	Page
		CN30	NCM325	NCM335	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	ST30A	G10	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
SECN	1203AFFN												●	●		12.7	3.18	0.8	2.36	5.5	45	▶Shape of Edge · S20: STS · RH: Strengthened edge, STS	B49 B50
	1203AFTN	●										●				12.7	3.18	0.8	2.36	5.5	45		
	1203AFEN															12.7	3.18	0.8	2.36	5.5	45		
	1203AFSN		●	●							●					12.7	3.18	0.8	2.36	5.5	45		
	1203AFEN-RH					●		●								12.7	3.18	0.8	2.36	5.5	45		
	1203AFSN-RH															12.7	3.18	0.8	2.36	5.5	45		
	1203AFTN-S20						●									12.7	3.18	0.8	2.36	5.5	45		
	1504AFFN												●			15.875	4.76	0.5	1.9	7.5	45		
	1504AFTN	●														15.875	4.76	0.5	1.9	7.5	45		
	1504AFEN															15.875	4.76	0.5	1.9	7.5	45		
	1504AFSN															15.875	4.76	1.0	2.4	7.5	45		
	1504AFEN-RH															15.875	4.76	0.5	1.9	7.5	45		
	1504AFSN-RH					●										15.875	4.76	1.0	2.4	7.5	45		
	1504AFTN-S20															15.875	4.76	1.0	2.4	7.5	45		
SEET-MA	0903AGFN-MA													●	●	9.525	3.18	0.8	1.44	4	45		
	14M4AGFN-MA													●	●	14	4	0.8	1.81	6.5	45		
SEET-MF	0903AGSN-MF					●	●	●								9.525	3.18	0.8	1.44	4	45		B206 ~ B211
	14M4AGSN-MF					●	●	●								14	4	0.8	1.81	6.5	45		
SEET-MM	0903AGSN-MM		●			●		●								9.525	3.18	0.8	1.44	4	45		
	14M4AGSN-MM			●	●	●	●	●		●						14	4	0.8	1.81	6.5	45		
SEEW	0903AGTN															9.525	3.18	0.8	1.44	4	45		
	14M4AGTN	●														14	4	0.8	1.44	6.5	45		
SEEW-W	14M4AGFN-W															14	4	0.8	1.81	6.5	45		B207 B209 B211
	14M4AGSN-W															14	4	0.8	1.81	6.5	45		
	14M4AGTN-W					●										14	4	0.8	1.81	6.5	45		
SEKN-SU	1203AFSN-SU				●											12.7	3.18	0.5	1.85	-	45		B49 B50
	1504AFSN-SU				●					●						15.875	4.76	0.5	1.9	-	45		

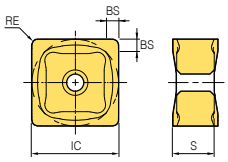
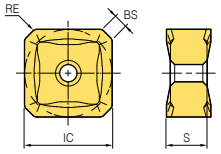
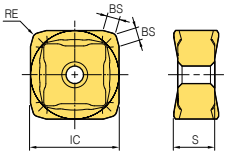
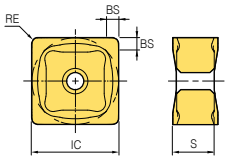
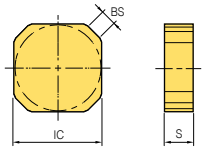
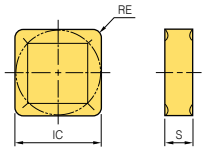
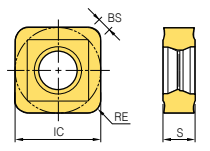
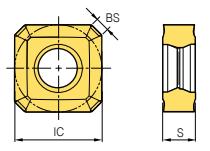
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
SEKR-MX	1203AFSN-MX			●	●					●						12.7	3.18	0.8	2.4	5.5	45		B49 B50
	1504AFSN-MX			●						●						15.875	4.76	0.8	2.4	7.5	45		
SEMN	1204AZ															12.7	4.76	-	2	-	-		-
SEXT-MF	0903AGSN-MF									●	●					9.525	3.18	0.8	1.44	4	45		B206 ~ B211
	14M4AGSN-MF									●	●	●				14	4	0.8	1.81	6.5	45		
SEXT-MM	0903AGSN-MM								●	●	●	●				9.525	3.18	0.8	1.44	4	45		
	14M4AGSN-MM			●					●	●	●	●				14	4	0.8	1.81	6.5	45		
SEXT-MR	0903AGSN-MR										●	●				9.525	3.18	0.8	1.44	4	45		
	14M4AGSN-MR										●	●				14	4	0.8	1.81	6.5	45		
SFCN	1203EFR													●		12.7	3.18	-	2.5	8	75		B51
SNC(M)F-MF	SNMF 1206ANN-MF															12.7	6.05	0.8	2.1	-	45		B129 B130
	SNMF 1507ANN-MF															15.875	6.78	0.8	2.1	-	45		
	SNCF 1206ANN-MF															12.7	6.05	0.8	2.1	-	45		
	SNCF 1507ANN-MF															15.875	6.78	0.8	2.1	-	45		
SNC(M)F-MF	SNMF 1206ENN-MF							●								12.7	6.05	0.8	1.8	-	75		B131 B132
	SNMF 1507ENN-MF															15.875	6.78	0.8	1.8	-	75		
	SNCF 1206ENN-MF															12.7	6.05	0.8	1.8	-	75		
	SNCF 1507ENN-MF															15.875	6.78	0.8	1.8	-	75		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated								Uncoated			Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ST30A	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
SNC(M)F-MF 	SNMF 1206QNN-MF						●									12.7	6.05	0.8	1	-	88		B133
	SNCF 1206QNN-MF															12.7	6.05	0.8	1	-	88		
SNC(M)F-MM 	SNMF 1206ANN-MM															12.7	6.05	0.8	2.1	-	45		B129 B130
	1507ANN-MM															15.875	6.78	0.8	2.1	-	45		
	SNCF 1206ANN-MM															12.7	6.05	0.8	2.1	-	45		
	1507ANN-MM															15.875	6.78	0.8	2.1	-	45		
SNC(M)F-MM 	SNMF 1206ENN-MM						●									12.7	6.05	0.8	1.8	-	75		B131 B132
	1507ENN-MM						●									15.875	6.78	0.8	1.8	-	75		
	SNCF 1206ENN-MM															12.7	6.05	0.8	1.8	-	75		
	1507ENN-MM															15.875	6.78	0.8	1.8	-	75		
SNC(M)F-MM 	SNMF 1206QNN-MM						●									12.7	6.05	0.8	1	-	88		B133
	SNCF 1206QNN-MM															12.7	6.05	0.8	1	-	88		
SNCN 	1204ENN			●									●			12.7	4.76	-	1.26	-	75		B52
	1504ENN															15.875	4.76	-	1.4	11.5	75		
SNEF 	435															12.7	4.76	2	-	-	-		-
	535															15.875	4.76	2	-	-	-		
SNEU-MF 	120420-MF															12.7	4.76	2	-	-	-		B423
SNEU-MF 	1204ANN-MF															12.7	4.76	0.4	2.15	-	45		B423

● : Stock item

Workpiece			NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	G10	H01	DP90	DP150	DP200
	Steel	P	⇕	●	●	●		⇕	⇕	✱					
	Stainless steel	M					⇕	⇕	⇕	✱					
	Cast iron	K		●	●		●	⇕	⇕	✱	⇕	●			
	Non-ferrous metal	N										●	●	⇕	✱
	Heat resistant alloy, Titanium alloy	S						⇕	⇕	✱					
	Hardened steel	H		⇕				⇕	⇕	✱					

Machining types

● Continuous cutting
⇕ General cutting
✱ Interrupted cutting

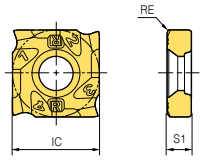
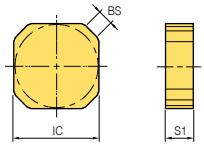
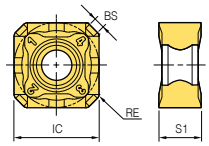
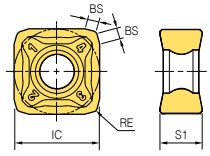
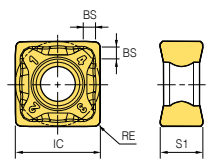
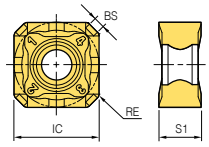
Picture	Designation	Cermet	Coated								Uncoated		PCD			Dimension (mm)						Geometry	Page
		CN30	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	G10	H01	DP90	DP150	DP200	IC	S/S1	RE	BS	APMX	KAPR(°)		
SNEU-TBW	**1204-TBW**															12.7	4.76	0.6	5	2.5	90		B423
SNEU-WMF	**1204R-WMF**															12.7	4.76	2	3.5	10.2	90		B423
SNEX	**101010**															10	10	1	-	9	90		B419
	1010ZNN															10	10	0.8	1.41	9	45		
SNEX-CU1	**101010-CU1**															10	10	1	-	9	90		B419
	1010ZNN-CU1															10	10	0.8	1.41	9	45		
	121212-CU1															12.7	12.7	1.2	0	11.5	90		
	1212ZNN-CU1															12.7	12.7	1	1.7	11.5	45		
SNEX-MA	**1206ANN-MA**										●					12.7	6.35	0.8	1.56	6	45		B118 B119 B122 B123 B126 B127
	1206ENN-MA										●					12.7	6.35	1	1.32	9	75		
	1206QNN-MA										●					12.7	6.35	0.8	1.394	11.5	88		
	120612-MA										●					12.7	6.35	1.2	-	11.5	-		
SNEX-ML	**1206ANN-ML**							●	●							12.7	6.35	0.8	1.56	6	45		B118 ~ B127
	1206ENN-ML							●								12.7	6.35	1	1.32	9	75		
	1206QNN-ML							●	●							12.7	6.35	0.8	1.394	11.5	88		
	120612-ML															12.7	6.35	1.2	0	11.5	-		
	1507ANN-ML								●							15.875	7.94	0.8	2.36	7.5	45		
	1507ENN-ML															15.875	7.94	1	2.16	11	75		
SNEW	**09T3ADFR**											●				9.525	3.97	-	1.8	5	-		B155 ~ B156
SNEW-NAF	**09T3ADTR-NAF**												●		●	9.525	3.97	-	1.8	5	-		
	09T3ADTR-NAW														●	9.525	3.97	-	2.1	5	-		
	NAW: Wiper insert																						
SNEW-XAF	**09T3ADTR-XAF**												●		●	9.525	3.97	-	1.8	5	-		
	09T3ADTR-XAW												●		●	9.525	3.97	-	2.1	5	-		
	XAW: Wiper insert																						

● : Stock item

Workpiece			NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05
Steel	P		●	●	●	●	●				●	●	●		
Stainless steel	M			●					●	●	●	●	●		
Cast iron	K		●	●	●	●		●			●	●	●	●	●
Non-ferrous metal	N													●	●
Heat resistant alloy, Titanium alloy	S									●	●	●	●		
Hardened steel	H				●	●					●	●	●		

Machining types

● Continuous cutting
● General cutting
● Interrupted cutting

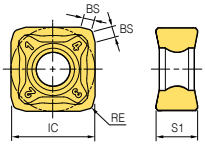
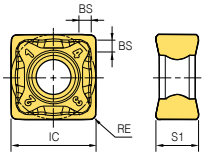
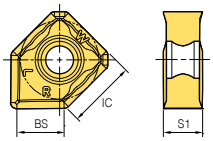
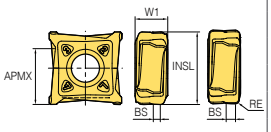
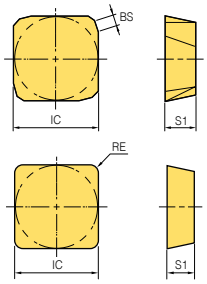
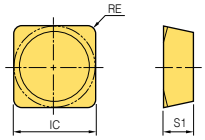
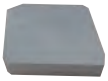
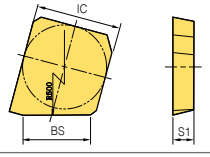
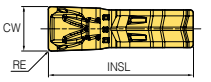
Picture	Designation	Cermet	Coated											Uncoated		Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
SNHT-WX 	1102308R-WX										●					11	2.3	0.8	0.74	-	90		B415 B416
	110308R-WX										●					11	3	0.8	0.74	-	90		
	1203508R-WX										●					12.7	3.5	0.8	0.6	-	90		
	120408R-WX															12.7	4	0.8	0.6	-	90		
	1204508R-WX										●					12.7	4.54	0.8	0.6	-	90		
	120508R-WX										●					12.7	5	0.8	0.6	-	90		
	1205408R-WX										●					12.7	5.47	0.8	0.6	-	90		
	120608R-WX															12.7	6	0.8	0.6	-	90		
	1206508R-WX															12.7	6.5	0.8	0.6	-	90		
	120708R-WX															12.7	7	0.8	0.6	-	90		
	1207508R-WX															12.7	7.5	0.8	0.6	-	90		
	1102308L-WX										●					11	2.3	0.8	0.74	-	90		
	110308L-WX										●					11	3	0.8	0.74	-	90		
	120308L-WX															12.7	3.25	0.8	0.6	-	90		
	1203508L-WX										●					12.7	3.5	0.8	0.6	-	90		
	120408L-WX															12.7	4	0.8	0.6	-	90		
	1204508L-WX										●					12.7	4.54	0.8	0.6	-	90		
	120508L-WX										●					12.7	5	0.8	0.6	-	90		
	1205408L-WX										●					12.7	5.47	0.8	0.6	-	90		
	120608L-WX															12.7	6	0.8	0.6	-	90		
	1206508L-WX															12.7	6.5	0.8	0.6	-	90		
	120708L-WX															12.7	7	0.8	0.6	-	90		
	1207508L-WX															12.7	7.5	0.8	0.6	-	90		
SNKN 	1204ENN							●								12.7	4.76	0	1.26	-	75		B52
	1504ENN															15.875	4.76	0	1.4	-	75		
SNM(E)X-MF 	SNMX 1206ANN-MF			●			●	●		●	●	●	●			12.7	6.35	0.8	1.56	6	45		B118 ~ B121
	1507ANN-MF						●	●			●		●			15.875	7.94	0.8	2.36	7.5	45		
	SNEX 1206ANN-MF						●	●			●		●			12.7	6.35	0.8	1.56	6	45		
	1507ANN-MF							●								15.875	7.94	0.8	2.36	7.5	45		
SNM(E)X-MF 	SNMX 1206ENN-MF						●	●		●	●	●	●			12.7	6.35	1	1.32	9	75		B122 ~ B125
	1507ENN-MF						●	●			●		●			15.875	7.94	1	2.16	11	75		
	SNEX 1206ENN-MF							●			●		●			12.7	6.35	1	1.32	9	75		
	1507ENN-MF							●			●					15.875	7.94	1	2.16	11	75		
SNM(E)X-MF 	SNMX 1206QNN-MF						●	●			●	●	●			12.7	6.35	0.8	1.394	11.5	88		B126 B127
	120612-MF							●			●					12.7	6.35	1.2	-	11.5	-		
	SNEX 1206QNN-MF						●	●			●		●			12.7	6.35	0.8	1.394	11.5	88		
	120612-MF							●			●					12.7	6.35	1.2	-	11.5	-		
SNM(E)X-MM 	SNMX 1206ANN-MM						●	●	●	●	●	●	●			12.7	6.35	0.8	1.56	6	45		B118 ~ B121
	1507ANN-MM						●	●			●		●			15.875	7.94	0.8	2.36	7.5	45		
	SNEX 1206ANN-MM						●	●	●		●		●			12.7	6.35	0.8	1.56	6	45		
	1507ANN-MM							●			●					15.875	7.94	0.8	2.36	7.5	45		

● : Stock item

Workpiece			NC5330	NCM325	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	ST30A	G10	H01
	Steel	P	⇕	●	●	●	⇕			⇕	⇕	✱	⇕		
	Stainless steel	M		●				⇕	✱	⇕	⇕	✱			
	Cast iron	K		●		●		●		⇕	⇕	✱		⇕	●
	Non-ferrous metal	N													●
	Heat resistant alloy, Titanium alloy	S							✱	⇕	⇕	✱			
	Hardened steel	H								⇕	⇕	✱			

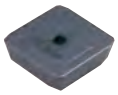
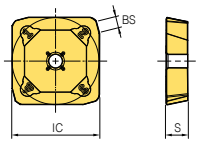
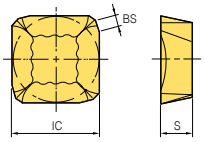
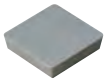
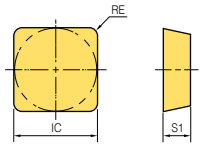
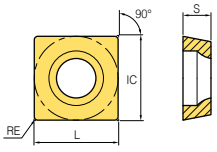
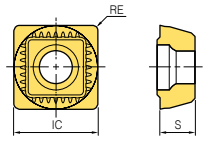
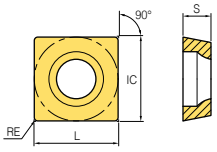
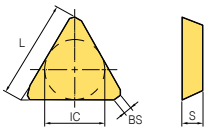
Machining types

● Continuous cutting
⇕ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated			Dimension (mm)								Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	ST30A	G10	H01	INSL	IC/ W1	S/S1	RE	BS	APMX	KAPR(°)	CW		
SNM(E)X-MM 	SNMX 1206ENN-MM				●	●	●		●	●	●	●				12.7	12.7	6.35	1	1.32	9	75	-		B122 ~ B125
	1507ENN-MM					●	●			●		●				15.875	15.875	7.94	1	2.16	11	75	-		
	SNEX 1206ENN-MM						●			●						12.7	12.7	6.35	1	1.32	9	75	-		
	1507ENN-MM						●			●						15.875	15.875	7.94	1	2.16	11	75	-		
SNM(E)X-MM 	SNMX 1206QNN-MM				●	●	●		●	●	●	●				12.7	12.7	6.35	0.8	1.394	11.5	88	-		E126 E127
	120612-MM					●	●			●						12.7	12.7	6.35	1.2	-	11.5	88	-		
	SNEX 1206QNN-MM						●			●		●				12.7	12.7	6.35	0.8	1.394	11.5	88	-		
	120612-MM						●									12.7	12.7	6.35	1.2	-	11.5	88	-		
SNEX-W 	1206ANN-W					●	●			●						12.7	12.7	6.35	1	7.63	6	45	-		E118 E119
SOKX 	1406XPNR-ML						●			●						14.47	6.56	-	-	1.35	11	90	-		E318 E319
	140608PNR-ML						●			●						14.47	6.56	-	0.8	1.69	11	90	-		
SPCN 	1203EDR	●		●				●					●	●	●	12.7	12.7	3.18	-	1.4	9	75	-		B53 B54
	1203EDR-RH															12.7	12.7	3.18	-	1.4	9	75	-		
	1203EDL												●			12.7	12.7	3.18	-	1.4	9	75	-		
	1203EDR-G														●	12.7	12.7	3.18	-	1.4	9	75	-		
	1203EDR-RN															12.7	12.7	3.18	0.5	1.4	9	75	-		
	1203EDER-RH						●			●						12.7	12.7	3.18	0.8	1.63	9	75	-		
	1203EDSR-RH						●									12.7	12.7	3.18	0.8	1.63	9	75	-		
	1203EDTR-RH															12.7	12.7	3.18	0.8	1.4	9	75	-		
	1203EDR-S20							●								12.7	12.7	3.18	-	1.4	9	75	-		
	150412T															15.875	15.875	4.76	-	0	12	75	-		
	1504EDR	●		●									●	●		15.875	15.875	4.76	-	1.4	12	75	-		
	1504EDSR															15.875	15.875	4.76	-	1.4	12	75	-		
	1504EDL															15.875	15.875	4.76	-	1.4	12	75	-		
	1504EDR-G														●	15.875	15.875	4.76	-	1.4	12	75	-		
	1504EDR-RN															15.875	15.875	4.76	1	1.4	12	75	-		
	1504EDER-RH						●			●						15.875	15.875	4.76	-	1.64	12	75	-		
	1504EDSR-RH						●									15.875	15.875	4.76	-	1.64	12	75	-		
	1504EDTR-RH															15.875	15.875	4.76	-	1.64	12	75	-		
	1504EDR-S20							●								15.875	15.875	4.76	-	1.4	12	75	-		
SPEN-WC 	120416-WC															-	12.7	4.76	1.6	-	-	-	-		-
	150412-WC															-	15.875	4.76	1.2	-	-	-	-		
	150416-WC															-	15.875	4.76	1.6	-	-	-	-		
	150420-WC															-	15.875	4.76	2	-	-	-	-		
	190424-WC															-	19.05	4.76	2.4	-	-	-	-		
SPEX 	1203EDR-1															-	12.7	3.18	-	10.2	-	-	-		B53 B54
	1203EDL-1															-	12.7	3.18	-	10.2	-	-	-		
	1504EDR-1															-	15.875	4.76	-	10.2	-	-	-		
	1504EDL-1															-	15.875	4.76	-	10.2	-	-	-		
SPFN 	200-N															8.8	-	-	0.16	-	-	-	2.2		B412
	300-N															9.8	-	-	0.2	-	-	-	3.0		
	400-N															9.8	-	-	0.25	-	-	-	4.0		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

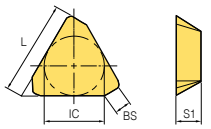
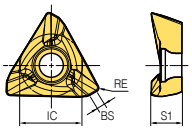
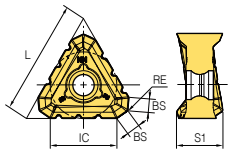
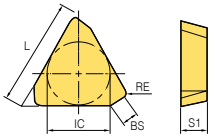
Picture	Designation	Cermet	Coated								Uncoated			Dimension (mm)							Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ST30A	G10	H01	INSL	IC	S/S1	RE	BS	APMX	KAPR(°)		
SPKN-MU 	1203EDSR-MU						●									-	12.7	3.18	0.3	1.87	12	75		B53 B54
	1504EDSR-MU						●									-	15.875	4.76	1	1.92	12	75		
SPKN-SU 	1203EDSR-SU						●			●		●				-	12.7	3.18	0.8	1.643	12	75		
	1203EDSL-SU						●									-	12.7	3.18	0.8	1.91	12	75		
	1504EDSR-SU						●			●		●				-	15.875	4.76	1.2	1.691	12	75		
	1504EDSL-SU						●									-	15.875	4.76	0.8	1.69	12	75		
SPKR-MX 	1203EDSR-MX		●	●												-	12.7	3.18	1	1.4	9	75		
	1203EDSL-MX															-	12.7	3.18	1	1.4	9	75		
	1504EDR-MX		●													-	15.875	4.76	1	1.45	12	75		
	1504EDSR-MX															-	15.875	4.76	1	1.45	12	75		
SPMN 	120308												●			-	12.7	3.18	0.8	-	7.8	90		B371
SPMT 	060304		●													-	6.35	3.18	0.4	-	5.5	90		B306 B334 B335 B337
SPMT-KC 	110408-KC						●			●			●	●		-	11.5	4.8	0.8	-	9.5	90		B371
SPMT-MM 	120408-MM						●			●						-	12.7	4.76	0.8	-	11.5	90		B306 B335 B338 B354
	120508-MMN															-	12.7	5.56	0.8	-	12.7	90		
TEC(E)N 	TECN 22R															11	6.35	3.18	-	1	8	90		B61
	22TR	●											●			11	6.35	3.18	0.8	0.532	8	90		
	32R													●		16.5	9.525	3.18	-	1	13	90		
	32R-G															16.5	9.525	3.18	-	1	13	90		
	32TR	●			●								●			16.5	9.525	3.18	0.8	0.527	13	90		
	32TR-S20									●						16.5	9.525	3.18	0.8	0.527	13	90		
	43R-G															22	12.7	4.76	-	0.955	16.5	90		
	43TR															22	12.7	4.76	0.8	1.477	16.5	90		
	TEEN 32TR															16.5	9.525	3.18	0.8	0.527	13	90		
TEEN 	43TR-Z												●			22	12.7	4.76	0.8	1.477	16.5	90	▶Shape of Edge · G: Light Side, Sharpe Edge · S20: STS · ZH: Hole added	
	43TR-ZH						●	●								22	12.7	4.76	-	1.477	16.5	90		
	43R													●		22	12.7	4.76	0.8	1.955	16.5	90		
	43R-G														●	22	12.7	4.76	0.8	1.955	16.5	90		
	43TR	●		●	●		●						●			22	12.7	4.76	0.8	1.477	16.5	90		
	43TR-S20								●							22	12.7	4.76	0.8	1.477	16.5	90		

● : Stock item

Workpiece			NC5330	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	ST30A	G10	H01
Steel	P		●	●	✱	●	●				⬌	⬌	⬌		
Stainless steel	M		●		✱				⬌	✱	⬌	⬌			
Cast iron	K		●			●		●			⬌	⬌		⬌	●
Non-ferrous metal	N														●
Heat resistant alloy, Titanium alloy	S										⬌	⬌			
Hardened steel	H										⬌	⬌			

Machining types

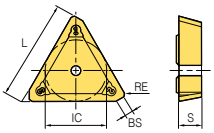
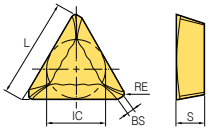
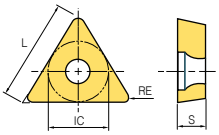
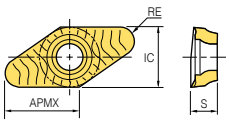
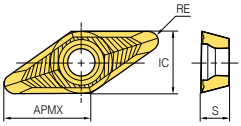
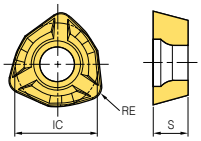
● Continuous cutting
⬌ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated			Dimension (mm)							Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	ST30A	G10	H01	INSL	IC	S/S1	RE	BS	APMX	KAPR(°)		
TFCN	2203PFR														●	22	12.7	3.18	-	2.42	16	90		B55
	2203PFL															22	12.7	3.18	-	2.42	16	90		
TNKT-ML	110508PEER-ML						●			●	●	●				11.286	8	4.5	0.8	1.297	8	90		B259 ~ B262
	160608PEER-ML						●				●	●				16.36	11.7	5.5	0.8	1.581	11.5	90		
	200708PEER-ML						●			●	●	●				21.414	14.5	7	0.8	2	15.5	90		
TNKT-MM	110508PESR-MM						●	●			●	●				11.286	8	4.5	0.8	1.299	8	90		
	160608PESR-MM						●	●			●	●				16.36	11.7	5.5	0.8	1.517	11.5	90		
	200708PESR-MM						●	●			●	●				21.414	14.5	7	0.8	2	15.5	90		
TNMX-NM	2710AZNR-NM		●			●	●		●		●					27	15.875	10	0.8	2.63	18	45		B67 ~ B69
	2710AZNL-NM															27	15.875	10	0.8	2.63	18	45		
	3012PNR-NM										●					30	17.462	11.97	0.8	3.5	20	90		
TPCN	1103PPN	●											●	●		11	6.35	3.18	-	0.7	8	90	 · G: Light Side, Sharpe Edge · S20: STS · RH: Strengthened edge	B56
	1603PDR			●												16.5	9.525	1.98	-	1.2	13	90		
	1603PPN	●		●										●		16.5	9.525	2.38	-	1.2	13	90		
	1603PPR	●		●									●	●		16.5	9.525	2.38	-	1.2	13	90		
	1603PPR-G														●	16.5	9.525	3.18	-	1.2	13	90		
	1603PPSR															16.5	9.525	3.18	-	1.2	13	90		
	1603PPTR-RH															16.5	9.525	3.18	-	1.2	13	90		
	1603PDER-RH							●			●					16.5	9.525	1.59	0.8	1.5	13	90		
	1603PDSR-RH							●								16.5	9.525	2.38	0.8	1.5	13	90		
	1603PDR-S20								●							16.5	9.525	1.98	-	1.2	13	90		
	1603PDR-RN															16.5	9.525	1.98	0.5	1.5	13	90		
	2204PDR	●		●									●	●		22	12.7	4.76	-	1.42	18	90		
	2204PDR-RN															22	12.7	4.76	0.8	1.79	18	90		
	2204PDR-G														●	22	12.7	4.76	-	1.42	18	90		
	2204PDL												●			22	12.7	4.76	-	1.42	18	90		
	2204PDSR				●											22	12.7	4.76	-	1.42	18	90		
	2204PDTR															22	12.7	4.76	-	1.42	18	90		
	2204PPN															22	12.7	4.76	-	1.268	18	90		
	2204PPTN															22	12.7	4.76	-	1.268	18	90		
	2204PDER-RH							●			●					22	12.7	4.76	0.8	1.79	18	90		
	2204PDSR-RH							●								22	12.7	4.76	0.8	1.79	18	90		
	2204PDR-S20								●							22	12.7	4.76	-	1.42	18	90		

※ In this page, TPC(K)N □□□□P~N is for FC·HC and
□□□□P~R is for Cutter (face).

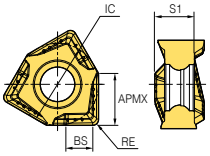
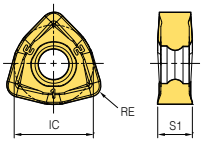
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⇔ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated										Uncoated		Dimension (mm)							Geometry	Page
		CN30	NCM325	NCM335	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	IC/W1	S/S1	RE	BS	APMX	KAPR(°)		
TPKN-MU 	2204PDSR-MU						●									22	12.7	4.76	0.8	1.964	18	90		B56
TPKN-SU 	1603PDSL-SU						●									16.5	9.525	3.18	0.8	1.88	13	90		
	1603PDSR-SU						●									16.5	9.525	3.18	0.8	1.88	13	90		
	2204PDSL-SU						●									22	12.7	4.76	0.8	1.97	18	90		
	2204PDSR-SU						●				●		●			22	12.7	4.76	0.8	1.97	18	90		
TPKR-MX 	1603PDSR-MX								●							16.5	9.525	3.18	0.8	1.2	13	90		
	1603PPR-MX		●													16.5	9.525	3.18	-	1.2	13	90		
	1603PPSN-MX															16.5	9.525	3.18	-	1.2	13	90		
	1603PPSR-MX			●												16.5	9.525	3.18	-	1.2	13	90		
	2204PDR-MX		●													22	12.7	4.76	1	1.38	18	90		
	2204PDSR-MX		●	●												22	12.7	4.76	1	1.38	18	90		
TWX-KC 	16R-KC						●				●					-	9.525	3.97	0.8	-	-	60		B373
	22R-KC						●									-	9.525	3.97	0.8	-	-	60		
VCKT-MA 	220530N-MA													●		28.281	12.7	5.56	3	-	15	90		B377 B378
VDKT-MA 	11T210N-MA													●		16.466	6.35	2.87	1	-	8	90		B377 B378 B379
	11T220N-MA															16.466	6.35	2.87	2	-	8	90		
WDKT-MH 	080316ZDSR-MH						●	●		●		●				1	8	3.18	1.6	-	1	15		B299 ~ B305
	10T320ZDSR-MH						●	●		●		●				1.5	10	3.97	2	-	1.5	15		
	130520ZDSR-MH						●	●		●		●				2	13	5.56	2	-	2	15		
	150625ZDSR-MH						●	●		●		●				2.5	15	6.35	2.5	-	2.5	15		

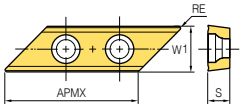
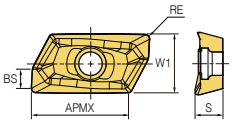
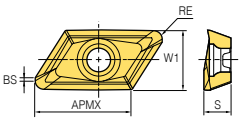
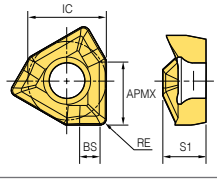
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⇔ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR(°)		
WNGX-MA	040304PNFR-MA													●		7	3.46	0.4	1.6	4.3	90		
	040308PNFR-MA													●		7	3.46	0.8	1.2	4.3	90		
	040312PNFR-MA													●		7	3.46	1.2	0.8	4.3	90		
	040316PNFR-MA													●		7	3.46	1.6	0.4	4.3	90		
	080604PNFR-MA													●		13	6.4	0.4	4.1	8.2	90		
	080608PNFR-MA													●		13	6.4	0.8	3.7	8.2	90		
	080612PNFR-MA															13	6.4	1.2	3.3	8.2	90		
	080616PNFR-MA													●		13	6.4	1.6	2.9	8.2	90		
	080620PNFR-MA													●		13	6.4	2	2.5	8.2	90		
WNGX-ML	040304PNER-ML							●		●	●		●			7	3.46	0.4	1.6	4.3	90		B110 ~ B115
	040308PNER-ML										●		●			7	3.46	0.8	1.2	4.3	90		
	040312PNER-ML										●					7	3.46	1.2	0.8	4.3	90		
	040316PNER-ML										●					7	3.46	1.6	0.4	4.3	90		
	080604PNER-ML						●			●	●		●			13	6.4	0.4	4.1	8.2	90		
	080608PNER-ML			●			●	●		●	●	●	●			13	6.4	0.8	3.7	8.2	90		
	080612PNER-ML										●					13	6.4	1.2	3.3	8.2	90		
	080616PNER-ML										●					13	6.4	1.6	2.9	8.2	90		
	080620PNER-ML										●					13	6.4	2	2.5	8.2	90		
WNGX-MM	040304PNSR-MM						●	●			●		●			7	3.46	0.4	1.6	4.3	90		
	040308PNSR-MM										●		●			7	3.46	0.8	1.2	4.3	90		
	040312PNSR-MM										●					7	3.46	1.2	0.8	4.3	90		
	040316PNSR-MM										●					7	3.46	1.6	0.4	4.3	90		
	080604PNSR-MM						●				●		●			13	6.4	0.4	4.1	8.2	90		
	080608PNSR-MM			●			●	●		●	●	●	●			13	6.4	0.8	3.7	8.2	90		
	080612PNSR-MM										●					13	6.4	1.2	3.3	8.2	90		
	080616PNSR-MM										●					13	6.4	1.6	2.9	8.2	90		
	080620PNSR-MM										●					13	6.4	2	2.5	8.2	90		
WNMX-MF	060312ZNN-MF										●		●			6	3.18	1.2	-	1	14		
	09T316ZNN-MF						●				●		●			9	3.97	1.6	-	1.5	14		
	130520ZNN-MF										●	●	●			13	5.56	2	-	2	14		
	160720ZNN-MF										●		●			16	7	2	-	2.5	14		
WNMX-ML	060312ZNN-ML										●		●			6	3.18	1.2	-	1	14		B288 ~ B298
	09T316ZNN-ML										●		●			9	3.97	1.6	-	1.5	14		
	130520ZNN-ML										●		●			13	5.56	2	-	2	14		
	160720ZNN-ML										●					16	7	2	-	2.5	14		
WNMX-MM	060312ZNN-MM				●	●	●				●	●	●			6	3.18	1.2	-	1	14		
	09T316ZNN-MM				●	●	●		●		●	●	●			9	3.97	1.6	-	1.5	14		
	130520ZNN-MM				●	●	●		●	●	●	●	●			13	5.56	2	-	2	14		
	160720ZNN-MM						●				●		●			16	7	2	-	2.5	14		

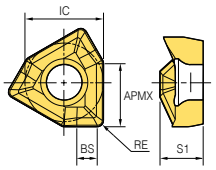
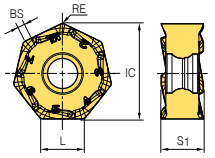
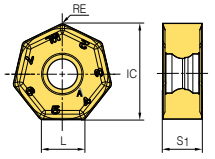
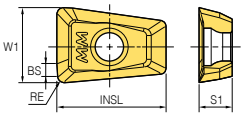
● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬢ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated								Uncoated			Dimension (mm)						Geometry	Page
		CN30	NC5330	NCM535	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	PD1010	ST30A	G10	H01	H05	IC/W1	S/S1	RE	BS	APMX	KAPR(°)		
XCET-KC 	310404ER-KC				●							●	●			9.525	4.5	0.4	-	26	90		B372
XDET-MA 	190504PEFR-MA												●	●		11.3	5	0.4	3.817	17	90		B365 B398 B399
	190508PEFR-MA												●	●		11.3	5	0.8	3.365	17	90		
	190512PEFR-MA												●			11.3	5	1.2	2.978	17	90		
	190516PEFR-MA												●			11.3	5	1.6	2.624	17	90		
	190520PEFR-MA															11.3	5	2	2.181	17	90		
	190524PEFR-MA												●			11.3	5	2.4	1.813	17	90		
	190530PEFR-MA												●	●		11.3	5	3	1.166	17	90		
	190532PEFR-MA												●			11.3	5	3.2	0.975	17	90		
	190540PEFR-MA												●			11.3	5	4	1.649	17	90		
	190550PEFR-MA												●			11.3	5	5	0.679	17	90		
XEKT-MA 	19M504FR-MA										●		●	●		11.3	5	0.4	1.4	17	90		B366 B382 ~ B386
	19M508FR-MA										●		●	●		11.3	5	0.8	1	17	90		
	19M512FR-MA										●		●			11.3	5	1.2	0.63	17	90		
	19M516FR-MA										●		●			11.3	5	1.6	0.32	17	90		
	19M518FR-MA															11.3	5	1.8	0.49	17	90		
	19M520FR-MA												●	●		11.3	5	2	0.834	17	90		
	19M530FR-MA										●		●	●		11.3	5	3	0.67	17	90		
	19M532FR-MA												●			11.3	5	3.2	0.48	17	90		
	19M540FR-MA												●	●		11.3	5	4	0.53	17	90		
	19M550FR-MA												●			11.3	5	5	0.4	17	90		
	250604FR-MA												●			13.84	6.35	0.4	1.545	23	90		
	250608FR-MA												●			13.84	6.35	0.8	1.17	23	90		
	250612FR-MA												●			13.84	6.35	1.2	0.76	23	90		
	250616FR-MA															13.84	6.35	1.6	0.363	23	90		
	250620FR-MA												●			13.84	6.35	2	1.469	23	90		
	250630FR-MA															13.84	6.35	3	0.561	23	90		
	250632FR-MA												●			13.84	6.35	3.2	0.363	23	90		
	250640FR-MA															13.84	6.35	4	1.206	23	90		
	250650FR-MA												●			13.84	6.35	5	0.386	23	90		
XEKT-ML 	19M504ER-ML															11.2	5	0.4	1.4	17	90		
	19M508ER-ML															11.2	5	0.8	1	17	90		
	19M512ER-ML															11.2	5	1.2	0.63	17	90		
	19M516ER-ML															11.2	5	1.8	0.32	17	90		
	19M518ER-ML															11.2	5	2	0.49	17	90		
	19M520ER-ML															11.2	5	2.4	0.834	17	90		
	19M530ER-ML															11.2	5	3	0.67	17	90		
	19M532ER-ML															11.2	5	3.2	0.48	17	90		
	19M540ER-ML															11.2	5	4	0.53	17	90		
	19M550ER-ML															11.2	5	5	0.4	17	90		
	250604ER-ML															13.84	6.35	0.4	1.545	23	90		
	250608ER-ML															13.84	6.35	0.8	1.17	23	90		
	250612ER-ML															13.84	6.35	0.8	0.76	23	90		
	250616ER-ML															13.84	6.35	0.8	0.363	23	90		
	250620ER-ML															13.84	6.35	0.8	1.469	23	90		
	250630ER-ML															13.84	6.35	0.8	0.561	23	90		
	250632ER-ML															13.84	6.35	0.8	0.363	23	90		
	250640ER-ML															13.84	6.35	0.8	1.206	23	90		
	250650ER-ML															13.84	6.35	0.8	0.386	23	90		
XNCT-MA 	080504PNFR-MA												●			10	5.5	0.4	2.57	8.2	90		B81 ~ B82 B84 ~ B85
	080508PNFR-MA												●			10	5.5	0.8	2.29	8.2	90		
	080512PNFR-MA												●			10	5.5	1.2	2.28	8.2	90		
	080520PNFR-MA												●			10	5.5	2	1.39	8.2	90		
	120608PNFR-MA															13	6.5	0.8	2.78	12	90		

● : Stock item

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

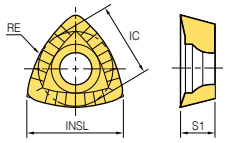
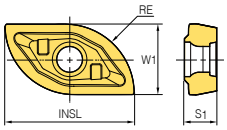
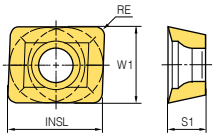
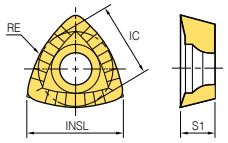
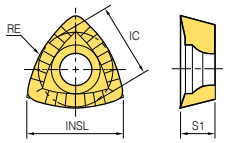
Picture	Designation	Cermet	Coated									Uncoated		Dimension (mm)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	IC/W1	S/S1	RE	BS	APMX	KAPR(°)		
XNKT-ML 	060405PNER-ML				●	●	●		●	●	●	●			-	6.5	4	0.5	1.3	5.7	90		B80 ~ B85
	060408PNER-ML							●		●	●	●			-	6.5	4	0.8	1.1	5.7	90	
	080504PNER-ML									●		●			-	10	5.5	0.4	2.98	8.2	90	
	080508PNER-ML			●		●	●	●		●	●	●	●		-	10	5.5	0.8	2.2	8.2	90	
	080512PNER-ML									●		●			-	10	5.5	1.2	1.81	8.2	90	
	080516PNER-ML									●		●			-	10	5.5	1.6	1.43	8.2	90	
	080520PNER-ML									●	●	●			-	10	5.5	2	1.05	8.2	90	
	120608PNER-ML						●	●		●	●		●		-	13	6.5	0.8	2.76	12	90	
	120612PNER-ML														-	13	6.5	1.2	2.37	12	90	
	120616PNER-ML														-	13	6.5	1.6	1.98	12	90	
	120620PNER-ML														-	13	6.5	2	1.59	12	90	
XNKT-MM 	060405PNSR-MM				●	●	●	●		●	●	●	●		-	6.5	4	0.5	1.3	5.7	90		
	060408PNSR-MM				●	●	●	●			●	●	●		-	6.5	4	0.8	1.1	5.7	90	
	080504PNSR-MM						●				●		●		-	10	5.5	0.4	2.57	8.2	90	
	080508PNSR-MM			●	●	●	●	●		●	●	●	●		-	10	5.5	0.8	2.2	8.2	90	
	080512PNSR-MM				●	●	●				●		●		-	10	5.5	1.2	1.81	8.2	90	
	080516PNSR-MM					●	●				●	●	●		-	10	5.5	1.6	1.43	8.2	90	
	080520PNSR-MM				●						●		●		-	10	5.5	2	1.1	8.2	90	
	120604PNSR-MM										●				-	13	6.5	0.4	3.11	12	90	
	120608PNSR-MM						●	●			●	●	●		-	13	6.5	0.8	2.76	12	90	
	120612PNSR-MM										●		●		-	13	6.5	1.2	2.37	12	90	
	120616PNSR-MM														-	13	6.5	1.6	1.98	12	90	
	120620PNSR-MM					●					●				-	13	6.5	2	1.59	12	90	
XNMX-ML  [Right handed type]	0606XNR-ML			●				●		●	●	●	●			14.665	14	6.5	0.8	0.98	3.5	51		B140
XNMX-ML  [Neutral type]	060608-ML									●	●	●	●			14.665	14	6.5	0.8	-	4.8	51		
XPMT-MM 	0802ER-MM									●						8.5	5.9	2.38	0.8	1.6	-	90		B341 B342
	1003ER-MM						●			●						10.5	7.25	3.18	0.8	1.6	-	90	
	13T3ER-MM									●						13.1	9	3.97	0.8	2.3	-	90	
	1604ER-MM									●						16.5	11.5	4.76	0.8	2.3	-	90	
	1805ER-MM															18	12.4	5.56	0.8	2.3	-	90	
	2006ER-MM															20.5	14.1	6.35	0.8	3.3	-	90	
	2507ER-MM															25.5	17.6	7.94	0.8	3.8	-	90	

● : Stock item

Workpiece																		
	Steel	P	⇔	●	●	●	●	●	●			⇔	⇔	✱				
	Stainless steel	M		●							⇔	⇔	⇔	✱				
	Cast iron	K		●		●	⇔	⇔		●		⇔	⇔	✱	●	●		
	Non-ferrous metal	N													●	⇔		
	Heat resistant alloy, Titanium alloy	S										⇔	⇔	✱				
	Hardened steel	H					●	⇔				⇔	⇔	✱				

Machining types

● Continuous cutting
⇔ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated		Dimension (mm)				Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	
ZDMT-R-MM	080310R-MM							●								8.114	6.73	3.2	10		B337
	110312.5R-MM										●					10.222	8.5	3.65	12.5		
	130416R-MM							●			●					12.723	10.5	4.76	16		
ZPET-MM Internal	080M-MM															16	8	3.5	8		B333 ~ B335
	100M-MM						●	●			●					18	10.4	4.5	10		
	125M-MM						●	●			●					23	12.9	5.3	12.5		
	130M-MM															25.7	13.4	5.3	13		
	150M-MM							●			●					28	15.4	7	15		
	160M-MM						●	●			●					28.5	16.4	7	16		
	200M-MM							●								38	20.7	8	20		
	250M-MM															48	25.9	9.5	25		
ZPET-MM External	080S-MM															15	6.6	3.1	8		
	100S-MM						●	●			●					15.5	8.4	3.8	10		
	125S-MM							●			●					20.5	10.7	4.5	12.5		
	130S-MM															22.2	11	4.4	13		
	150S-MM							●			●					25	12.4	6.5	15		
	160S-MM						●	●			●					26	13.4	3.5	16		
	200S-MM							●								32	16.7	7	20		
	250S-MM															40	20.7	8.5	25		
ZPMT-MM	1504PPSR-MM							●			●					15.848	12.7	4.76	1		B306 B354
	1505PPSR-MMN															15.848	12.7	5.56	1		
ZPMT-R-MM	160520R-MM							●			●					15.543	12.7	5.56	20		B338
	160525R-MM							●			●					15.69	12.7	5.56	25		
	160531.5R-MM										●					16.278	12.7	5.56	31.5		
ZPMT-R-MR	160525R-MR															15.661	12.7	5.56	25		

● : Stock item

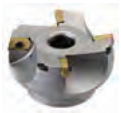
Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for face milling	Mill-max	ADN(M) 4000/5000+		45°	Ø80~Ø315	Excellent cutting-edge strength and chip flow	●					B47 B48
		AE(M) 4000/5000		45°	Ø80~Ø315	Low cutting load and good machinability	●					B49 B50
		EF(M) 4000	Al 	75°	Ø80~Ø315	High rake angle to prevent welding	●					B51
		EN(M) 4000		75°	Ø80~Ø315	Economical because double sided inserts applied	●					B52
		EPN(M) 4000/5000+		75°	Ø80~Ø315	Double posi rake angle and low cutting force	●					B53 B54
		PF(M) 4000	Al 	90°	Ø80~Ø315	High rake angle and good machinability	●	●	●			B55
		PPN(M) 4000		90°	Ø80~Ø315	Double posi rake angle and low cutting force	●	●	●			B56
	Mill-max Heavy	HDDCM 7000/9000		55°	Ø125~Ø315	Deep roughing is available from its high-rigidity edge	●					B58
	Turbo Mill	ADS 4000/5000		45°	Ø50~Ø63	Anti-vibration	●					B59 B60
		PES 2000/3000/ 4000		90°	Ø20~Ø63	High rake angle, Cutting efficiency	●	●	●			B61
	Double Mill	AFO(M)4000		45°	Ø80~Ø125	High rake angle low cutting force Economical (8 corners available)	●					B62
		AFO(M)5000			Ø80~Ø315							B63

Al Cutter for aluminum

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for face milling	Power Buster	PBAC(M)5000		45°	Ø80~Ø315	Double-sided Insert High depth High feed roughing	●					B67
		PBZC(M)5000		90°	Ø80~Ø315		●					B68
		PBPCM6000			Ø80~Ø315		●	●				B69
	Aero Mill	APD(M) A type	Al 	90°	Ø80~Ø315	Aluminum cutter body suitable for high speed machining, Both cemented carbides and PCD inserts are available, G2.5 balance possible	●					B150
	Aero Mill - Plus	APD(M)-PB	Al 	90°	Ø80~Ø315	Prevent overload to the spindle bearings through weight reduction of the Al alloy body and enable high-speed processing	●					B152 B153
	Aero Mill-Mini	MAPDS	Al 	90°	Ø40~Ø63	Suitable for small-sized machining center-Carbide, PCD insert Application-Balancing class G2.5	●					B156
		MAPD	Al 	90°	Ø32~Ø40		●					B155
	Rich Mill	RM8AC(M)4000 RMH8AC(M)4000		45°	Ø50~Ø400	8 corners available Double-sided insert for steel, cast iron, stainless steel, aluminum	●					B118 B119
		RM8AC(M)5000 RMH8AC(M)5000			Ø80~Ø400		●					B120 B121
		RM8EC(M)4000 RMH8EC(M)4000		75°	Ø50~Ø400	8 corners available Double-sided insert for steel, cast iron	●					B122 B123
		RM8EC(M)5000 RMH8EC(M)5000			Ø80~Ø400		●					B124 B125

Al Cutter for aluminum

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for face milling	Rich Mill	RM8QC(M)4000 RMH8QC(M)4000		88°	Ø63~Ø200	8 corners available Reduced cutting interruption at cast Iron	●					B126 B127
		RMT8A(M) 4000/5000		45°	Ø80~Ø315	Easy insert change and good machinability due to latch clamping system 8 corners available Excellent surface finish	●					B129 B130
		RMT8E(M) 4000/5000		75°	Ø80~Ø315		●					B131 B132
		RMT8Q(M) 4000		88°	Ø80~Ø315		●					B133
		RMX8AC(M)- SA14		45°	Ø50~Ø125	Double sided insert with 8 corners Stable cutting performance due to double reversal positive relief surface Good machinability in stainless cutting with High helix cutting edge	●					B136
		RM14XCM- XN06		51°	Ø50~Ø160	Double sided insert with 14 corners Suitable for automobile components machining	●					B140
		RM16AC(M) 6000/8000		45°	Ø63~Ø400	16 corners available Wiper inserts can be applied for good surface finish Strong insert and powerful clamping	●					B142 B143
		RMRC(M)-RN12		-	Ø50~Ø125	High cost efficiency due to double sided round typed cutting edge Excellent rotating prevention by strong clamping system Suitable for Inconel cutting	●					B146
Cutters for molds	Rich Mill	RM3PC(M)3000		90°	Ø40~Ø80	Perfect perpendicularity Strong clamping	●	●	●		●	B80
		RM3PC(M)4000			Ø40~Ø125							B81
		RM3PC(M)5000			Ø80~Ø125							B82
		RM4PC(M)3000		90°	Ø40~Ø100	4 corners available High rake angle insert reduces cutting force. Excellent insert rigidity	●	●	●		●	B92 B93
		RM4PC(M)4000			Ø50~Ø160							

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Rich Mill	RM4ZCM3000		90°	Ø40~Ø52	4 corners available In vertical machining, the maximum cutting depth for RM4Z3000: 9.00 mm, RM4Z4000: 14.0 mm	●	●	●		●	B97
		RM4ZC(M)4000			Ø63~Ø100							
		RM6PCM-WN04		90°	Ø40~Ø63	Improved productivity and high-quality shouldering through high speed and high feed machining	●	●	●		●	B110
		RM6PC(M)-WN08			Ø50~Ø125							B111
	Alpha Mill-X	AMXCM-AD10/12/17		90°	Ø40~Ø125	High rake angle cutting edge and chip breaker reduce cutting load and improve chip evacuation. High rigidity due to special design	●	●	●	●	●	B162 B163
	Alpha Mill	AMCM 1000S/1500S/2000S		90°	Ø32~Ø100	3-dimensional shape and high rake angle lowers cutting load and ensures better chip evacuation Inner coolant system for better chip control increases tool life Wide size range of inserts enlarges application range. Various types of Alpha Mills available for high depth of cut and high feed machining	●	●	●	●	●	B173~B175
		AMCM 3000S/3000S-K/4000S		90°	Ø40~Ø200		●	●	●	●	●	B176~B178
		AMCM 1000SE 2000SE 3000SE		75°	Ø40~Ø100		●					B179~B180
		AMCM 2000M 3000M 4000M		90°	Ø50~Ø125		●	●	●	●	●	B181~B183
	Future Mill	FMAC(M)3000		45°	Ø50~Ø125	Accurate inserts and cutter, Excellent chip flow	●					B206
		FMAC(M)4000			Ø50~Ø200							B207
		FMAC(M)3000-A		45°	Ø63~Ø125	Excellent in high speed cutting and tapping center, low power machine due to light aluminum body	●					B208
		FMAC(M)4000-A			Ø63~Ø315							B209
		FMPC(M)3000		90°	Ø50~Ø100	4 corners available various inserts can be applied to machine for different types of workpiece	●	●	●			B212
		FMPC(M)4000			Ø63~Ø125							B213

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Future Mill	FMPC(M)3000-A		90°	Ø63~Ø100	Excellent in high speed cutting and tapping center, low power machine due to light aluminum body	●	●	●			B214
		FMPC(M)4000-A			Ø63~Ø315							B215
		FMRC(M)3000		-	Ø40~Ø100	4~8 corners available Double contact faces between insert & seat part of cutter for stable clamping Excellent rotating-free machining	●	●	●	●	●	B225
		FMRC(M)4000			Ø50~Ø125							B226
		FMRC(M)5000		-	Ø50~Ø125		●	●	●	●	●	B227
		FMRC(M)6000			Ø63~Ø160							B228
	Future Mill P-positive	FMRC(M) 3000 4000 5000 6000		-	Ø40~Ø250	Stable clamping system enables stable machining and productivity Varied product line-up ensures wide application range Optimal shape and grade with high hardness for hard-to-cut material machining.	●	●	●	●	●	B244~ B247
	Triple Mill	TPMCM-TN16		90°	Ø50~Ø125	3-cornered insert for shouldering -Reduced cutting resistance due to high rake angled cutting edge and chip breaker	●	●	●			B259
		TPMCM-TN20			Ø63~Ø125							B260
	HFMD	HFMDCM-LN06		-	Ø32~Ø66	Double sided with 4 corners insert for small diameter machining For high feed and multi-functional machining Strong clamping realizes stable machining.	●	●	●		●	B267
		HFMDC(M)-LN10		-	Ø40~Ø100							B268
	HRM	HRMC(M)13		15°	Ø50~Ø80	Powerful clamping by double clamping system 3 corners available high feed cutting with low cutting load	●	●	●		●	B299
		HRMC(M)15			Ø63~Ø160							B300
	HRMD	HRMDC(M)09		14°	Ø40~Ø100	Double side insert with 6 corner High feed cutting with strong simple screw-on clamp	●	●	●		●	B288
		HRMDC(M)13			Ø50~Ø125							B289
		HRMDC(M)16			Ø80~Ø315							B290
	Tangen-Pro	TP2PC(M)-LN08		90°	Ø40~Ø63	High-quality results available even under harsh cutting conditions, thanks to the stable clamping force	●	●	●			B310
		TP2PC(M)-LN14			Ø40~Ø125							B311
		TP2PC(M)-LN17			Ø40~Ø125							B312
		TP8PC(M)-SO14		90°	Ø40~Ø125	Application of 8-corner double-sided tangential insert Quality can be ensured even under harsh conditions with stable clamping force	●	●	●			B318

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	BT/HSK Tooling System	BT30/40/50		90°	Ø10~Ø50	BT/HSK one solid type has been accepted to increase the precision Inner coolant system can also make it possible to evacuate the chip effectively High feed and high depth	●	●	●		●	B344~B348
		HSK63										B355~B359
		BT30/40/50		90°	Ø16~Ø100		●	●	●			B349~B353
		HSK63/100										B360~B364
		BT30/40/50-MAT		90°	Ø12~Ø40	Alpha Mill, Rich Mill, FMR, Laser Mill, HRM(D), Pro-A, Pro-X Modular head M06~M16 applicable	●	●	●	●	●	B402
		HSK63/100-MAT										B403
		BT50 HAT4000		90°	Ø50~Ø80	Head only replacement possible and higher efficiency by self assembly head	●	●	●			B354
Cutters for aluminum	Pro-A Mill	PAC(M) 2000/4000	Al 	90°	Ø40~Ø100	Buffed insert controls chip flow without built-up edge	●	●	●	●	●	B377
	Pro-X Mill	PAXC(M)5000	Al 	90°	Ø40~Ø125	Powerful clamping Excellent body rigidity for rectangular and curve machining	●	●	●	●	●	B382
		PAXC(M)6000			Ø50~Ø125							B383
	Pro-L Mill	PALC(M)	Al 	90°	Ø63	High helix and high depth of cut High perpendicularity Low cutting load	●	●	●	●	●	B389
	Pro-V Mill	PAVCM-XD19	Al 	90°	Ø40~Ø125	Exclusive milling tool for high speed aluminum machining with key to key way structure ensures stable clamping.	●	●	●	●	●	B398
Indexable side cutter	Tangential type Full-side cutter	TAFCP		-	Ø100~Ø315	Various cutting depth can be possible because of adjustable length control. Medium to Roughing based on strengthened edge		●	●			B406
		TAFCB		-	Ø100~Ø315		●	●	●			B406, B408
	Tangential type Half-side cutter	TAHCP		-	Ø100~Ø315			●	●			B407
		TAHCB		-	Ø100~Ø315		●	●	●			B407, B409

Al Cutter for aluminum

Type	Cutter		Designation	Picture	KAPR	Diameter range	Features	Application					Page
								Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Indexable side cutter	Radial type	Full-side cutter	RAFCP		-	Ø100~Ø315	Wide range of machining width with only one side cutter due to adjustable cutting-edge height Suitable for medium and finishing in narrow width side cutting due to good chip evacuation by 3-dimensional chip breaker		●	●			B408
			RAFCB		-	Ø100~Ø315		●	●	●			B408
		Half-side cutter	RAHCP		-	Ø100~Ø315			●	●			B409
			RAHCB		-	Ø100~Ø315		●	●	●			B409
Side cutters	Full-side cutter		SPP(M)		-	Ø80~Ø200	Economical by using pentagonal insert Suitable for narrow & deep grooving			●			B410
			SPB(M)		-	Ø80~Ø200	Economical by using pentagonal insert Suitable for narrow & deep grooving			●			B411
			SPS		-	Ø50~Ø200	For narrow and deep width grooving			●			B412
	Full-side cutter		RM4PFCB		-	Ø80~Ø160	4 corner usage with double-sided insert can be economical			●			B99 B100
			RM4PFCP		-	Ø80~Ø160				●			B103 B104
	Half-side cutter		RM4PHCB		-	Ø80~Ø160	4 corner usage with double-sided insert can be economical			●			B101 B102
			RM4PHCP		-	Ø80~Ø160				●			B105 B106
	Wind Mill		WFSB(M)		-	Ø100~Ø250	The nose R shape of insert ensures long tool life. Wide applications with various widths and corner R sizes.	●	●	●			B415
			WFSP(M)		-	Ø100~Ø250			●	●			B416

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for face milling	Turbo Mill	ADS 4000/5000		45°	Ø50~Ø63	Uneven insert spacing prevents chattering	●					B59 B60
		PES 2000/3000/4000		90°	Ø20~Ø63	Good machinability due to the high rake angle	●	●	●			B61
Cutters for molds	Rich Mill	RM3PS3000		90°	Ø20~Ø40	Perfect perpendicularity Strong clamping	●	●	●		●	B83
		RM3PS4000			Ø32~Ø63							B84
		RM4PS3000		90°	Ø14~Ø50	4 corners available High rake angle insert reduces cutting force Excellent insert rigidity	●	●	●		●	B94
		RM4PS4000			Ø32~Ø63		●	●	●		●	B95
		RM4ZS3000		90°	Ø25~Ø40	In vertical machining, the maximum cutting width: 9.0 mm	●	●	●		●	B98
		RM6PS-WN04		90°	Ø20~Ø32	Improved productivity and high-quality shouldering through high speed and high feed machining	●	●	●		●	B112
		RM6PS-WN08			Ø32~Ø50							B113
		RMRS-RN12		-	Ø32~Ø63	High cost efficiency due to double sided round typed cutting edge Excellent rotating prevention by strong clamping system Suitable for Inconel cutting	●					B147
	Alpha Mill-X	AMXS-AD10/12/17		90°	Ø20~Ø40	High rake angle cutting edge and chip breaker reduce cutting resistance and improve chip evacuation. High rigidity due to special design	●	●	●	●	●	B164 B165
	Alpha Mill	AMS 1000S/1500S 2000S/3000S 3000S-K/4000S		90°	Ø10~Ø63	The combination of a 3-dimensional curve design & high rake angle helps chip-evacuation effectively with a low cutting force Inner coolant system The various range of inserts can provide the widened choice High depth and high feed can be available during operation	●	●	●	●	●	B184~ B192
		AMS 1000SE/2000SE 3000SE		75°	Ø25~Ø63		●					B193 B194
		AMS 1000M/1500M 2000M/4000M		90°	Ø16~Ø50		●	●	●	●	●	B195~ B197
		AMS 1000MH/1500MH 2000MH/3000MH(-K)		90°	Ø14~Ø40		●	●	●	●	●	B198 B199

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Future Mill	FMAS3000		45°	Ø25~Ø63	For precision machining Excellent chip evacuation	●					B210
		FMAS4000			Ø50~Ø63							B211
		FMPS3000		90°	Ø25~Ø63	4 corners available Strong cutting-edge with low cutting load	●					B216
		FMPS4000			Ø40~Ø63							B217
		FMRS 1000/1500/2000 2500/3000/4000 5000/6000		-	Ø8~Ø63	2 touch clamping system, convenient insert change	●	●	●	●	●	B229~ B234
	Future Mill P-positive	FMRS 2500/3000 4000/5000 6000		-	Ø17~Ø50	P-positive relief angle ensures high rigidity and high machinability in die steel and high-resistant alloy machining Flat clearance face of insert prevents interference and revolution while machining	●	●	●	●	●	B248~ B251
	Triple Mill	TPMS-TN11		90°	Ø25~Ø40	3-cornered insert for shouldering Reduced cutting resistance due to high rake angled cutting edge and chip breaker	●	●	●			B261
		TPMS-TN16			Ø32~Ø40							B262
	HFMD	HFMDS-LN04		-	Ø8~Ø21	Double sided insert with 4 corners for small diameter machining For high feed and multi-functional machining Strong clamping system for stable machining	●	●	●	●	●	B269 B270
		HFMDS-LN06			Ø16~Ø40							B271 B272
		HFMDS-LN10			Ø25~Ø42							B273
	HFM	HFMS 1000		13°	Ø8~Ø21	Apply helix cutting-edge on insert, low cutting load and reinforce toughness on corner Increased rigidity with double relief angle (11, 13), prevent interference with high feed To apply the negative axial rake angle when set up the holder, increased chipping resistance	●	●	●	●	●	B280 B281
	HRM	HRMS 08/10/13/15		15°	Ø20~Ø63	Powerful clamping by double clamping system 3 corners available High feed cutting with low cutting load	●	●	●	●	●	B301~ B303
	HRMD	HRMDS 06/09/13		14°	Ø16~Ø63	6 corners available, High feed, multi-function, only one screw application	●	●	●	●	●	B291~ B295
	Tangen-Pro	TP2PS-LN08		90°	Ø16~Ø25	High-quality results available even under harsh cutting conditions, thanks to the stable clamping force	●	●	●			B313
		TP2PS-LN14			Ø25~Ø50							B314
		TP2PS-LN17			Ø32~Ø50							B315
		TP8PS-SO14		90°	Ø32~Ø40	Application of 8-corner double-sided tangential insert Quality can be ensured even under harsh conditions with stable clamping force	●	●	●			B319

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Tank Mill	THE		90°	Ø25~Ø50	Right-hand helix angle employed for good chip evacuation. Special surface treatment prevents body breaking and improves rigidity. Strong cutting-edge	●	●				B306
	Laser Mill	LBE□□ LRE□□		-	Ø8~Ø32	Indexable ball endmill for precise mold. Rigid holder with simple design finishing MQL is available	●	●	●	●		B325~ B327
		LBE□□-C LRE□□-C		-	Ø8~Ø32	ndexable ball endmill for precise mold. Rigid holder with simple design finishing MQL is available Carbide shank	●	●	●			B324~ B326
	Mach Mill	BFE		-	Ø16~Ø32	Upgraded cutting performance with S type curve design V clamping application	●	●	●	●		B329
		GBE		-	Ø16~Ø50	Helical design of edge can reduce the force during operation. Safe application to prevent rotation guarantee the increased tool life	●	●	●	●		B333~ B334
		BRE		-	Ø20~Ø63	Flute type chip-pocket can make chip-evacuation Customized edge design can prevent the breakage of holder's body	●	●	●	●		B337 B338
	HAVE	Multi-edge		90°	Ø16~Ø50	Tools for Z-axis feed plunge machining to cut faster and more effectively in vertical machining Machining with whole diameter	●	●	●		●	B342
		Single-edge										B341
	O-ring Cutter	ORC		90°	Ø11~Ø46	For grooving the seat of an O-Ring in a plastic mold Superior surface roughness and cutting performance compared to HSS and razed tool	–	–	–	–	–	B368
	Chamfer Tool	CE		75°	Ø25~Ø30	For Back & Front high quality chamfering and various Chamfering angle machining	●					B371
				60°	Ø25~Ø35							
				45°	Ø7~Ø39							
				30°	Ø25~Ø42							
				30°	Ø5~Ø35	Various chamfer degrees available Effective long chamfer cutting available	●	●	●			B372
				45°	Ø5~Ø48							
				60°	Ø5~Ø57							
				45°	~Ø28	Centering, Grooving, Chamfering	●	●	●		●	B373

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for molds	Chamfer Tool	CCT		30° 45° 60°	Ø3~Ø16	Centering, Countersinking, Chamfering						E374
		CET		30° 45° 60°	Ø4~Ø16	Countersinking, Chamfering, Shouldering	●	●	●		●	E378
	T-Cutter	TFE		90°	Ø21~Ø50	For slotting	●	●	●	●	●	B374
Cutters for aluminum	Pro-A Mill	PAS 2000/4000		90°	Ø12~Ø42 Ø32~Ø40	Polished face increases chip flow and reduces built-up edge	●	●	●	●	●	B378
	Pro-X Mill	PAXS 5000/6000		90°	Ø20~Ø40 Ø25~Ø40	Square shoulder and corner machining	●	●	●	●	●	B384 B385
	Pro-L Mill	PALS-HR (Single-edge)		90°	Ø32~Ø63	High helix and high depth of cut High perpendicularity Low cutting load	●	●	●	●	●	B390 B391
		PALS-HM (Multi-edge)			Ø63		●	●	●	●	●	B392
	Pro-XL Mill	PXL		90°	Ø40~Ø80	Improved surface finish and perpendicularity achieved by a single pass with the deep cutting-edges	●	●				B394
	Pro-V Mill	PAVS-XD19		90°	Ø25~Ø40	Exclusive milling tool for high speed aluminum machining with key to key way structure ensures stable machining.	●	●	●	●	●	B399
		HSK-XD19			Ø32~Ø50		●	●	●	●	●	B365
Thread milling	-	TM		-	Ø32~Ø50	For internal and external threading	●					C17

FMRM type
B235~B238
B252~B255





LBE-MHD type
B328



PAM type
B379



PAXM type
B386



AMM type
B200~B202



RM3PM type
B85



RM4PM type
B96





Steel Shank type
B400



Carbide Shank type
B401



BT Arbors type
B402



HSK Arbors type
B403

RM4ZM type
B98



RM6PM type
B114, B115



HFMDM type
B274~B276



HFMM type
B282



HRMM type
B304, B305



HRMDM type
B296~B298



GBEM type
B335





Steel Shank type
B400



Carbide Shank type
B401



BT Arbors type
B402



HSK Arbors type
B403

ADN(M)4000



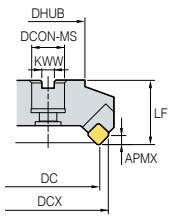


Fig. 1

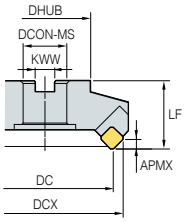


Fig. 2

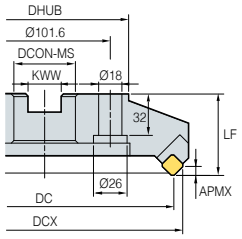


Fig. 3

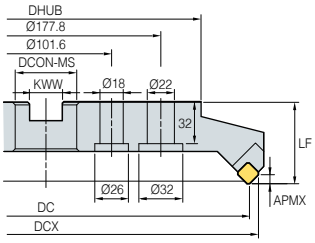


Fig. 4

KAPR 45°

- GAMP : 15°
- GAMF : −4°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
ADN (ADNM)	4080R/L	● (●)	(●)	4	80	93.8	57	25.4(27)	9.75(12.4)	50	6	1.8	1
	4100R/L	● (●)		5	100	113.8	67	31.75(27)	12.7(14.4)	50	6	2.4	2
	4125R/L	● (●)		6	125	138.8	87	38.1(32)	15.9(16.4)	63	6	4.2	2
	4160R/L	● (●)		8	160	173.8	107	50.8(40)	19(16.4)	63	6	6.3	2
	4200R/L	●		10	200	213.7	130	47.625(60)	25.4(25.7)	63	6	8.5	3
	4250R/L	●		12	250	263.7	180	47.625(60)	25.4(25.7)	63	6	13.9	3
	4315R/L	●		14	315	328.7	240	47.625(60)	25.4(25.7)	63	6	21.0	4

( )Metric size, ● : Stock item

Available inserts

SDCN SDKN-MU SDKN-SU SDKR-MX



Designation		Cermet	Coated								Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	42M													●			B19
	42M-G															●	
	42MT	●		●										●			
	42MT-RH																
	42MT-S20									●							
	1203AEEN																
	1203AEEN-RH																
	1203AESN																
	1203AESN-RH																
SDKN	1203AESN-MU							●									B20
	1203AESN-SU							●				●	●				
SDKR	1203AESN-MX																B20
	1203AETN-MX																
	1203AEN-MX		●														

Available arbors

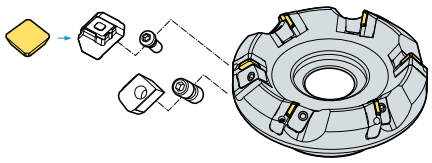
Designation		General arbor	NC arbors ADN	NC arbors ADNM
ADN (ADNM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3700
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6100
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40

Available inserts **B19, B20** Available arbors and bolt **E94 ~ 95**

ADN(M)5000+



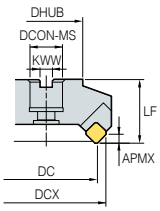


Fig. 1

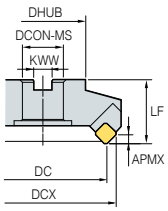


Fig. 2

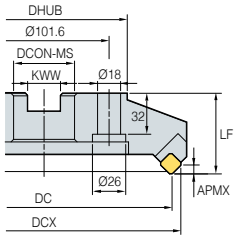


Fig. 3

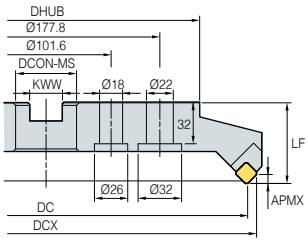


Fig. 4



KAPR 45°

- GAMP : 15°
- GAMF : −4°

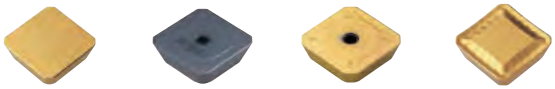
(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
ADN (ADNM)	5080R/L+			4	80	98.4	65	25.4(27)	9.75(12.4)	63	8	2.3	1
	5100R/L+	●		5	100	118.4	67	31.75(27)	12.7(14.4)	63	8	3.0	2
	5125R/L+	● (●)		6	125	143.3	87	38.1(32)	15.9(16.4)	63	8	4.6	2
	5160R/L+	●		8	160	173.3	107	50.8(40)	19.1(16.4)	63	8	6.4	2
	5200R/L+	● (●)		10	200	218.3	140	47.625(60)	25.4(25.7)	63	8	8.6	3
	5250R/L+	(●)		12	250	268.3	220	47.625(60)	25.4(25.7)	63	8	15.4	3
	5315R/L+	(●)		14	315	333.3	280	47.625(60)	25.4(25.7)	63	8	23.6	4

( )Metric size, ● : Stock item

Available inserts

SDCN SDKN-MU SDKN-SU SDKR-MX



Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SDCN	53M													●			B19
	53M-G															●	
	53MT	●		●										●			
	53MT-RH																
	53MT-S20									●							
	1504AEEN																
	1504AEEN-RH								●			●					
	1504AESN																
	1504AESN-RH								●								
SDKN	1504AESN-MU							●									B20
	1504AESN-SU							●				●	●				
SDKR	1504AESN-MX				●												B20
	1504AETN-MX																
	1504AEN-MX			●													

Available arbors

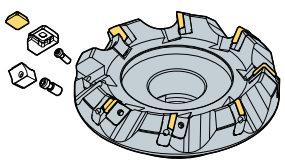
Designation		General arbor	NC arbors ADN	NC arbors ADNM
ADN (ADNM)	5080R/L+	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L+	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L+	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L+	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L+	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L+	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L+	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320	0.05~0.20	NCM325
	161~270	0.05~0.20	PC3700
	80~140	0.05~0.20	ST30A
M	90~150	0.05~0.20	PC9530
K	140~230	0.05~0.30	PC6100
	50~90	0.05~0.30	G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LADN5R/L	WHPS5R/L	WHX0817 / WHX0813*	LTX0514	HW40

Available inserts **B19, B20** Available arbors and bolt **E94 ~ 95**

*:Ø80

AE(M)4000



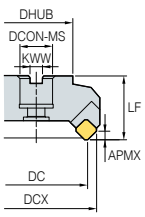


Fig. 1

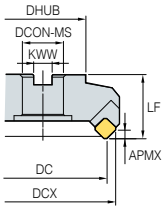


Fig. 2

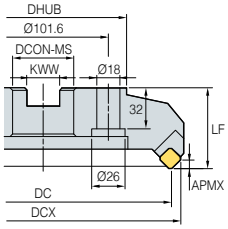


Fig. 3

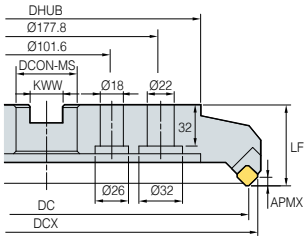


Fig. 4

KAPR 45°

- GAMP : 20°
- GAMF : –3°

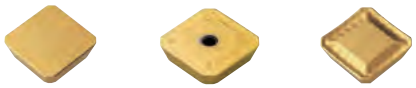
(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
AE (AEM)	4080R/L			4	80	93.1	60	25.4(27)	9.5(12.4)	50	5.5	1.9	1
	4100R/L	●		5	100	113.1	80	31.75(32)	12.7(14.4)	50	5.5	2.5	2
	4125R/L	● (●)		6	125	138.1	100	38.1(40)	15.9(16.4)	63	5.5	4.5	2
	4160R/L	●		8	160	173.1	120	50.8(40)	19.1(16.4)	63	5.5	6.9	2
	4200R/L	● (●)		10	200	213.1	130	47.625(60)	25.4(25.7)	63	5.5	8.9	3
	4250R/L	(●)		12	250	263.1	130	47.625(60)	25.4(25.7)	63	5.5	17.5	3
	4315R/L	(●)		15	315	328	240	47.625(60)	25.4(25.7)	63	5.5	1.4	4

( )Metric size, ● : Stock item

Available inserts

SECN SEKN-SU SEKR-MX



Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SECN	1203AFFN													●	●		B21
	1203AFTN	●												●			
	1203AFEN																
	1203AFSN			●	●												
	1203AFEN-RH								●			●					
	1203AFSN-RH																
	1203AFTN-S20									●							
SEKN	1203AFSN-SU							●									B21
SEKR	1203AFSN-MX			●	●					●							B22

Available arbors

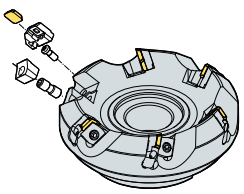
Designation		General arbor	NC arbors AE	NC arbors AEM
AE (AEM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Wrench	Wrench
Ø80~Ø315	LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E95**

AE(M)5000



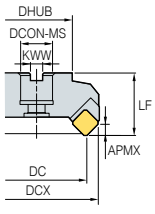


Fig. 1

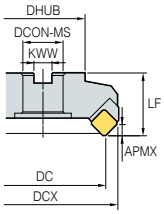


Fig. 2

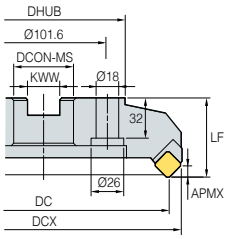


Fig. 3

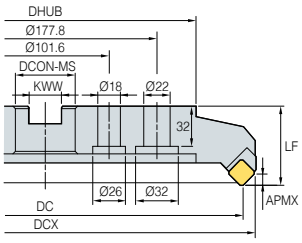


Fig. 4



KAPR 45°

- GAMP : 20°
- GAMF : –3°

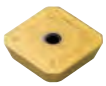
(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
AE (AEM)	5080R/L			4	80	97.6	60	25.4(27)	9.5(12.4)	50	7.5	1.8	1
	5100R/L			5	100	117.5	80	31.75(32)	12.7(14.4)	50	7.5	2.4	2
	5125R/L	●		6	125	142.5	100	38.1(40)	15.9(16.4)	63	7.5	4.4	2
	5160R/L	●		8	160	177.4	120	50.8(40)	19.1(16.4)	63	7.5	6.1	2
	5200R/L	●		10	200	217.5	130	47.625(60)	25.4(25.7)	63	7.5	8.6	3
	5250R/L			12	250	267.4	180	47.625(60)	25.4(25.7)	63	7.5	14.1	3
	5315R/L			15	315	332.4	240	47.625(60)	25.4(25.7)	63	7.5	25.1	4

( )Metric size, ● : Stock item

Available inserts

SECN SEKN-SU SEKR-MX


Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SECN	1504AFFN													●			B21
	1504AFTN	●															
	1504AFEN																
	1504AFSN																
	1504AFEN-RH																
	1504AFSN-RH								●								
	1504AFTN-S20																
SEKN	1504AFSN-SU							●					●				
	1504AFSN-MX		●							●							
SEKR	1504AFSN-MX		●							●							B22

Available arbors

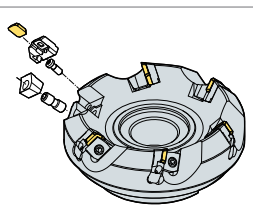
Designation		General arbor	NC arbors AE	NC arbors AEM
AE (AEM)	5080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LAE5R/L	WAE5R/L	DHA0821F	LTX0512	HW40

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E95**

EF(M)4000



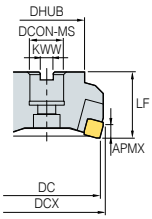


Fig. 1

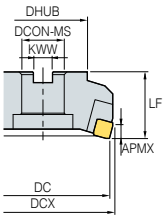


Fig. 2

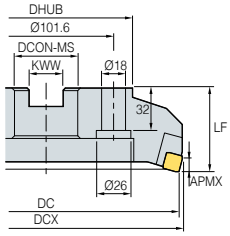


Fig. 3

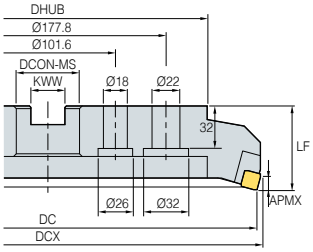


Fig. 4



KAPR 75°

- GAMP : 18°
- GAMF : 11°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
EF (EFM)	4080R/L	●		4	80	86.1	57	25.4(27)	9.5(12.4)	50	8	1.4	1
	4100R/L	●		5	100	106.1	70	31.75(32)	12.7(14.4)	50	8	2.0	2
	4125R/L	●		6	125	131.1	87	38.1(40)	15.9(16.4)	63	8	4.5	2
	4160R/L	●		8	160	166.1	107	50.8(40)	19.1(16.4)	63	8	6.5	2
	4200R/L			10	200	206.1	130	47.625(60)	25.4(25.7)	63	8	8.2	3
	4250R/L			12	250	256.1	180	47.625(60)	25.4(25.7)	63	8	16.5	3
	4315R/L			16	315	321	240	47.625(60)	25.4(25.7)	63	8	25.0	4

( )Metric size, ● : Stock item

Available inserts

SFCN



Designation		Cermet	Coated								Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SFCN	1203EFR															●	B22

Available arbors

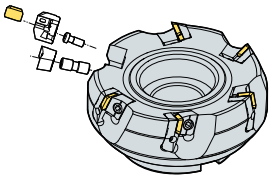
Designation		General arbor	NC arbors EN	NC arbors ENM
ADN (ADNM)	5080R/L+	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L+	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L+	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L+	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L+	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L+	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L+	KCP-8*** (Centering Plug)		

*□□-NT number **□□-BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
K	75~125	0.05~0.3	H01
N	300~400	0.05~0.3	H01

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEF4R/L LEF4R1*/L1*	WEFR/L	DHA0821F	LTX0512	HW40

Available inserts **B22** Available arbors and bolt **E94 ~ E95**

*:Ø80~Ø125

EN(M)4000



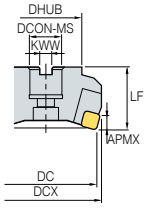


Fig. 1

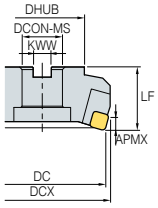


Fig. 2

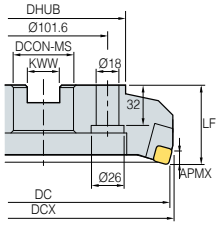


Fig. 3

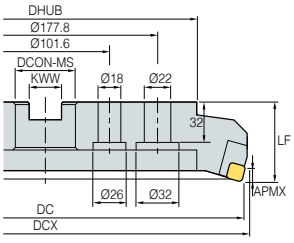


Fig. 4



KAPR 75°

- GAMP : –6°
- GAMF : –5°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
EN (ENM)	4080R/L			5	80	85.3	57	25.4(27)	9.5(12.4)	50	8.5	1.5	1
	4100R/L	●		6	100	105.3	67	31.75(32)	12.7(14.4)	50	8.5	2.2	2
	4125R/L	●		8	125	130.3	87	38.1(40)	15.9(16.4)	63	8.5	4.5	2
	4160R/L	●		10	160	165.3	107	50.8(40)	19.1(16.4)	63	8.5	10.0	2
	4200R/L			12	200	205.3	130	47.625(60)	25.4(25.7)	63	8.5	8.4	3
	4250R/L			16	250	255.3	180	47.625(60)	25.4(25.7)	63	8.5	16.5	3
	4315R/L			20	315	322	240	47.625(60)	25.4(25.7)	63	8.5	21.6	4

( )Metric size, ● : Stock item

Available inserts

SNCN SNKN




Designation		Cermet CN30	Coated NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SNCN	1204ENN		●											●			B23
SNKN	1204ENN								●								B25

Available arbors

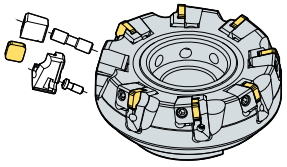
Designation		General arbor	NC arbors EN	NC arbors ENM
EF (EFM)	4080R/L	NT*□□ (M/U)-FMA25.4-25-□□	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEN4R/L	WENR/L WENR1*/L1*	DHA0830 DHA0825*	LTX0512	HW40

Available inserts **B23, B25** Available arbors and bolt **E94 ~ E95** *:Ø80~Ø100

EPN(M)4000



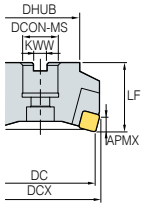


Fig. 1

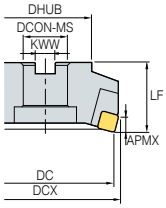


Fig. 2

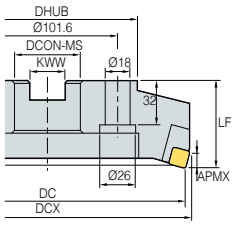


Fig. 3

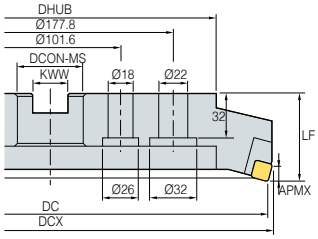


Fig. 4



KAPR 75°

- GAMP : 7°
- GAMF : 0°

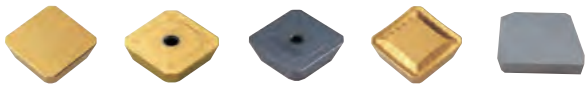
(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
EPN (EPNM)	4080R/L	● (●)		5	80	85.4	57	25.4(27)	9.5(12.4)	50	9	1.3	1
	4100R/L	● (●)		6	100	105.3	67	31.75(32)	12.7(14.4)	50	9	1.9	2
	4125R/L	● (●)	●	8	125	130.3	87	38.1(40)	15.9(16.4)	63	9	3.8	2
	4160R/L	● (●)		10	160	166.1	107	50.8(40)	19.1(16.4)	63	9	5.4	2
	4200R/L	●		12	200	205.3	130	47.625(60)	25.4(25.7)	63	9	8.2	3
	4250R/L	● (●)		16	250	255.3	180	47.625(60)	25.4(25.7)	63	9	13.1	3
	4315R/L	●		20	315	320.3	240	47.625(60)	25.4(25.7)	63	9	20.6	4

( )Metric size, ● : Stock item

Available inserts

SPCN SPKN-SU SPKN-MU SPKR-MX SPEX



Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SPCN	1203EDR	●		●	●									●	●	●	B26
	1203EDL													●			
	1203EDR-G															●	
	1203EDER-RH								●			●					
	1203EDSR-RH								●								
	1203EDTR-RH																
	1203EDR-S20									●							
SPKN	1203EDSR-MU							●									B27
	1203EDSR-SU							●				●	●				
	1203EDSL-SU							●									
SPKR	1203EDSR-MX			●	●												B27
	1203EDSL-MX																
SPEX	1203EDR/L-1																B26

Available arbors

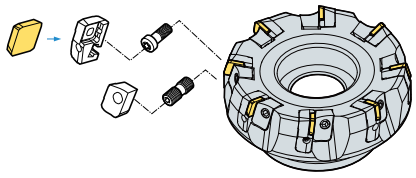
Designation		General arbor	NC arbors EPN	NC arbors EPNM
EPN (EPNM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEPN4R/L LEPN4R1*/L1*	WEPN4R/L	DHA0821F DHA0817F*	LTX0514	HW40

Available inserts **B26, B27** Available arbors and bolt **E94 ~ E95**

*:Ø80~Ø100

EPN(M)5000+



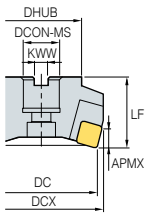


Fig. 1

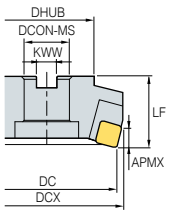


Fig. 2

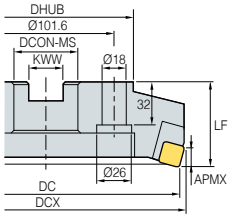


Fig. 3

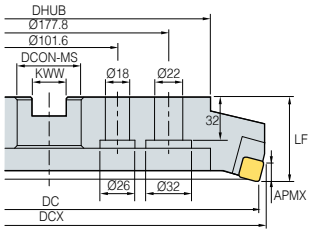


Fig. 4

KAPR 75°

- GAMP : 7°
- GAMF : 0°

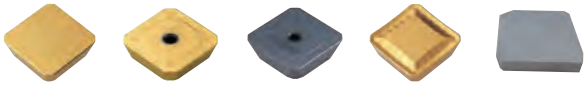
(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
EPN (EPNM)	5080R/L+	●		5	80	87.1	60	25.4(27)	9.5(12.4)	63	12	1.6	1
	5100R/L+	●		6	100	107.1	70	31.75(32)	12.7(14.4)	63	12	2.3	1
	5125R/L+	●		8	125	132.1	90	38.1(40)	15.9(16.4)	63	12	3.5	2
	5160R/L+	●		10	160	169.2	110	50.8(40)	19.1(16.4)	63	12	3.6	2
	5200R/L+	●		12	200	209.1	150	47.625(60)	25.4(25.7)	63	12	8.4	3
	5250R/L+	●		16	250	257.1	220	47.625(60)	25.4(25.7)	63	12	14.3	3
	5315R/L+	●		20	315	322	270	47.625(60)	25.4(25.7)	63	12	21.8	4

( )Metric size, ● : Stock item

Available inserts

SPCN SPKN-SU SPKN-MU SPKR-MX SPEX



Designation		Cermet CN30	Coated NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SPCN	150412T																
	1504EDR	●		●										●	●		
	1504EDSR																
	1504EDL								●								
	1504EDR-G															●	B26
	1504EDER-RH								●			●					
	1504EDSR-RH								●								
	1504EDTR-RH																
	1504EDR-S20									●							
SPKN	1504EDSR-MU							●									
	1504EDSR-SU							●				●	●				B27
	1504EDSL-SU							●									
SPKR	1504EDR-MX			●													B27
	1504EDSR-MX																
SPEX	1504EDR/L-1																B26

Available arbors

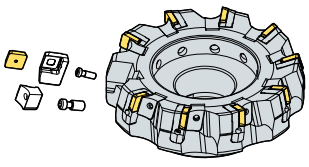
Designation		General arbor	NC arbors EPN	NC arbors EPNM
EPN (EPNM)	5080R/L+	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L+	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L+	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L+	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L+	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L+	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L+	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEPN5R/L LEPN5R1*/L1*	WHPS5R/L	WHX0817 WHX0813*	LTX0514	HW40

Available inserts B26, B27 Available arbors and bolt E94 ~ E95

*: Ø80

PF(M)4000



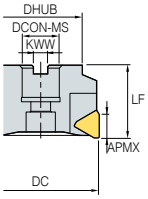


Fig. 1

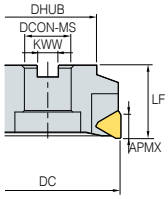


Fig. 2

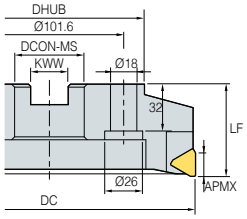


Fig. 3

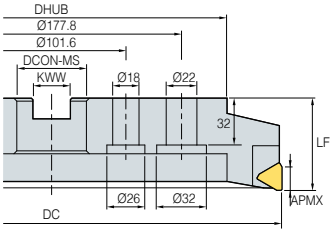


Fig. 4





KAPR 90°

- GAMP : 15°
- GAMF : 14°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
PF (PFM)	4080R/L	●		4	80	80	57	25.4(27)	9.5(12.4)	50	16	1.1	1
	4100R/L	●		4	100	100	67	31.75(32)	12.7(14.4)	50	16	1.8	2
	4125R/L	●		7	125	125	87	38.1(40)	15.9(16.4)	63	16	3.3	2
	4160R/L			9	160	160	107	50.8(40)	19.1(16.4)	63	16	5.3	2
	4200R/L			11	200	200	130	47.625(60)	25.4(25.7)	63	16	8.8	3
	4250R/L			15	250	250	180	47.625(60)	25.4(25.7)	63	16	16.0	3
	4315R/L			19	315	315	240	47.625(60)	25.4(25.7)	63	16	20.8	4

( )Metric size, ● : Stock item

Available inserts

TFCN



Designation		Cermet CN30	Coated NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
TFCN	2203PFR															●	B28
	2203PFL																

Available arbors

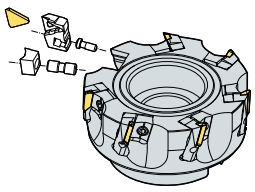
Designation		General arbor	NC arbors PF	NC arbors PFM
PF (PFM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



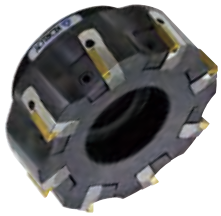
Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LPF4R/L LPF4R1**/L1**	WPFR/L	DHA0821F DHA0817F*	LTX0512	HW40

Available inserts **B28** Available arbors and bolt **E94 ~ E95**

*:Ø80~Ø100 / **:Ø80~Ø125

PPN(M)4000



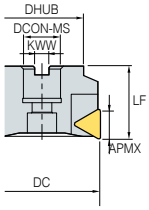


Fig. 1

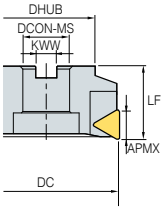


Fig. 2

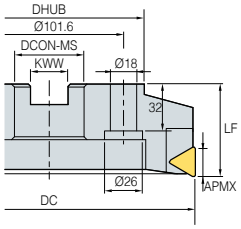


Fig. 3

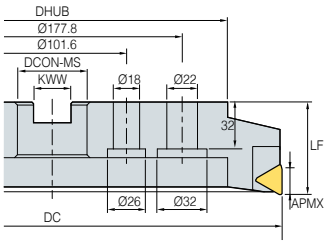


Fig. 4





KAPR 90°

- GAMP : 7°
- GAMF : 0°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
PPN (PPNM)	4080R/L	● (●)		5	80	80.3	57	25.4(27)	9.5(12.4)	50	18	1.3	1
	4100R/L	● (●)		6	100	100.3	67	31.75(32)	12.7(14.4)	50	18	1.9	2
	4125R/L	● (●)		8	125	125.3	87	38.1(40)	15.9(16.4)	63	18	3.5	2
	4160R/L	● (●)		10	160	160.3	107	50.8(40)	19.1(16.4)	63	18	5.6	2
	4200R/L	● (●)		12	200	200.2	130	47.625(60)	25.4(25.7)	63	18	7.7	3
	4250R/L	●		16	250	250.2	180	47.625(60)	25.4(25.7)	63	18	12.8	3
	4315R/L	●		20	315	315.2	240	47.625(60)	25.4(25.7)	63	18	20.6	4

( )Metric size, ● : Stock item

Available inserts

TPCN TPKN-SU TPKN-MU TPKR-MX



Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
TPCN	2204PDR	●		●										●	●		
	2204PDR-G															●	
	2204PDL													●			
	2204PDSR				●												
	2204PDTR																B28
	2204PDR-RH																
	2204PDER-RH								●			●					
	2204PDSR-RH								●								
	2204PDR-S20									●							
TPKN	2204PDSR-MU							●									
	2204PDSR-SU							●				●	●				B29
	2204PDSL-SU							●									
TPKR	2204PDR-MX			●													
	2204PDSR-MX			●	●												B29
	2204PPR-MX																

Available arbors

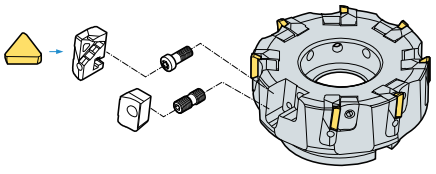
Designation		General arbor	NC arbors PPN	NC arbors PPNM
PPN (PPNM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	4160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	4200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	4315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LPPN4R/L LPPN4R1*/L1*	WPPN4R/L	DHA0821F DHA0817F*	LTX0514	HW40

Available inserts **B28, B29** Available arbors and bolt **E94 ~ E95**

*:Ø80~Ø100

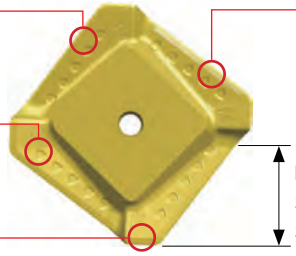
Highly rigid inserts for roughing

Mill Max Heavy

- **Productivity** - Cutting time is reduced by the cutting-edge design specialized for rough facing at high depth of cuts
- **High rigidity** - The highly rigid inserts and cutter shim prevent tool breakage in rough facing
- **Clamping stability** - The wedge-type clamping system, which is easy-to-use and strong, reduces time for replacing inserts, and improves clamping stability

Features of insert

- **Highly rigid inserts**
  - Ideally suited for roughing at high depth of cuts
- **Wide chip pocket area**
  - Improved chip evacuation
  - Reduced cutting loads
- **Minor cutting-edge**
  - Improved surface finish thanks to the wiper function



MAX. ap
SCKN22: 10.5 mm
SCKN28: 14.5 mm

- **Major cutting-edge**
  - High rake angle



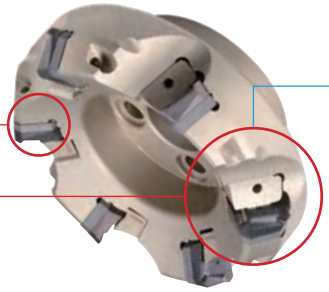
- **2-level flank relief surface**
  - Relief angle availability even at high feed rates

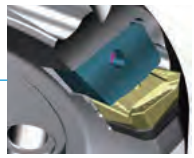
Features of chip breakers

Insert		Cutting-edge	Uses	Features
MM			For roughing	Highly rigid chip breaker ideally suited for roughing at high depth of cuts

Features of cutter

- **Cutter shim**
  - Prevent cutter breakage even under harsh cutting conditions
- **Wide chip pockets**
  - Improve chip evacuation





- **Wedge-type clamping system**
  - Provides clamping stability
  - Reduces time for replacing inserts

Recommended cutting conditions

Workpiece		Grade	Cutting condition		
			vc (m/min)	fz (mm/t)	ap (mm)
P	Low carbon steel/Mild steel	PC5300, NC5340, NCM535	140~270	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
P	High carbon steel	PC5300, NC5340, NCM535	100~220	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
P	Alloy steel	PC5300, NC5340, NCM535	100~180	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
M	Stainless steel	PC5300, NC5340, NCM535	90~180	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]
K	Cast iron	PC5300, NC5340, NCM535	100~180	0.2~0.4	2.0~10.0 [SCKN22], 3.0~14.0 [SCKN28]

HDDCM 7000/9000



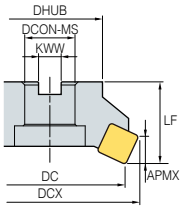


Fig. 1

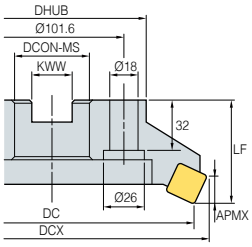


Fig. 2

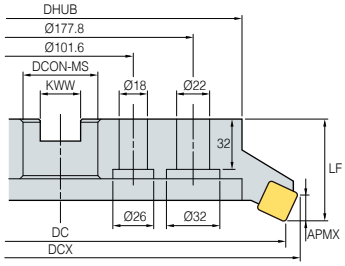


Fig. 3



KAPR 55°

- GAMP : 8°
- GAMF : −11°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
HDDCM	7125R-5		5	125	144.139	90	40	16.4	63	10.5	3.6	1
	7160R-6		6	160	179.092	110	40	16.4	63	10.5	5.1	2
	7160R-8	●	8	160	179.092	110	40	16.4	63	10.5	4.6	2
	7200R-8		8	200	219.06	130	60	25.7	63	10.5	8.7	2
	7200R-10	●	10	200	219.06	130	60	25.7	63	10.5	8.5	2
	7250R-10		10	250	269.086	180	60	25.7	63	10.5	13.8	2
	7250R-12	●	12	250	269.086	180	60	25.7	63	10.5	13.2	2
	7315R-12	●	12	315	334.073	240	60	25.7	63	10.5	21.7	3
	7315R-14		14	315	334.073	240	60	25.7	63	10.5	22	3
	9125R-5		5	125	149.74	90	40	16.4	63	14.5	3.5	1
	9160R-6		6	160	184.678	110	40	16.4	63	14.5	6.5	2
	9200R-8		8	200	224.695	130	60	25.7	63	14.5	8.8	2
	9250R-10		10	250	274.656	180	60	25.7	63	14.5	14.1	2
	9250R-12		12	250	274.656	180	60	25.7	63	14.5	134.1	2
	9315R-12		12	315	339.55	240	60	25.7	63	14.5	21.3	3

● : Stock item

Available inserts

SCKN-MM



Designation		Cermet	Coated								Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
7000 type	SCKN 220715DDSR-MM				●			●				●					B19
9000 type	SCKN 280920DDSR-MM																

Recommended cutting conditions

Workpiece	cutting condition		Grade
	vc(m/min)	fz(mm/t)	
P	140~270 100~220 100~180	0.2~0.4	NC5340 NCM535
M	90~180		
K	100~180		

Available arbors

Designation		General arbor
HDDCM	7125R-5	NT*□□ (M/U)-FMC40
	7160R-6	
	7160R-8	
	7200R-8	NT*□□ (M/U)-FMC60
	7200R-10	
	7250R-10	
	7250R-12	
	7315R-12	
	7315R-14	
	9125R-5	NT*□□ (M/U)-FMC40
	9160R-6	
	9200R-8	NT*□□ (M/U)-FMC60
	9250R-10	
	9250R-12	
	9315R-12	

*□□-NT number

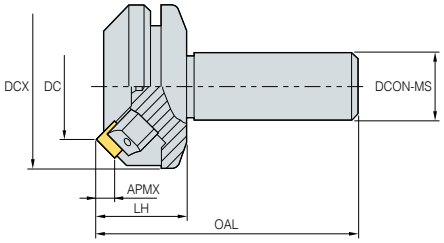
Parts

Specification	Wedge	Wedge screw	Shim	Shim screw	Wrench
Ø125~Ø315(7000 type)	WHD7R/L	WHX0817	SS64DPR	FTGA0614	HW40
Ø125~Ø315(9000 type)	WHD9R/L	WHX0817	SS84DPR	FTGA0818	HW40

Available inserts **B19** Available arbors and bolt **E96**

ADS4000







KAPR 45°

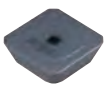
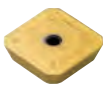
- GAMP : 15°
- GAMF : –3°

(mm)

	Designation	Stock R	Stock L	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	kg
ADS	4050R/L	●		3	50	63.88	32	40	120	6	1.3
	4050R/L-S42			3	50	63.88	42	40	120	6	2.2
	4063R/L	●		4	63	76.85	32	40	120	6	1.6
	4063R/L-S42			4	63	76.85	42	40	120	6	2.7

● : Stock item

Available inserts

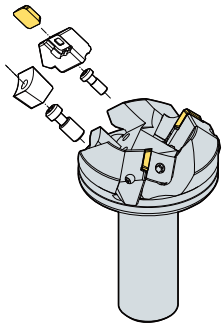
SDCN	SDKN-MU	SDKN-SU	SDKR-MX
			

Designation		Cermet	Coated									Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	42M														●		
	42M-G															●	
	42MT	●		●										●			
	42MT-RH																
	42MT-S20									●							B19
	1203AEEN																
	1203AEEN-RH																
	1203AESN																
	1203AESN-RH																
SDKN	1203AESN-MU							●									
	1203AESN-SU							●				●	●				
SDKR	1203AESN-MX																B20
	1203AETN-MX																
	1203AEN-MX		●														

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



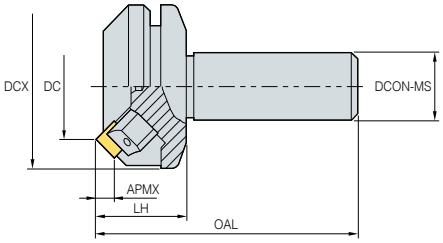
Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø50~Ø63	LASS4R/L	WASR/L	WTX0817	LTX0512	TW25

Available inserts **B19, B20**

ADS5000







KAPR 45°

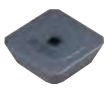
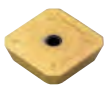
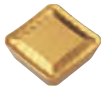
- GAMP : 15°
- GAMF : –3°

(mm)

	Designation	Stock R	Stock L	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	kg
ADS	5050R/L	●		3	50	67	32	40	120	8	7.2
	5050R/L-S42			3	50	67	42	40	120	8	1.8
	5063R/L	●		4	63	80	32	40	120	8	1.6
	5063R/L-S42			4	63	80	42	40	120	8	2.0

● : Stock item

Available inserts

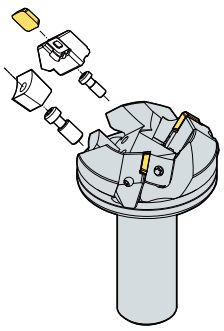
	SDCN	SDKN-MU	SDKN-SU	SDKR-MX
				

Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SDCN	53M													●			B19
	53M-G															●	
	53MT	●		●										●			
	53MT-RH																
	53MT-S20									●							
	1504AEEN																
	1504AEEN-RH								●			●					
	1504AESN																
	1504AESN-RH								●								
SDKN	1504AESN-MU							●									B20
	1504AESN-SU							●				●	●				
SDKR	1504AESN-MX				●												B20
	1504AETN-MX																
	1504AEN-MX			●													

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø50~Ø63	LASS4R/L	WASR/L	WTX0817	LTX0512	TW25

Available inserts **B19, B20**

PES2000/3000/4000



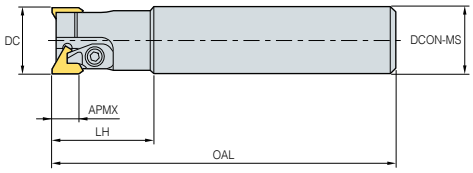


Fig. 1

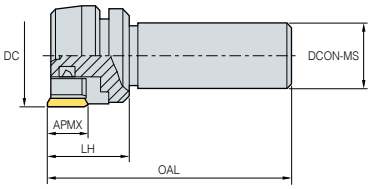


Fig. 2



KAPR 90°

- GAMP : 10°~15°
- GAMF : 2°~-3°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
PES	2020R/L	(●)		2	20	20	30	110	8	0.3	1
	2025R/L	(●)		2	25	25	35	120	8	0.5	1
	3030R/L	(●)		2	30	32	45	160	13	0.9	1
	3032R/L	●		2	32	32	45	160	13	1.0	1
	3033R/L			2	33	32	45	160	13	1.1	1
	3035R/L			2	35	32	45	160	13	1.2	1
	3036R/L			2	36	32	45	160	13	1.3	1
	4040R/L	●		2	40	32	45	160	13	1.4	1
	4050R/L	●		3	50	32	40	120	17	1.2	2
	4050R/L-S42			3	50	42	40	120	16.5	1.5	2
	4063R/L	●		4	63	32	40	120	17	1.5	2
	4063R/L-S42			4	63	42	40	120	16.5	1.8	2

● : Stock item

Available inserts

TECN TEEN

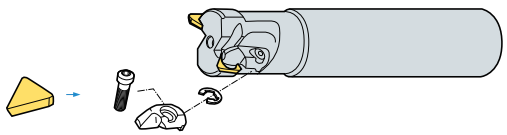


Designation			Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
2000 type	TECN	22R																B27
		22TR	●												●			
3000 type	TECN	32R														●		B27
		32TR	●		●										●			
		32TR-S20									●							
4000 type	TEEN	43R														●		B27
		43R-G															●	
		43TR	●		●	●				●					●			
		43TR-S20									●							
		43TR-Z													●			
		43TR-ZH									●							

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench	Wrench	Clamp	Ring
Ø20~Ø25(2000 type)	-	-	-	CHX0407	HW25L	-	CH4R1	ER03
Ø30~Ø40(3000 type)	-	-	-	CHX0510	HW30L	-	CH5R1	ER04
Ø50~Ø63(4000 type)	LPTS4R/L	WPTSR	DHA0815	LTX0512	-	HW40	-	-

Available inserts **B27**

AFO(M)4000



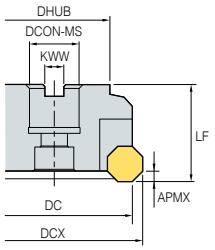


Fig. 1

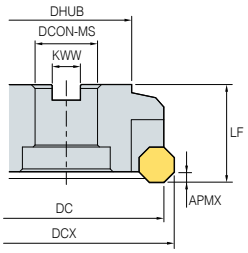


Fig. 2



KAPR 45°

- GAMP : 15°
- GAMF : 5°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
AFO (AFOM)	4080R/L	(●)		5	80	88.1	60	25.4(27)	9.5(12.4)	50	3.4	1.4	1
	4100R/L	(●)		6	100	108.1	80	31.75(32)	12.7(14.4)	50	3.4	2.0	2
	4125R/L	(●)		8	125	133.1	100	38.1(40)	15.9(16.4)	63	3.4	3.7	2

( )Metric size, ● : Stock item

Available inserts

OFCW	OFKT-MF	OFKT-MM	OFKT-MA
			

Designation		Cermet	Coated									Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
OFCW	05T3SN																
	05T3FN																B14
	05T308FN																
OFKT	05T3SN-MF								●								
	05T308SN-MF																
	05T3SN-MM			●				●		●							B14
	05T308SN-MM																B15
	05T3FN-MA															●	
	05T3EN-MA																

Available arbors

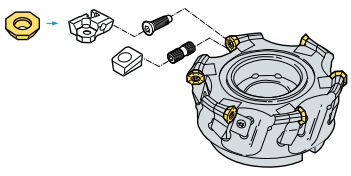
Designation		General arbor	NC arbors AFO	NC arbors AFOM
AFO (AFOM)	4080R/L	NT*□□ (M/U)-FMA25.4-25	BT** □□-FMA25.4-□□	FMC27
	4100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	4125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40

*□□ -NT number **□□ -BT number

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling

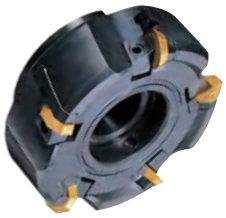


Parts

Specification	Locator	Wedge	Wedge screw	Screw	Wrench
Ø80~Ø125	LAF04R/L	WAFO4R/L	DHA0815	FTKA0408	TW15S

Available inserts **B14, B15**

AFO(M)5000



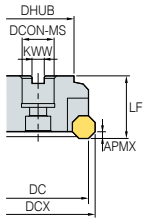


Fig. 1

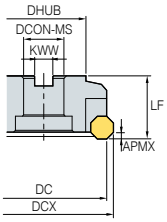


Fig. 2

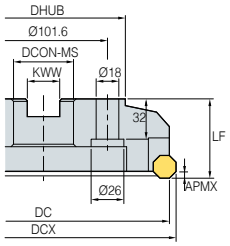


Fig. 3

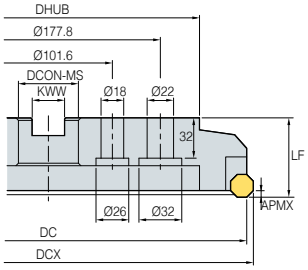


Fig. 4

KAPR 45°

- GAMP : 15°
- GAMF : 5°

(mm)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
AFO (AFOM)	5080R/L	● (●)		5	80	91.2	60	25.4(27)	9.5(12.4)	50	4.8	1.3	1
	5100R/L	● (●)		6	100	111.2	80	31.75(32)	12.7(14.4)	50	4.8	2.1	2
	5125R/L	● (●)		8	125	136.2	100	38.1(40)	15.9(16.4)	63	4.8	4.5	2
	5160R/L	● (●)		10	160	171.1	120	50.8(40)	19.1(16.4)	63	4.8	5.8	2
	5200R/L	● (●)		12	200	211.1	130	47.625(60)	25.4(25.7)	63	4.8	8.5	3
	5250R/L	(●)		16	250	261.1	180	47.625(60)	25.4(25.7)	63	4.8	16.1	3
	5315R/L			20	315	326.4	240	47.625(60)	25.4(25.7)	63	4.8	21.5	4

( )Metric size, ● : Stock item

Available inserts

OFKT-MM | OFKT-MA | OFCN | OFKR-MF



OFKR-MM | OFKR-MA | REKR-MM



Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
OFCN	0704SN							●									B14
	0704FN																
	070408SN																
	070408FN																
OFKR	0704SN-MF			●	●												B14
	070408SN-MF																
	0704SN-MM			●	●			●	●	●		●					
	070408SN-MM			●													
	0704FN-MA															●	
	0704EN-MA																
OFKT	0704SN-MM																B14
	0704FN-MA															●	B15
	0704EN-MA																
REKR	170400-MM																B17

Available arbors

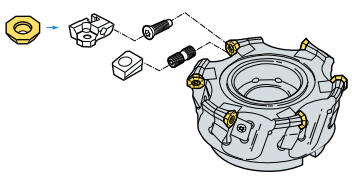
Designation		General arbor	NC arbors AFO	NC arbors AFOM
AFO (AFOM)	5080R/L	NT*□□ (M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	5100R/L	NT*□□ (M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	5125R/L	NT*□□ (M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	5160R/L	NT*□□ (M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	FMB40
	5200R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5250R/L	NT*□□ (M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	5315R/L	KCP-8***(Centering Plug)		

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
P	190~320 161~270 80~140	0.05~0.20 0.05~0.20 0.05~0.20	NCM325 PC3700 ST30A
M	90~150	0.05~0.20	PC9530
K	140~230 50~90	0.05~0.30 0.05~0.30	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LAF05R/L LAF05R*/L-1*	WEFR/L	DHA0821F	LTX0512	HW40

Available inserts **B14 ~ B17** Available arbors and bolt **E94 ~ E95** *:Ø80~Ø100

New serrated edge design increases productivity by reducing insert cutting load

Power Buster

- New tooling utilizing a specially designed serrated edge to increase productivity by reducing the cutting load.
- Double-sided 6 corner insert geometry ensures high rigidity, long tool life and cost efficiency
- The serrated edge divides the chips into smaller pieces. This feature provides excellent chip control, reduces interference of the cutter and ensures good durability of the cutter body.
- Two types of inserts are available-TNMX27 for PBA (Approach angle: 45°) and PBZ (KAPR: 80°), and TNMX30 for PBP (KAPR: 90°)
- Application: High depth of cut and feed rate (Steel, Cast iron)

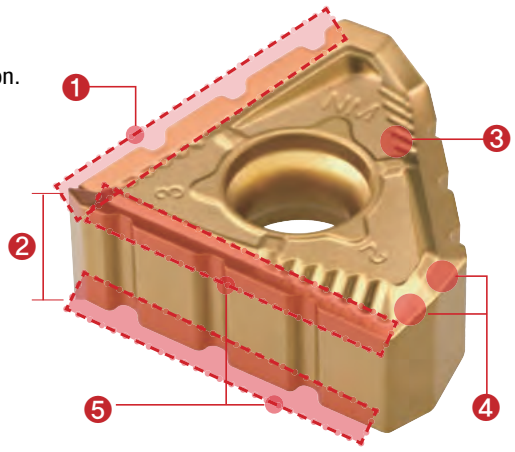
Code system

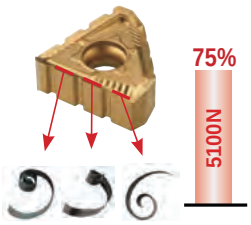
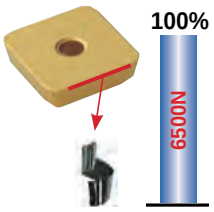
PB	A	C	M	5	250	R/L	-	M
Power Buster	**KAPR** A : 45° Z : 80° P : 90°	**Cutter type** C: Cutter	**Arbor type** M: Metric Non: Inch	**Inscribed circle of insert** 5 : 15.875 6 : 17.462	**Tool diameter** DC : 250	**Hand** R: Right-handed L: Left-handed		**No of tooth** No code: Coarse pitch M: Close pitch 8: 8 teeth

Features of insert

❶ Major cutting-edge (Serrated edge)

- Low cutting force
- Ideal for chip control, divides chips into small pieces for proper chip evacuation.
- Ideal edge design for Steel and Cast iron rough milling
- Comparison of chip control and cutting force

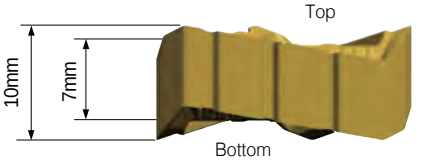


Power Buster	ISO milling insert
	

Workpiece	SCM440
Cutting condition	vc = 200m/min, ap = 8mm, ae = 90mm, fz = 0.3mm/t

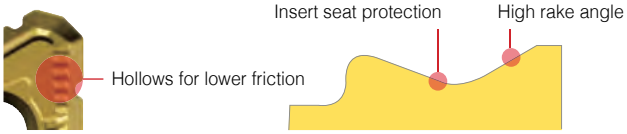
❷ Thicker insert

- Thick insert guarantees high rigidity
- Balanced insert design for stable mounting



❸ NM Chip breaker

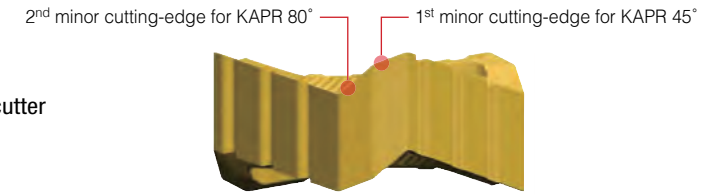
- High rake angle for low cutting force
- Good chip flow at various feed and depth of cut
- Inserts are protected with seats for a precise mounting
- Low friction and good heat evacuation at high depth cut



❹ Insert shape applied to PBA/Z cutters (KAPR: 45°/80°)

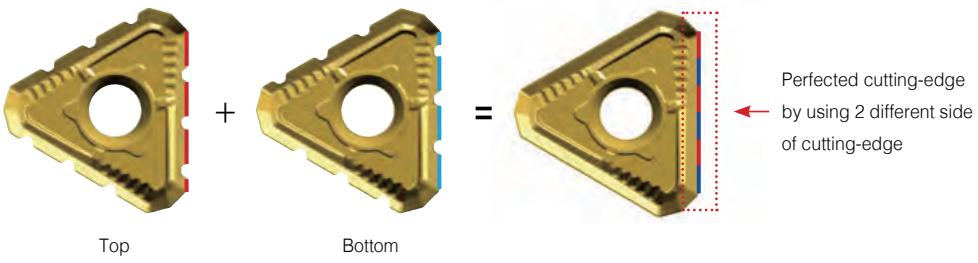
– High rake angle to avoid interference with chip

– Calculated minor cutting-edge angel for both KAPR 45° & 80° cutter



❺ Mirror system

– Cutting-edge on the both side of insert covers all overlapped cutting area



Features of cutter

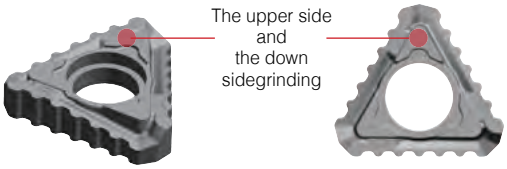
❶ Screw-on clamping system

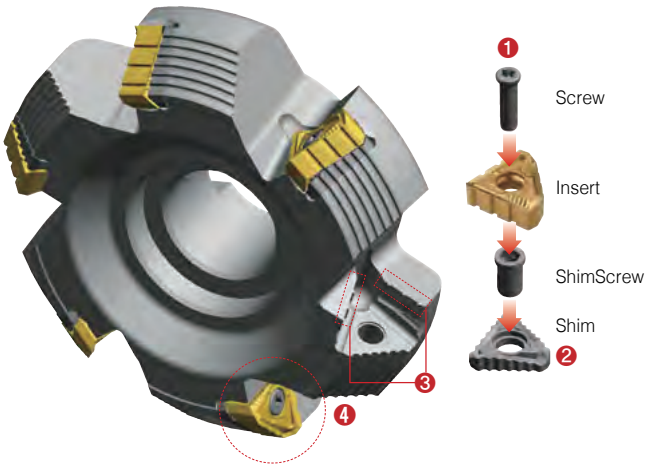
– Simple and strong screw on clamping system

❷ Better rigidity & Stable Assembly system

– The shim protects the cutter from insert damage

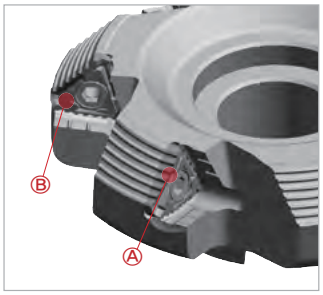
– High accuracy shim ensures tighter clamping

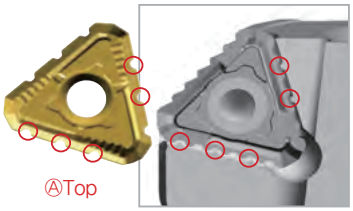


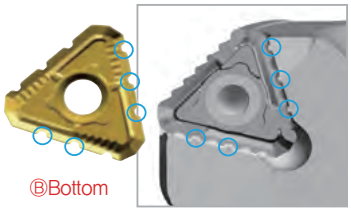


❸ Foolproof System

– Insert serrations match pocket design to prevent improper seating and alignment



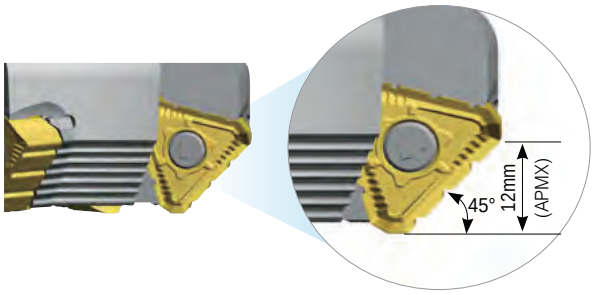




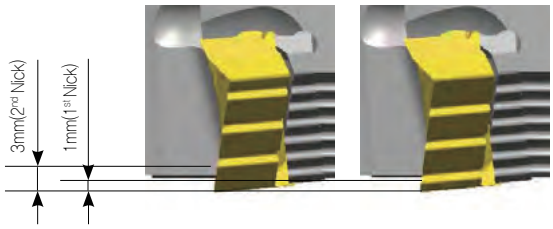
❹ Multi-application system

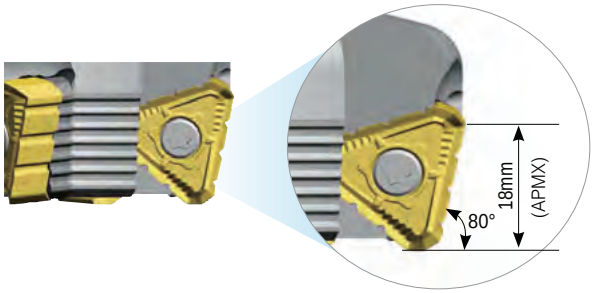
– Same insert for multi-use (45˚and 80˚)

PBA/PBZ

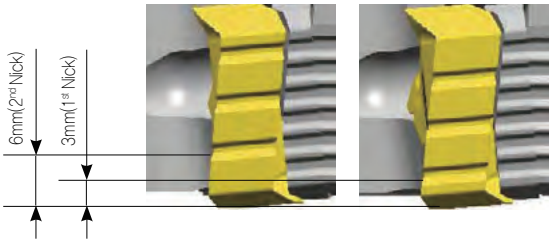


KAPR 45° ⇨ The serrations are effective with a depth of cut larger than 1

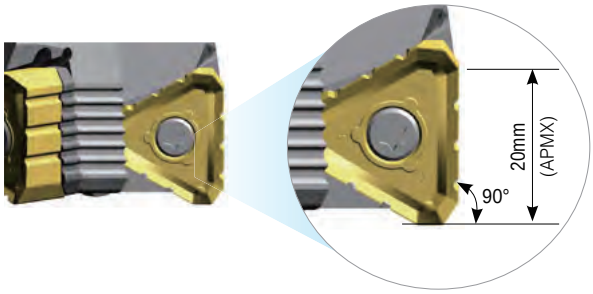




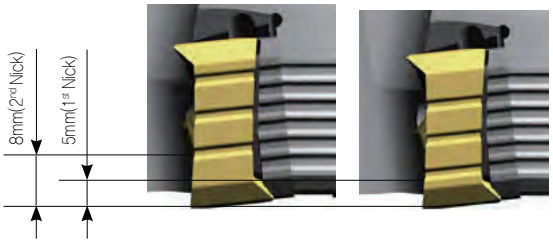
KAPR 80° ⇨ The serrations are effective with a depth of cut larger than 3



PBP

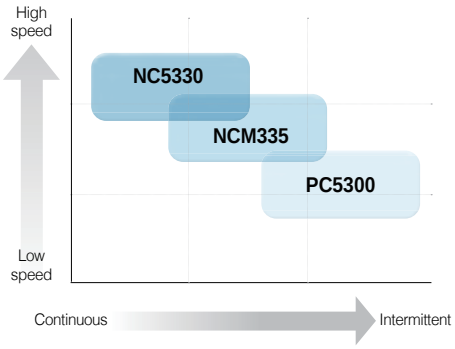


KAPR 90° ⇨ The serrations are effective with a depth of cut larger than 5



Recommended cutting conditions

ISO	Workpiece		Material	NC5330	NCM335	PC5300
				fz (mm/t)		
				0.1-0.2-0.3	0.1-0.2-0.3	0.1-0.2-0.3
				vc (m/min)		
P	Carbon steel	-	SUM22, C = 0.1~25	400	335	280
		-	C = 0.30~55	365	305	255
		-	C = 0.55~80	340	285	240
	Low alloy steel (Alloy constituent < 5%)	-	SCM415(H), SCM420, SCM440	280	235	195
		Hardened		165	140	115
	High alloy steel (Alloy constituent > 5%)	Annealed	SKD61	210	180	150
		Hardened	SKH51, SKH55	175	145	120
K	Gray cast iron	Low tensile	FC200, FC250	125	-	145
		Hight tensile	FC300, FC350	105	-	120
		Ferric	FCD400, FCD500	80	-	95
		Pearlitic	FCD600, FCD700	75	-	85



PBAC(M)5000



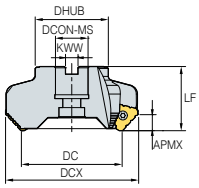


Fig. 1

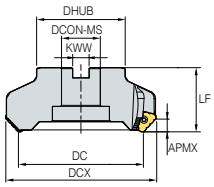


Fig. 2

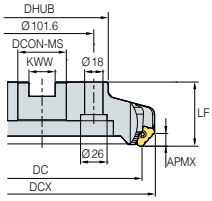


Fig. 3

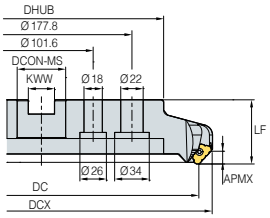


Fig. 4



KAPR 45°

- GAMP : −5°
- GAMF : −11°

(mm)

	Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
Coarse pitch	PBAC (PBACM)	5080R/L			4	80	104.246	57	25.4(27)	9.5(12.4)	50	12	1.5	1
		5100R/L			4	100	124.234	67	31.75(32)	12.7(14.4)	50	12	2.3	2
		5125R/L			6	125	149.224	87	38.1(40)	15.9(16.4)	63	12	4.7	2
		5160R/L			8	160	184.214	107	50.8(40)	19(16.4)	63	12	6.4	2
		5200R/L			10	200	224.2	130	47.625(60)	25.4(25.7)	63	12	9.0	3
		5250R/L			12	250	274.2	180	47.625(60)	25.4(25.7)	63	12	14.0	3
		5315R/L			14	315	339.2	240	47.625(60)	25.4(25.7)	63	12	23.0	4
Close pitch	PBAC (PBACM)	5080R/L-M			6	80	104.246	57	25.4(27)	9.5(12.4)	50	12	1.7	1
		5100R/L-M			6	100	124.234	67	31.75(32)	12.7(14.4)	50	12	1.9	2
		5125R/L-M	●	(●)	8	125	149.224	87	38.1(40)	15.9(16.4)	63	12	4.0	2
		5160R/L-M	●	(●)	10	160	184.214	107	50.8(40)	19(16.4)	63	12	6.2	2
		5200R/L-M		(●)	12	200	224.2	130	47.625(60)	25.4(25.7)	63	12	7.7	3
		5250R/L-M			14	250	274.2	180	47.625(60)	25.4(25.7)	63	12	13.0	3
		5315R/L-M			16	315	339.2	240	47.625(60)	25.4(25.7)	63	12	22.0	4

( )Metric size, ● : Stock item

Available inserts

TNMX-NM



	Designation		Cermet	Coated											Uncoated			Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	2710AZNR-NM			●			●				●		●		●					B28
	2710AZNL-NM																			

Available arbors

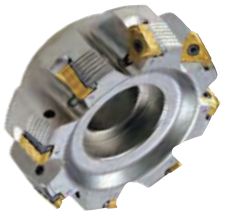
Designation		Available arbors	
		PBAC	PBACM
PBAC (PBACM)	5080R/L-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100R/L-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125R/L-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R/L-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R/L-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R/L-□		
	5315R/L-□		

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø315	FTGA0518	ST53AZR	SHXN0712F	TW20-100

Available inserts **B28** Available arbors and bolt **E94 ~ E95**

PBZC(M)5000



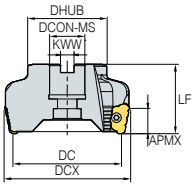


Fig. 1

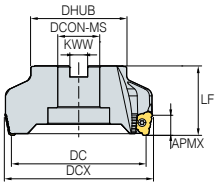


Fig. 2

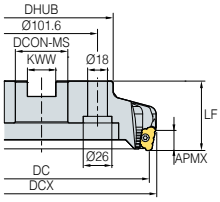


Fig. 3

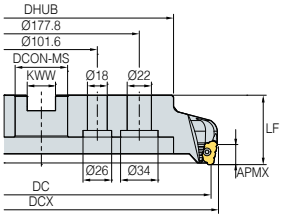


Fig. 4



KAPR 80°

- GAMP : −5°
- GAMF : −12°

(mm)

	Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
Coarse pitch	PBZC (PBZCM)	5080R/L			4	80	91.177	57	25.4(27)	9.5(12.4)	50	18	1.2	1
		5100R/L			4	100	111.17	67	31.75(32)	12.7(14.4)	50	18	1.8	2
		5125R/L			6	125	136.162	87	38.1(40)	15.9(16.4)	63	18	3.8	2
		5160R/L			8	160	171.156	107	50.8(40)	19(16.4)	63	18	5.4	2
		5200R/L			10	200	211.151	130	47.625(60)	25.4(25.7)	63	18	7.8	3
		5250R/L			12	250	258	180	47.625(60)	25.4(25.7)	63	18	14	3
		5315R/L			14	315	326.2	240	47.625(60)	25.4(25.7)	63	18	22	4
Close pitch	PBZC (PBZCM)	5080R/L-M			6	80	91.177	57	25.4(27)	9.5(12.4)	50	18	1.2	1
		5100R/L-M			6	100	111.17	67	31.75(32)	12.7(14.4)	50	18	1.8	2
		5125R/L-M	● (●)		8	125	136.162	87	38.1(40)	15.9(16.4)	63	18	3.8	2
		5160R/L-M	● (●)		10	160	171.156	107	50.8(40)	19(16.4)	63	18	5.4	2
		5200R/L-M	(●)		12	200	211.151	130	47.625(60)	25.4(25.7)	63	18	7.3	3
		5250R/L-M			14	250	258	180	47.625(60)	25.4(25.7)	63	18	12.1	3
		5315R/L-M			16	315	326.2	240	47.625(60)	25.4(25.7)	63	18	22	4

( )Metric size, ● : Stock item

Available inserts

TNMX-NM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	2710AZNR-NM		●			●				●		●		●					B28
	2710AZNL-NM																		

Available arbors

Designation		Available arbors	
		PBAC	PBACM
PBAC (PBACM)	5080R/L-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100R/L-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125R/L-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R/L-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R/L-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R/L-□		
	5315R/L-□		

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø315	FTGA0518	ST53AZR	SHXN0712F	TW20-100

Available inserts **B28** Available arbors and bolt **E94 ~ E96**

PBPCM6000



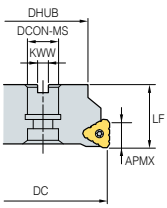


Fig. 1

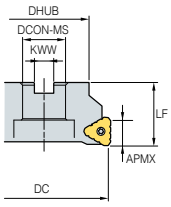


Fig. 2

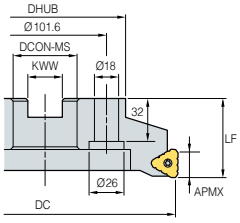


Fig. 3

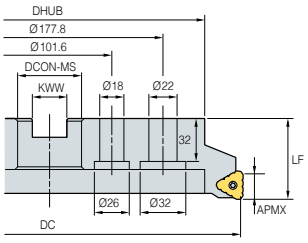


Fig. 4



KAPR 90°

- GAMP : −5°
- GAMF : −12°

(mm)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
PBPCM	7125R/L-5			4	80	80	57	27	12.4	50	20	0.85	1
	7160R/L-6			6	100	100	67	32	14.4	50	20	1.16	2
	7160R/L-8			6	125	125	87	40	16.4	63	20	2.84	2
	7200R/L-8			8	160	160	107	40	16.4	63	20	3.58	3
	7200R/L-10			10	200	200	130	60	25.7	63	20	5.13	3
	7250R/L-10			12	250	250	180	60	25.7	63	20	9	3
	7250R/L-12			14	315	315	240	60	25.7	63	20	16.85	4

( )Metric size, ● : Stock item

Available inserts

TNMX-NM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	3012PNR-NM																		B28

Available arbors

	Designation	General arbor
PBPCM	6080R-4	BT□□-FMC27-□□
	6100R-6	BT□□-FMC32-□□
	6125R-6	BT□□-FMC40-□□
	6160R-8	
	6200R-10	BT□□-FMC60-□□
	6250R-12	
	6315R-14	

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø315	FTGA0518	ST53PNR	SHXN0712F	TW20-100

Available inserts **B28** Available arbors and bolt **E96**

Rich Mill series is one of innovations that provides more available cutting-edges by double-sided insert and longer tool life for our customers

Rich Mill Series

- Rich Mill series is one of the innovations that provides more available cutting-edges with double-sided inserts and longer tool life for our customers
- The unique geometry and special cutting-edge guarantees low cutting loads and long tool life
- Rich Mill series has a wide application range from steel and stainless steel to cast iron and aluminum
- Applying negative inserts makes it even stronger and provides longer tool life
- Rich Mill series has both screw-on clamping system and latch clamping system

Code system

RM16	A	C	M	4	100	H	R	-	M

Number of edges
RM3 : Number of edges-3
RM4 : Number of edges-4
RM6 : Number of edges-6
RM8 : Number of edges-8
RM8-X : Number of edges-8 (High helix)
RM14 : Number of edges-14
RM16 : Number of edges-16
RMT8 : Number of edges-8 (Latch Clamp)
RMH8 : Number of edges-8 (Shim)
RMR : Number of edges-8 (Round Type)

Cutting Edge angle
A : 45°
D : 30°
E : 15°
F : 5°
P : 0°
Q : 2°
Z : Plunging

Tool type
C : Cutter
S : Shank

Arbors type
M : Metric
A : Inch

Inscribed circle of insert
3 : 9.525
4 : 12.7
5 : 15.875

Tool Dia.
Ø100

Coolant type
H : Thru-Hole
Non : None

Hand
R : Right-handed
L : Left-handed

Pitch type
M : Close
H : Extra Close

RMX8	A	C	M	063	R	-	22	-	6	-	SA14

Number of edges
RM6 : Number of edges-6
RM8-X : Number of edges-8 (High helix)
RM14 : Number of edges-14
RMR : Number of edges-8 (Round Type)

Cutting Edge angle
A : 45°
D : 50°
E : 75°
Q : 88°
P : 90°
Z : Plunging

Tool type
C : Cutter
S : Shank

Arbors type
M : Metric
A : Inch
None : Asia

Tool diameter
063 : Ø63

Oil hole & Hand
R : With oil hole, Right-handed
NR : Without oil hole, Right-handed

Internal diameter
22 : Ø22

No. of tooth
6 : 6 teeths

Available insert
SA14 : SAGX14

Cutters

Type	KAPR	Designation	Picture	Cutter Diameter	Available inserts		Features	Page
RM3	90°	**RM3PC(M)3000**		Ø40~Ø80	XNKT060405PNER-ML XNKT060408PNER-ML	XNKT060405PNSR-MM XNKT060408PNSR-MM	• Economical 3 corners • Perfect perpendicularity • Longer tool life due to direct injection into the cutting-edge of insert	B80
		RM3PC(M)4000		Ø40~Ø125	XNCT080508PNFR-MA XNKT080508PNER-ML XNKT080508PNSR-MM	XNKT080512PNSR-MM XNKT080516PNSR-MM XNKT080520PNSR-MM		B81
		RM3PC(M)5000		Ø80~Ø125	XNCT120608PNER-MA XNKT120608PNER-ML XNKT120612PNER-ML XNKT120616PNER-ML XNKT120620PNER-ML	XNKT120608PNSR-MM XNKT120612PNSR-MM XNKT120616PNSR-MM XNKT120620PNSR-MM		B82
RM4	90°	**RM4PC(M)3000**		Ø40~Ø100	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM	• Economical 4 corners • Screw on type for slotting, facing	B92
		RM4PC(M)4000		Ø50~Ø160	LNEX151004PNR-MF LNMX151004PNR-MF LNEX151004PNR-MM LNMX151004PNR-MM LNEX151008PNR-MF LNMX151008PNR-MF LNEX151008PNR-MM LNMX151008PNR-MM	LNEX151016PNR-MF LNMX151016PNR-MF LNEX151016PNR-MM LNMX151016PNR-MM LNEX151004PNR-MA LNEX151008PNR-MA LNEX151008PNL-MM LNMX151008PNL-MM		B93
		RM4ZCM3000		Ø40~Ø52	LNEX100605PNL-MM	LNMX100605PNL-MM	• Economical 4 corners • Optimal insert application for vertical machining	B97
		RM4ZC(M)4000		Ø63~Ø100	LNEX151008PNL-MM	LNMX151008PNL-MM		







Cutters

Type	KAPR	Designation	Picture	Cutter Diameter	Available inserts			Features	Page
RM6	90°	**RM6PCM-WN04**		Ø40~Ø63	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM		• Improved productivity and high-quality shouldering through high speed and high feed machining	B110
		RM6PC(M)-WN08		Ø50~Ø125	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM	 		B111
RM8	45°	**RM8AC(M)4000**		Ø50~Ø400	SNEX1206ANN-MA SNEX1206ANN-MF SNMX1206ANN-MF SNEX1206ANN-ML	SNEX1206ANN-MM SNMX1206ANN-MM SNEX1206ANN-W		• Economical 8 corners • Low cutting load and excellent smooth cutting • Economical 8 corners • Low cutting load and excellent smooth cutting	B118
		RM8AC(M)5000		Ø80~Ø400	SNEX1507ANN-MF SNMX1507ANN-MF SNEX1507ANN-ML	SNEX1507ANN-MM SNMX1507ANN-MM			B120
	75°	**RM8EC(M)4000**		Ø50~Ø400	SNEX1206ENN-MA SNEX1206ENN-MF SNMX1206ENN-MF	SNEX1206ENN-ML SNEX1206ENN-MM SNMX1206ENN-MM			B122
		RM8EC(M)5000		Ø80~Ø400	SNEX1507ENN-MF SNMX1507ENN-MF SNEX1507ENN-ML	SNEX1507ENN-MM SNMX1507ENN-MM			B124
	88°	**RM8QC(M)4000**		Ø63~Ø200	SNEX1206QNN-MA SNEX1206QNN-MF SNMX1206QNN-MF SNEX1206QNN-ML SNEX1206QNN-MM SNMX1206QNN-MM	SNEX120612-MA SNEX120612-MF SNMX120612-MF SNEX120612-ML SNEX120612-MM SNMX120612-MM			B126

Cutters

Type	KAPR	Designation	Picture	Cutter Diameter	Available inserts		Features	Page
RM8	45°	**RMH8AC(M)4000**		Ø50~Ø400	SNEX1206ANN-MA SNEX1206ANN-MF SNMX1206ANN-MF	SNEX1206ANN-ML SNEX1206ANN-MM SNMX1206ANN-MM SNEX1206ANN-W	• Economical 8 corners • Low cutting load and excellent smooth cutting • Economical 8 corners • Low cutting load and excellent smooth cutting	B119
		RMH8AC(M)5000		Ø80~Ø400	SNEX1507ANN-MF SNMX1507ANN-MF SNEX1507ANN-ML	SNEX1507ANN-MM SNMX1507ANN-MM		B121
	75°	**RMH8EC(M)4000**		Ø50~Ø400	SNEX1206ENN-MA SNEX1206ENN-MF SNMX1206ENN-MF	SNEX1206ENN-ML SNEX1206ENN-MM SNMX1206ENN-MM		B123
		RMH8EC(M)5000		Ø80~Ø400	SNEX1507ENN-MF SNMX1507ENN-MF SNEX1507ENN-ML	SNEX1507ENN-MM SNMX1507ENN-MM		B125
	88°	**RMH8QC(M)4000**		Ø63~Ø200	SNEX1206QNN-MA SNEX1206QNN-MF SNMX1206QNN-MF SNEX1206QNN-ML SNEX1206QNN-MM SNMX1206QNN-MM	SNEX120612-MA SNEX120612-MF SNMX120612-MF SNEX120612-ML SNEX120612-MM SNMX120612-MM		B127
RMT8	45°	**RMT8A(M) 4000/5000**		Ø80~Ø315	SNCF1206ANN-MF SNCF1507ANN-MF SNMF1206ANN-MF SNMF1507ANN-MF	SNCF1206ANN-MM SNCF1507ANN-MM SNMF1206ANN-MM SNMF1507ANN-MM	• Economical 8 corners • Excellent tool life and surface toughness due to low cutting resistance and high rake edge geometry • Good performance with increased chipping resistance	B129 B130
	75°	**RMT8E(M) 4000/5000**		Ø80~Ø315	SNCF1206ENN-MF SNCF1507ENN-MF SNMF1206ENN-MF SNMF1507ENN-MF	SNCF1206ENN-MM SNCF1507ENN-MM SNMF1206ENN-MM SNMF1507ENN-MM		B131 B132
	88°	**RMT8Q(M)4000**		Ø80~Ø315	SNCF1206QNN-MF	SNMF1206QNN-MF		B133

Cutters

Type	KAPR	Designation	Picture	Cutter Diameter	Available inserts			Features	Page
RM8-X	45°	**RMX8AC(M)-SA14**		Ø50~Ø250	SAGX140808ANER-ML	SAGX140808ANER-MM SNMX140808ANER-MM		• Double sided insert with 8 corners • Stable cutting performance due to double reversal positive relief surface • Good machinability in stainless cutting with High	B136
RM14	51°	**RM14XCM-XN06**		Ø50~Ø160	XNMX0606XNR-ML	XNMX060608-ML	 	• Reduced vibration with the application of maximum approach angle on heptangonal shape • Stable clamping from wedge type clamping structure • Available for multiple-staged cutting without interference of the cutter's side wall	B140
RM16	45°	**RM16AC(M) 6000/8000**		Ø63~Ø400	ONHX060608-MF ONMX060608-MF ONHX0606ANN-MF ONMX0606ANN-MF ONHX080608-MF ONMX080608-MF ONHX0806ANN-MF ONMX0806ANN-MF ONHX060608-ML ONHX080608-ML ONHX060608-MM	ONMX060608-MM ONHX0606ANN-MM ONMX0606ANN-MM ONHX080608-MM ONMX080608-MM ONHX0806ANN-MM ONMX0806ANN-MM ONHX060608-MA ONHX060608-W ONHX080608-MA ONHX080608-W		• Economical 16 corners • Wiper insert for surface roughness	B142 B143
RMR	-	**RMRC(M)-RN12**		Ø50~Ø125	RNMX1204M0E-ML			• High cost efficiency due to double sided round typed cutting edge • Excellent rotating prevention by strong clamping system • Suitable for Inconel cutting	B146

Shanks/Modulars

Type	KAPR	Designation	Picture	Cutter Diameter	Available inserts			Features	Page
RM3	90°	**RM3PS3000**		Ø20~Ø40	XNKT060405PNER-ML	XNKT060405PNSR-MM		• Economical 3 corners • Perfect perpendicular shouldering operation multi milling tool	B83
		RM3PS4000		Ø32~Ø63	XNKT080508PNER-ML XNKT080508PNSR-MM XNKT080512PNSR-MM	XNKT080516PNSR-MM XNKT080520PNSR-MM			B84
		RM3PM 3000/4000		Ø20~Ø50	XNKT060405PNER-ML XNKT060405PNSR-MM XNKT060408PNER-ML XNKT060408PNSR-MM XNCT080504PNFR-MA XNCT080508PNFR-MA XNCT080512PNFR-MA XNCT080520PNFR-MA	XNKT080508PNER-ML XNKT080508PNSR-MM XNKT080512PNER-ML XNKT080512PNSR-MM XNKT080516PNER-ML XNKT080516PNSR-MM XNKT080520PNER-ML XNKT080520PNSR-MM			B85
RM4	90°	**RM4PS3000**		Ø14~Ø50	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM	 	• Economical 4 corners • Screw on type for slotting, facing	B94
		RM4PS4000		Ø32~Ø63	LNEX151004PNR-MF LNMX151004PNR-MF LNEX151004PNR-MM LNMX151004PNR-MM LNEX151008PNR-MF LNMX151008PNR-MF LNEX151008PNR-MM LNMX151008PNR-MM	LNEX151016PNR-MF LNMX151016PNR-MF LNEX151016PNR-MM LNMX151016PNR-MM LNEX151004PNR-MA LNEX151008PNR-MA LNEX151008PNL-MM LNMX151008PNL-MM			B95
		RM4ZS3000		Ø25~Ø40	LNEX100605PNL-MM	LNMX100605PNL-MM		• Economical 4 corners • Optimal insert application for vertical machining	B98
		RM4PM3000		Ø14~Ø50	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM		• Economical 4 corners • Screw on type for slotting, facing	B96
		RM4ZM3000		Ø25~Ø40	LNEX100605PNL-MM	LNMX100605PNL-MM		• Economical 4 corners • Optimal insert application for vertical machining	B98

Shanks/Modulars

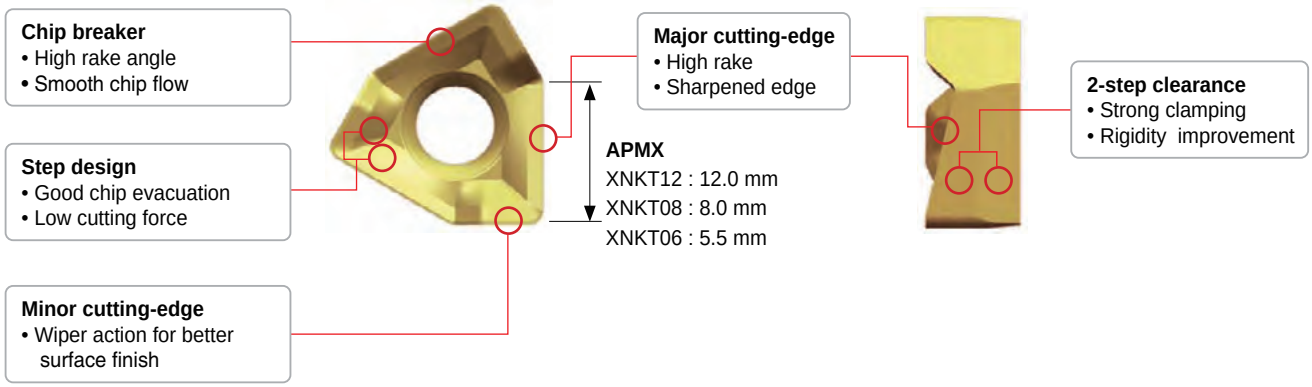
Type	KAPR	Designation	Picture	Cutter Diameter	Available inserts		Features	Page
RM6	90°	**RM6PS-WN04**		Ø20~Ø32	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM	• Improved productivity and high-quality shouldering through high speed and high	B112
		RM6PS-WN08		Ø32~Ø50	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		B113
		RM6PM-WN04		Ø20~Ø32	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM		B114
		RM6PM-WN08		Ø32~Ø40	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		B115
RMR	-	**RMRS-RN12**		Ø32~Ø63	RNMX1204M0E-ML RNMX1204M0S-MM		• High cost efficiency due to double sided round typed cutting edge • Excellent rotating prevention by strong clamping system • Suitable for Inconel cutting	B147

Rich Mill RM3

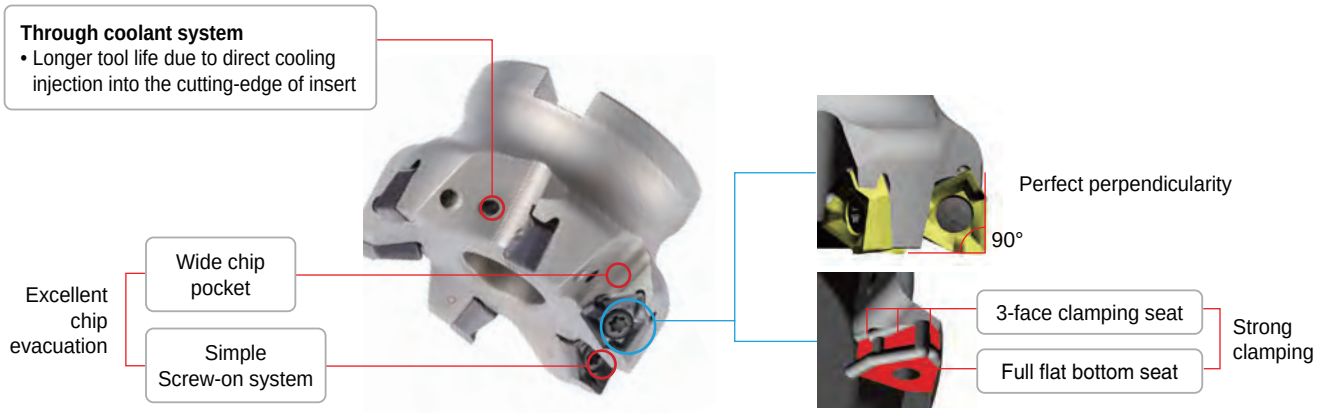
Features

- **High Quality** - True 90° shouldering operation
- **High Productivity** - Strong thick insert and 3-face clamping ensure stable operation even tough condition.
- **High Economics** - Long tool life due to optimized manufacturing process

Features of insert



Features of cutter



Through coolant system

- Exclusive through coolant bolt required
- Effective coolant distribution directly to cutting-edge
- Coolant supporting arbor required



Features of chip breakers

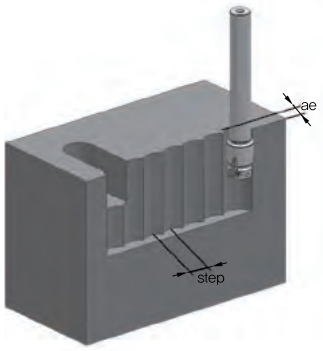
Insert		Cutting-edge	Uses	Features
MA			Aluminum	Superior cutting quality for aluminum due to sharp cutting-edge and buffed surface
ML			Light	Superior cutting quality for light and light cutting, difficult-to-cut material machining through the low cutting load of chip breaker
MM			General	Suitable for various cutting due to special shape design for general cutting

Rich Mill RM3

Max step in plunging

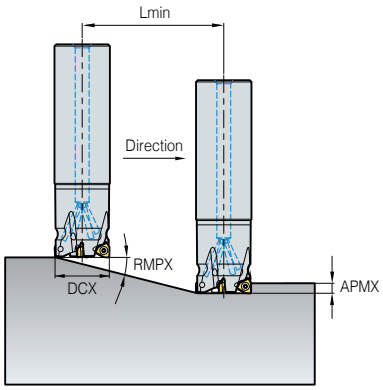
Type	max. ae
3000 type	2.5
4000 type	3.0
5000 type	3.5

ae	Cutter Diameter (Ø)											
	Ø20	Ø21	Ø25	Ø26	Ø32	Ø33	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
	max step (mm)											
1	8.5	8.9	9.7	10	11.1	11.3	12.4	14	15.7	17.7	19.9	22.2
2	12	12.3	13.5	13.8	15.4	15.7	17.4	19.5	22	24.9	28	31.3
3	-	-	-	-	-	-	21	23.7	26.8	30.3	34.1	38.2

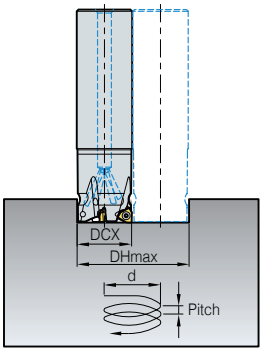


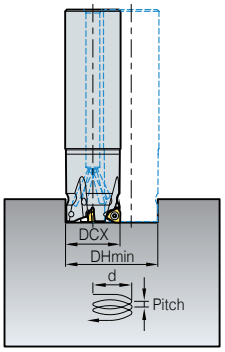
Ramping and helical cutting

Ramping



Helical cutting





(mm)

Type	DCX	APMX	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
			RMPX	Lmin	DHmin	Max. pitch	DHmax	Max. pitch	DHmin	Max. pitch
3000 type	20	5.5	15.5	19.8	36.5	5.5	38.5	5.5	33.0	5.5
	21	5.5	14.0	22.1	38.5	5.5	40.5	5.5	35.0	5.5
	25	5.5	10.0	31.2	46.5	5.5	48.5	5.5	43.0	5.5
	26	5.5	9.5	32.9	48.34	5.5	51.0	5.5	45.0	5.5
	32	5.5	6.5	48.3	60.5	5.5	62.5	5.5	59.0	5.5
	33	5.5	6.0	52.3	62.5	5.5	64.5	5.5	59.0	5.5
	40	5.5	4.5	69.9	46.5	5.5	78.5	5.5	73.0	5.5
	50	5.5	3.5	89.9	96.5	5.5	98.5	5.5	93.0	5.5
	63	5.5	2.5	126.0	122.5	5.5	124.5	5.5	119.0	5.5
	80	8	2.0	157.5	156.5	5.5	158.5	5.5	153.0	5.5
	100	8	1.5	210.0	194.5	5.5	198.5	5.5	193.0	5.5
	125	8	1.0	315.1	246.5	5.5	248.5	5.5	243.0	5.5
4000 type	25	8	24.0	18.0	44.5	8.0	48.0	8.0	38.5	8.0
	32	8	13.0	34.7	58.5	8.0	62.0	8.0	52.5	8.0
	33	8	12.0	37.6	60.02	8.0	64.4	8.0	54.5	8.0
	40	8	8.5	53.5	74.5	8.0	78.0	8.0	68.5	8.0
	50	8	6.0	76.1	94.5	8.0	98.0	8.0	88.5	8.0
	63	8	4.0	114.4	120.5	8.0	124.0	8.0	114.5	8.0
	80	8	3.0	152.6	154.5	8.0	158.0	8.0	148.5	8.0
	100	8	2.0	229.1	194.5	8.0	198.0	8.0	188.5	8.0
	125	8	1.5	305.5	244.5	7.7	248.0	7.8	238.5	7.7
5000 type	80	12	5.5	124.6	153.5	12.0	158.0	12.0	146.5	12.0
	100	12	4.5	152.5	193.5	12.0	198.0	12.0	159.5	12.0
	125	12	3.5	196.2	242.5	12.0	248.0	12.0	236.5	12.0

* Please be sure to use cutting oil or air for ramping and helical machining

Lmin = ap/tan (RPMX)

Rich Mill RM3

Application guideline for grade

Workpiece		P		M	K	N
		Carbon steel	Alloy steel	Stainless steel	Cast iron	Aluminum
Chip breaker	First choice	MM	MM	ML	ML	MA
	Second choice	ML	ML	-	MM	-
Grades	High speed machining	PC3700	PC3700	PC5300	PC6100	H01
	General machining	PC5400	PC5300	PC5400	PC5300	
	Interrupted machining	PC5400	PC5400	PC5400	PC5400	

Recommended cutting condition RM3 3000 type

Workpiece		Grade	Cutting conditions				Cutting conditions			
			vc (m/min)	fz (mm/t)	APMX (mm)	Available inserts	vc (m/min)	fz (mm/t)	APMX (mm)	Available inserts
P	steel	PC3700	160~270	0.25~0.05	5.5	XNKT0604□□ PNSR-MM	160~270	0.2~0.05	5.5	XNKT0604□□ PNER-ML
		PC5300	150~240	0.25~0.05			150~240	0.25~0.05		
		PC5400	130~210	0.25~0.05			130~210	0.25~0.05		
M	Stainless steel	PC5300	90~150	0.2~0.05			90~150	0.1~0.05		
		PC5400	70~120	0.2~0.05			70~120	0.1~0.05		
K	Cast iron	PC6100	140~230	0.3~0.08			140~230	0.25~0.08		
		PC5300	120~200	0.3~0.08			120~200	0.25~0.08		

※ Maximum cutting condition: vc = 350 m/min, fz = 0.5 mm/t according to cutting environment

Recommended cutting condition RM3 4000 type

Workpiece		Grade	Cutting conditions				Cutting conditions			
			vc (m/min)	fz (mm/t)	APMX (mm)	Available inserts	vc (m/min)	fz (mm/t)	APMX (mm)	Available inserts
P	steel	PC3700	160~270	0.3~0.05	8.0	XNKT0805□□ PNSR-MM	160~270	0.25~0.05	8.0	XNKT0805□□ PNER-ML
		PC5300	150~240	0.3~0.05			150~240	0.25~0.05		
		PC5400	130~210	0.3~0.05			130~210	0.25~0.05		
M	Stainless steel	PC5300	90~150	0.25~0.05			90~150	0.2~0.05		
		PC5400	70~120	0.25~0.05			70~120	0.2~0.05		
K	Cast iron	PC6100	140~230	0.35~0.08			140~230	0.3~0.08		
		PC5300	120~200	0.35~0.08			120~200	0.3~0.08		
N	Aluminum	H01	400~1200	0.4~0.1		XNCT0805□□PNFR-MA	-	-	-	-

※ Maximum cutting condition: vc = 350 m/min, fz = 0.5 mm/t according to cutting environment

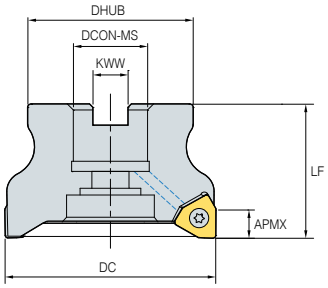
Recommended cutting condition RM3 5000 type

Workpiece		Grade	Cutting conditions				Cutting conditions			
			vc (m/min)	fz (mm/t)	APMX (mm)	Available inserts	vc (m/min)	fz (mm/t)	APMX (mm)	Available inserts
P	steel	PC3700	160~270	0.3~0.05	12.0	XNKT1206□□ PNSR-MM	160~270	0.25~0.05	12.0	XNKT1206□□ PNER-ML
		PC5300	150~240	0.3~0.05			150~240	0.25~0.05		
		PC5400	130~210	0.3~0.05			130~210	0.25~0.05		
M	Stainless steel	PC5300	90~150	0.25~0.05			90~150	0.2~0.05		
		PC5400	70~120	0.25~0.05			70~120	0.2~0.05		
K	Cast iron	PC6100	140~230	0.35~0.08			140~230	0.3~0.08		
		PC5300	120~200	0.35~0.08			120~200	0.3~0.08		
N	Aluminum	H01	400~1200	0.4~0.1		XNCT1206□□PNFR-MA	-	-	-	-

※ Maximum cutting condition: vc = 350 m/min, fz = 0.5 mm/t according to cutting environment

RM3PC(M)3000





KAPR 90°

- GAMP : −5°
- GAMF : −9°~−6°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
RM3PCM	3040HR	●	5	40	35	16	8.4	40	5.5	0.2
	3040HR-M	●	6	40	35	16	8.4	40	5.5	0.2
	3050HR	●	6	50	41	22	10.4	40	5.5	0.1
	3050HR-M	●	7	50	41	22	10.4	40	5.5	0.3
	3063HR	●	7	63	49	22	10.4	40	5.5	0.5
	3063HR-M	●	8	63	49	22	10.4	40	5.5	0.5
RM3PC (RM3PCM)	3080HR	(●)	8	80	57	25.4(27)	9.5(12.4)	50	5.5	0.9
	3080HR-M	(●)	10	80	57	25.4(27)	9.5(12.4)	50	5.5	0.9

( )Metric size, ● : Stock item

Available inserts

XNKT-ML XNKT-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNKT	060405PNER-ML								●	●	●		●	●	●				B32
	060405PNSR-MM							●	●	●	●		●	●	●				
	060408PNER-ML										●			●	●				
	060408PNSR-MM							●	●	●	●			●	●				

Available arbors

	Designation	Available arbors	
		RM3PC	RM3PCM
RM3PC(M)	3040HR	-	BT□□-FMC16-□□
	3040HR-M		
	3050HR	-	BT□□-FMC22-□□
	3050HR-M		
	3063HR		
	3063HR-M		
	3080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	3080HR-M		

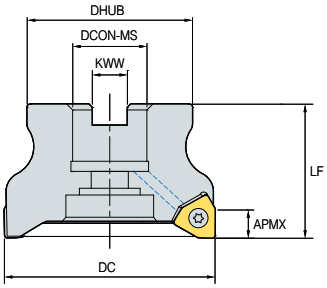
Parts

Specification	Screw	Wrench
Ø40~Ø80	FTNA0306	TW09S

Available inserts **B32** Available arbors and bolt **E94 ~ E95**

RM3PC(M)4000





KAPR 90°

- GAMP : −5°
- GAMF : −8°~−6°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
RM3PCM	4040HR	●	3	40	35	16	8.4	40	8	0.2
	4040HR-M	●	4	40	35	16	8.4	40	8	0.2
	4050HR	●	4	50	42	22	10.4	40	8	0.3
	4050HR-M	●	5	50	42	22	10.4	40	8	0.3
	4063HR	●	5	63	49	22	10.4	40	8	0.5
	4063HR-M	●	6	63	49	22	10.4	40	8	0.5
RM3PC (RM3PCM)	4080HR	● (●)	5	80	57	25.4(27)	9.5(12.4)	50	8	1.1
	4080HR-M	● (●)	7	80	57	25.4(27)	9.5(12.4)	50	8	1.1
	4100HR	● (●)	7	100	67	31.75(32)	12.7(14.4)	63(50)	8	1.4
	4100HR-M	● (●)	8	100	67	31.75(32)	12.7(14.4)	63(50)	8	1.4
	4125HR	● (●)	8	125	90	38.1(40)	15.9(16.4)	63	8	3.2
	4125HR-M	● (●)	10	125	90	38.1(40)	15.9(16.4)	63	8	3.0

( )Metric size, ● : Stock item

Available inserts

XNCT-MA



XNKT-ML



XNKT-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	080504PNFR-MA																	●	B31 B32
	080508PNFR-MA																	●	
	080512PNFR-MA																	●	
	080520PNFR-MA																	●	
XNKT	080504PNER-ML													●	●				
	080504PNSR-MM									●				●	●				
	080508PNER-ML					●			●	●	●		●	●	●				
	080508PNSR-MM					●		●	●	●	●		●	●	●				
	080512PNER-ML													●	●				
	080512PNSR-MM							●	●	●				●	●				
	080516PNER-ML													●	●				
	080516PNSR-MM							●	●	●				●	●				
	080520PNER-ML													●	●				
	080520PNSR-MM							●	●					●	●				

Available arbors

	Designation	Available arbors	
		RM3PC	RM3PCM
RM3PC(M)	4040HR	-	BT□□-FMC16-□□
	4050HR	-	BT□□-FMC22-□□
	4063HR		
	4080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR	BT□□-FMA38.1-□□	BT□□-FMC40-□□

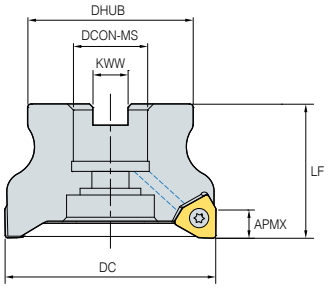
Parts

Specification	Screw	Wrench
Ø40~Ø125	FTNA0408	TW15S

Available inserts **B31, B32** Available arbors and bolt **E94 ~ E95**

RM3PC(M)5000







KAPR 90°

- GAMP : –5°
- GAMF : –7°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
RM3PC (RM3PCM)	5080HR	● (●)	5	80	57	25.4(27)	9.5(12.4)	50	12	0.9
	5080HR-M	● (●)	7	80	57	25.4(27)	9.5(12.4)	50	12	0.9
	5100HR	● (●)	7	100	67	31.75(32)	12.7(14.4)	63	12	1.8
	5100HR-M	● (●)	8	100	67	31.75(32)	12.7(14.4)	63	12	1.8
	5125HR	● (●)	8	125	90	38.1(40)	15.9(16.4)	63	12	2.7
	5125HR-M	● (●)	10	125	90	38.1(40)	15.9(16.4)	63	12	2.7

( )Metric size, ● : Stock item

Available inserts

XNCT-MA XNKT-ML XNKT-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	120608PNFR-MA																	●	
XNKT	120604PNSR-MM													●	●				
	120608PNER-ML									●	●		●	●	●				
	120608PNSR-MM							●	●	●	●		●	●	●				
	120612PNER-ML													●	●				B31
	120612PNSR-MM							●	●					●	●				B32
	120616PNER-ML													●	●				
	120616PNSR-MM							●	●					●	●				
	120620PNER-ML													●	●				
	120620PNSR-MM							●	●					●	●				

Available arbors

	Designation	Available arbors	
		RM3PC	RM3PCM
RM3PC(M)	5080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR	BT□□-FMA38.1-□□	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø80~Ø125	FTNA0511	TW20-100

Available inserts **B31, B32** Available arbors and bolt **E94 ~ E95**

RM3PS3000



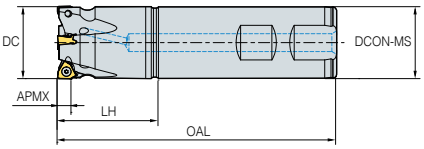


Fig. 1

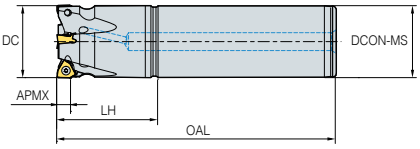


Fig. 2



KAPR 90°

- GAMP : −5°
- GAMF : −16°~−9°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
RM3PS	3020HR-2S20	●	2	20	20	35	100	5.5	0.2	2
	3020HR-2L20	●	2	20	20	35	200	5.5	0.4	1
	3021HR-2S20	●	2	21	20	30	100	5.5	0.2	2
	3021HR-2L20	●	2	21	20	30	200	5.5	0.4	1
	3025HR-3S20	●	3	25	20	35	115	5.5	0.3	2
	3025HR-3L20	●	3	25	20	35	200	5.5	0.5	1
	3025HR-3S25	●	3	25	25	40	115	5.5	0.4	2
	3025HR-3L25	●	3	25	25	40	200	5.5	0.7	1
	3026HR-2S20	●	2	26	20	35	115	5.5	0.3	2
	3026HR-2L20	●	2	26	20	35	200	5.5	0.5	1
	3026HR-3S20	●	3	26	20	35	115	5.5	0.3	2
	3026HR-3L20	●	3	26	20	35	200	5.5	0.5	1
	3026HR-2S25		2	26	25	35	115	5.5	0.3	2
	3026HR-2L25		2	26	25	35	165	5.5	0.6	1
	3026HR-3S25	●	3	26	25	35	115	5.5	0.4	2
	3026HR-3L25	●	3	26	25	35	200	5.5	0.7	1
	3032HR-3S25		3	32	25	42	125	5.5	0.5	2
	3032HR-3L25		3	32	25	42	200	5.5	0.8	1
	3032HR-4S25	●	4	32	25	42	125	5.5	0.5	2
	3032HR-4L25	●	4	32	25	42	200	5.5	0.7	1
	3032HR-4S32	●	4	32	32	42	125	5.5	0.7	2
	3032HR-4L32	●	4	32	32	42	200	5.5	1.1	1
	3033HR-3S25		3	33	25	42	115	5.5	0.5	2
	3033HR-3L25		3	33	25	42	165	5.5	0.6	1
	3033HR-4S25	●	4	33	25	42	125	5.5	0.5	2
	3033HR-4L25	●	4	33	25	42	200	5.5	0.8	1
	3033HR-4S32	●	4	33	32	42	125	5.5	0.7	2
	3033HR-4L32	●	4	33	32	42	200	5.5	1.1	1
	3040HR-4S32		4	40	32	45	130	5.5	0.8	2
	3040HR-4L32		4	40	32	45	200	5.5	1.3	1
	3040HR-5S32		5	40	32	45	130	5.5	0.8	2
	3040HR-5L32		5	40	32	45	200	5.5	1.2	1

● : Stock item

Available inserts

XNKT-ML



XNKT-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNKT	060405PNER-ML								●	●	●		●	●	●				B32
	060405PNSR-MM							●	●	●	●		●	●	●				
	060408PNER-ML										●			●	●				
	060408PNSR-MM							●	●	●	●			●	●				

Parts

Specification	Screw	Wrench
Ø20~Ø40	FTNA0306	TW09S

Available inserts **B32**

RM3PS4000



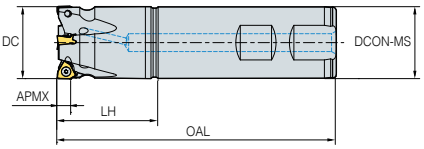


Fig. 1

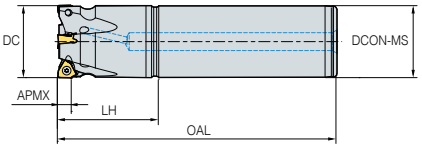


Fig. 2

KAPR 90°

- GAMP : −5°
- GAMF : −11°~−7°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
RM3PS	4032HR-3S32	●	3	32	32	42	125	8	0.7	2
	4032HR-3L32		3	32	32	42	200	8	1.1	1
	4033HR-3S32	●	3	32	32	42	125	8	0.7	2
	4033HR-3L32		3	32	32	42	200	8	1.1	1
	4040HR-3S32	●	3	40	32	42	130	8	0.8	2
	4040HR-3L32		3	40	32	42	200	8	1.2	1
	4040HR-4S32	●	4	40	32	42	130	8	0.8	2
	4040HR-4L32		4	40	32	42	200	8	1.2	1
	4050HR-4S32	●	4	50	32	42	135	8	1	2
	4050HR-4L32		4	50	32	42	200	8	1.4	1
	4050HR-4S40	●	4	50	40	42	135	8	1.3	2
	4050HR-4L40		4	50	40	42	200	8	1.9	1
	4050HR-5S32	●	5	50	32	42	135	8	1.1	2
	4050HR-5L32		5	50	32	42	200	8	1.7	1
	4050HR-5S40	●	5	50	40	42	135	8	1.4	2
	4050HR-5L40		5	50	40	42	200	8	1.9	1
	4063HR-5S32	●	5	63	32	42	135	8	1.3	2
	4063HR-5L32		5	63	32	42	200	8	1.7	1
	4063HR-5S40	●	5	63	40	42	135	8	1.6	2
	4063HR-5L40		5	63	40	42	200	8	2.2	1
	4063HR-6S32	●	6	63	32	42	135	8	1.3	2
	4063HR-6L32		6	63	32	42	200	8	1.9	1
	4063HR-6S40	●	6	63	40	42	135	8	1.6	2
	4063HR-6L40		6	63	40	42	200	8	2.3	1

● : Stock item

Available inserts

XNCT-MA



XNKT-ML



XNKT-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	080504PNFR-MA																	●	
	080508PNFR-MA																	●	
	080512PNFR-MA																	●	
	080520PNFR-MA																	●	
XNKT	080504PNER-ML													●	●				
	080504PNSR-MM									●				●	●				
	080508PNER-ML					●			●	●	●		●	●	●				B31
	080508PNSR-MM					●		●	●	●	●		●	●	●				B32
	080512PNER-ML													●	●				
	080512PNSR-MM							●	●					●	●				
	080516PNER-ML													●	●				
	080516PNSR-MM							●	●					●	●				
	080520PNER-ML													●	●				
	080520PNSR-MM							●	●					●	●				

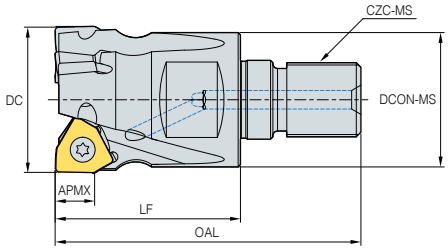
Parts

Specification	Screw	Wrench
Ø32~Ø63	FTNA0408	TW15S

Available inserts **B31, B32**

RM3PM3000/4000







KAPR 90°

- GAMP : −5°
- GAMF : −16°~−7°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
RM3PM	3020HR-2-M10		2	20	18	30	50	M10	5.5	0.1
	3025HR-3-M12		3	25	21	35	58	M12	5.5	0.1
	3032HR-4-M16		4	32	29	40	66	M16	5.5	0.2
	3040HR-5-M16		5	40	29	40	66	M16	5.5	0.3
RM3PM	4032HR-3-M16		3	32	29	40	66	M16	8	0.2
	4040HR-4-M16		4	40	29	50	76	M16	8	0.3
	4050HR-5-M16		5	50	29	55	81	M16	8	0.5

● : Stock item

Available inserts

XNCT-MA XNKT-ML XNKT-MM



		Designation	Cermet	Coated											Uncoated			Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
3000 type	XNKT	060405PNER-ML								●	●	●		●	●	●				B32
		060405PNSR-MM							●	●	●	●		●	●	●				
		060408PNER-ML										●			●	●				
		060408PNSR-MM							●	●	●	●			●	●				
4000 type	XNCT	080504PNFR-MA																	●	B31 B32
		080508PNFR-MA																	●	
		080512PNFR-MA																	●	
		080520PNFR-MA																	●	
	XNKT	080504PNER-ML													●	●				
		080504PNSR-MM									●				●	●				
		080508PNER-ML					●			●	●	●		●	●	●				
		080508PNSR-MM					●		●	●	●	●		●	●	●				
		080512PNER-ML													●	●				
		080512PNSR-MM							●	●					●	●				
		080516PNER-ML													●	●				
		080516PNSR-MM							●	●					●	●				
		080520PNER-ML													●	●				
		080520PNSR-MM							●	●					●	●				

Available adaptors

	Designation	Available adaptors
RM3PM	3020HR-2-M10	MAT-M10
	3025HR-3-M12	MAT-M12
	3032HR-4-M16	MAT-M16
	3040HR-5-M16	MAT-M16
RM3PM	4032HR-3-M16	MAT-M16
	4040HR-4-M16	MAT-M16
	4050HR-5-M16	MAT-M16

Designation : RM3PM4032HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Parts

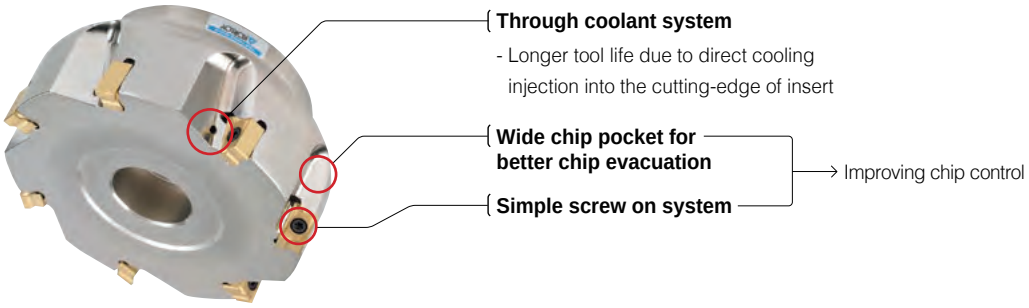
Specification	Screw	Wrench
Ø20~Ø40(3000형)	FTNA0306	TW09S
Ø32~Ø50(4000형)	FTNA0408	TW15S

Available inserts **B31, B32** Available adaptors **B400**

Rich Mill RM4

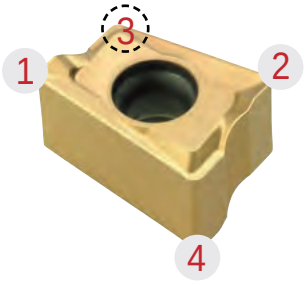
Features of cutter

- 4 cutting - edges can be used by using double-sided insert
- High rake angle chip breaker and cutting-edge can make smooth cutting with low cutting load
- Strong negative insert
- High efficiency, economical, multi-functional tool



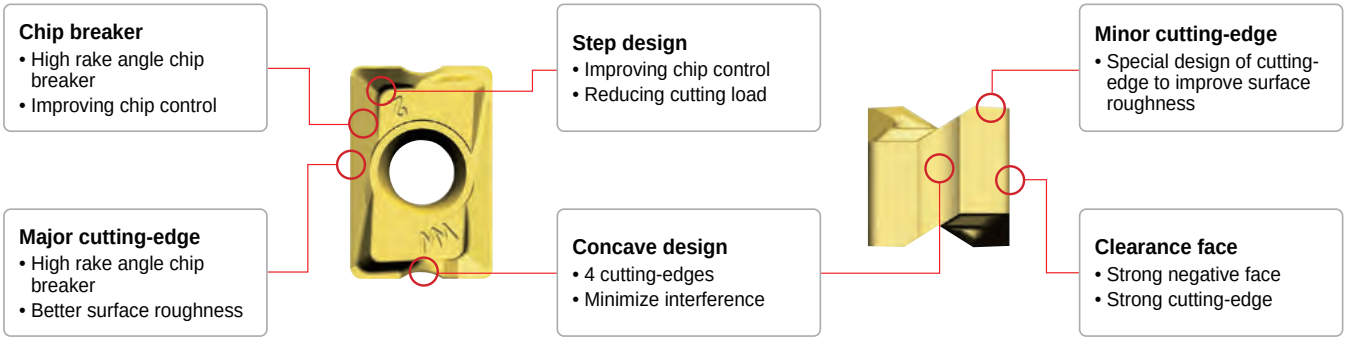
Economical 4 cutting-edges by using double-sided insert

- RM4, as a multi-functional milling tool, offers economical 4 cutting-edges by using an innovative double-sided insert
- Special designed chip breaker consists of high rake angle and strong cutting-edge to decrease the cutting load
- RM4 is multi-functional tool that can cover facing, side cutting, shouldering, slotting, ramping & helical cutting
- Optimal matching of the special cutting-edge geometry with variety of new grades provides consistence & long tool life of insert



Features of insert

- Double-sided insert using 4 cutting-edges
- High rake angle chip breaker, cutting-edge
- Flexibility of product
- High efficiency, economical, multi-functional tool
- Negative insert has strong cutting-edge



Uses

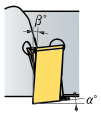
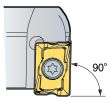


Rich Mill RM4

Features of chip breakers

Insert		Cutting-edge	Uses	Features
MA			Aluminum, Light machining	With sharp edge application the better productivity has been accomplished, especially for Aluminum or low force cut
MF			Light cutting	Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			General cutting	It is suitable design for general milling

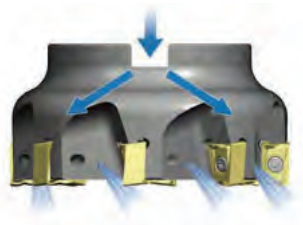
Setting configuration

Shape	Setting angle of insert	Features
		High rake chip breaker & positive setting angle for low cutting load → Improving machinability
		Multi applications for facing, shouldering, slotting, ramping, helical cutting, etc

Through coolant system

- By using on exclusive coolant bolt (hexagonal socket bolt) powerful cooling & better chip evacuation can be acquired
- To get optimal chip control, the direction of coolant injection has been designed to reach to each cutting-edge directly (through coolant arbor is required)



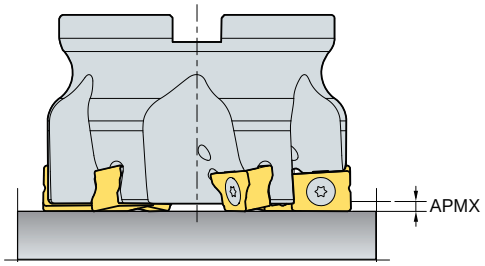


» Through coolant system for decreasing cutting heat and good chip evacuation

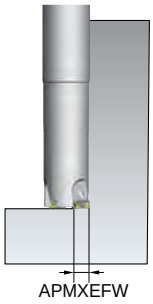
Rich Mill RM4Z

The depth of cut by machining type

• In horizontal machining, APMX (mm)



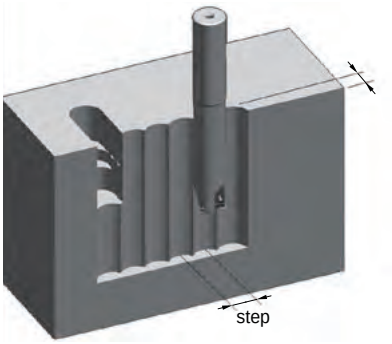
• In plunging, APMXEFW (mm)



RM4Z	Horizontality	Verticality	
	APMX(mm)	APMXEFW(mm)	step
RM4Z3000	1.5	9	< 0.7D
RM4Z4000	2.5	14	< 0.7D

Max step in plunging

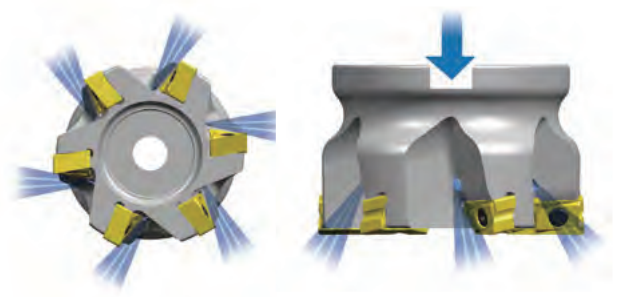
ae	Cutter Diameter (mm)								
	25	32	40	50	52	63	66	80	100
	Max step (mm)								
1	9.7	11.1	12.4	14	14.2	15.7	16.1	17.7	19.9
2	13.5	15.4	17.4	19.5	20	22	22.6	24.9	28
3	16.2	18.6	21	23.7	24.2	26.8	27.4	30.3	34.1
4	18.3	21.1	24	27.1	27.7	30.7	31.4	34.8	39.1
5	20	23.2	26.4	30	30.6	34	34.9	38.7	43.5
6	21.3	24.9	28.5	32.4	33.2	36.9	37.9	42.1	47.4
7	22.4	26.4	30.3	34.6	35.4	39.5	40.6	45.2	51
8	23.3	27.7	32	36.6	37.5	41.9	43	48	54.2
9	24	28.7	33.4	38.4	39.3	44	45.2	50.5	57.2
10	-	-	-	-	-	46	47.3	52.9	60
11	-	-	-	-	-	47.8	49.1	55.1	62.5
12	-	-	-	-	-	49.4	50.9	57.1	64.9
13	-	-	-	-	-	50.9	52.4	59	67.2
14	-	-	-	-	-	52.3	53.9	60.7	69.3



Through coolant system

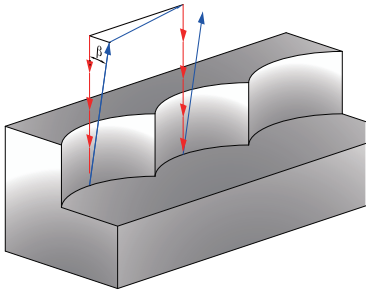
- Exclusive hexagonal coolant socket bolt provides excellent cooling and chip evacuation
- Direct coolant injection to cutting-edge improves cooling effectiveness
- Coolant type arbor should be used

∗Coolant bolt is not included, it is for sale



Rich Mill RM4Z

Programming tip



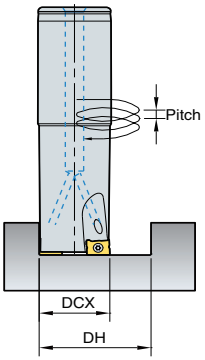
------ Plunging feed direction

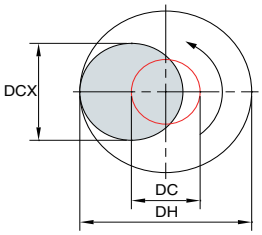
——— Tool escape

β Escape angle (β ≥ 1°)

• When your tool steps back after plunging, please get over 1° more escape angle

Helical machining





DH = DH-DCX

DC = Tool center path
DH = Desire hole diameter
DCX = Tool diameter

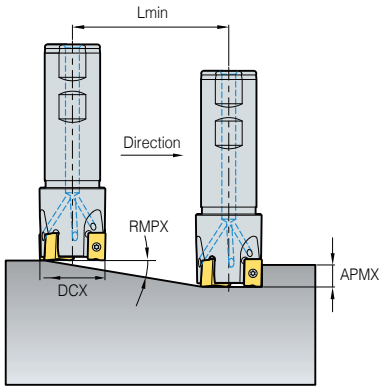
(mm)

Designation		DCX	Helical data			
			Min. machining Dia. ØDHmin	Max. pitch	Max. machining Dia. ØDHmax	Max. pitch
RM4ZS	3025HR-L25	25	30	0.4	48	1.8
	3032HR-L32	32	43	0.3	62	0.9
	3040HR-L32	40	59	0.3	78	0.6
RM4ZCM	3040HR	40	59	0.3	78	0.6
	3050HR	50	79	0.3	98	0.5
	3052HR	52	83	0.3	102	0.5
RM4ZM	3025HR-M12	25	30	0.4	48	1.8
	3032HR-M16	32	43	0.3	62	0.9
	3040HR-M16	40	59	0.3	78	0.6
RM4ZCM	4063HR	63	95	0.5	124	1.0
	4066HR	66	101	0.5	130	1.0
	4080HR	80	129	0.5	158	0.8
	4100HR	100	169	0.3	198	0.5

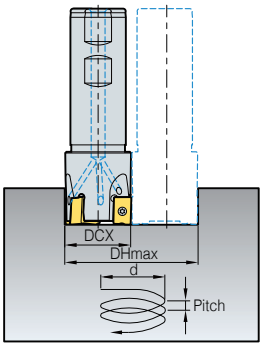
Rich Mill RM4Z

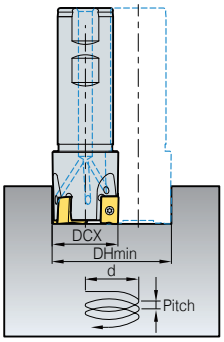
Ramping and helical cutting

Ramping



Helical cutting





(mm)

Designation	DCX	APMX	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
			RMPX	Lmin	DHmin	Max. pitch	DHmax	Max. pitch	DHmin	Max. pitch
RM4PS3014HR	14	9	4.5	125	25	2.7	27	3.1	19	1.3
RM4PS3016HR	16	9	3.5	160	29	2.5	31	2.7	23	1.4
RM4PS3018HR	18	9	3.0	185	33	2.4	35	2.7	27	1.5
RM4PS3020HR	20	9	2.7	204	37	2.5	39	2.7	31	1.6
RM4PS3025HR	25	9	1.8	301	47	2.1	49	2.3	41	1.6
RM4PS3032HR	32	9	1.2	451	61	1.9	63	2.0	55	1.5
RM4PS3040HR	40	9	0.9	616	77	1.8	79	1.8	71	1.5
RM4PS3050HR	50	9	0.6	843	97	1.5	99	1.5	91	1.3
RM4PC(M)3040HR	40	9	0.9	616	77	1.8	79	1.8	71	1.5
RM4PC(M)3050HR	50	9	0.6	843	97	1.5	99	1.5	91	1.3
RM4PC(M)3063HR	63	9	0.5	1123	123	1.6	125	1.6	117	1.4
RM4PC(M)3080HR	80	9	0.3	1508	157	1.2	159	1.2	151	1.1
RM4PC(M)3100HR	100	9	0.2	1910	197	1.0	199	1.0	191	0.9
RM4PS4032HR	32	14	2.5	229	59.5	3.0	62	4	49	2.0
RM4PS4040HR	40	14	2.0	286	75.5	3.0	78	4	65	2.0
RM4PS4050HR	50	14	2.0	286	95.5	4.0	98	5	85	3.5
RM4PS4063HR	63	14	2.0	286	121.5	5.0	124	5	111	5.0
RM4PC(M)4050HR	50	14	2.0	286	95.5	4.0	98	5	85	3.5
RM4PC(M)4063HR	63	14	2.0	286	121.5	5.0	124	5	111	5.0
RM4PC(M)4080HR	80	14	1.5	382	155.5	5.0	158	5	145	5.0
RM4PC(M)4100HR	100	14	1.0	573	195.5	4.5	198	5	185	4.0
RM4PC(M)4125HR	125	14	1.0	573	245.5	5.0	248	5	235	5.0
RM4PC(M)4160R	160	14	0.5	1146	315.5	3.5	318	4	305	3.5

* Please be sure to use cutting oil or air for ramping and helical machining
Lmin = ap/tan (RPMX)

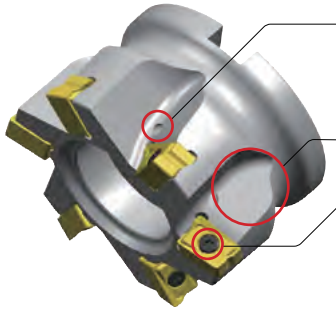
Recommended cutting conditions

ISO	Grade	LNM(E)X100605PNR-MF		LNM(E)X100605PNR-MM		LNEX100605PNR-MA		APMX (mm)	LNM(E)X151008PNR-MF		LNM(E)X151008PNR-MM		LNEX151008PNR-MA		APMX (mm)
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	
P	NCM535	-	-	-	-	-	-	9.0	150~300	0.05~0.30	120~300	0.05~0.35	150~300	0.03~0.20	14.0
P	PC3700	150~300	0.05~0.25	120~300	0.05~0.30	150~300	0.03~0.20		150~300	0.05~0.30	120~300	0.05~0.35	150~300	0.03~0.20	
M	PC5300	120~180	0.05~0.25	100~180	0.05~0.30	120~200	0.03~0.20		120~180	0.05~0.30	100~180	0.05~0.3	120~200	0.03~0.20	
K	PC6100	150~300	0.08~0.30	120~300	0.08~0.35	-	-		150~300	0.08~0.35	120~300	0.08~0.35	-	-	

Rich Mill RM4Z

Features

- Rich mill series RM4Z is a plunge mill for high efficiency vertical machining such as slotting and pocketing in roughing applications
- Rich mill series RM4Z is a highly efficient milling tool for plunging, shouldering and facing. It makes operations more economical with the use of its double-sided 4-corner insert
- Plunge machining reduces lead time for high productivity and precision machining.
- In plunging the max depth of RM4Z 3000 type is 9.0 mm and that of RM4Z 4000 type is 14.0 mm



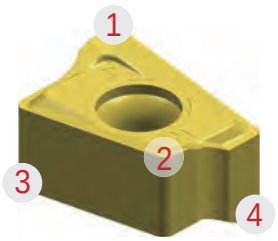
Through coolant system
- Improving chip control
- Cooling inserts increases tool life

Wide chip pocket

Screw on system

→ Improving chip evacuation

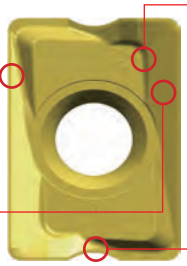
- Double-sided insert ···› 4 corner available
- High rake angle chip breaker and cutting-edge
- Various available machining types
- High efficiency and economical insert
- Negative type insert - Strong cutting-edge



Features of insert

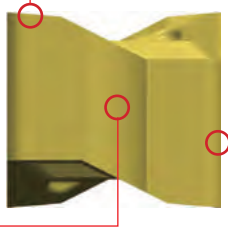
Major cutting-edge
- High rake cutting-edge
- Sharp cutting-edge

Chip breaker
- High rake angle
- Control chip flow



Step design
- Improving chip control
- Reducing cutting load

Concave design
- 4 corner available
- Avoiding interference of cutting-edges



Minor cutting-edge
- Special design for plunge machining

Sides
- Negative type
- Strong cutting-edge

Uses



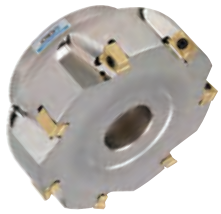
Plunging | Facing | Shouldering | Slotting | Counter Boring | Helical cutting

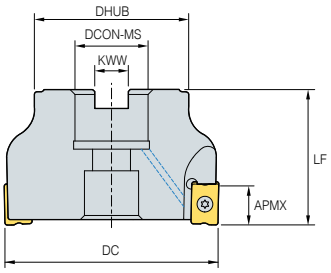
Recommended cutting conditions

ISO	Grade	LNM(E)X100605PNL-MM				LNM(E)X151008PNL-MM			
		vc(m/min)	fz(mm/t)	APMXEFW(mm)	APMX(mm)	vc(m/min)	fz(mm/t)	APMXEFW(mm)	APMX(mm)
P	PC3700	100~250	0.05~0.25	9	1.5	120~250	0.05~0.25	14	2.5
M	PC5300	100~250	0.08~0.30			120~250	0.08~0.30		
K	PC6100	80~180	0.05~0.20			100~180	0.05~0.20		

∗APMXEFW (mm): (Plunging) max. radial depth of cut ∗∗APMX (mm): (Shouldering/Facing) max depth of cut

RM4PC(M)3000





KAPR 90°

• GAMP : −6°
• GAMF : −19°~−13°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
RM4PCM	3040HR	●	4	40	35	16	8.4	40	9	0.2
	3040HR-M	●	5	40	35	16	8.4	40	9	0.2
	3050HR	●	5	50	42	22	10.4	40	9	0.3
	3050HR-M	●	7	50	42	22	10.4	40	9	0.3
	3063HR	●	7	63	49	22	10.4	40	9	0.6
	3063HR-M	●	9	63	49	22	10.4	40	9	0.6
RM4PC (RM4PCM)	3080HR	● (●)	8	80	57	25.4(27)	9.5(12.4)	50(50)	9	1.3(1.2)
	3080HR-M	(●)	10	80	57	25.4(27)	9.5(12.4)	50(50)	9	1.2(1.2)
	3100HR	● (●)	9	100	67	31.75(32)	12.7(14.4)	63(50)	9	2.5(1.9)
	3100HR-M	(●)	12	100	67	31.75(32)	12.7(14.4)	63(50)	9	2.4(1.9)

( )Metric size, ● : Stock item

Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF										●			●	●				B11
	100605PNR-MM									●	●			●	●				
	100605PNR-MA																	●	
	100608PNR-MF									●	●			●	●				
	100608PNR-MM										●			●	●				
LNMX	100605PNR-MF										●			●	●				
	100605PNR-MM									●	●	●		●	●				
	100608PNR-MF										●			●	●				
	100608PNR-MM									●				●	●				

Available arbors

Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC(M)	3040HR	-	BT□□-FMC16-□□
	3040HR-M		
	3050HR	-	BT□□-FMC22-□□
	3050HR-M		
	3063HR		
	3063HR-M		

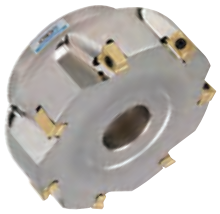
Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC(M)	3080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	3080HR-M		
	3100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	3100HR-M		

Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0307	TW09S

Available inserts **B11** Available arbors and bolt **E94, E96**

RM4PC(M)4000



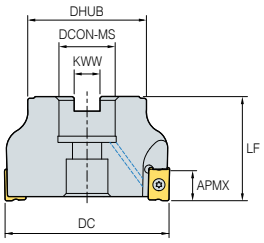


Fig. 1

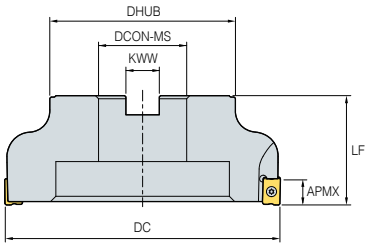
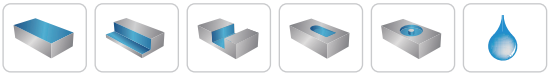


Fig. 2



KAPR 90°

- GAMP : −6°
- GAMF : −19°~−13°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM4PCM	4040HR	●	3	40	36	16	8.4	40	14	0.2	1
	4050HR	●	3	50	46	22	10.4	40	14	0.3	1
	4050HR-M	●	4	50	46	22	10.4	40	14	0.3	1
	4050HR-H	●	5	50	46	22	10.4	40	14	0.4	1
	4063HR	●	4	63	49	22	10.4	40	14	0.5	1
	4063HR-M	●	6	63	49	22	10.4	40	14	0.5	1
RM4PC (RM4PCM)	4080HR	● (●)	5	80	57	25.4(27)	9.5(12.4)	50	14	1.1	1
	4080HR-M	● (●)	7	80	57	25.4(27)	9.5(12.4)	50	14	1.0	1
	4080HR-H	(●)	8	80	57	25.4(27)	9.5(12.4)	50	14	1.0	1
	4100HR	● (●)	5	100	67	31.75(32)	12.7(14.4)	63(50)	14	2.2	1
	4100HR-M	● (●)	8	100	67	31.75(32)	12.7(14.4)	63(50)	14	2.2	1
	4100HR-H	(●)	9	100	67	31.75(32)	12.7(14.4)	63(50)	14	2.2	1
	4125HR	● (●)	7	125	87	38.1(40)	15.9(16.4)	63	14	3.9	1
	4125HR-M	● (●)	10	125	87	38.1(40)	15.9(16.4)	63	14	3.8	1
	4160R	(●)	8	160	107	50.8(40)	19(16.4)	63	14	5.0	2
	4160R-M	(●)	12	160	107	50.8(40)	19(16.4)	63	14	5.0	2

( )Metric size, ● : Stock item

Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM





Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNEX	151004PNR-MF										●			●	●			B11
	151004PNR-MM										●			●	●			
	151004PNR-MA																●	
	151008PNR-MF										●			●	●			
	151008PNR-MM									●	●			●	●			
	151008PNR-MA																●	
	151016PNR-MF										●			●	●			
	151016PNR-MM										●				●			

Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	151004PNR-MF									●	●			●	●			B11
	151004PNR-MM										●				●			
	151008PNR-MF					●				●	●			●	●			
	151008PNR-MM					●				●	●	●		●	●			
	151016PNR-MF										●			●	●			
	151016PNR-MM									●	●				●			

Available arbors

Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC(M)	4050HR	-	BT□□-FMC22-□□
	4050HR-M		
	4063HR		
	4063HR-M		
	4080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4080HR-M		

Designation		Available arbors	
		RM4PC	RM4PCM
RM4PC(M)	4100HR	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4100HR-M		
	4125HR	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	4125HR-M		
	4160R	BT□□-FMA50.8-□□	
	4160R-M		

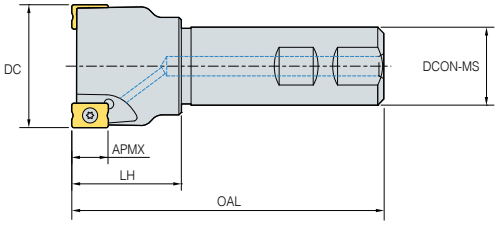
Parts

Specification	Screw	Wrench
Ø50~Ø160	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94, E96**

RM4PS3000





KAPR 90°

• GAMP : –6°
• GAMF : –39°~–16°

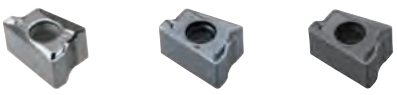
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
RM4PS	3014HR-S16	●	1	14	16	23	90	9.0	0.1
	3016HR-S16	●	1	16	16	25	90	9.0	0.1
	3018HR-S16	●	2	18	16	23	90	9.0	0.1
	3020HR-S20	●	2	20	20	30	100	9.0	0.2
	3020HR-S20M	●	3	20	20	30	100	9.0	0.2
	3025HR-S25	●	2	25	25	35	115	9.0	0.4
	3025HR-S25M	●	3	25	25	35	115	9.0	0.4
	3032HR-S32	●	3	32	32	40	125	9.0	0.7
	3032HR-S32M	●	4	32	32	40	125	9.0	0.7
	3040HR-S32	●	4	40	32	42	130	9.0	0.9
	3040HR-S32M	●	5	40	32	42	130	9.0	0.8
	3040HR-S40		4	40	40	42	130	9.0	1.2
	3040HR-S40M		5	40	40	42	130	9.0	1.2
	3040HR-S42		4	40	42	42	130	9.0	1.3
	3040HR-S42M		5	40	42	42	130	9.0	1.3
	3050HR-S32	●	5	50	32	45	135	9.0	1.0
	3050HR-S32M	●	7	50	32	45	135	9.0	1.1
	3050HR-S40		5	50	40	45	135	9.0	1.4
	3050HR-S40M		7	50	40	45	135	9.0	1.4
	3050HR-S42		5	50	42	45	135	9.0	1.5
	3050HR-S42M		7	50	42	45	135	9.0	1.5

● : Stock item

Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF										●			●	●				B11
	100605PNR-MM									●	●			●	●				
	100605PNR-MA																	●	
	100605PNL-MM									●	●			●	●				
	100608PNR-MF										●			●	●				
	100608PNR-MM										●			●	●				
LNMX	100605PNR-MF									●	●	●		●	●				
	100605PNR-MM										●			●	●				
	100608PNR-MF									●				●	●				
	100608PNR-MM										●	●							

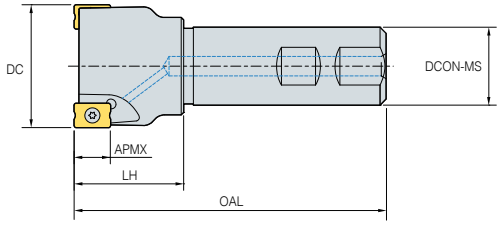
Parts

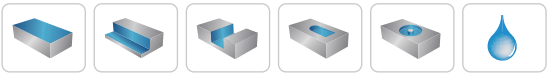
Specification	Screw	Wrench
Ø14~Ø50	FTKA0307	TW09S

Available inserts **B11**

RM4PS4000







KAPR 90°

• GAMP : −6°
• GAMF : −24°~−14°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
RM4PS	4032HR-S32	●	2	32	32	40	125	14	0.6
	4032HR-S32M	●	3	32	32	40	125	14	0.6
	4040HR-S32	●	3	40	32	42	125	14	0.8
	4040HR-S32M	●	4	40	32	42	125	14	0.8
	4040HR-S40		3	40	40	42	125	14	1.14
	4040HR-S42		3	40	42	42	125	14	1.23
	4050HR-S32	●	3	50	32	45	125	14	1
	4050HR-S32M	●	4	50	32	45	125	14	1
	4050HR-S40		3	50	40	45	125	14	1.4
	4050HR-S40M		4	50	40	45	125	14	1.3
	4050HR-S42		3	50	42	45	125	14	1.5
	4050HR-S42M		4	50	42	45	125	14	1.5
	4063HR-S32	●	4	63	32	45	125	14	1.2
	4063HR-S32M	●	6	63	32	45	125	14	1.1
	4063HR-S40		4	63	40	45	125	14	1.6
	4063HR-S40M		6	63	40	45	125	14	0.6
	4063HR-S42		4	63	42	45	125	14	1.71
	4063HR-S42M		6	63	42	45	125	14	1.7

● : Stock item

Available inserts

LNEX-MA | LNM(E)X-MF | LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF										●			●	●				B11
	151004PNR-MM										●			●	●				
	151004PNR-MA																	●	
	151008PNR-MF										●			●	●				
	151008PNR-MM									●	●			●	●				
	151008PNR-MA																	●	
	151016PNR-MF										●			●	●				
	151016PNR-MM										●			●	●				
LNMX	151004PNR-MF									●	●			●	●				
	151004PNR-MM										●				●				
	151008PNR-MF					●				●	●			●	●				
	151008PNR-MM					●				●	●	●		●	●				
	151016PNR-MF										●			●	●				
	151016PNR-MM										●				●				

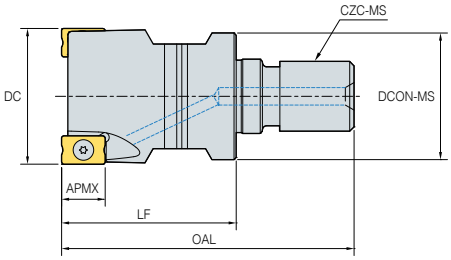
Parts

Specification	Screw	Wrench
Ø32~Ø63	FTKA0412B	TW15S

Available inserts **B11**

RM4PM3000





KAPR 90°

- GAMP : −6°
- GAMF : −39°~−16°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
RM4PM	3014HR-M06		1	14	12	25	40	M06	9	0.02
	3016HR-M08	●	1	16	14.5	25	42	M08	9	0.02
	3018HR-M08	●	2	18	14.5	25	42	M08	9	0.30
	3020HR-M10	●	2	20	18	30	51	M10	9	0.10
	3025HR-M12	●	2	25	23	35	59	M12	9	0.10
	3032HR-M16	●	3	32	29	40	67	M16	9	0.20
	3040HR-M16		4	40	29	40	67	M16	9	0.30
	3050HR-M16		5	50	30	45	72	M16	9	0.40

● : Stock item

Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF										●			●	●				B11
	100605PNR-MM									●	●			●	●				
	100605PNR-MA																	●	
	100608PNR-MF									●	●			●	●				
	100608PNR-MM										●			●	●				
LNMX	100605PNR-MF										●			●	●				
	100605PNR-MM									●	●	●		●	●				
	100608PNR-MF										●			●	●				
	100608PNR-MM									●				●	●				

Available adaptors

	Designation	Available adaptors
RM4PM	3014HR-M06	MAT-M06
	3016HR-M08	MAT-M08
	3018HR-M08	
	3020HR-M10	MAT-M10
	3025HR-M12	MAT-M12
	3032HR-M16	MAT-M16
	3040HR-M16	
	3050HR-M16	

Designation : RM3PM4032HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

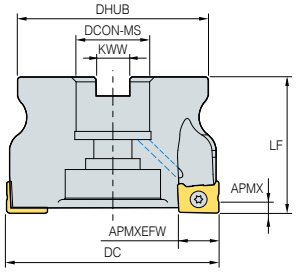
Parts

Specification	Screw	Wrench
Ø14~Ø50	FTKA0307	TW09S

Available inserts **B11** Available adaptors **B400**

RM4ZC(M)3000/4000





KAPR 90°

- GAMP : −11°
- GAMF : −12°~−10°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
RM4ZCM	3040HR	●	4	40	37	16	8.4	40	1.5	0.2
	3050HR	●	5	50	47	22	10.4	40	1.5	0.3
	3052HR		5	52	48	22	10.4	40	1.5	0.3
	4063HR	●	5	63	58	22	10.4	40	2.5	0.5
RM4ZC (RM4ZCM)	4066HR		5	66	61	25.4(22)	9.5(12.4)	50(50)	2.5	0.7
	4080HR	(●)	6	80	70	25.4(27)	9.5(12.4)	50(50)	2.5	1
	4100HR		7	100	80	31.75(32)	12.7(14.4)	63(50)	2.5	1.6

( )Metric size, ● : Stock item

Available inserts

LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
3000 type	LNEX 100605PNL-MM										●			●	●				B11
	LNMX 100605PNL-MM									●	●			●	●				
4000 type	LNEX 151008PNL-MM										●			●	●				
	LNMX 151008PNL-MM													●	●				

Available arbors

	Designation	Available arbors	
		RM4ZC	RM4ZCM
RM4ZCM	3040HR	BT□□-FMC16-□□ BT□□-SCA16-□□	
	3050HR 3052HR	BT□□-FMC22-□□	
RM4ZCM RM4ZC(M)	4063HR	BT□□-FMC22-□□	
	4066HR 4080HR	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR	BT□□-FMA31.75-□□ BT□□-SCA31.75-□□	BT□□-FMC32-□□

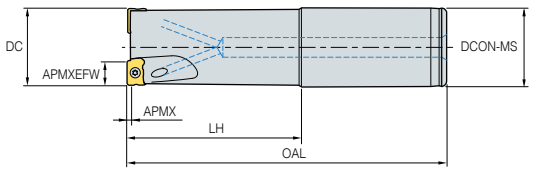
Parts

Specification	Screw	Wrench
Ø40~Ø52(3000 type)	FTKA0307	TW09S
Ø63~Ø100(4000 type)	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94, E96**

RM4ZS3000





KAPR 90°

- GAMP : −11°
- GAMF : −17°~−14°

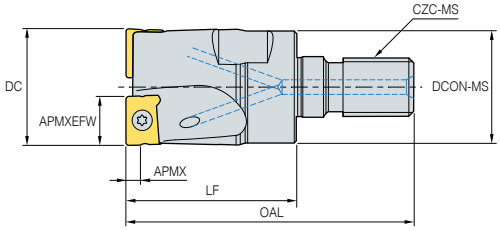
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
RM4ZS	3025HR-L25	●	2	25	25	120	200	1.5	0.6
	3032HR-L32	●	3	32	32	120	210	1.5	1.1
	3040HR-L32		4	40	32	120	250	1.5	1.5

● : Stock item

RM4ZM3000





KAPR 90°

- GAMP : −11°
- GAMF : −17°~−14°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
RM4ZM	3025HR-M12		2	25	23	35	59	12	1.5	0.1
	3032HR-M16	●	3	32	29	40	67	16	1.5	0.2
	3040HR-M16		4	40	29	40	67	16	1.5	0.3

● : Stock item

Available inserts

LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNL-MM										●			●	●				B11
LNMX	100605PNL-MM									●	●			●	●				

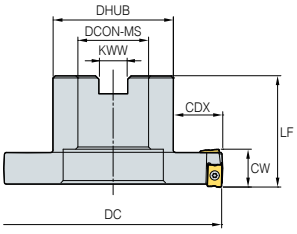
Parts

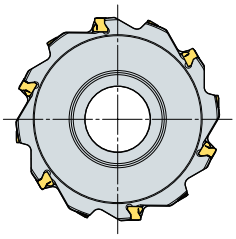
Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

Available inserts **B11**

RM4PFCB3000







(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PFCB	B308015R		10	80	40	25.4	9.5	50	15	19
	B308017R		10	80	40	25.4	9.5	50	17	19
	B310015R		12	100	54	31.75	12.7	50	15	22
	B310017R		12	100	54	31.75	12.7	50	17	22
	B312515R		14	125	70	38.1	15.9	60	15	26
	B312517R		14	125	70	38.1	15.9	60	17	26
	B316015R		16	160	70	38.1	15.9	60	15	44
	B316017R		16	160	70	38.1	15.9	60	17	44

● : Stock item

Available inserts

LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MM									●	●			●	●				B11
	100605PNL-MM										●			●	●				
LNMX	100605PNR-MM									●	●	●		●	●				
	100605PNL-MM									●	●			●	●				

Available arbors

	Designation	Available arbors
RM4PFCB	308015R	BT□□-FMA25.4-□□
	308017R	
	310015R	BT□□-FMA31.75-□□
	310017R	
	312515R	BT□□-FMA38.1-□□
	312517R	
	316015R	
	316017R	

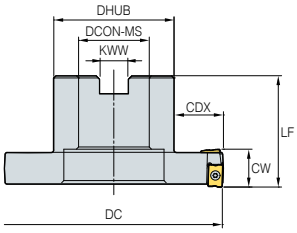
Parts

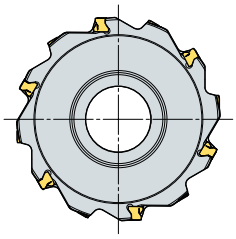
Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts **B11** Available arbors and bolt **E94**

RM4PFCB4000







(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PFCB	408022R		6	80	40	25.4	9.5	50	22	19
	408024R		6	80	40	25.4	9.5	50	24	19
	408026R		6	80	40	25.4	9.5	50	26	19
	408028R		6	80	40	25.4	9.5	50	28	19
	410022R		8	100	54	31.75	12.7	50	22	22
	410024R		8	100	54	31.75	12.7	50	24	22
	410026R		8	100	54	31.75	12.7	50	26	22
	410028R		8	100	54	31.75	12.7	50	28	22
	412522R		10	125	70	38.1	15.9	60	22	26
	412524R		10	125	70	38.1	15.9	60	24	26
	412526R		10	125	70	38.1	15.9	60	26	26
	412528R		10	125	70	38.1	15.9	60	28	26
	416022R		12	160	70	38.1	15.9	60	22	44
	416024R		12	160	70	38.1	15.9	60	24	44
	416026R		12	160	70	38.1	15.9	60	26	44
	416028R		12	160	70	38.1	15.9	60	28	44

● : Stock item

Available inserts

LNM(E)X-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151008PNR-MM									●	●			●	●				B11
	151008PNL-MM										●			●	●				
LNMX	151008PNR-MM					●				●	●	●		●	●				
	151008PNL-MM													●	●				

Available arbors

	Designation	Available arbors
RM4PFCB	408022R	BT□□ -FMA25.4-□□
	408024R	
	408026R	
	408028R	
	410022R	BT□□ -FMA31.75-□□
	410024R	
	410026R	
	410028R	

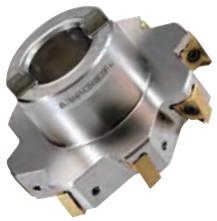
	Designation	Available arbors
RM4PFCB	412522R	BT□□ -FMA38.1-□□
	412524R	
	412526R	
	412528R	
	416022R	
	416024R	
	416026R	
	416028R	

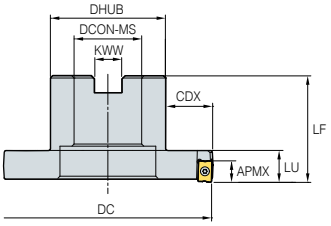
Parts

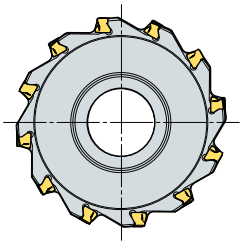
Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94**

RM4PHCB3000







(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PHCB	308015R		10	80	40	25.4	9.5	50	15	19
	310015R		12	100	54	31.75	12.7	50	15	22
	312515R		14	125	70	38.1	15.9	60	15	26
	316015R		16	160	70	38.1	15.9	60	15	44

● : Stock item

Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM





	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF										●			●	●				B11
	100605PNR-MM									●	●			●	●				
	100605PNR-MA																	●	
	100608PNR-MF									●	●			●	●				
	100608PNR-MM										●			●	●				
LNMX	100605PNR-MF										●			●	●				
	100605PNR-MM									●	●	●		●	●				
	100608PNR-MF										●			●	●				
	100608PNR-MM									●				●	●				

Available arbors

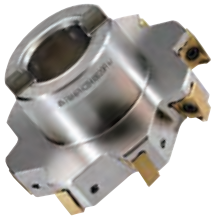
	Designation	Available arbors
RM4PHCB	308015R	BT□□-FMA25.4-□□
	310015R	BT□□-FMA31.75-□□
	312515R	BT□□-FMA38.1-□□
	316015R	

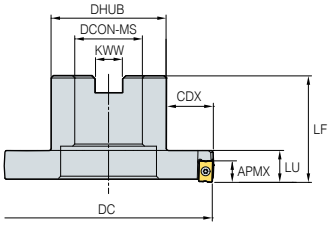
Parts

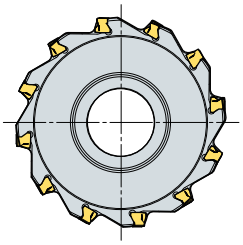
Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts **B11** Available arbors and bolt **E94**

RM4PHCB4000







(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PHCB	408020R		6	80	40	25.4	9.5	50	20	19
	410020R		8	100	54	31.75	12.7	50	20	22
	412520R		10	125	70	38.1	15.9	60	20	26
	416020R		12	160	70	38.1	15.9	60	20	44

● : Stock item

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF										●			●	●				B11
	151004PNR-MM										●			●	●				
	151004PNR-MA																	●	
	151008PNR-MF										●			●	●				
	151008PNR-MM									●	●			●	●				
	151008PNR-MA																	●	
	151016PNR-MF										●			●	●				
	151016PNR-MM										●			●	●				
LNMX	151004PNR-MF									●	●			●	●				
	151004PNR-MM										●				●				
	151008PNR-MF					●				●	●			●	●				
	151008PNR-MM					●				●	●	●		●	●				
	151016PNR-MF										●			●	●				
	151016PNR-MM										●				●				

Available arbors

	Designation	Available arbors
RM4PHCB	408020R	BT□□-FMA25.4-□□
	410020R	BT□□-FMA31.75-□□
	412520R	BT□□-FMA38.1-□□
	416020R	

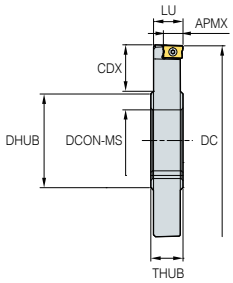
Parts

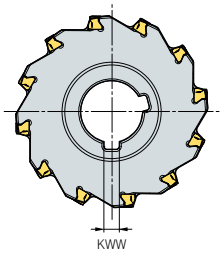
Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94**

RM4PFCP3000







(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PFCP	308015R		10	80	41.5	25.4	6.35	15	15	17
	308017R		10	80	41.5	25.4	6.35	17	17	17
	310015R		12	100	48	31.75	7.94	15	15	24
	310017R		12	100	48	31.75	7.94	17	17	24
	312515R		14	125	58	38.1	9.53	15	15	32
	312517R		14	125	58	38.1	9.53	17	17	32
	316015R		16	160	58	38.1	9.53	15	15	49
	316017R		16	160	58	38.1	9.53	17	17	49

● : Stock item

Available inserts

LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MM									●	●			●	●				B11
	100605PNL-MM										●			●	●				
LNMX	100605PNR-MM									●	●	●		●	●				
	100605PNL-MM									●	●			●	●				

Available arbors

	Designation	Available arbors
RM4PFCP	308015R	BT□□-SCA25.4-□□
	308017R	
	310015R	BT□□-SCA31.75-□□
	310017R	
	312515R	BT□□-SCA38.1-□□
	312517R	
	316015R	
	316017R	

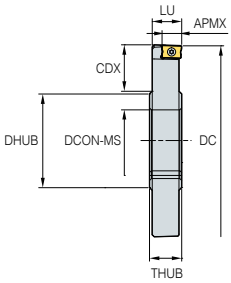
Parts

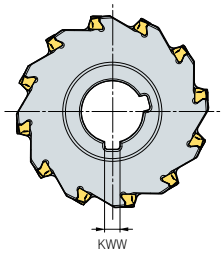
Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts **B11**

RM4PFCP4000







(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PFCP	408022R		6	80	41.5	25.4	6.35	22	22	17
	408024R		6	80	41.5	25.4	6.35	24	24	17
	408026R		6	80	41.5	25.4	6.35	26	26	17
	408028R		6	80	41.5	25.4	6.35	28	28	17
	410022R		8	100	48	31.75	7.94	22	22	24
	410024R		8	100	48	31.75	7.94	24	24	24
	410026R		8	100	48	31.75	7.94	26	26	24
	410028R		8	100	48	31.75	7.94	28	28	24
	412522R		10	125	58	38.1	9.53	22	22	32
	412524R		10	125	58	38.1	9.53	24	24	32
	412526R		10	125	58	38.1	9.53	26	26	32
	412528R		10	125	58	38.1	9.53	28	28	32
	416022R		12	160	58	38.1	9.53	22	22	49
	416024R		12	160	58	38.1	9.53	24	24	49
	416026R		12	160	58	38.1	9.53	26	26	49
	416028R		12	160	58	38.1	9.53	28	28	49

● : Stock item

Available inserts

LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151008PNR-MM									●	●			●	●				B11
	151008PNL-MM										●			●	●				
LNMX	151008PNR-MM					●				●	●	●		●	●				
	151008PNL-MM													●	●				

Available arbors

	Designation	Available arbors
RM4PFCP	408022R	BT□□-SCA25.4-□□
	408024R	
	408026R	
	408028R	
	410022R	BT□□-SCA31.75-□□
	410024R	
	410026R	
	410028R	

	Designation	Available arbors
RM4PFCP	412522R	BT□□-SCA38.1-□□
	412524R	
	412526R	
	412528R	
	416022R	
	416024R	
	416026R	
	416028R	

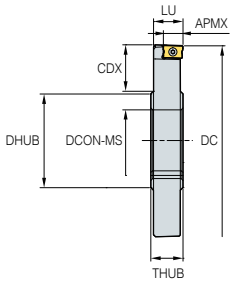
Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

Available inserts **B11**

RM4PHCP3000





(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PHCP	308015R		10	80	41.5	25.4	6.35	16.5	15.1	17
	310015R		12	100	48	31.75	7.94	16.5	15.1	24
	312515R		14	125	58	38.1	9.52	16.5	15.1	32
	316015R		16	160	58	38.1	9.52	16.5	15.1	49

● : Stock item

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF										●			●	●				B11
	100605PNR-MM									●	●			●	●				
	100605PNR-MA																	●	
	100608PNR-MF									●	●			●	●				
	100608PNR-MM										●			●	●				
LNMX	100605PNR-MF										●			●	●				
	100605PNR-MM									●	●	●		●	●				
	100608PNR-MF										●			●	●				
	100608PNR-MM									●				●	●				

Available arbors

	Designation	Available arbors
RM4PHCP	308015R	BT□□ -SCA25.4-□□
	310015R	BT□□ -SCA31.75-□□
	312515R	BT□□ -SCA38.1-□□
	316015R	

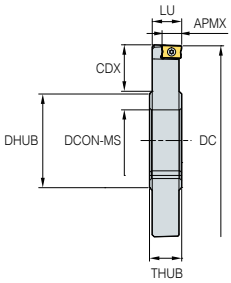
Parts

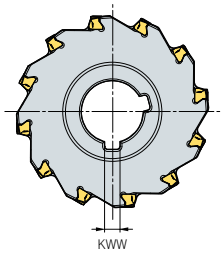
Specification	Screw	Wrench
Ø80~Ø160	FTKA0307	TW09S

Available inserts **B11**

RM4PHCP4000







(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PHCP	408020R		6	80	41.5	25.4	6.35	22	19.8	17
	410020R		8	100	48	31.75	7.94	22	19.8	24
	412520R		10	125	58	38.1	9.53	22	19.8	32
	416020R		12	160	58	38.1	9.53	22	19.8	49

● : Stock item

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF										●			●	●				B11
	151004PNR-MM										●			●	●				
	151004PNR-MA																		
	151008PNR-MF										●			●	●				
	151008PNR-MM									●	●			●	●				
	151008PNR-MA																		
	151016PNR-MF										●			●	●				
	151016PNR-MM										●			●	●				
LNMX	151004PNR-MF									●	●			●	●				
	151004PNR-MM										●				●				
	151008PNR-MF					●				●	●			●	●				
	151008PNR-MM					●				●	●			●	●				
	151016PNR-MF										●			●	●				
	151016PNR-MM										●				●				

Available arbors

	Designation	Available arbors
RM4PHCP	408020R	BT□□-SCA25.4-□□
	410020R	BT□□-SCA31.75-□□
	412520R	BT□□-SCA38.1-□□
	416020R	

Parts

Specification	Screw	Wrench
Ø80~Ø160	FTKA0412B	TW15S

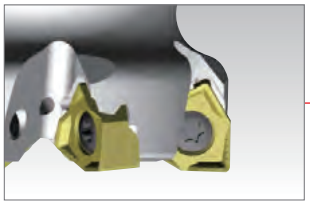
Available inserts **B11**

Rich Mill RM6

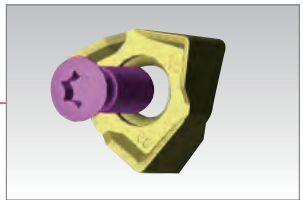
Features

- **Stable clamping** - 3 clamping surfaces on the side and strong clamping screws
  → Improves cutting stability
- **High quality results** - High precision, excellent perpendicularity, outstanding surface finish on the flank, accurate tolerance
- **High productivity** - High rake angle and sharp cutting-edges for lower cutting resistance
  → Ideal for high speed and high feed machining

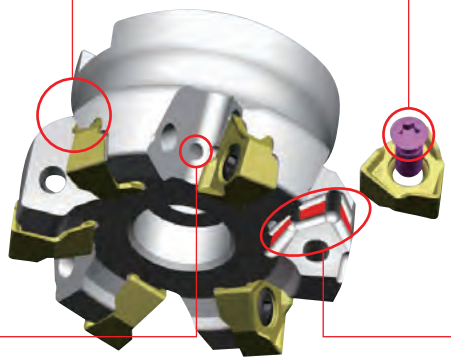
Features of cutter

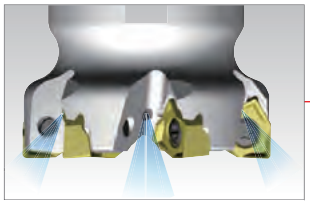


Streamlined holder design
- Improved chip evacuation in deep shouldering and slotting



Strong clamping screws
- Strong clamping screws enable rigid clamping





Through coolant system
- Improved chip flow and tool life thanks to insert cooling



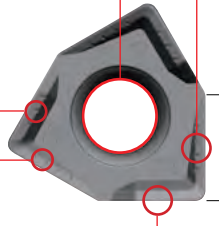
3-side supporting system
- Stable tool life

Features of insert

Higher clamping stability
- Wide clamping areas and strong clamping screws for rigid clamping

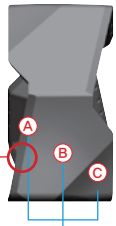
High rake angle chip breaker
- Maintains stable clamping
- Induces smooth chip flow
  → Increases insert life

Wide minor cutting-edges
- Improved surface finish
- Enable multi-purpose machining incl. plunging



APMX
WNGX08: 8.2 mm
WNGX04: 4.3 mm

High rake cutting-edges
- Improved machinability and reduces cutting resistance



3-level flank relief surface
- Enhances rigidity and enables stable clamping
  → Improves cutting stability

Rich Mill RM6

Features of chip breakers

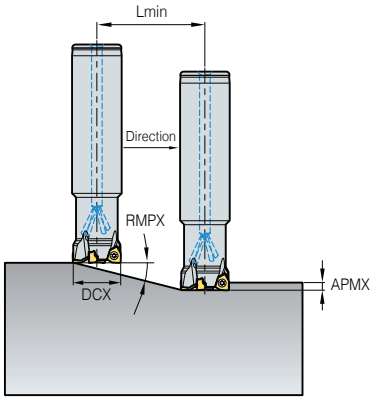
Insert		Cutting-edge	Uses	Features
MA			For aluminum	Sharp cutting-edges for excellent cutting performance in aluminum machining Buffed surface for excellent chip flow and welding resistance
ML			For light cutting	Chip breaker design of low cutting resistance, ideal for light cutting and machining hard-to-cut materials Excellent tool life and quality results
MM			For general cutting	Chip breaker design ideal for general shoulder milling and most applications

Application guideline for grade

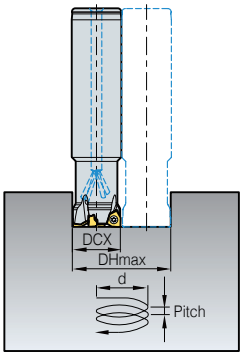
Workpiece		P		M	K	N
		Carbon steel	Alloy steel	Stainless steel	Cast iron	Non-ferrous metal
Shape	1st recommended	MM	MM	ML	ML	MA
	2nd recommended	ML	ML	-	MM	MA
Grades	High speed milling	PC3700	PC3700	PC5300	PC6100	H01
	General milling	PC5400	PC5300	PC5400	PC5300	H01
	Interrupted milling	PC5400	PC5400	PC5400	PC5400	H01

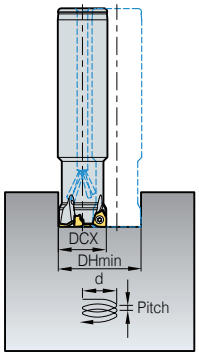
Ramping and helical cutting

Ramping



Helical cutting





(mm)

Designation		DCX	APMX	Ramping		Helical cutting for blind holes				Helical cutting for through holes	
				RMPX	Lmin	DHmin	Max. pitch	DHmax	Max. pitch	DHmin	Max. pitch
RM6PS	032R-2W32-120-WN08	32	8	0.8	572.9	54	0.96	62	1.3	38 .5	0.5
	040R-3W32-120-WN08	40	8	0.5	916.7	70	0.82	78	1.0	54 .5	0.4
	050R-4W32-120-WN08	50	8	0.3	1527.9	90	0.66	98	0.8	74.5	0.3
RM6PCM	063R-22-6-WN08	63	8	0.2	2291.3	116	0.58	124	0.6	100.5	0.3
	080R-27-7-WN08	80	8	0.1	4583.7	150	0.38	158	0.4	134.5	0.2
	100R-32-8-WN08	100	8	0.1	4583.7	190	0.49	198	0.5	174.5	0.3
	125R-40-11-WN08	125	8	0.1	4583.7	240	0.63	248	0.6	224.5	0.3

Lmin = ap/tan (RPMX)

Lmin: Cutting length at min. rake angle
ap: Axial depth of cut
RPMX: Available rake angle for ramping

Rich Mill RM6

Recommended cutting condition RM6 WNGX04

Workpiece		Grade	WNGX040304PNSR-MM			WNGX040304PNER-ML			WNGX040304PNFR-MA		
			vc (m/min)	fz (mm/t)	APMX (mm)	vc (m/min)	fz (mm/t)	APMX (mm)	vc (m/min)	fz (mm/t)	APMX (mm)
P	Steel	PC3700	160~270	0.25~0.05	4.3	160~270	0.20~0.05	4.3	-	-	4.3
		PC5300	150~240	0.25~0.05		150~240	0.25~0.05		-	-	
		PC5400	130~210	0.25~0.05		130~210	0.25~0.05		-	-	
M	Stainless steel	PC5300	90~150	0.20~0.05		90~150	0.10~0.05		-	-	
		PC5400	70~120	0.20~0.05		70~120	0.10~0.05		-	-	
K	Cast iron	PC6100	140~230	0.30~0.08		140~230	0.25~0.08		-	-	
		PC5300	120~200	0.30~0.08		120~200	0.25~0.08		-	-	
N	Non-ferrous metal	H01	-	-	-	-	-	-	500~1000	0.2~0.05	4.3

※ The above data refer to general cutting conditions and can be adjustable up to 300 m/min and 0.4 mm/t depending on user environment.

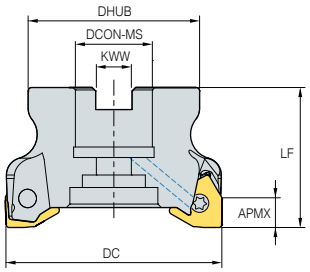
Recommended cutting condition RM6 WNGX08

Workpiece		Grade	WNGX080608PNSR-MM			WNGX080608PNER-ML			WNGX080608PNFR-MA		
			vc (m/min)	fz (mm/t)	APMX (mm)	vc (m/min)	fz (mm/t)	max. ap(mm)	vc (m/min)	fz (mm/t)	APMX (mm)
P	Steel	PC3700	160~270	0.25~0.05	8.2	160~270	0.20~0.05	8.2	-	-	8.2
		PC5300	150~240	0.25~0.05		150~240	0.25~0.05		-	-	
		PC5400	130~210	0.25~0.05		130~210	0.25~0.05		-	-	
M	Stainless steel	PC5300	90~150	0.20~0.05		90~150	0.10~0.05		-	-	
		PC5400	70~120	0.20~0.05		70~120	0.10~0.05		-	-	
K	Cast iron	PC6100	140~230	0.30~0.08		140~230	0.25~0.08		-	-	
		PC5300	120~200	0.30~0.08		120~200	0.25~0.08		-	-	
N	Non-ferrous metal	H01	-	-	-	-	-	-	500~1000	0.2~0.05	8.2

※ The above data refer to general cutting conditions and can be adjustable up to 300 m/min and 0.4 mm/t depending on user environment.

RM6PCM-WN04





KAPR 90°

- GAMP : −6°
- GAMF : −14°~−11°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
RM6PCM	040R-16-6-WN04	●	6	40	35	16	8.4	40	4.3	0.2
	040R-16-7-WN04	●	7	40	35	16	8.4	40	4.3	0.2
	050R-22-8-WN04	●	8	50	42	22	10.4	40	4.3	0.3
	050R-22-9-WN04	●	9	50	42	22	10.4	40	4.3	0.3
	063R-22-10-WN04	●	10	63	49	22	10.4	40	4.3	0.5
	063R-22-11-WN04	●	11	63	49	22	10.4	40	4.3	0.5

● : Stock item

Available inserts

WNGX-MA



WNGX-ML



WNGX-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	040304PNFR-MA																	●	B30
	040308PNFR-MA																		
	040312PNFR-MA																	●	
	040316PNFR-MA																	●	
	040304PNER-ML										●		●	●	●				
	040308PNER-ML													●	●				
	040312PNER-ML													●					
	040316PNER-ML													●					
	040304PNSR-MM										●			●	●				
	040308PNSR-MM													●	●				
	040312PNSR-MM													●					
	040316PNSR-MM													●					

Available arbors

	Designation	NC arbors
RM6PCM	040R-16-6-WN04	BT□□-FMC16-□□
	040R-16-7-WN04	
	050R-22-8-WN04	BT□□-FMC22-□□
	050R-22-9-WN04	
	063R-22-10-WN04	
	063R-22-11-WN04	

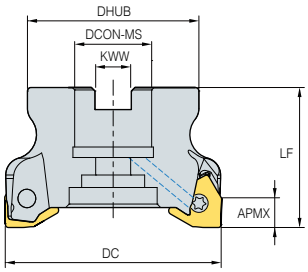
Parts

Specification	Screw	Wrench
Ø40~Ø63	ETNA02506	TW07S

Available inserts **B30** Available arbors and bolt **E96**

RM6PC(M)-WN08





KAPR 90°

- GAMP : −6°
- GAMF : −14°~−11°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
RM6PCM	050R-22-4-WN08	●	4	50	42	22	10.4	40	8.2	0.3
	050R-22-5-WN08	●	5	50	42	22	10.4	40	8.2	0.3
	063R-22-5-WN08	●	5	63	49	22	10.4	40	8.2	0.5
	063R-22-6-WN08	●	6	63	49	22	10.4	40	8.2	0.5
	080R-27-7-WN08	●	7	80	57	27	12.4	50	8.2	0.9
	080R-27-9-WN08	●	9	80	57	27	12.4	50	8.2	0.9
	100R-32-8-WN08	●	8	100	67	32	14.4	50	8.2	1.5
	100R-32-11-WN08	●	11	100	67	32	14.4	50	8.2	1.5
	125R-40-11-WN08	●	11	125	90	40	16.4	63	8.2	2.9
	125R-40-14-WN08	●	14	125	90	40	16.4	63	8.2	2.9
RM6PC	080R-25.4-7-WN08	●	7	80	57	25.4	9.5	50	8.2	0.9
	080R-25.4-9-WN08	●	9	80	57	25.4	9.5	50	8.2	0.9
	100R-31.75-8-WN08	●	8	100	67	31.75	12.7	63	8.2	1.7
	100R-31.75-11-WN08	●	11	100	67	31.75	12.7	63	8.2	1.7
	125R-38.1-11-WN08	●	11	125	90	38.1	15.9	63	8.2	3
	125R-38.1-14-WN08	●	14	125	90	38.1	15.9	63	8.2	2.9

● : Stock item

Available inserts

WNGX-MA



WNGX-ML



WNGX-MM



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080604PNFR-MA															●		B30
	080608PNFR-MA															●		
	080612PNFR-MA																	
	080616PNFR-MA															●		
	080620PNFR-MA															●		
	080604PNER-ML									●			●	●	●			
	080608PNER-ML					●				●	●		●	●	●			
	080612PNER-ML													●				

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080616PNER-ML													●				B30
	080620PNER-ML													●				
	080604PNSR-MM									●				●	●			
	080608PNSR-MM					●				●	●		●	●	●			
	080612PNSR-MM													●				
	080616PNSR-MM													●				
	080620PNSR-MM													●				

Available arbors

Designation		NC arbors
RM6PC	080R-25.4-7-WN08	BT□□-FMA25.4-□□
	080R-25.4-9-WN08	
	100R-31.75-8-WN08	BT□□-FMA31.75-□□
	100R-31.75-11-WN08	
	125R-38.1-11-WN08	BT□□-FMA38.1-□□
	125R-38.1-14-WN08	
RM6PCM	050R-22-4-WN08	BT□□-FMC22-□□
	050R-22-5-WN08	

Designation		NC arbors
RM6PCM	063R-22-5-WN08	BT□□--FMC22-□□
	063R-22-6-WN08	
	080R-27-7-WN08	BT□□--FMC27-□□
	080R-27-9-WN08	
	100R-32-8-WN08	BT□□--FMC32-□□
	100R-32-11-WN08	
	125R-40-11-WN08	BT□□--FMC40-□□
	125R-40-14-WN08	

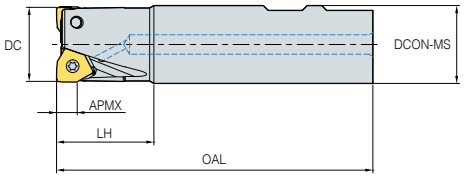
Parts

Specification	Screw	Wrench
Ø50~Ø125	FTNA0511/FTNA0513	TW20-100

Available inserts **B30** Available arbors and bolt **E94, E96**

RM6PS-WN04





KAPR 90°

- GAMP : −6°
- GAMF : −20°~−14°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
RM6PS	020R-2W20-110-WN04	●	2	20	20	35	110	4.3	0.2
	020R-3W20-110-WN04	●	3	20	20	35	110	4.3	0.2
	025R-3W25-110-WN04	●	3	25	25	35	110	4.3	0.4
	025R-4W25-110-WN04	●	4	25	25	35	110	4.3	0.4
	032R-5W32-110-WN04	●	5	32	32	35	110	4.3	0.6
	032R-6W32-110-WN04	●	6	32	32	35	110	4.3	0.6

● : Stock item

Available inserts


WNGX-MA


WNGX-ML


WNGX-MM

	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	040304PNFR-MA															●	B30
	040308PNFR-MA																
	040312PNFR-MA															●	
	040316PNFR-MA															●	
	040304PNER-ML								●		●	●	●				
	040308PNER-ML											●	●				
	040312PNER-ML											●					
	040316PNER-ML											●					
	040304PNSR-MM								●			●	●				
	040308PNSR-MM											●	●				
	040312PNSR-MM											●					
	040316PNSR-MM											●					

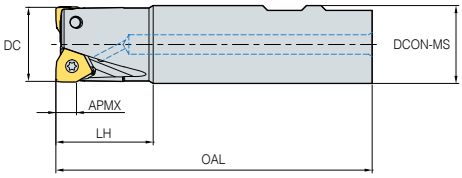
Parts

Specification	Screw	Wrench
Ø20~Ø32	ETNA02506	TW07S

Available inserts **B30**

RM6PS-WN08





KAPR 90°

- GAMP : −6°
- GAMF : −20°~−14°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
RM6PS	032R-2W32-120-WN08	●	2	32	32	40	120	8.2	0.7
	040R-3W32-120-WN08	●	3	40	32	40	120	8.2	0.7
	040R-4W32-120-WN08	●	4	40	32	40	120	8.2	0.7
	050R-4W32-120-WN08	●	4	50	32	40	120	8.2	0.8
	050R-5W32-120-WN08	●	5	50	32	40	120	8.2	0.8

● : Stock item

Available inserts

WNGX-MA WNGX-ML WNGX-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	080604PNFR-MA																	●	B30
	080608PNFR-MA																	●	
	080612PNFR-MA																		
	080616PNFR-MA																	●	
	080620PNFR-MA																	●	
	080604PNER-ML									●			●	●	●				
	080608PNER-ML					●				●	●		●	●	●				
	080612PNER-ML													●					
	080616PNER-ML													●					
	080620PNER-ML													●					
	080604PNSR-MM									●				●	●				
	080608PNSR-MM					●				●	●		●	●	●				
	080612PNSR-MM													●					
	080616PNSR-MM													●					
	080620PNSR-MM													●					

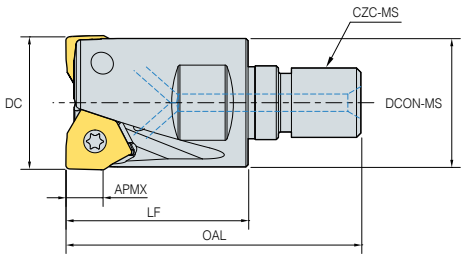
Parts

Specification	Screw	Wrench
Ø32~Ø50	FTNA0513	TW20-100

Available inserts **B30**

RM6PM-WN04





KAPR 90°

- GAMP : –6°
- GAMF : –9°~–6°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
RM6PM	020R-2-M10-WN04		2	20	18	30	50	M10	4.3	0.1
	020R-3-M10-WN04		3	20	18	30	50	M10	4.3	0.1
	025R-4-M12-WN04		4	25	23	30	53	M12	4.3	0.1
	025R-5-M12-WN04		5	25	23	30	53	M12	4.3	0.1
	032R-5-M16-WN04		5	32	29	40	66	M16	4.3	0.2
	032R-6-M16-WN04		6	32	29	40	66	M16	4.3	0.2

● : Stock item

Available inserts

WNGX-MA WNGX-ML WNGX-MM



Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX 040304PNFR-MA																●	B30
040308PNFR-MA																●	
040312PNFR-MA															●		
040316PNFR-MA															●		
040304PNER-ML										●		●	●	●			
040308PNER-ML													●	●			
040312PNER-ML													●				
040316PNER-ML													●				
040304PNSR-MM										●		●	●	●			
040308PNSR-MM												●	●				
040312PNSR-MM												●					
040316PNSR-MM												●					

Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX 080604PNFR-MA																●	B30
080608PNFR-MA																●	
080612PNFR-MA																	
080616PNFR-MA																●	
080620PNFR-MA																●	
080604PNER-ML									●				●	●			
080608PNER-ML					●				●	●			●	●			
080612PNER-ML													●				
080616PNER-ML													●				
080620PNER-ML													●				
080604PNSR-MM									●				●	●			
080608PNSR-MM					●				●	●		●	●	●			
080612PNSR-MM													●				
080616PNSR-MM													●				
080620PNSR-MM													●				

Available adaptors

	Designation	Available adaptors
RM6PM	020R-2-M10-WN04	MAT-M10
	020R-3-M10-WN04	MAT-M10
	025R-4-M12-WN04	MAT-M12
	025R-5-M12-WN04	MAT-M12
	032R-5-M16-WN04	MAT-M16
	032R-6-M16-WN04	MAT-M16

Designation : RM6PM032R-5-M16-WN04
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

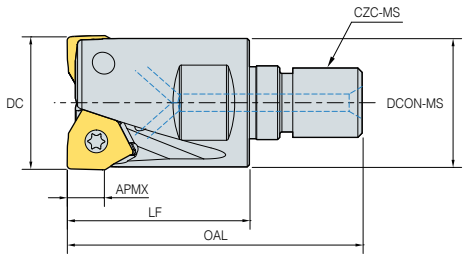
Parts

Specification	Screw	Wrench
Ø20~Ø32	ETNA02506	TW07S

Available inserts **B30** Available adaptors **B400**

RM6PM-WN08













KAPR 90°

- GAMP : –6°
- GAMF : –9°~–6°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
RM6PM	032R-2-M16-WN08		2	32	29	43	69	M16	8.2	0.2
	040R-3-M16-WN08		3	40	29	43	69	M16	8.2	0.3
	040R-4-M16-WN08		4	40	29	43	69	M16	8.2	0.2

● : Stock item

Available inserts

WNGX-MA



WNGX-ML



WNGX-MM



Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX 040304PNFR-MA																●	B30
040308PNFR-MA																●	
040312PNFR-MA																●	
040316PNFR-MA																●	
040304PNER-ML										●		●	●	●			
040308PNER-ML													●	●			
040312PNER-ML													●				
040316PNER-ML													●				
040304PNSR-MM										●			●	●			
040308PNSR-MM													●	●			
040312PNSR-MM													●				
040316PNSR-MM													●				

Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX 080604PNFR-MA																●	B30
080608PNFR-MA																●	
080612PNFR-MA																	
080616PNFR-MA																●	
080620PNFR-MA																●	
080604PNER-ML									●				●	●			
080608PNER-ML					●				●	●			●	●			
080612PNER-ML													●				
080616PNER-ML													●				
080620PNER-ML													●				
080604PNSR-MM									●				●	●			
080608PNSR-MM					●				●	●		●	●	●			
080612PNSR-MM													●				
080616PNSR-MM													●				
080620PNSR-MM													●				

Available adaptors

	Designation	Available adaptors
RM6PM	032R-2-M16-WN08	MAT-M16
	040R-3-M16-WN08	MAT-M16
	040R-4-M16-WN08	MAT-M16

Designation : RM6PM032R-5-M16-WN04
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø32~Ø40	FTNA0513	TW20-100

Available inserts **B30** Available adaptors **B400**

Rich Mill RM8

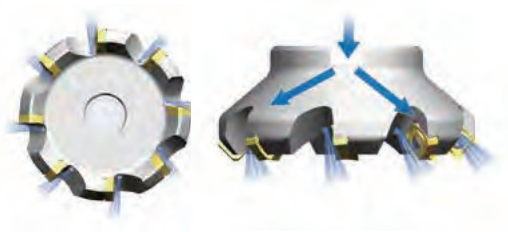
Features

- Double-sided insert to use 8 cutting-edges
- The unique geometry and high rake angle of cutting-edge guarantees excellent surface finish Applicable for various workpieces like steel, stainless steel, cast iron, aluminum
- Combined with the innovative geometry and various grades provided the tool offers durability and excellent tool life
- Various pitches and chip breakers can be applicable for diverse machining
- Light Rich Mill cutter can be useful for high speed machining and low power machine



Through coolant system

- Exclusive coolant bolt is adapted to get better chip evacuation and more powerful cooling. To get optimal chip evacuation, the direction of coolant injection has been designed to reach to each cutting-edge directly. Through coolant arbor is required

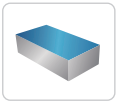


[Through coolant system for decreasing cutting heat and good chip evacuation]

Features of chip breakers

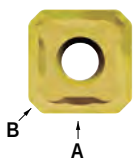
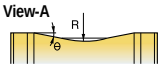
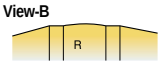
Insert		Cutting-edge	Uses	Features
MA			For aluminum	Due to sharp cutting-edge and buffed surface, it has good chip flow and welding resistance
ML			For hard-to-cut material	Chip breaker with low cutting load is optimal for machining hard-to-cut materials
MF			For light cutting	Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			For general cutting	It is suitable design for general milling
W			For wiper	Specialized edge design can be suitable for excellent surface roughness operation

Uses



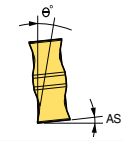
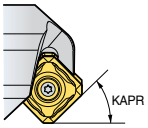
Facing

Features of insert

Insert	Cutting-edge	Features
		High rake chip breaker & positive setting angle for low cutting load
		Designed wiper technology in minor cutting-edge for improved surface roughness
		Low cutting load due to the positive setting and high rake angle chip breaker

Rich Mill RM8

Features of cutter

Picture	Setting angle of insert	Features
		High rake angle makes positive setting angle for low cutting load
		Suitable for facing and chamfering • RM8A KAPR = 45° • RM8E KAPR = 75° • RM8Q KAPR = 88°

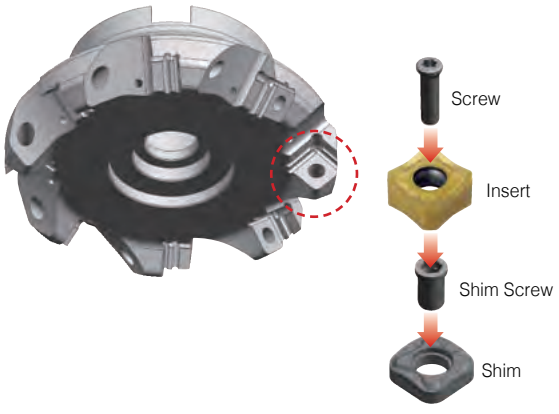
Recommended cutting conditions

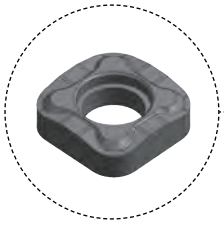
ISO	Grade	SNM(E)X1206A(E)NN-MF		SNM(E)X1206A(E)NN-MM		SNEX1206A(E)NN-MA		APMX (mm)	SNM(E)X1507A(E)NN-MF		SNM(E)X1507A(E)NN-MM		APMX (mm)
		vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)		vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	
P	NC5330	-	-	150~300	0.10~0.35	150~300	0.10~0.35	RM8A 6.0mm RM8E 9.0mm RM8Q 11.5mm	-	-	150~300	0.10~0.35	RM8A 7.5mm RM8E 11mm
P	NCM535	200~300	0.05~0.30	150~300	0.10~0.35	150~300	0.10~0.35		200~300	0.05~0.30	150~300	0.10~0.35	
P	PC3700	200~300	0.05~0.30	150~300	0.10~0.35	150~300	0.10~0.35		200~300	0.05~0.30	150~300	0.10~0.35	
M	PC9530	90~150	0.05~0.25	90~150	0.10~0.35	-	-		90~150	0.10~0.30	90~150	0.10~0.35	
M	PC5300	90~150	0.05~0.25	90~150	0.10~0.35	-	-		90~150	0.10~0.30	90~150	0.10~0.35	
K	PC6100	150~300	0.08~0.35	150~300	0.10~0.40	150~300	0.10~0.40		150~300	0.08~0.35	150~300	0.10~0.40	
K	PC5300	150~300	0.08~0.35	150~300	0.10~0.40	150~300	0.10~0.40		150~300	0.08~0.35	150~300	0.10~0.40	

Rich Mill RMH8

Features

- Screw on clamping system - Adaptable and Stable clamping system
- Reinforced rigidity and enhanced clamping power
  - Appling shim system, prevent cutter damage when insert breaks
- Adapting/exchangeable shim
  - Using various kinds of cutter (Cutting edge angle 45°, 75°, 88°)
  - Stable clamping power with insert







RMH8A
(KAPR 45°)



RMH8E
(KAPR 75°)



RMH8Q
(KAPR 88°)

RM8AC(M)4000



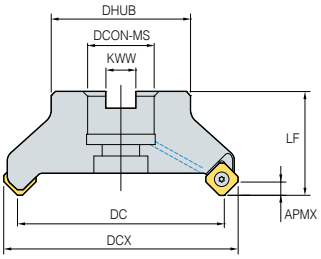


Fig. 1

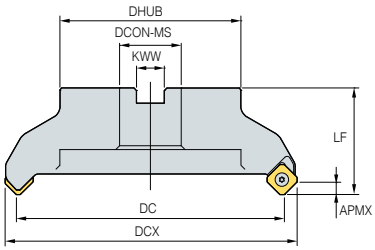


Fig. 2

KAPR 45°

- GAMP : –6°
- GAMF : –9°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM8ACM	4050HR-M	●	4	50	63.396	49	22	10.4	40	6	0.5	1
	4050HR-H	●	6	50	63.396	49	22	10.4	40	6	0.5	1
	4063HR-M	●	6	63	76.396	49	22	10.4	40	6	0.6	1
	4063HR-H	●	8	63	76.396	49	22	10.4	40	6	0.7	1
RM8AC (RM8ACM)	4080HR	●	5	80	93.527	57	25.4(27)	9.5(12.4)	50	6	1.1	1
	4080HR-M	● (●)	7	80	93.527	57	25.4(27)	9.5(12.4)	50	6	1.1	1
	4080HR-H	● (●)	10	80	93.527	57	25.4(27)	9.5(12.4)	50	6	1.3	1
	4100HR	● (●)	6	100	113.522	67	31.75(32)	12.7(14.4)	63(50)	6	2.2	1
	4100HR-M	● (●)	8	100	113.522	67	31.75(32)	12.7(14.4)	63(50)	6	2.2	1
	4100HR-H	(●)	12	100	113.522	67	31.75(32)	12.7(14.4)	63(50)	6	2.5	1
	4125HR	●	8	125	138.459	87	38.1(40)	15.9(16.4)	63	6	3.5	1
	4125HR-M	● (●)	10	125	138.459	87	38.1(40)	15.9(16.4)	63	6	3.5	1
	4125HR-H	(●)	16	125	138.459	87	38.1(40)	15.9(16.4)	63	6	3.7	1
	4160R		10	160	173.464	107	50.8(40)	19(16.4)	63	6	4.6	2
	4160R-M	●	12	160	173.464	107	50.8(40)	19(16.4)	63	6	4.7	2
	4160R-H	(●)	20	160	173.464	107	50.8(40)	19(16.4)	63	6	4.6	2
	4200R-M	●	14	200	213.401	130	47.625(60)	25.4(25.7)	63	6	6.9	2
	4200R-H		24	200	213.401	130	47.625(60)	25.4(25.7)	63	6	7.1	2
	4250R-M		16	250	263.401	180	47.625(60)	25.4(25.7)	63	6	11.7	2
	4250R-H		30	250	263.401	180	47.625(60)	25.4(25.7)	63	6	11.5	2
	4315R		18	315	328.456	240	47.625(60)	25.4(25.7)	63	6	18.9	2
	4315R-M		20	315	328.456	240	47.625(60)	25.4(25.7)	63	6	18.6	2
	4400R-M		28	400	413.456	260	47.625(60)	25.4(25.7)	63	6	37.7	2

( )Metric size, ● : Stock item

Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA | SNEX-W



Designation		Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
SNEX	1206ANN-MF									●	●			●	●			
	1206ANN-ML													●	●			
	1206ANN-MM									●	●	●		●	●			B24
	1206ANN-MA																●	B25
	1206ANN-W									●	●			●				B26
SNMX	1206ANN-MF					●				●	●		●	●	●			
	1206ANN-MM		●			●				●	●	●	●	●	●			

Available arbors

Designation		Available arbors	
		RM8AC	RM8ACM
RM8ACM	4050HR-□	-	BT□□-FMC22-□□
	4063HR-□		
RM8AC (RM8ACM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

Parts

Specification	Screw	Wrench
Ø50~Ø400	FTKA0410	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RMH8AC(M)4000

Shim type



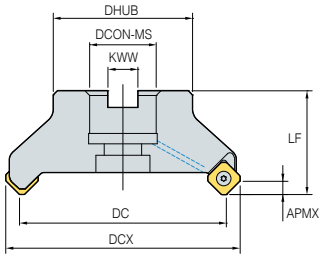


Fig. 1

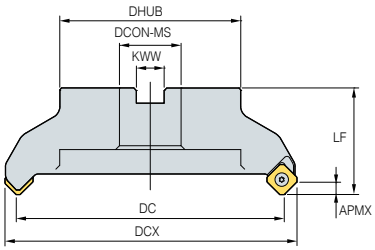


Fig. 2

KAPR 45°

- GAMP : –6°
- GAMF : –9°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMH8AC (RMH8ACM)	4080HR-M	(●)	7	80	93.527	57	25.4(27)	9.5(12.4)	50	6	1.2	1
	4100HR-M	(●)	8	100	113.522	67	31.75(32)	12.7(14.4)	63	6	2.5	1
	4125HR-M	(●)	10	125	138.459	87	38.1(40)	15.9(16.4)	63	6	3.6	1
	4160R-M	(●)	12	160	173.464	107	50.8(40)	19(16.4)	63	6	5.3	2
	4200R-M		14	200	213.458	130	47.625(60)	25.4(25.7)	63	6	7.1	2
	4250R-M		16	250	263.401	180	47.625(60)	25.4(25.7)	63	6	11.9	2
	4315R-M		20	315	328.456	240	47.625(60)	25.4(25.7)	63	6	18.8	2
	4400R-M		26	400	413.456	260	47.625(60)	25.4(25.7)	63	6	37.7	2

( )Metric size, ● : Stock item

Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA | SNEX-W



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ANN-MF									●	●			●	●				
	1206ANN-ML													●	●				
	1206ANN-MM									●	●	●		●	●				B24
	1206ANN-MA																	●	B25
	1206ANN-W									●	●			●					B26
SNMX	1206ANN-MF					●				●	●		●	●	●				
	1206ANN-MM		●			●					●	●		●	●				

Available arbors

	Designation	Available arbors	
		RMH8AC	RMH8ACM
RMH8AC (RMH8ACM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø400	FTKA0412B	SS42RM8	SHXN0609F	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RM8AC(M)5000

Shim type



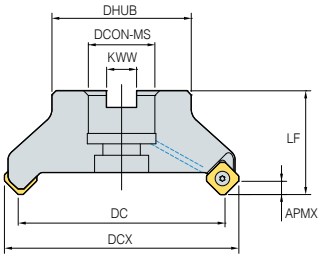


Fig. 1

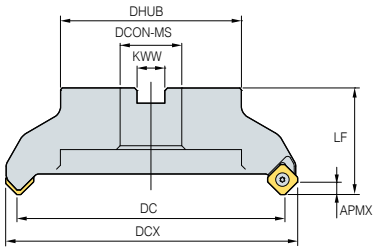


Fig. 2

KAPR 45°

• GAMP : –6°
• GAMF : –9°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM8AC (RM8ACM)	5080HR-M	● (●)	6	80	96.401	57	25.4(27)	9.5(12.4)	50	7.5	1.3	1
	5100HR-M	● (●)	7	100	116.401	67	31.75(32)	12.7(14.4)	63	7.5	2.4	1
	5125HR-M	● (●)	8	125	141.401	87	38.1(40)	15.9(16.4)	63	7.5	3.6	1
	5160R-M	● (●)	10	160	176.401	107	50.8(40)	19(16.4)	63	7.5	4.8	2
	5200R-M	● (●)	12	200	216.401	130	47.625(60)	25.4(25.7)	63	7.5	7.1	2
	5250R-M	● (●)	15	250	266.401	180	47.625(60)	25.4(25.7)	63	7.5	11.9	2
	5315R-M		20	315	331.401	240	47.625(60)	25.7(25.7)	63	7.5	19.1	2
	5400R-M		28	400	416.401	260	47.625(60)	25.7(25.7)	80	7.5	37.7	2

( )Metric size, ● : Stock item

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ANN-MF										●			●	●				
	1507ANN-ML													●	●				B24
	1507ANN-MM										●			●	●				B25
SNMX	1507ANN-MF					●				●	●			●	●				B26
	1507ANN-MM					●				●	●			●	●				

Available arbors

	Designation	Available arbors	
		RM8AC	RM8ACM
RM8AC (RM8ACM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

Parts

Specification	Screw	Wrench
Ø80~Ø400	FTGA0513	TW20-100

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RMH8AC(M)5000

Shim type



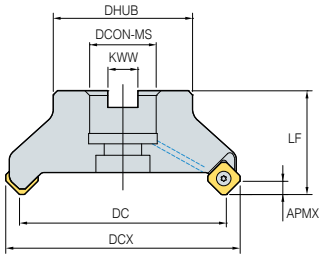


Fig. 1

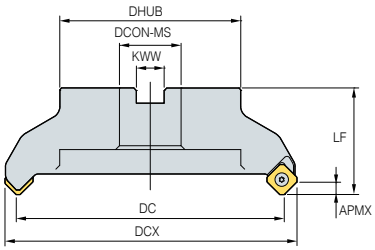


Fig. 2

KAPR 45°

• GAMP : –6°
• GAMF : –9°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMH8AC (RMH8ACM)	5080HR-M	● (●)	6	80	96.402	57	25.4(27)	9.5(12.4)	50	7.5	1.2	1
	5100HR-M	● (●)	7	100	116.401	67	31.75(32)	12.7(14.4)	63(50)	7.5	2.5	1
	5125HR-M	● (●)	8	125	141.401	87	38.1(40)	15.9(16.4)	63	7.5	3.5	1
	5160R-M	● (●)	10	160	176.401	107	50.8(40)	19(16.4)	63	7.5	5	2
	5200R-M	● (●)	12	200	216.401	130	47.625(60)	25.4(25.7)	63	7.5	7.1	2
	5250R-M	● (●)	15	250	266.401	180	47.625(60)	25.4(25.7)	63	7.5	11.9	2
	5315R-M		20	315	331.401	240	47.625(60)	25.7(25.7)	63	7.5	19.1	2
	5400R-M		22	400	416.401	260	47.625(60)	25.7(25.7)	80	7.5	37.7	2

( )Metric size, ● : Stock item

Available inserts

		SNM(E)X-MF	SNEX-ML	SNM(E)X-MM
				

	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ANN-MF										●			●	●				B24
	1507ANN-ML													●	●				
	1507ANN-MM										●			●	●				B25
SNMX	1507ANN-MF					●				●	●			●	●				B26
	1507ANN-MM					●				●	●			●	●				

Available arbors

	Designation	Available arbors	
		RMH8AC	RMH8ACM
RMH8AC (RMH8ACM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø400	FTGA0513	SS53RM8	SHXN0712F	TW20-100

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RM8EC(M)4000



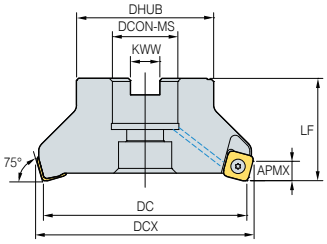


Fig. 1

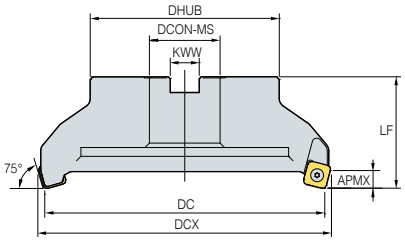


Fig. 2

KAPR 75°

- GAMP : –6°
- GAMF : –8°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM8ECM	4050HR-M	●	4	50	55.891	49	22	10.4	40	9	0.4	1
	4063HR-M	●	6	63	68.913	49	22	10.4	40	9	0.5	1
RM8EC (RM8ECM)	4080HR	●	5	80	85.889	57	25.4(27)	9.5(12.4)	50	9	1.0	1
	4080HR-M	(●)	7	80	85.889	57	25.4(27)	9.5(12.4)	50	9	1.0	1
	4100HR	●	6	100	105.888	67	31.75(32)	12.7(14.4)	63(50)	9	1.5	1
	4100HR-M	(●)	8	100	105.888	67	31.75(32)	12.7(14.4)	63(50)	9	2.5	1
	4125HR	●	8	125	130.888	87	38.1(40)	15.9(16.4)	63	9	3.3	1
	4125HR-M	(●)	10	125	130.888	87	38.1(40)	15.9(16.4)	63	9	3.1	1
	4160R	●	10	160	165.911	107	50.8(40)	19(16.4)	63	9	4.2	2
	4160R-M	(●)	12	160	165.911	107	50.8(40)	19(16.4)	63	9	4.1	2
	4200R-M		16	200	205.911	130	47.625(60)	25.4(25.7)	63	9	5.9	2
	4250R-M		16	250	255.929	180	47.625(60)	25.4(25.7)	63	9	10.4	2
	4315R-M		20	315	320.987	240	47.625(60)	25.4(25.7)	63	9	17.9	2
	4400R-M		28	400	405.986	260	47.625(60)	25.4(25.7)	63	9	31.5	2

( )Metric size, ● : Stock item

Available inserts

	SNM(E)X-MF	SNEX-ML	SNM(E)X-MM	SNEX-MA
				

	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ENN-MF										●			●	●				B24 B25 B26
	1206ENN-ML													●	●				
	1206ENN-MM										●			●	●				
	1206ENN-MA										●							●	
SNMX	1206ENN-MF					●				●	●		●	●	●				
	1206ENN-MM					●				●	●		●	●	●				

Available arbors

	Designation	NC arbors	
		RM8EC	RM8ECM
RM8ECM	4050HR-□	-	BT□□-FMC22-□□
	4063HR-□		
RM8EC (RM8ECM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

Parts

Specification	Screw	Wrench
Ø50~Ø400	PTKA0411-R3	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94, E158**

RMH8EC(M)4000

Shim type



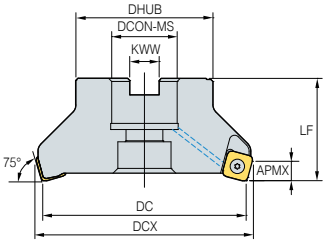


Fig. 1

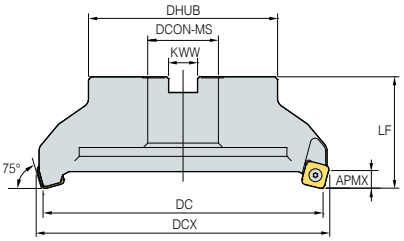


Fig. 2

KAPR 75°

• GAMP : –6°
• GAMF : –8°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMH8EC (RMH8ECM)	4080HR-M	(●)	7	80	85.287	57	25.4(27)	9.5(12.4)	50	9	1.0	1
	4100HR-M	(●)	8	100	105.888	67	31.75(32)	12.7(14.4)	63	9	2.5	1
	4125HR-M	(●)	10	125	130.888	87	38.1(40)	15.9(16.4)	63	9	3.0	1
	4160R-M	(●)	12	160	165.911	107	50.8(40)	19(16.4)	63	9	4.3	2
	4200R-M		16	200	205.911	130	47.625(60)	25.4(25.7)	63	9	5.9	2
	4250R-M		16	250	255.929	180	47.625(60)	25.4(25.7)	63	9	10.8	2
	4315R-M		20	315	320.987	240	47.625(60)	25.4(25.7)	63	9	18.1	2
	4400R-M		24	400	405.9	260	47.625(60)	25.4(25.7)	63	9	31.8	2

( )Metric size, ● : Stock item

Available inserts

	SNM(E)X-MF	SNEX-ML	SNM(E)X-MM	SNEX-MA
				

	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ENN-MF										●			●	●				B24 B25 B26
	1206ENN-ML													●	●				
	1206ENN-MM										●			●	●				
	1206ENN-MA										●							●	
SNMX	1206ENN-MF					●				●	●		●	●	●				
	1206ENN-MM					●				●	●		●	●	●				

Available arbors

	Designation	Available arbors	
		RMH8EC	RMH8ECM
RMH8EC (RMH8ECM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	4250R-□		
	4315R-□		
	4400R-□		

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø400	PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94, E158**

RM8EC(M)5000



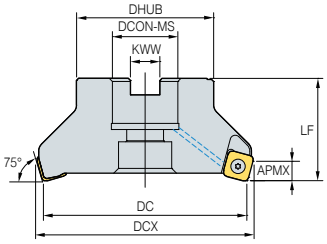


Fig. 1

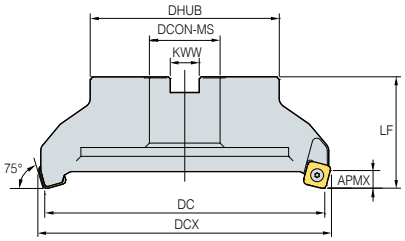


Fig. 2

KAPR 75°

• GAMP : –6°
• GAMF : –8°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM8EC (RM8ECM)	5080HR-M	● (●)	6	80	87.973	57	25.4(27)	9.5(12.4)	50	11	1.1	1
	5100HR-M	● (●)	7	100	107.389	67	31.75(32)	12.7(14.4)	63(50)	11	2.4	1
	5125HR-M		8	125	132.386	87	38.1(40)	15.9(16.4)	63	11	3.4	1
	5160R-M	● (●)	10	160	167.384	87	50.8(40)	19(16.4)	63	11	4.4	2
	5200R-M	(●)	12	200	207.382	130	47.625(60)	25.4(25.7)	63	11	6.4	2
	5250R-M	(●)	15	250	257.38	180	47.625(60)	25.4(25.7)	63	11	11.1	2
	5315R-M		20	315	322.379	240	47.625(60)	25.4(25.7)	63	11	18	2
	5400R-M		28	400	407.378	260	47.625(60)	25.4(25.7)	63	11	35.7	2

( )Metric size, ● : Stock item

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ENN-MF										●			●	●				
	1507ENN-ML													●	●				B24
	1507ENN-MM										●			●	●				B25
SNMX	1507ENN-MF					●				●	●			●	●				B26
	1507ENN-MM					●				●	●			●	●				

Available arbors

	Designation	Available arbors	
		RM8EC	RM8ECM
RM8EC (RM8ECM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

Parts

Specification	Screw	Wrench
Ø80~Ø400	FTGA0513	TW20-100

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RMH8EC(M)5000

Shim type



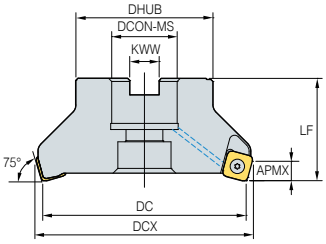


Fig. 1

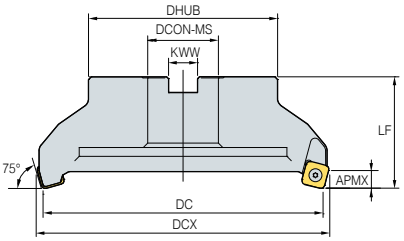


Fig. 2

KAPR 75°

- GAMP : –6°
- GAMF : –8°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMH8EC (RMH8ECM)	5080HR-M		6	80	87.393	57	25.4(27)	9.5(12.4)	50	11	1.1	1
	5100HR-M		7	100	107.391	67	31.75(32)	12.7(14.4)	63(50)	11	2.1	1
	5125HR-M		8	125	132.386	87	38.1(40)	15.9(16.4)	63	11	3.4	1
	5160HR-M		10	160	167.38	107	50.8(60)	19(16.4)	63	11	4.4	2
	5200R-M		12	200	207.382	130	47.625(60)	25.4(25.7)	63	11	6.4	2
	5250R-M		15	250	257.38	180	47.625(60)	25.4(25.7)	63	11	11.1	2
	5315R-M		20	315	322.379	240	47.625(60)	25.4(25.7)	63	11	18	2
	5400R-H		22	400	407.38	260	47.625(60)	25.4(25.7)	80	11	35.7	2

( )Metric size, ● : Stock item

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ENN-MF										●			●	●				B24
	1507ENN-ML													●	●				B25
	1507ENN-MM										●			●	●				B26
SNMX	1507ENN-MF					●				●	●			●	●				
	1507ENN-MM					●				●	●			●	●				

Available arbors

	Designation	Available arbors	
		RMH8EC	RMH8ECM
RMH8EC (RMH8ECM)	5080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	5100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	5125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	5160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	5200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	5250R-□		
	5315R-□		
	5400R-□		

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø400	FTGA0513	SS53RM8	SHXN0712F	TW20-100

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RM8QC(M)4000

Shim type



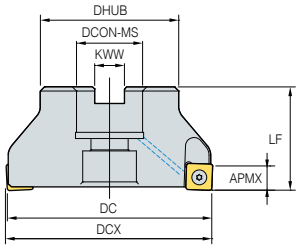


Fig. 1

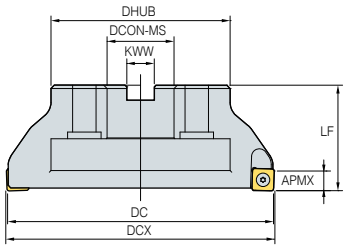


Fig. 2

KAPR 88°

• GAMP : –6°
• GAMF : –8°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM8QCM	4063HR-M	●	6	63	63.885	49	22	10.4	40	11.5	0.5	1
	4063HR-H		8	63	63.885	49	22	10.4	40	11.5	0.5	1
RM8QC (RM8QCM)	4080HR-M	● (●)	7	80	80.876	57	25.4(27)	9.5(12.4)	50	11.5	1.1	1
	4080HR-H		10	80	80.876	57	25.4(27)	9.5(12.4)	50	11.5	1.0	1
	4100HR-M	● (●)	8	100	100.869	67	31.75(32)	12.7(14.4)	63(50)	11.5	2.0	1
	4100HR-H		12	100	100.869	67	31.75(32)	12.7(14.4)	63(50)	11.5	2.0	1
	4125HR-M	● (●)	10	125	125.863	87	38.1(40)	15.9(16.4)	63	11.5	3.5	1
	4125HR-H		14	125	125.863	87	38.1(40)	15.9(16.4)	63	11.5	3.9	1
	4160R-M	(●)	12	160	160.776	107	50.8(40)	19(16.4)	63	11.5	4.3	2
	4160R-H		18	160	160.776	107	50.8(40)	19(16.4)	63	11.5	4.3	2
	4200R-M		14	200	200.772	130	47.625(60)	25.4(25.7)	63	11.5	6.5	2
	4200R-H		22	200	200.772	130	47.625(60)	25.4(25.7)	63	11.5	6.5	2

( )Metric size, ● : Stock item

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



SNEX-MA



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206QNN-MF									●	●			●	●				B24 B25 B26
	1206QNN-ML													●	●				
	1206QNN-MM										●			●	●				
	1206QNN-MA																	●	
	120612-MF										●			●	●				
	120612-ML													●	●				
	120612-MM										●								
	120612-MA																	●	
SNMX	1206QNN-MF					●				●	●			●	●				
	1206QNN-MM					●				●	●		●	●	●				
	120612-MF										●			●	●				
	120612-MM										●			●	●				

Available arbors

	Designation	Available arbors	
		RM8QC	RM8QCM
RM8QCM	4063HR-□	-	BT□□-FMC22-□□
RM8QC (RM8QCM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	4160R-□	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□

Parts

Specification	Screw	Wrench
Ø63~Ø200	PTKA0411-R3	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RMH8QC(M)4000

Shim type



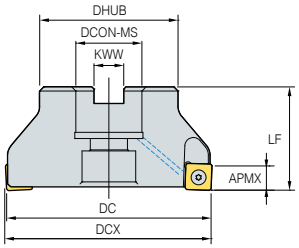


Fig. 1

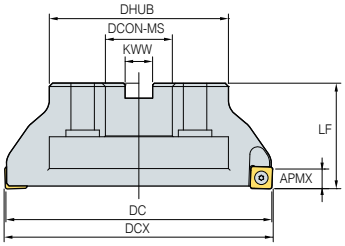


Fig. 2

KAPR 88°

• GAMP : –6°
• GAMF : –8°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMH8QC	4080HR-M	(●)	7	80	80.876	57	25.4(27)	9.5(12.4)	50	11.5	1.1	1
	4100HR-M	(●)	8	100	100.869	67	31.75(32)	12.7(14.4)	63(50)	11.5	2.1	1
	4125HR-M	(●)	10	125	125.863	87	38.1(40)	15.9(16.4)	63	11.5	3.5	1
	4160R-M	(●)	12	160	160.776	107	50.8(40)	19(16.4)	63	11.5	4.3	2
	4200R-M		14	200	200.772	130	47.625(60)	25.4(25.7)	63	11.5	6.7	2

( )Metric size, ● : Stock item

Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206QNN-MF									●	●			●	●				B24 B25 B26
	1206QNN-ML													●	●				
	1206QNN-MM										●			●	●				
	1206QNN-MA																	●	
	120612-MF										●			●	●				
	120612-ML													●	●				
	120612-MM										●								
	120612-MA																	●	
SNMX	1206QNN-MF					●				●	●			●	●				
	1206QNN-MM					●				●	●		●	●	●				
	120612-MF										●			●	●				
	120612-MM										●			●	●				

Available arbors

	Designation	Available arbors	
		RMH8QC	RMH8QCM
RMH8QC (RMH8QCM)	4080HR-□	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	4100HR-□	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	4125HR-□	BT□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□
	4160R-□	BT□□-FMA50.8-□□	
	4200R-□	BT□□-FMA47.625-□□	BT□□-FMB60-□□

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø80~Ø200	PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

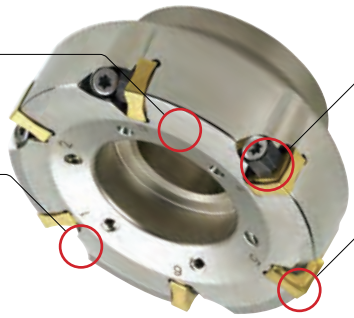
Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

Rich Mill RMT8

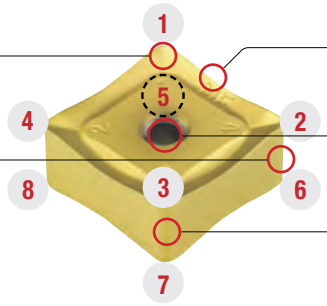
Features

- New latch clamping system provides a powerful cutting force and an easy insert change
- New grades with chipping resistance provides good surface roughness and better tool life
- Due to the specially designed chip breaker, all operations are possible
- RMT with various pitches can replace conventional ISO milling tool

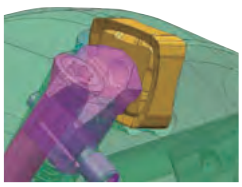
Features of cutter

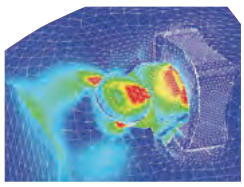


Features of insert (Using R/L)



Clamping force analysis





Features of chip breakers

Insert		Cutting-edge	Use	Features
MF			For fine finishing	Our specialized insert design creates low cutting forces suitable for light cutting, HRSA
MM			For strengthen	Suitable geometry design for general milling has wider ranges of machining

Recommended grades and chip breakers

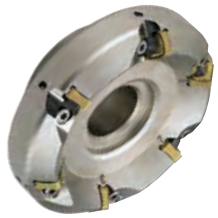
ISO	Grade	MM	MF
P	NCM535	◎	○
P	PC5300	◎	○
M	PC9530	○	◎
K	PC6100	○	◎

◎: Optimum ○: Proper

Recommended cutting conditions

ISO	Grade	MM		MF	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
P	NC5330	190~310	0.10~0.35	190~310	0.05~0.30
P	NCM535	160~270	0.10~0.35	160~270	0.05~0.30
P	PC3700	130~210	0.10~0.35	130~210	0.05~0.30
M	PC9530	90~150	0.05~0.30	90~150	0.05~0.30
K	PC6100	140~230	0.10~0.40	140~230	0.08~0.35

RMT8A(M)4000



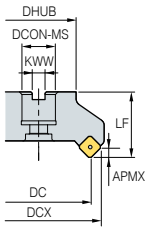


Fig. 1

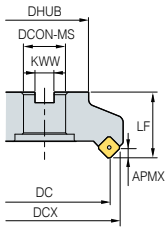


Fig. 2

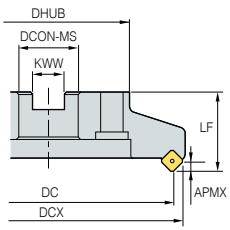


Fig. 3

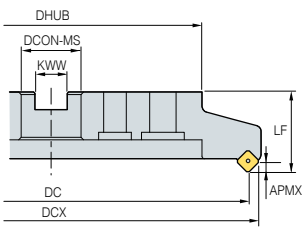


Fig. 4

KAPR 45°

• GAMP : −6°
• GAMF : −6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMT8A (RMT8AM)	4080R	●	5	80	93.9	57	25.4(27)	9.5(12.4)	50	3.5	1.7	1
	4080R-M		6	80	93.9	57	25.4(27)	9.5(12.4)	50	3.5	1.7	1
	4100R	●	6	100	113.9	70	31.75(32)	12.7(14.4)	50	3.5	2.4	2
	4100R-M		8	100	113.9	70	31.75(32)	12.7(14.4)	50	3.5	2.2	2
	4125R	●	8	125	138.9	87	38.1(40)	15.9(16.4)	63	3.5	4.2	2
	4125R-M		10	125	138.9	87	38.1(40)	15.9(16.4)	63	3.5	4.2	2
	4160R	●	10	160	173.9	110	50.8(40)	19.1(16.4)	63	3.5	6.5	2
	4160R-M		14	160	173.9	110	50.8(40)	19.1(16.4)	63	3.5	6.4	2
	4200R		12	200	213.9	130	47.625(60)	25.4(25.7)	63	3.5	8.7	3
	4200R-M		18	200	213.9	130	47.625(60)	25.4(25.7)	63	3.5	8.6	3
	4250R		16	250	263.9	180	47.625(60)	25.4(25.7)	63	3.5	14	3
	4250R-M		22	250	263.9	180	47.625(60)	25.4(25.7)	63	3.5	13.9	3
	4315R		20	315	328.9	240	47.625(60)	25.4(25.7)	63	3.5	22.1	4
	4315R-M		28	315	328.9	240	47.625(60)	25.4(25.7)	63	3.5	22	4

( )Metric size, ● : Stock item

Available inserts

SNC(M)F-MF



SNC(M)F-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206ANN-MF																		B22 B23
	1206ANN-MM																		
SNMF	1206ANN-MF																		
	1206ANN-MM																		

Available arbors

	Designation	General arbor	NC arbors	
			RMT8A	RMT8AM
RMT8A (RMT8AM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Centering Plug)	-	-

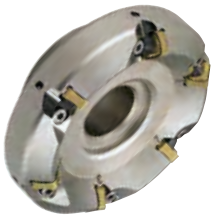
*□□ -NT number **□□ -BT number ***Over milling 5

Parts

Specification	Screw	Screw	Sring	Latch	Wrench
Ø80~Ø315	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

Available inserts **B22, B23** Available arbors and bolt **E94 ~ E96**

RMT8A(M)5000



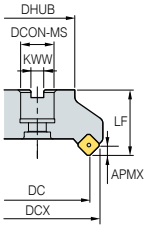


Fig. 1

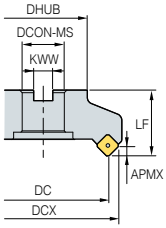


Fig. 2

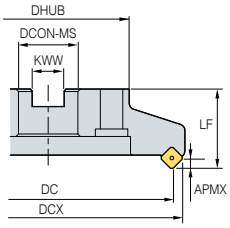


Fig. 3

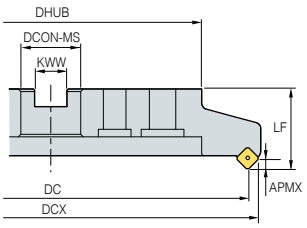


Fig. 4

KAPR 45°

- GAMP : −6°
- GAMF : −6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMT8A (RMT8AM)	5080R	●	5	80	98.3	57	25.4(27)	9.5(12.4)	50	6	1.8	1
	5080R-M		6	80	98.3	57	25.4(27)	9.5(12.4)	50	6	1.8	1
	5100R		6	100	118.3	70	31.75(32)	12.7(14.4)	50	6	2.6	2
	5100R-M		8	100	118.3	70	31.75(32)	12.7(14.4)	50	6	2.6	2
	5125R	●	8	125	143.3	87	38.1(40)	15.9(16.4)	63	6	4.3	2
	5125R-M		10	125	143.3	87	38.1(40)	15.9(16.4)	63	6	4.3	2
	5160R		10	160	178.3	110	50.8(40)	19.1(16.4)	63	6	6.5	2
	5160R-M		14	160	178.3	110	50.8(40)	19.1(16.4)	63	6	6.5	2
	5200R		12	200	218.3	130	47.625(60)	25.4(25.7)	63	6	9	3
	5200R-M		18	200	218.3	130	47.625(60)	25.4(25.7)	63	6	9	3
	5250R		16	250	268.3	180	47.625(60)	25.4(25.7)	63	6	14.4	3
	5250R-M		22	250	268.3	180	47.625(60)	25.4(25.7)	63	6	14.4	3
	5315R		20	315	338.5	240	47.625(60)	25.4(25.7)	63	6	22.2	4
	5315R-M		28	315	338.5	240	47.625(60)	25.4(25.7)	63	6	22.2	4

( )Metric size, ● : Stock item

Available inserts

SNC(M)F-MF



SNC(M)F-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1507ANN-MF										●								B22 B23
	1507ANN-MM																		
SNMF	1507ANN-MF																		
	1507ANN-MM																		

Available arbors

	Designation	General arbor	NC arbors	
			RMT8A	RMT8AM
RMT8A (RMT8AM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Centering Plug)	-	-

*□□ -NT number **□□ -BT number ***Over milling 5

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

Available inserts **B22, B23** Available arbors and bolt **E94 ~ E96**

RMT8E(M)4000



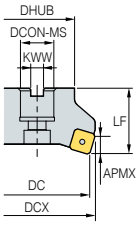


Fig. 1

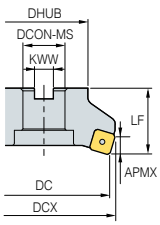


Fig. 2

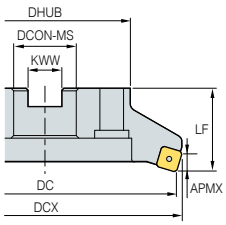


Fig. 3

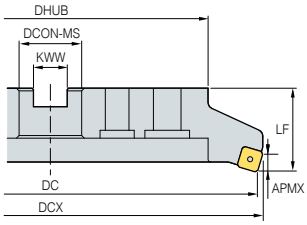


Fig. 4

KAPR 75°

- GAMP : –6°
- GAMF : –8°~–6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMT8E (RMT8EM)	4080R	●	5	80	85.2	57	25.4(27)	9.5(12.4)	50	5.5	1.4	1
	4080R-M		6	80	85.2	57	25.4(27)	9.5(12.4)	50	5.5	1.4	1
	4100R	●	6	100	105.3	67	31.75(32)	12.7(14.4)	50	5.5	1.9	2
	4100R-M		8	100	105.3	67	31.75(32)	12.7(14.4)	50	5.5	1.9	2
	4125R		8	125	130.2	87	38.1(40)	15.9(16.4)	63	5.5	3.7	2
	4125R-M		10	125	130.2	87	38.1(40)	15.9(16.4)	63	5.5	3.5	2
	4160R	●	10	160	165.2	107	50.8(40)	19.1(16.4)	63	5.5	5.6	2
	4160R-M		14	160	165.2	107	50.8(40)	19.1(16.4)	63	5.5	5.6	2
	4200R		12	200	205.2	130	47.625(60)	25.4(25.7)	63	5.5	7.8	3
	4200R-M		18	200	205.2	130	47.625(60)	25.4(25.7)	63	5.5	7.8	3
	4250R		16	250	255.2	180	47.625(60)	25.4(25.7)	63	5.5	12.8	3
	4250R-M		22	250	255.2	180	47.625(60)	25.4(25.7)	63	5.5	12.8	3
	4315R		20	315	320.2	240	47.625(60)	25.4(25.7)	63	5.5	20.2	4
	4315R-M		28	315	320.2	240	47.625(60)	25.4(25.7)	63	5.5	20.2	4

( )Metric size, ● : Stock item

Available inserts

SNC(M)F-MF



SNC(M)F-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206ENN-MF										●								B22 B23
	1206ENN-MM																		
SNMF	1206ENN-MF									●									
	1206ENN-MM									●									

Available arbors

	Designation	General arbor	NC arbors	
			RMT8E	RMT8EM
RMT8E (RMT8EM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Centering Plug)	-	-

*□□ -NT number **□□ -BT number ***Over milling 5

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

Available inserts **B22, B23** Available arbors and bolt **E94 ~ E96**

RMT8E(M)5000



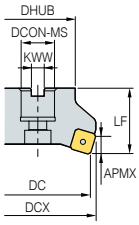


Fig. 1

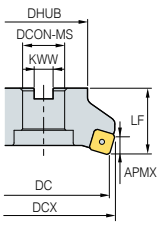


Fig. 2

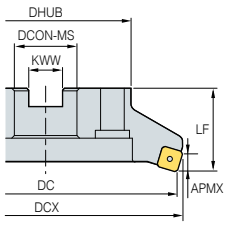


Fig. 3

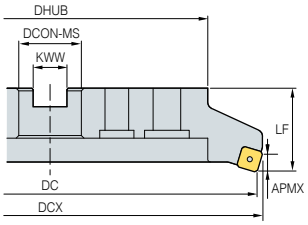


Fig. 4

KAPR 75°

- GAMP : −6°
- GAMF : −8°~−6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMT8E (RMT8EM)	5080R	●	5	80	87	57	25.4(27)	9.5(12.4)	50	7	1.4	1
	5080R-M		6	80	87	57	25.4(27)	9.5(12.4)	50	7	1.4	1
	5100R	●	6	100	107	67	31.75(32)	12.7(14.4)	50	7	1.8	2
	5100R-M		8	100	107	67	31.75(32)	12.7(14.4)	50	7	1.8	2
	5125R	●	8	125	131.9	87	38.1(40)	15.9(16.4)	63	7	3.5	2
	5125R-M	●	10	125	131.9	87	38.1(40)	15.9(16.4)	63	7	3.5	2
	5160R		10	160	166.9	107	50.8(40)	19.1(16.4)	63	7	5.6	2
	5160R-M		14	160	166.9	107	50.8(40)	19.1(16.4)	63	7	5.6	2
	5200R		12	200	206.9	130	47.625(60)	25.4(25.7)	63	7	7.3	3
	5200R-M		18	200	206.9	130	47.625(60)	25.4(25.7)	63	7	7.3	3
	5250R		16	250	256.9	180	47.625(60)	25.4(25.7)	63	7	12.2	3
	5250R-M		22	250	256.9	180	47.625(60)	25.4(25.7)	63	7	12.2	3
	5315R		20	315	320.2	240	47.625(60)	25.4(25.7)	63	7	19.7	4
	5315R-M		28	315	320.2	240	47.625(60)	25.4(25.7)	63	7	19.7	4

( )Metric size, ● : Stock item

Available inserts

SNC(M)F-MF SNC(M)F-MM




	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1507ENN-MF										●								B22 B23
	1507ENN-MM																		
SNMF	1507ENN-MF																		
	1507ENN-MM									●									

Available arbors

	Designation	General arbor	NC arbors	
			RMT8E	RMT8EM
RMT8E (RMT8EM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Centering Plug)	-	-

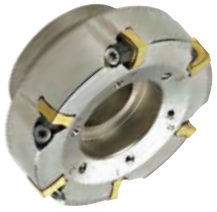
*□□ -NT number **□□ -BT number ***Over milling 5

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

Available inserts **B22, B23** Available arbors and bolt **E94 ~ E96**

RMT8Q(M)4000



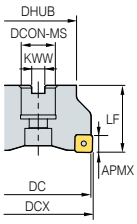


Fig. 1

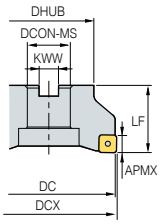


Fig. 2

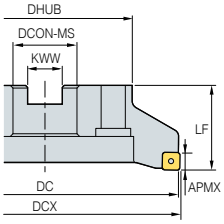


Fig. 3

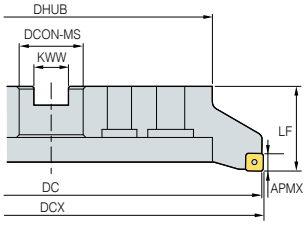


Fig. 4



KAPR 88°

- GAMP : −6°
- GAMF : −11°~−6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RMT8Q (RMT8QM)	4080R	●	5	80	81.1	57	25.4(27)	9.5(12.4)	50	5	1.2	1
	4080R-M		6	80	81.1	57	25.4(27)	9.5(12.4)	50	5	1.2	1
	4100R	●	6	100	101	67	31.75(32)	12.7(14.4)	50	5	1.7	2
	4100R-M	●	8	100	101	67	31.75(32)	12.7(14.4)	50	5	1.7	2
	4125R	● (●)	8	125	126	87	38.1(40)	15.9(16.4)	63	5	3.5	2
	4125R-M		10	125	126	87	38.1(40)	15.9(16.4)	63	5	3.5	2
	4160R	●	10	160	161	107	50.8(40)	19.1(16.4)	63	5	5.6	2
	4160R-M		14	160	161	107	50.8(40)	19.1(16.4)	63	5	5.6	2
	4200R		12	200	200.9	130	47.625(60)	25.4(25.7)	63	5	7.5	3
	4200R-M		18	200	200.9	130	47.625(60)	25.4(25.7)	63	5	7.5	3
	4250R		16	250	250.9	180	47.625(60)	25.4(25.7)	63	5	12.5	3
	4250R-M		22	250	250.9	180	47.625(60)	25.4(25.7)	63	5	12.5	3
	4315R		20	315	315.9	240	47.625(60)	25.4(25.7)	63	5	19.9	4
	4315R-M		28	315	315.9	240	47.625(60)	25.4(25.7)	63	5	19.9	4

( )Metric size, ● : Stock item

Available inserts

SNC(M)F-MF



SNC(M)F-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206QNN-MF										●								B23
	1206QNN-MM										●								
SNMF	1206QNN-MF									●									
	1206QNN-MM									●									

Available arbors

	Designation	General arbor	NC arbors	
			RMT8Q	RMT8QM
RMT8Q (RMT8QM)	□080R	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4-□□	FMC27
	□100R	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75-□□	FMC32
	□125R	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1-□□	FMB40
	□160R	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8-□□	
	□200R	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□	FMB60
	□250R			
	□315R	KCP-8***(Centering Plug)	-	-

*□□ -NT number **□□ -BT number ***Over milling 5

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø80~Ø315	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

Available inserts **B23** Available arbors and bolt **E94 ~ E96**

Rich Mill RM8-X

Features

- High helix face milling tool with 8-cornered double-side inserts
- High performance in stainless steel machining due to sharp cutting edge and double reverse positive relief surface structure
- Economic tool by double-sided 8 corners and high helix right-handed shape realizing high depth of cut machining

Features of insert



High Helix
- Improved surface finish
- Reduced cutting loa

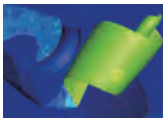


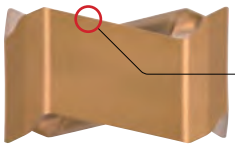


High rake angled major cutting edge/ Variable chip breaker
- Maintain its machinability in high depth of cut
- Enhanced chip control

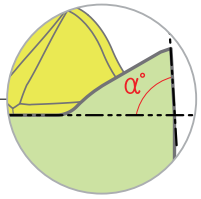
Variable minor cutting edge chip breaker
- Protects its corner on the opposite side
- Enhanced chip control



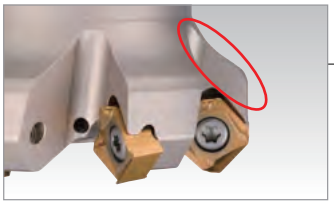




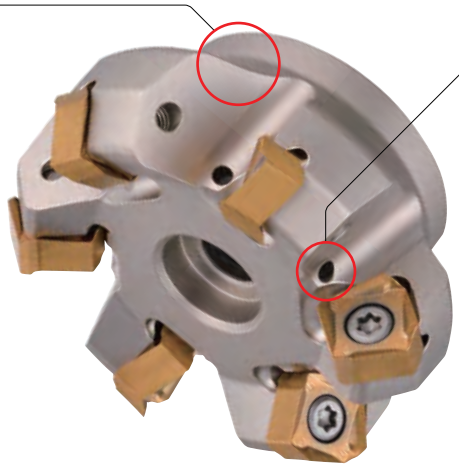
Reversal positive relief angle at the Major cutting edge
- Protects its corner on the opposite side
  - Increased chipping resistance and prevents unexpected breakage

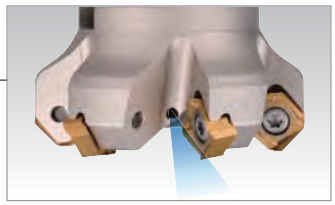


Features of cutter



Steamlined cutter design
Improved chip evacuation





Internal coolant system
- Improved chip evacuation
- Tool life increase with the inserts' cooling

Rich Mill RM8-X

Recommended grade and cutting edge

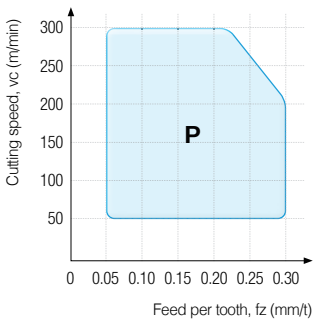
Type	SAGX			SNMX	
Features	Strong relief surface			Relief surface for surface finish	
Workpiece	M	S	H	P	K
Picture	 SAGX-ML ... SAGX-MM			 SNMX-MM	
	 [Double reverse positive relief surface]			 [Negative relief surface]	

Type	Recommended insert and grade for different workpieces (●: 1st recommendation)									
	P		M		K		S		H	
	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades	C/B	Grades
SAGX140808ANER	○ML ○MM	○PC5300 ○PC3700	●ML ○MM	●PC9540 ○PC5300	○ML ○MM	○PC6100 ○PC5300	●ML ○MM	●PC5300	●MM	●PC2510 ○PC2505
SNMX140808ANER	●MM	●PC3700	-	-	●MM	●PC6100	-	-	-	-

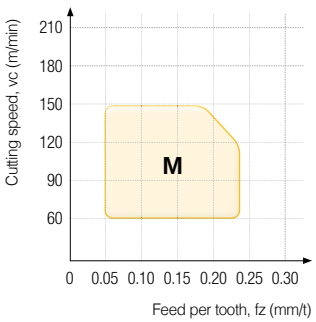
Recommended cutting conditions

Workpiece		Machining types	Grades	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	PC3700	235(180~290)	P30	PC3700 ~ PC5300
		Interrupted cutting	PC5300	195(150~240)	P40	
M	Stainless steel	Continuous cutting	PC5300	130(100~160)	M20	PC5300
					M30	
		Interrupted cutting	PC9540	110(80~140)	M40	PC9540
K	Cast iron	Continuous cutting	PC6100	180(140~230)	K05	PC6100
					K10	
		Interrupted cutting	PC5300	145(110~180)	K20	PC5300
					K30	
H	Hardened steel	Continuous cutting	PC2510	55(40~70)	H10	PC2510

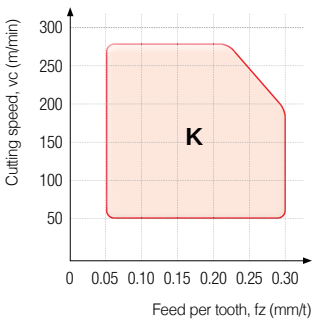
P Steel



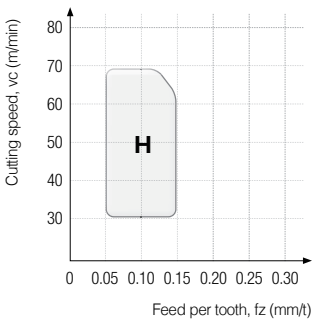
M Stainless steel



K Cast iron

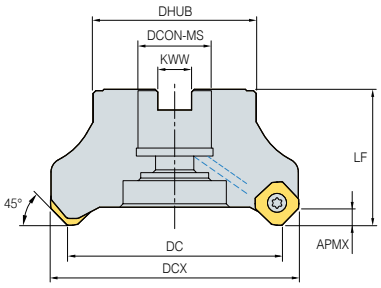


H Hardened steel



RMX8AC(M)-SA14





KAPR 45°

- GAMP : −8°
- GAMF : −11°~−9°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg
RMX8ACM	050R-22-4-SA14		4	50	62.5	42	22	10.4	40	5.5	0.3
	050R-22-5-SA14	●	5	50	62.5	42	22	10.4	40	5.5	0.4
	063R-22-5-SA14		5	63	75.5	42	22	10.4	40	5.5	0.6
	063R-22-6-SA14	●	6	63	75.5	42	22	10.4	40	5.5	0.6
	080R-27-6-SA14		6	80	92.5	60	27	12.4	50	5.5	1.0
	080R-27-8-SA14	●	8	80	92.5	60	27	12.4	50	5.5	1.0
	100R-32-8-SA14		8	100	112.5	70	32	14.4	50	5.5	2.1
	100R-32-10-SA14	●	10	100	112.5	70	32	14.4	50	5.5	2.1
	125R-40-8-SA14		8	125	137.5	90	40	16.4	63	5.5	3.3
	125R-40-12-SA14	●	12	125	137.5	90	40	16.4	63	5.5	3.3
RMX8AC	080R-25.4-6-SA14		6	80	92.5	60	25.4	9.5	50	5.5	1.1
	080R-25.4-8-SA14	●	8	80	92.5	60	25.4	9.5	50	5.5	1.1
	100R-31.75-8-SA14		8	100	112.5	70	31.75	12.7	63	5.5	2.1
	100R-31.75-10-SA14	●	10	100	112.5	70	31.75	12.7	63	5.5	2.1
	125R-38.1-8-SA14		8	125	137.5	90	38.1	15.9	63	5.5	3.4
	125R-38.1-12-SA14	●	12	125	137.5	90	38.1	15.9	63	5.5	3.4

● : Stock item

Available inserts

SAGX-ML



SAGX-MM



SNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	ST30A	G10	H01	
SAGX	140808ANER-ML													●	●				B18
	140808ANER-MM														●				
SNMX	140808ANER-MM										●	●			●				

Available arbors

	Designation	DCON-MS	Available arbors
RMX8ACM	050R-22-□-SA14	22	BT□□-FMC22-□□
	063R-22-□-SA14		
	080R-27-□-SA14	27	BT□□-FMC27-□□
	100R-32-□-SA14	32	BT□□-FMC32-□□
	125R-40-□-SA14	40	BT□□-FMC40-□□

	Designation	DCON-MS	Available arbors
RMX8AC	080R-25.4-□-SA14	25.4	BT□□-FMA25.4-□□
	100R-31.75-□-SA14	31.75	BT□□-FMA31.75-□□
	125R-38.1-□-SA14	38.1	BT□□-FMA38.1-□□

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTNA0513	TW20-100

Available inserts **B18** Available arbors and bolt **E96**

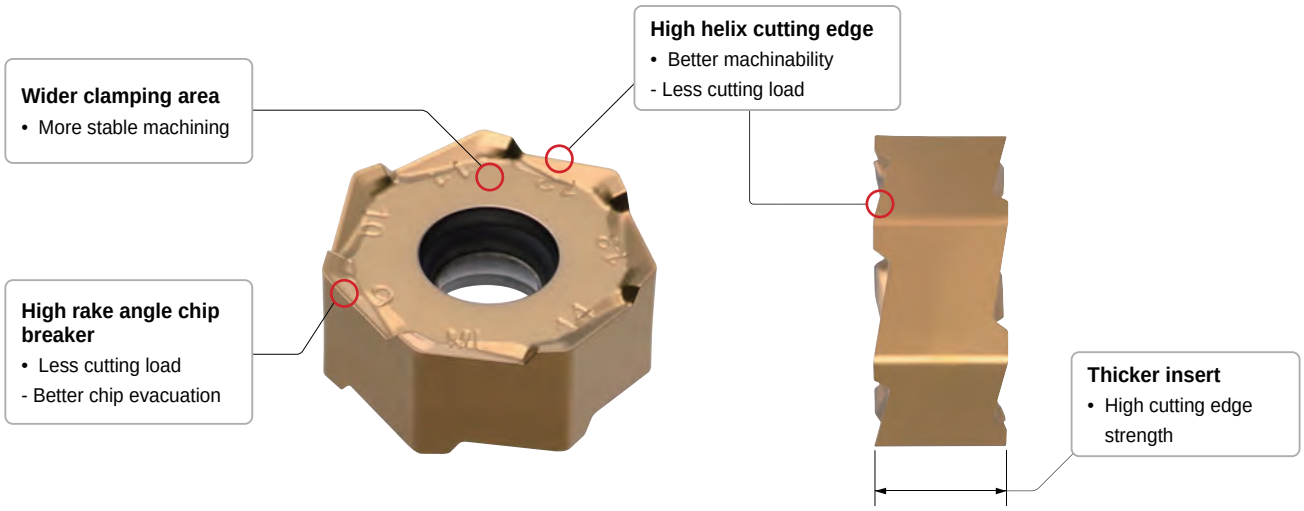
Rich Mill RM14

Features

- Economical face mill with 14 double-sided corners
- Minimized chattering of workpiece due to minimum lead angle and sharp cutting edge
- Reduced cutting resistance and improved chip emissions by high helix angle application

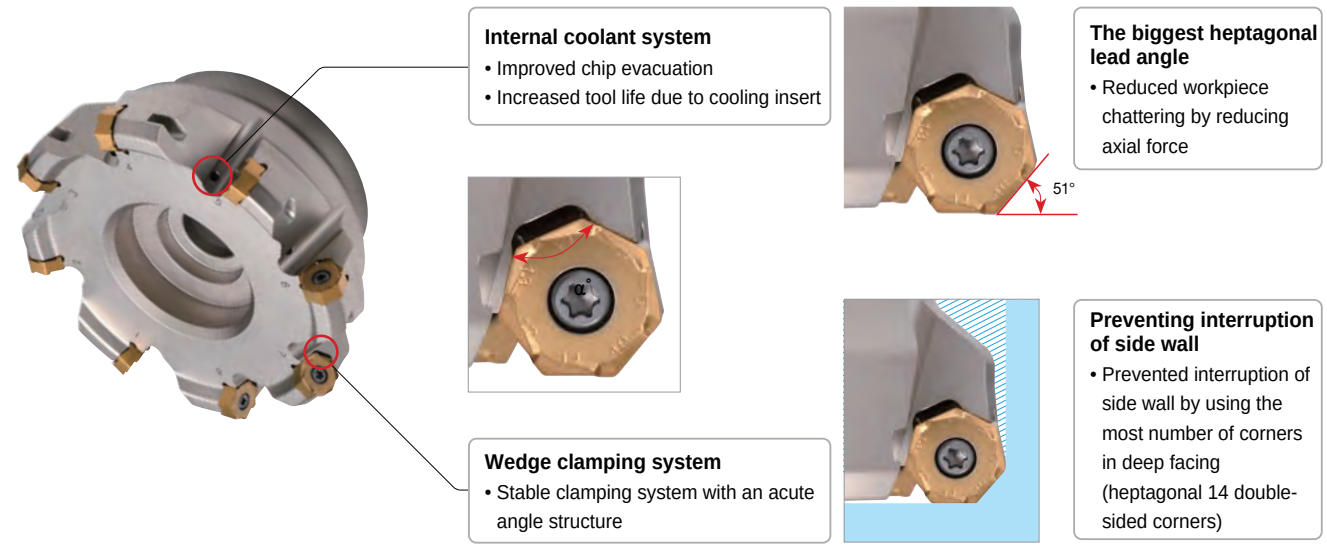
Features of insert

- Wide supporting area of insert ensures stable clamping system.
- High rake angle cutting edge reduces cutting load and increases chip evacuation.
- Thicker insert realizes stability in machining.



Features of cutter

- The biggest heptagonal lead angle reduces chatter in machining.
- Wedge type clamping system ensures stable clamping.
- Stepped machining is available without interruption of side wall of insert.



Rich Mill RM14

Features of chip breakes

Type		Workpiece	Features
Helix		• Right handed type • High helix cutting edge	•1st recommended for P and K series cutting • For high speed and high feed machining
Flat		• Neutral type • Flat cutting edge	• 1st recommended for M series cutting • Applicable for both right handed and left handed

Recommended grade and cutting edge

(● : 1st recommendation)

Type	P			M			K		
	Type	C/B	Grade	Type	C/B	Grade	Type	C/B	Grade
Helix	●	○ ML ● MM	● PC3700 ○ PC5300 ○ PC5400	○	○ ML ○ MM	● PC9540 ○ PC5300	●	● ML ○ MM	● PC6100 ○ PC5300 ○ NCM535
Flat	○	○ ML ○ MM	● PC3700 ○ PC5300 ○ PC5400	●	● ML ○ MM	● PC9540 ○ PC5300	○	○ ML ○ MM	● PC6100 ○ PC5300 ○ NCM535

Recommended cutting conditions

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML / MM
ISO	Workpiece material	KS	ISO			PC3700	ML	MM	PC5300	ML	MM	
						vc (m/min)	fz (mm/t)		vc (m/min)	fz (mm/t)		ap (mm)
P	Non-ferrous alloy steel Mn < 1.65	SM25C	C25	1500	125	160	0.25	0.3	150	0.25	0.3	1~3
						215	**0.2**	**0.2**	**195**	**0.2**	**0.2**	
						270	0.1	0.1	240	0.1	0.1	
		SM45C	C45	1700	190	160	0.25	0.3	150	0.25	0.3	
						215	**0.2**	**0.2**	**195**	**0.2**	**0.2**	
						270	0.1	0.1	240	0.1	0.1	
	Low alloy steel ≤ 5%	SCM440	42CrMo4	1700	175	160	0.25	0.3	150	0.25	0.3	
						215	**0.2**	**0.2**	**195**	**0.2**	**0.2**	
						270	0.1	0.1	240	0.1	0.1	
	High alloy steel > 5%	STD11 STD61	X40CrMoV5-1	1950	200	150	0.2	0.25	130	0.2	0.25	1
						195	**0.15**	**0.2**	**170**	**0.15**	**0.2**	
						240	0.1	0.1	210	0.1	0.1	

Rich Mill RM14

Recommended cutting condition

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML / MM
ISO	Workpiece material	KS	ISO			PC9540	ML	MM	PC5300	ML	MM	
						vc (m/min)	fz (mm/t)		vc (m/min)	fz (mm/t)		ap (mm)
M	Ferritic/ martensitic	STS405 STS430	X6CrAl13 X6Cr17	1800	200	120	0.2	0.25	120	0.2	0.25	1~3
						160	**0.1**	**0.15**	**160**	**0.1**	**0.15**	
						200	0.05	0.1	200	0.05	0.1	
		STS416 STS434	X12CrS13 X6CrMo17-1	2850	330	110	0.22	0.25	110	0.22	0.25	
						150	**0.12**	**0.15**	**150**	**0.12**	**0.15**	
						190	0.05	0.1	190	0.05	0.1	
		STS403 STS410	X12Cr13	2350	330	100	0.2	0.25	100	0.2	0.25	
						140	**0.1**	**0.15**	**140**	**0.1**	**0.15**	
						180	0.05	0.1	180	0.05	0.1	
	Austenite	STS304 STS316	X5CrNI18-9 X5CrNiMo17-12-2 XCrNiMo17-12-3	2000	180	70	0.2	0.25	90	0.2	0.25	
						95	**0.1**	**0.15**	**120**	**0.1**	**0.15**	
						120	0.05	0.1	150	0.05	0.1	
	Austenitic/ ferritic (Duplex)	-	-	2450	260	60	0.2	0.25	70	0.2	0.25	
						80	**0.1**	**0.15**	**95**	**0.1**	**0.15**	
						110	0.05	0.1	120	0.05	0.1	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML / MM
ISO	Workpiece material	KS	ISO			PC6100	ML	MM	PC5300	ML	MM	
						vc (m/min)	fz (mm/t)		vc (m/min)	fz (mm/t)		ap (mm)
K	Gray cast iron	GC200	200	900	180	140	0.25	0.3	120	0.25	0.3	1~3
						180	**0.2**	**0.2**	**160**	**0.2**	**0.2**	
						230	0.1	0.1	200	0.1	0.1	
	Ductile cast iron	GCD500	500-7	870	155	120	0.25	0.3	110	0.25	0.3	
						160	**0.2**	**0.2**	**145**	**0.2**	**0.2**	
						200	0.1	0.1	180	0.1	0.1	

RM14XCM-XN06



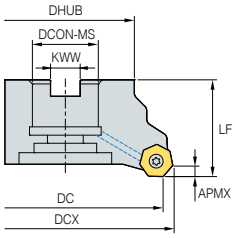


Fig. 1

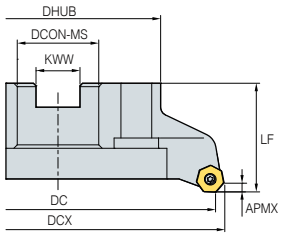


Fig. 2

KAPR 51°

- GAMP : –6°
- GAMF : –9°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM14XCM	050R-22-5-XN06	●	5	50	58.562	42	22	10.4	40	3.5	0.3	1
	050R-22-6-XN06	●	6	50	58.562	42	22	10.4	40	3.5	0.3	1
	063R-22-6-XN06	●	6	63	71.562	42	22	10.4	40	3.5	0.5	1
	063R-22-8-XN06	●	8	63	71.562	42	22	10.4	40	3.5	0.6	1
	080R-27-6-XN06	●	6	80	88.561	57	27	12.4	50	3.5	1.0	1
	080R-27-8-XN06	●	8	80	88.561	57	27	12.4	50	3.5	1.1	1
	080R-27-10-XN06	●	10	80	88.561	57	27	12.4	50	3.5	1.1	1
	100R-32-10-XN06	●	10	100	108.561	67	32	14.4	50	3.5	1.6	1
	100R-32-12-XN06	●	12	100	108.561	67	32	14.4	50	3.5	1.6	1
	125R-40-12-XN06	●	12	125	133.561	90	40	16.4	63	3.5	3.4	1
	125R-40-14-XN06	●	14	125	133.561	90	40	16.4	63	3.5	3.4	1
	160NR-40-16-XN06	●	16	160	168.561	110	40	16.4	63	3.5	4.9	2
	160NR-40-18-XN06	●	18	160	168.561	110	40	16.4	63	3.5	4.8	2

※ In applying XNMX060608- , APMX = 4.8 mm

● : Stock item

Available inserts

	XNMX-ML	XNMX-ML	XNMX-MM	XNMX-MM
				

	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PC5535	ST30A	G10	H01	
XNMX	0606XNR-ML					●					●		●	●	●	●				B32
	0606XNR-MM									●	●			●						
	060608-ML												●	●	●	●				
	060608-MM									●	●			●						

Available arbors

	Designation	DCON-MS	Available arbors
RM14XCM	050R	22	BT□□-FMC22-□□
	063R		
	080R	27	BT□□-FMC27-□□
	100R	32	BT□□-FMC32-□□
	125R	40	BT□□-FMC40-□□
	160R		

Parts

Specification	Screw	Wrench
Ø50~Ø160	FTKA0412B	TW15S

Available inserts **B32** Available arbors and bolt **E96**

Rich Mill RM16

Features

- Economical 16 cutting-edges
- Reduces cost in medium cutting
- Wiper insert can be used for good surface roughness
- Optimal matching of the special cutting-edge geometry with variety of new grades provides consistence & long tool
- When it is used 16 corners, maximum cutting depth is 5.5 mm, but it is used 8 corners, maximum cutting depth is 13 mm
- Wiper insert is placed 0.05 mm lower than facing insert in cutter
- When feed is bigger than wiper cutting-edge length (7 mm), 2 wiper inserts are placed in symmetrical position

Features of chip breakers

Chip breakers Picture		Cutting-edge	Uses	Features
MA			For aluminum cutting light	With sharp edge application, the better productivity has been accomplished, especially for aluminum cutting
ML			For hard-to-cut material	Chip breaker with low cutting load is optimal for machining hard-to-cut materials
MF			For light cutting	Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			For general cutting	It is suitable design for general milling
W			For wiper	It has better surface roughness than MM and MF chip breakers

Instruction for wiper insert

Hand	Correct setting	Incorrect setting			
Right hand					
Decision	○	×	×	×	×
Left hand					
Decision	○	×	×	×	×

Through coolant system

- Well designed chip pocket for better chip flow
- Through coolant system reduces cutting heat and improves chip evacuation



Recommended cutting conditions

ISO	Grade	ONM(H)X060608-MM		ONM(H)X060608-MF		ONHX060608-W		ONM(H)X080608-MM		ONM(H)X080608-MF		ONHX080608-W	
		vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)
P	NCM535	150~300	0.10~0.35	200~300	0.05~0.30	200~300	0.05~0.20	150~300	0.10~0.40	200~300	0.05~0.35	200~300	0.05~0.25
P	PC3700	150~300	0.10~0.35	200~300	0.05~0.30	200~300	0.05~0.20	150~300	0.10~0.40	200~300	0.05~0.35	200~300	0.05~0.25
M	PC9530	120~180	0.10~0.35	100~180	0.05~0.30	100~180	0.05~0.20	120~180	0.10~0.40	100~180	0.05~0.35	100~180	0.05~0.25
K	PC6100	150~300	0.10~0.40	150~300	0.08~0.35	150~300	0.05~0.25	150~300	0.10~0.45	150~300	0.08~0.40	150~300	0.05~0.30

RM16AC(M)6000



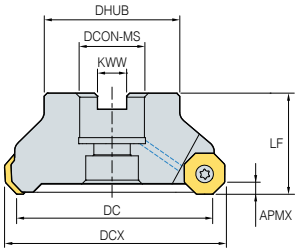


Fig. 1

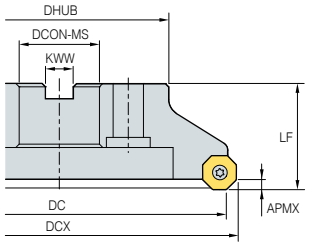


Fig. 2

KAPR 45°

• GAMP : −6°
• GAMF : −6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM16ACM	6063HR-M	●	5	63	72.849	49	22	10.4	40	4	0.6	1
RM16AC (RM16ACM)	6080HR-M	● (●)	6	80	89.772	57	25.4(27)	9.5(12.4)	50	4	1.2	1
	6100HR-M	● (●)	7	100	109.845	67	31.75(32)	12.7(14.4)	63	4	1.9	1
	6125HR-M	● (●)	8	125	134.843	87	38.1(40)	15.9(16.4)	63	4	3.5	1
	6160R-M		10	160	169.842	107	50.8(40)	19(16.4)	63	4	4.3	2
	6200R-M		12	200	209.841	130	47.625(60)	25.4(25.7)	63	4	6.1	2
	6250R-M		15	250	259.561	180	47.625(60)	25.4(25.7)	63	4	11.8	2
	6315R-M		20	315	324.561	240	47.625(60)	25.4(25.7)	63	4	19.1	2
	6400R-M		26	400	409.561	260	47.625(60)	25.4(25.7)	80	4	33	2

( )Metric size, ● : Stock item

Available inserts

ONHX-MF	ONHX-ML	ONHX-MM	ONHX-W	ONHX-MA	ONMX-MF	ONMX-MM
						

	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ONHX	060608-MM										●			●	●				B15
	060608-MF										●			●	●				
	060608-ML													●	●				
	060608-MA																	●	
	060608-W										●	●		●					
	0606ANN-MM										●			●	●				
	0606ANN-MF										●			●	●				
ONMX	060608-MM					●				●	●		●	●	●				
	060608-MF					●					●			●	●				
	0606ANN-MM					●				●	●			●	●				
	0606ANN-MF					●					●	●		●	●				

Available arbors

	Designation	Available arbors	
		RM16AC	RM16ACM
RM16AC (RM16ACM)	6063HR-M		BT□□-FMC22-□□
	6080HR-M	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	6100HR-M	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	6125HR-M	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	6160R-M	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	6200R-M	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	6250R-M		
	6315R-M		
	6400R-M		

Parts

Specification	Screw	Wrench
Ø63~Ø400	FTGA0513	TW20-100

Available inserts **B15** Available arbors and bolt **E94 ~ E96**

RM16AC(M)8000



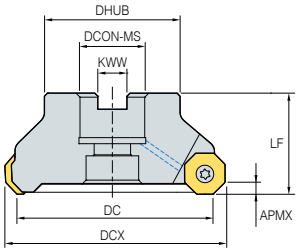


Fig. 1

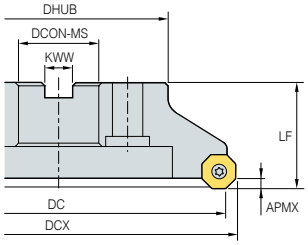


Fig. 2

KAPR 45°

• GAMP : –6°
• GAMF : –6°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
RM16ACM	8063HR-M	●	5	63	72.849	49	22	10.4	40	5.5	0.6	1
RM16AC (RM16ACM)	8080HR-M	● (●)	6	80	89.772	57	25.4(27)	9.5(12.4)	50	5.5	1.2	1
	8100HR-M	(●)	7	100	109.845	67	31.75(32)	12.7(14.4)	63	5.5	1.9	1
	8125HR-M	● (●)	8	125	134.843	87	38.1(40)	15.9(16.4)	63	5.5	3.5	1
	8160R-M	● (●)	10	160	169.842	107	50.8(40)	19(16.4)	63	5.5	4.3	2
	8200R-M	(●)	12	200	209.841	130	47.625(60)	25.4(25.7)	63	5.5	6.1	2
	8250R-M		14	250	259.561	180	47.625(60)	25.4(25.7)	63	5.5	11.8	2
	8315R-M		18	315	324.561	240	47.625(60)	25.4(25.7)	63	5.5	19.1	2
	8400R-M		24	400	409.561	260	47.625(60)	25.4(25.7)	80	5.5	33	2

( )Metric size, ● : Stock item

Available inserts

ONHX-MF | ONHX-ML | ONHX-MM | ONHX-W | ONHX-MA | ONMX-MF | ONMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ONHX	080608-MM										●			●	●				B15
	080608-MF										●			●	●				
	080608-ML													●	●				
	080608-MA																	●	
	080608-W										●			●					
	0806ANN-MM										●			●	●				
	0806ANN-MF										●			●	●				
ONMX	080608-MM					●				●	●	●		●	●				
	080608-MF					●					●			●	●				
	0806ANN-MM					●					●	●		●	●				
	0806ANN-MF					●				●	●			●	●				

Available arbors

	Designation	Available arbors	
		RM16AC	RM16ACM
RM16AC (RM16ACM)	8063HR-M	-	BT□□-FMC22-□□
	8080HR-M	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	8100HR-M	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	8125HR-M	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	8160R-M	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	8200R-M	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	8250R-M		
	8315R-M		
	8400R-M		

Parts

Specification	Screw	Wrench
Ø63~Ø400	FTGA0513	TW20-100

Available inserts **B15** Available arbors and bolt **E94 ~ E96**

Rich Mill RMR

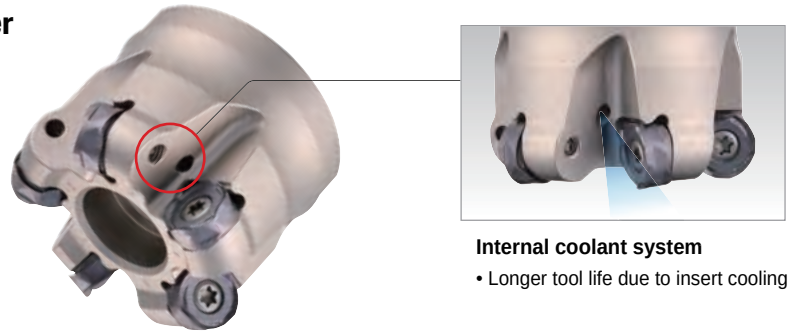
Features

- Improved machining stability with the combination of the reversal positive structure preventing rotation and wide upper and lower clamping sides.
- Helix cutting edge and sharp chip breaker realize smooth cutting.
- Wide minor cutting edge and optimized holder angle enhance high surface finish.

Features of insert



Features of cutter



Internal coolant system

- Longer tool life due to insert cooling

Recommended grade and cutting dege

Type	Recommended grade and cutting dege by workpiece					
	P		M		K	
	C/B	Grade	C/B	Grade	C/B	Grade
1st	MM	PC3700	ML	PC9540	MM	PC6100
2nd	MM	PC5300	MM	PC9540	MM	PC5300

Rich Mill RMR

Recommended cutting conditions

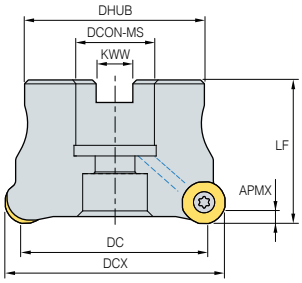
Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Wear resistance ← → Toughness						ML/MM
						Grade	C/B		Grade	C/B		
ISO	Workpiece material	KS	ISO			PC3700	ML	MM	PC5300	ML	MM	
						vc (m/min)	fz (mm/t)	fz (mm/t)	vc (m/min)	fz (mm/t)	fz (mm/t)	ap (mm)
P	Non-ferrous alloy steel Mn < 1.65	SM25C	C25	1500	125	100	0.5	0.5	80	0.5	0.5	1 ~ 3
						180	**0.3**	**0.3**	**140**	**0.3**	**0.3**	
						250	0.1	0.1	200	0.1	0.1	
		SM45C	C45	1700	190	80	0.5	0.5	80	0.5	0.5	
						180	**0.3**	**0.3**	**140**	**0.3**	**0.3**	
						250	0.1	0.1	200	0.1	0.1	
	Low alloy steel ≤ 5%	SCM440	42CrMo4	1700	175	80	0.5	0.5	80	0.5	0.5	
						160	**0.3**	**0.3**	**120**	**0.3**	**0.3**	
						230	0.1	0.1	190	0.1	0.1	
	High alloy steel > 5%	STD11 STD61	X40CrMoV5-1	1950	200	120	0.7	0.7	100	0.7	0.7	1
						140	**0.5**	**0.5**	**120**	**0.5**	**0.5**	
						280	0.3	0.3	210	0.3	0.3	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B	ML
						PC9540	ML	
ISO	Workpiece material	KS	ISO			vc (m/min)	fz (mm/t)	ap (mm)
M	Ferritic/ martensitic	STS405 STS430	X6CrAl13 X6Cr17	1800	200	120	0.3	1 ~ 3
						160	**0.15**	
						200	0.05	
		STS416 STS434	X12CrS13 X6CrMo17-1	2850	330	100	0.3	
						140	**0.15**	
						180	0.05	
		STS403 STS410	X12Cr13	2350	330	100	0.3	
						140	**0.15**	
						180	0.05	
	Austenite	STS304 STS316	X5CrNI18-9, X2CrNI18-9 X5CrNiMo17-12-2 XCrNiMo17-12-3	2000	180	90	0.3	
						120	**0.15**	
						150	0.05	
	Austenitic/ ferritic (Duplex)	F51	-	2450	260	60	0.3	
						90	**0.15**	
						120	0.1	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Wear resistance ← → Toughness						ML/MM
						Grade	C/B		Grade	C/B		
ISO	Workpiece material	KS	ISO			PC6100	ML	MM	PC5300	ML	MM	
						vc (m/min)	fz (mm/t)	fz (mm/t)	vc (m/min)	fz (mm/t)	fz (mm/t)	ap (mm)
K	Gray cast iron	GC200	200	900	180	140	0.25	0.3	120	0.25	0.3	1 ~ 3
						180	**0.2**	**0.2**	**160**	**0.2**	**0.2**	
						230	0.1	0.1	200	0.1	0.1	
	Ductile cast iron	GCD500	500-7	870	155	120	0.25	0.3	110	0.25	0.3	
						160	**0.2**	**0.2**	**145**	**0.2**	**0.2**	
						200	0.1	0.1	180	0.1	0.1	

RMRC(M)-RN12







- AR: −7°
- RR: −13°

(mm)

	Designation	Stock	CICT	DCX	DC	APMX	DHUB	DCON-MS	LF	kg
RMRCM	050R-22-5-RN12	●	5	50	40.4	3.5	42	22	40	0.28
	050R-22-6-RN12	●	6	50	40.4	3.5	42	22	40	0.29
	063R-22-6-RN12	●	6	63	53.4	3.5	42	22	40	0.45
	063R-22-7-RN12	●	7	63	53.4	3.5	42	22	40	0.46
	080R-27-6-RN12	●	6	80	70.4	3.5	60	27	50	0.83
	080R-27-8-RN12	●	8	80	70.4	3.5	60	27	50	0.82
	100R-32-7-RN12	●	7	100	90.4	3.5	70	32	63	1.67
	100R-32-9-RN12	●	9	100	90.4	3.5	70	32	63	1.67
	125R-40-10-RN12	●	10	125	115.4	3.5	90	40	63	2.82
	125R-40-12-RN12	●	12	125	115.4	3.5	90	40	63	2.83
RMRC	080R-25.4-6-RN12	●	6	80	70.4	3.5	60	25.4	50	0.85
	080R-25.4-8-RN12	●	8	80	70.4	3.5	60	25.4	50	0.85
	100R-31.75-7-RN12	●	7	100	90.4	3.5	70	31.75	63	1.71
	100R-31.75-9-RN12	●	9	100	90.4	3.5	70	31.75	63	1.71
	125R-38.1-10-RN12	●	10	125	115.4	3.5	90	38.1	63	2.88
	125R-38.1-12-RN12	●	12	125	115.4	3.5	90	38.1	63	2.88

● : Stock item

Available inserts

RNMX-ML



RNMX-MM



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC5300	PC6100	PC9530	PC9540	ST30A	G10	H01	
RNMX	1204M0E-ML									●	●			●				B17
	1204M0S-MM									●	●	●						

Available arbors

	Designation	DCON-MS	Available arbors
RMRCM	050R-22-□-RN12	22	BT□□-FMC22-□□
	063R-22-□-RN12		
	080R-27-□-RN12	27	BT□□-FMC27-□□
	100R-32-□-RN12	32	BT□□-FMC32-□□
	125R-40-□-RN12	40	BT□□-FMC40-□□

	Designation	DCON-MS	Available arbors
RMRC	080R-25.4-□-RN12	25.4	BT□□-FMA25.4-□□
	100R-31.75-□-RN12	31.75	BT□□-FMA31.75-□□
	125R-38.1-□-RN12	38.1	BT□□-FMA38.1-□□

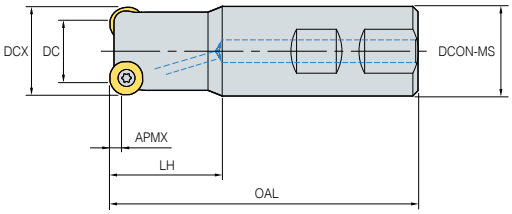
Parts

Specification	Screw	Wrench
Ø50~Ø125	FTNA0411-A	TW15S

Available inserts **B17** Available arbors and bolt **E96**

RMRS-RN12







- AR: −7°
- RR: −15°~−13°

(mm)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	kg
RMRS	032R-2W32-110-RN12	●	2	22.4	32	32	40	110	3.5	0.6
	032R-3W32-110-RN12	●	3	22.4	32	32	40	110	3.5	0.6
	032R-2C32-200-RN12	●	2	22.4	32	32	40	200	3.5	1.1
	032R-3C32-200-RN12	●	3	22.4	32	32	40	200	3.5	1.1
	040R-3W32-110-RN12	●	3	30.4	40	32	40	110	3.5	0.6
	040R-4W32-110-RN12	●	4	30.4	40	32	40	110	3.5	0.6
	040R-3C32-200-RN12	●	3	30.4	40	32	40	200	3.5	1.2
	040R-4C32-200-RN12	●	4	30.4	40	32	40	200	3.5	1.2
	050R-5W40-120-RN12		5	40.4	50	40	40	120	3.5	1.1
	050R-6W40-120-RN12		6	40.4	50	40	40	120	3.5	1.1
	050R-5C42-300-RN12		5	40.4	50	42	40	300	3.5	3.1
	050R-6C42-300-RN12		6	40.4	50	42	40	300	3.5	3.1
	063R-6W40-130-RN12		6	53.4	63	40	50	130	3.5	1.4
	063R-7W40-130-RN12		7	53.4	63	40	50	130	3.5	1.4
	063R-6C42-300-RN12		6	53.4	63	42	50	300	3.5	3.3
	063R-7C42-300-RN12		7	53.4	63	42	50	300	3.5	3.3

● : Stock item

Available inserts

RNMX-ML



RNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC5300	PC6100	PC9530	PC9540	ST30A	G10	H01	
RNMX	1204M0E-ML													●				B17
	1204M0S-MM									●	●	●						

Parts

Specification	Screw	Wrench
Ø32~Ø63	FTNA0411-A	TW15S

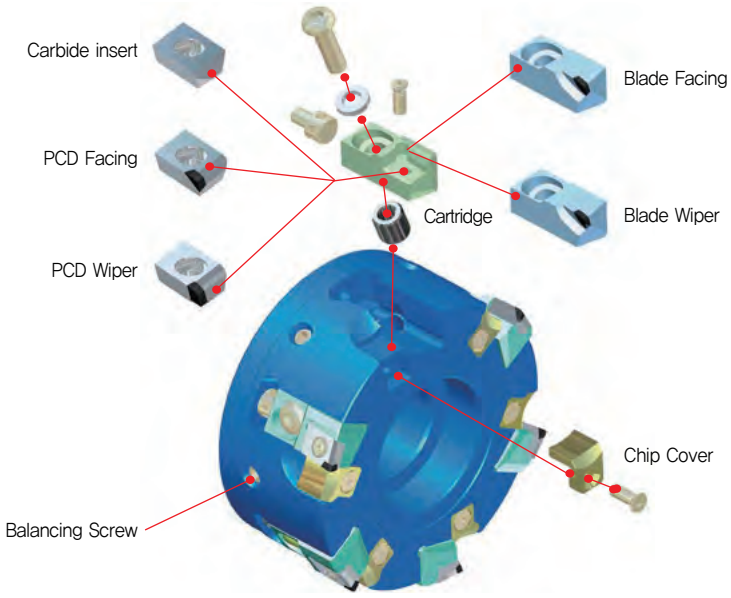
Available inserts **B17**

Lighter tool ensures excellent performance in high speed machining

Aero Mill

- Excellent machining performance can be acquired especially at the high speeds due to the light aluminum cutter body that is 50% of the weight of a conventional steel cutter body
- High speed milling cutter for precise machining
- Special aluminum material and high rake angle of insert provide rigid & stable machining
- High tolerance surface finishes can be acquired due to the low cutting load provided from the high rake angle
- Balanceable up to G2.5 level

Assembly structure of cutter



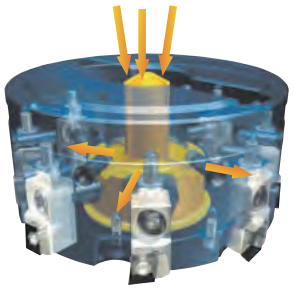
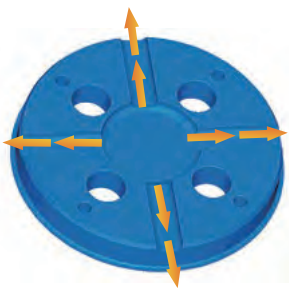
Features of cutter

- Increased stability based on cartridge type application
- Both insert and blade can be available in the same cutter
- Finishing to roughing can be possible because of wide chip pocket space
- Roughing and finishing available with carbide, PCD insert application
- Cutter breakage can be solved by making use of the chip cover

Coolant through system

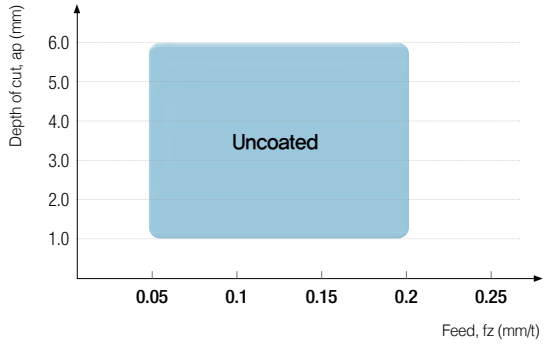
- Specially designed coolant through system provides coolant from the center of the cutter to the insert enhances the cooling rate and chip evacuation.
- Direction of coolant has designed to focus directly to the insert cutting-edge to maximize chip evacuation and improve tool life
- Coolant bolt is applicable up to Ø160, coolant cover is applicable from Ø200 and over.

Coolant devices are sold separately for through coolant system, through coolant arbor has to be used

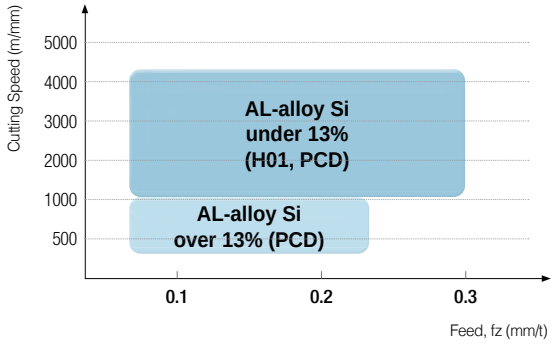
Coolant Bolt	Coolant Cover
	
Ø80~Ø160	For Ø200 and over

Aero Mill

Application range

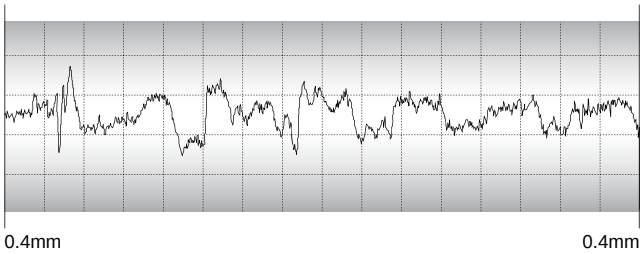


Recommended cutting conditions



Surface finish

Workpiece	A6061
Cutting condition	vc = 1570m/min, vf = 3000mm/min, S = 5000rpm, fz = 0.1mm/t, ap = 0.5mm, Machine = PCV620
Tools	**Cutter** : APD100R-A6Z(6Flutes) **Insert** : CDEW1204R-XCF(H01)



- Rmax : 2.1㎛
- Rz : 1.6㎛
- Ra : 0.3㎛

Max. revolution

Diameter (mm)	Max. revolution (rpm)
Ø80	16,000
Ø100	15,000
Ø125	12,500
Ø160	10,000
Ø200	8,000
Ø250	6,500
Ø315	5,000

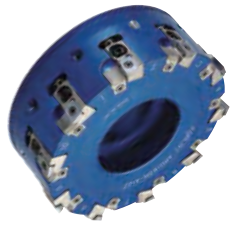
Coolant parts

Diameter (mm)	Type	Designation		Shape	Note
Ø80	Coolant Bolt	CBP080-IN/MM			Extra charge
Ø100	Coolant Bolt	CBP100-IN	CBP100-MM-1		
Ø125	Coolant Bolt	CBP125-IN	CBP125-MM-1		
Ø160	Coolant Bolt	CBP160-IN	CBP160-MM		
Ø200	Coolant Cover	CCP200			
Ø250	Coolant Cover	CCP250			
Ø315	Coolant Cover	CCP315			

• Choice: CBP100-IN:APD type, General for unmarked item

APD(M)-A

Cartridge + insert



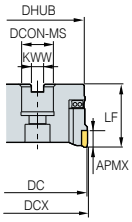


Fig. 1

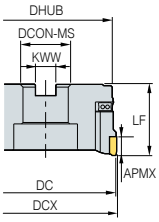


Fig. 2

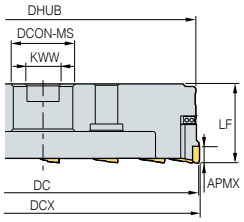


Fig. 3

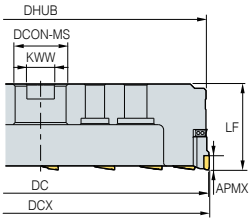


Fig. 4



KAPR 90°

- GAMP : 6°
- GAMF : 5°~9°

(mm)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
APD (APDM)	080R/L-A6Z	● (●)		6	80	80	73	25.4(27)	9.5(12.4)	50	10	0.6	1
	100R/L-A6Z	● (●)		6	100	100	80	31.75(32)	12.7(14.4)	50	10	0.9	2
	125R/L-A8Z	● (●)		8	125	125	100	38.1(40)	15.9(16.4)	63	10	1.7	2
	160R/L-A10Z			10	160	160	134	50.8(40)	19.1(16.4)	63	10	2.8	2
	200R/L-A12Z			12	200	200	174	47.625(60)	25.4(25.7)	63	10	3.7	3
	250R/L-A16Z			16	250	250	224	47.625(60)	25.4(25.7)	63	10	6.0	3
	315R/L-A18Z			18	315	315	280	47.625(60)	25.4(25.7)	80	10	11.1	4

( )Metric size, ● : Stock item

Available inserts

CDEW-XCF CDEW-XAF,NAF CDEW-XAW,NAW





	Designation	Uncoated H01	Uncoated G10	Uncoated ST30A	PCD DP200	Page
CDEW	1204R-XCF	●				B7
	1204L-XCF					
	1204R-XAF				●	
	1204L-XAF					
	1204R-NAF				●	
	1204L-NAF					
	1204R-XAW				●	
	1204L-XAW					
	1204R-NAW				●	
	1204L-NAW					

Available arbors

Designation		General arbors	NC arbors
APD (APDM)	080R/L	NT*□□(M/U)-FMA25.4-25	BT**□□-FMA25.4
	100R/L	NT*□□(M/U)-FMA31.75-□□	BT**□□-FMA31.75
	125R/L	NT*□□(M/U)-FMA38.1-□□	BT**□□-FMA38.1
	160R/L	NT*□□(M/U)-FMA50.8-□□	BT**□□-FMA50.8
	200R/L	NT*□□(M/U)-FMA47.625-25, KCP-8***	BT**□□-FMA47.625-□□
	250R/L		
	315R/L	KCP-8***(Centering Plug)	-

*□□ -NT number **□□ -BT number ***Over milling 5

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
Aluminum	1,000~4,000 500~2,500	0.05~0.30 0.05~0.20	DP200 H01

Parts

Specification	Cartridge	Chip cover	Chip cover Screw	Insert screw	Adjust screw	Cartridge Screw	Wrench for insert	Wrench for cartridge
Ø80~Ø315	LAPDR/L-AJ	CAPDR/L-AJ	PTMA0411	FTNA0411	AZ0514	BHA0619-NYLOK	TW15S	HW50

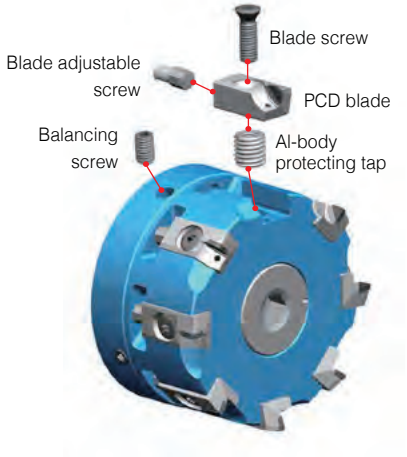
Available inserts **B7** Available arbors and bolt **E94**

High speed milling tool with PCD blade

Aero Mill Plus

- Improve tool life up to 20% with a coolant system that enables direct spray cooling to cutting blades
- Enable high feed milling by increasing the number of cutting blades by 20% through a simply structured coupling method for clamps
- Reduces set up time up to 40% by applying a spanner adjustment method
- Introduce an aluminum cutter body to provide a superior cutting performance during high speed millin

Assembly structure of cutter



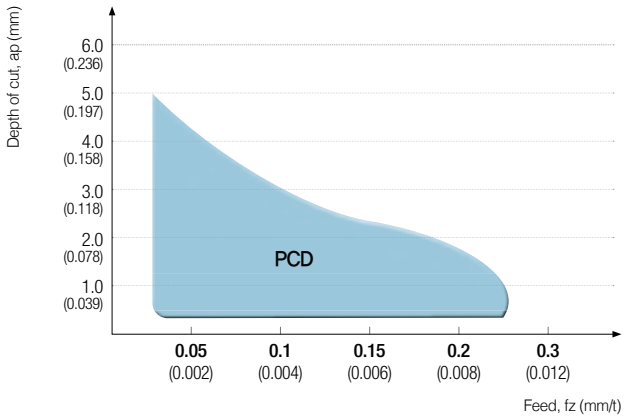
Features of cutter

- Prevent overload to the spindle bearings through weight reduction of the Aℓ alloy body and enable high-speed processing
- Provide PCD Blade-dedicated cutter design to offer stable tool life and increase of applied blades
- Improve the blade life by applying a coolant system that enables direct spray cooling to cutting blades
- Adopt a clamping method with simple structure without set screw
- Reduce weight and apply a coolant bolt that is exclusively used for Aero-Mill Plus that applies coolant to remove internal chip

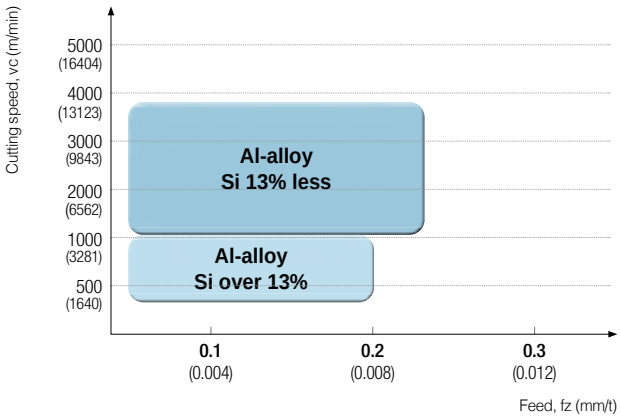
Code system

A	P	D	(M)	300	R	-	PB	12Z
Aero Mill	KAPR 90°	Relief Angle	Inch type: None Metric type: M	Diameter (Ø)	Hand (R/L)		Aero Mill-Plus blade type	Number of tooth

Application range



Recommended cutting speed



Max. RPM

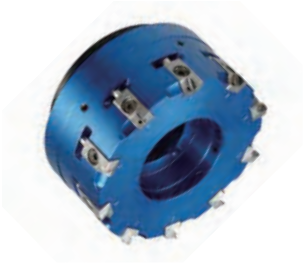
Diameter (mm)	Max. revolution (rpm)
Ø80	20,000
Ø100	18,000
Ø125	16,000
Ø160	13,000
Ø200	10,000
Ø250	8,000
Ø315	7,000

Coolant parts

Diameter (mm)	Type	inch/mm	Designation	Picture	Material	Note
Ø80	Coolant bolt	inch, mm	CB12-AMaP80		Steel	Included
Ø100		inch	CB16-AMP100			
		mm	CB16-AMP100M			
Ø125		inch	CB20-AMP125			
		mm	CB20-AMP125M			
Ø160		inch	CB24-AMP160			
		mm	CB20-AMP125M			
Ø200	Coolant cover	inch, mm	CCV-AMP200		Aluminum	Extra charge
Ø250			CCV-AMP250			
Ø315			CCV-AMP315			

APD(M)-PB

Blade



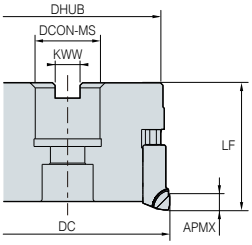


Fig. 1

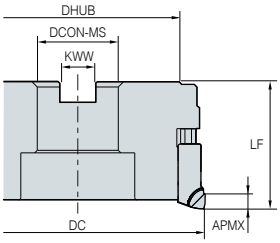


Fig. 2

KAPR 90°

- GAMP : 6°
- GAMF : −4°~1°

(mm)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
APD (APDM)	080R/L-PB6Z	(●)		6	80	80	50	25.4(27)	9.5(12.4)	50	5	0.6	1
	080R/L-PB8Z	(●)		8	80	80	50	25.4(27)	9.5(12.4)	50	5	0.6	1
	100R/L-PB6Z	(●)		6	100	100	60	31.75(32)	12.7(14.4)	50	5	0.9	2
	100R/L-PB8Z	(●)		8	100	100	60	31.75(32)	12.7(14.4)	50	5	0.9	2
	125R/L-PB8Z	(●)		8	125	125	80	38.1(40)	15.9(16.4)	63	5	1.9	2
	125R/L-PB10Z	(●)		10	125	125	80	38.1(40)	15.9(16.4)	63	5	1.9	2
	160R/L-PB10Z	(●)		10	160	160	100	50.8(40)	19.1(16.4)	63	5	3.3	2
	160R/L-PB12Z	(●)		12	160	160	100	50.8(40)	19.1(16.4)	63	5	3.3	2

( )Metric size, ● : Stock item

Available blades

BAMPR-XAF BAMPR-XAW BAMPR-XAWR



	Designation	PCD DP150	Page
BAMPR	XAF		B7
	XAW	●	
	XAWR	●	

Available arbors

	Designation	NC arbors
APD-PB (APDM-PB)	080R/L-PB□□Z	BT□□-FMA25.4(FMC27)-□□
	100R/L-PB□□Z	BT□□-FMA31.75(FMC32)-□□
	125R/L-PB□□Z	BT□□-FMA38.1(FMB40)-□□
	160R/L-PB□□Z	BT□□-FMA50.8(FMB/FMC40)-□□

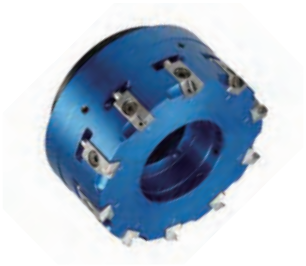
Parts

Specification	Blade screw	Blade adjustable screw	Al-body protecting tap	Balancing screw	Wrench for insert	Wrench for cartridge
Ø80~Ø160	ETKA0620	AZ0514-SPN6	UZD1010	KHE0610	SPN-6	TW25-100

Available inserts **B7** Available arbors and bolt **E94**

APD(M)-PB

Blade



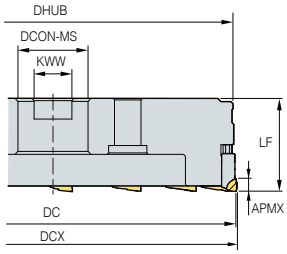


Fig. 1

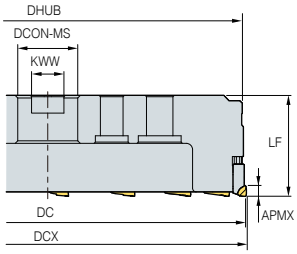


Fig. 2

KAPR 90°

- GAMP : −6°
- GAMF : −39°~−16°

(mm)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
APD (APDM)	200R/L-PB12Z			12	26	200	197	47.625(60)	25.4(25.7)	14	40	63	1
	250R/L-PB16Z			16	32	250	247	47.625(60)	25.4(25.7)	14	40	63	1
	315R/L-PB18Z			18	42	315	312	47.625(60)	25.4(25.7)	14	40	63	2

( )Metric size, ● : Stock item

Available blades

BAMPR-XAF BAMPR-XAW BAMPR-XAWR



	Designation	PCD DP150	Page
BAMPR	XAF		B7
	XAW	●	
	XAWR	●	

Available arbors

	Designation	NC arbors
APD-PB (APDM-PB)	200R/L-PB□□Z	BT□□-FMA47.625(FMB60)-□□
	250R/L-PB□□Z	
	315R/L-PB□□Z	

Parts

Specification	Blade screw	Blade adjustable screw	Al-body protecting tap	Balancing screw	Wrench for insert	Wrench for cartridge
Ø200~Ø315	ETKA0620	AZ0514-SPN6	UZD1010	KHE0610	SPN-6	TW25-100

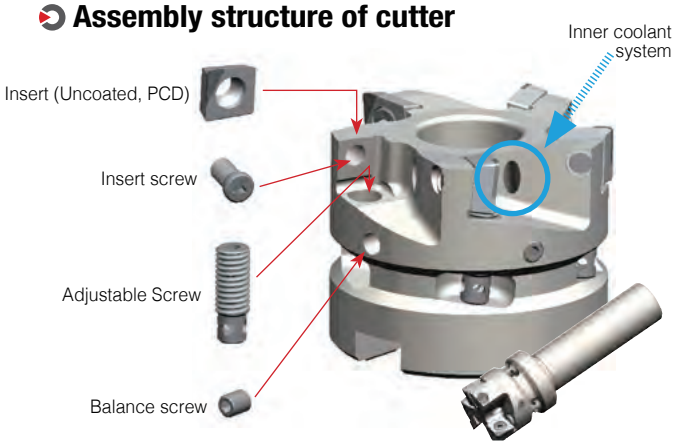
Available inserts **B7** Available arbors and bolt **E94**

Good performance in small-medium size of operations

Aero Mill Mini

- Good performance in small-medium size of operations
- Good duration of the steel body
- Choice of Uncoated carbide/PCD grades can be applied to various kind of work material
- Balance level: G2.5

Assembly structure of cutter



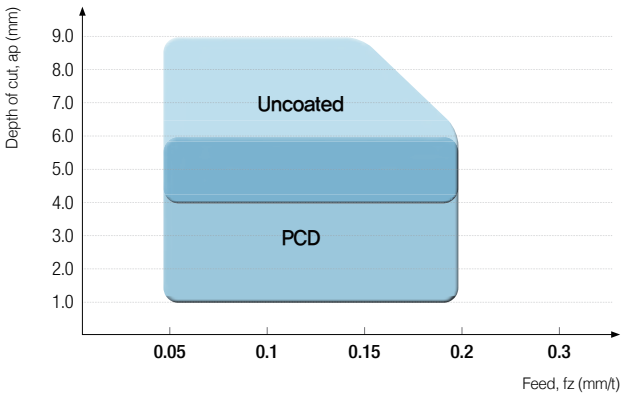
Features of cutter

- Simple and strong design of Screw-on clamping.
- Adjustable range: ± 0.1 mm Max
- Adjustable step: Min. 2 micro meter
- Wide chip pocket area for Roughing and Aluminum machining.
- Inner coolant system

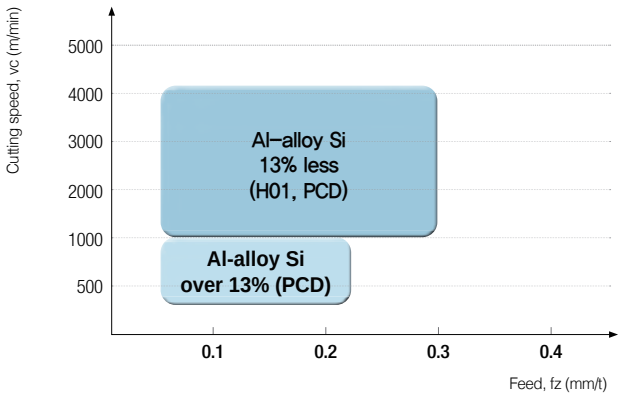
Code system

M	A	P	D	(S)	040	H	R	-	Z4
Mini	Aero Mill	Cutting Edge angle	Insert Clearance Angle	Unmarked: Cutter S: Shank	Diameter (Ø)	H: Coolant	Hand (R/L)		Number of tooth

Application range



Recommended cutting conditions

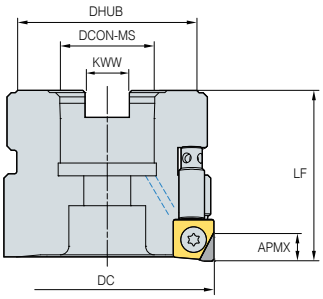


Max. RPM

Diameter(mm)	Max. RPM(rpm)
Ø32	26,000
Ø40	24,500
Ø50	22,000
Ø63	20,000

MAPD000HR/L-Z0





KAPR 90°

• GAMP : 6°
• GAMF : −1°~12°

※ PCD ap:5mm

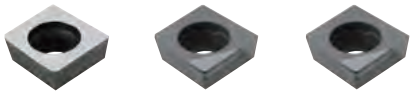
(mm)

	Designation	Stock R	Stock L	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
MAPD	040HR/L-Z4	●		4	40	34	16	8.4	40	9.5	0.2
	050HR/L-Z5	●		5	50	42	22	10.4	40	9.5	0.3
	063HR/L-Z6	●		6	63	42	22	10.4	40	9.5	0.6

● : Stock item

Available inserts

SNEW SNEW-XAF SNEW-NAF



Strengthened edge

	Designation	Uncoated H01	Uncoated G10	Uncoated ST30A	Uncoated ST20E	PCD DP200	Page
SNEW	09T3ADFR	●					B24
	09T3ADTR-XAF					●	
	09T3ADTR-XAW					●	
	09T3ADTR-NAF					●	
	09T3ADTR-NAW					●	

Available arbors

	Designation	NC arbors
MAPD	040HR/L-Z4	BT**□□-FMC16-□□ BT**□□-FMC22-□□ BT**□□-FMC22-□□
	050HR/L-Z5	
	063HR/L-Z6	

Recommended cutting conditions

Workpiece	cutting condition vc(m/min)	cutting condition fz(mm/t)	Grade
Aluminum	1,000~4,000 500~2,500	0.05~0.30 0.05~0.20	**DP200** **H01**

Coolant bolt (Not included)

Designation	Applicable cutters	Available cutters(Ø)
CB0525	**MAPD040HR/L-Z4**	Ø40
CB1025	**MAPD050HR/L-Z5** **MAPD063HR/L-Z6**	Ø50 Ø63

• For detailed information on the coolant bolt, please refer to our catalog

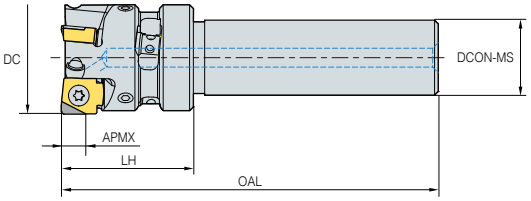
Parts

Specification	Insert screw	Adjust screw	Balance screw	Wrench for insert	Adjust wrench
Ø32~Ø63	FTKA0408	AHX0617F-NYLOK	KHD0405	TW15S	HW20L

Available inserts **B24** Available arbors and bolt **E96**

MAPDS000HR/L-Z0





KAPR 90°

- GAMP : 6°
- GAMF : −4°~1°

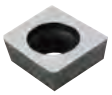
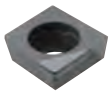
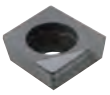
※ PCD ap:5mm

(mm)

	Designation	Stock R	Stock L	CICT	DC	DCON-MS	LH	OAL	APMX	kg
MAPDS	032HR/L-Z3	●		3	32	20	35	100	9.5	0.3
	040HR/L-Z4	●		4	40	20	35	100	9.5	0.4

● : Stock item

Available inserts

	SNEW	SNEW-XAF	SNEW-NAF
			
			Strengthened edge

	Designation	Uncoated H01	Uncoated G10	Uncoated ST30A	PCD DP200	Page
SNEW	09T3ADFR	●				B24
	09T3ADTR-XAF				●	
	09T3ADTR-XAW				●	
	09T3ADTR-NAF				●	
	09T3ADTR-NAW				●	

Parts

Specification	Insert screw	Adjust screw	Balance screw	Wrench for insert	Adjust wrench
Ø32~Ø63	FTKA0408	AHX0617F-NYLOK	KHD0405	TW15S	HW20L

Available inserts **B24**

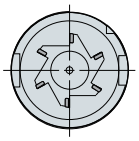
PCD Face Cutter

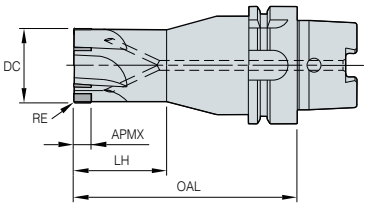
Code system

PDF	6	032	HSK63A
PCD Face cutter	Tooth	Diameter	Shank type

PCD Face Cutter









KAPR 90°

- GAMP : 6°
- GAMF : 5°~9°

(mm)

	Designation	Stock	CICT	DC	RE	APMX	LH	OAL
PDF	4032-HSK50A		4	32	0.5	8	50	120
	4040-HSK50A		4	40	0.5	8	50	120
	4032-HSK63A		4	32	0.5	8	50	120
	4040-HSK63A		4	40	0.5	8	50	120
	4050-HSK63A		4	50	0.5	8	50	120
	6063-HSK63A		4	63	0.5	12	-	100
	6063-HSK100A		4	63	0.5	12	-	100

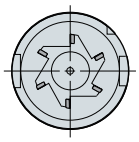
● : Stock item

Recommended cutting conditions

Workpiece	vc(m/min)	fz(mm/t)	ap(mm)
Al, Brass, Alloy	200~2,000	0.02~0.1	0.05~4.0

Special PCD Order Sheet





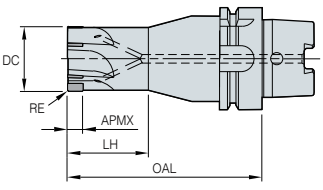


Fig. 1

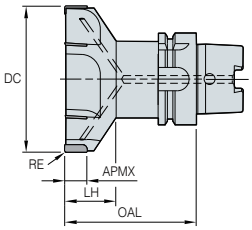


Fig. 2

Designation	Fig.	tooth	Dimension (mm)					
			DC	RE	APMX	LH	OAL	Shank spec.
PDF								

Shoulder milling tool for high helix

Alpha Mill-X

- High helix cutting edge realizes high speed and high feed machining
  (15% higher speed than conventional tool's machining) and increases 20% higher productivity
- Highly precise cutting edge ensures high quality surface finish in milling

Code system

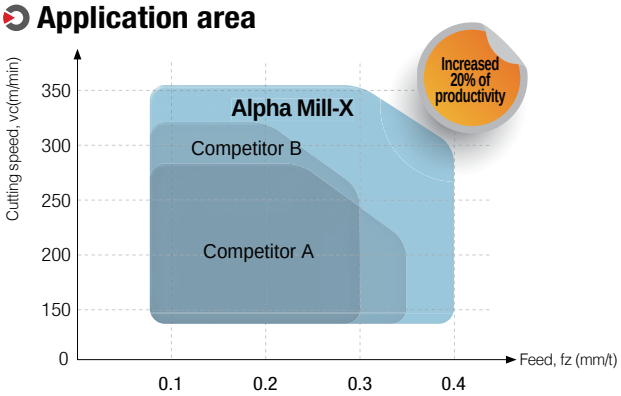
• Cutter

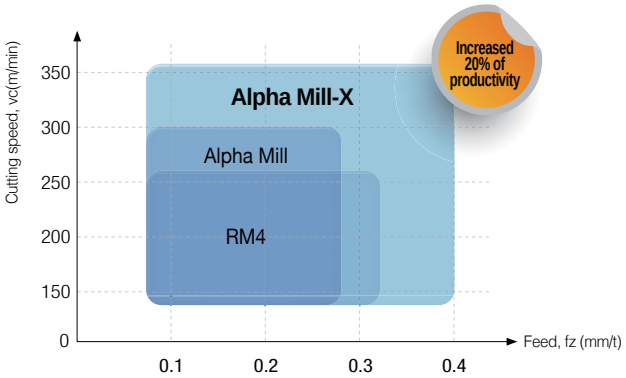
AMX	C	M	050	R	22	4	AD17
Alpha Mill-X	**Tool type** C : Cutter	**Arbor type** M : Metric A : Inch None : Asia	**Diameter** 050 : Ø50 mm	**Oil hole & Hand** R : With oil hole, Right-handed NR : Without oil hole, Right-handed	**Internal diameter** 22 : Ø22 mm	**No. of tooth** 4 : 4 teeth	**Available insert** AD17 : ADKT17 AD12 : ADKT12 AD10 : ADKT10

• Shank

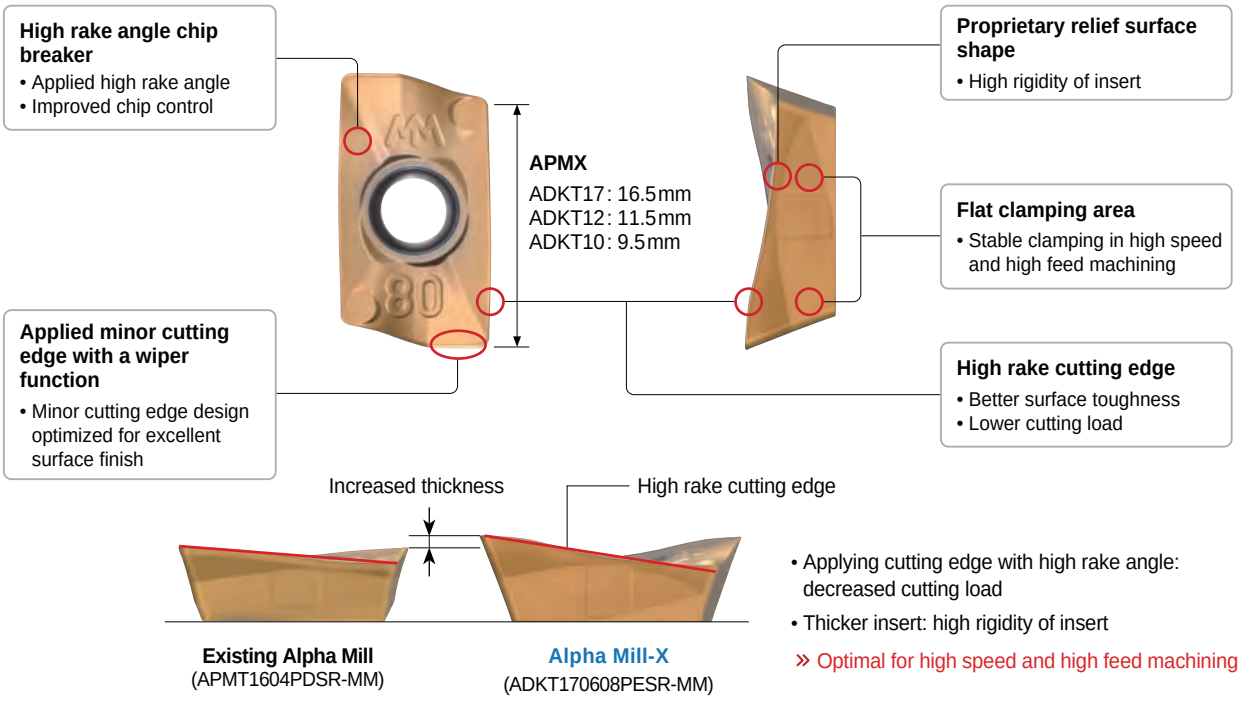
AMX	S	032	R	-	2	C	32	-	150	-	AD17
Alpha Mill-X	**Tool type** S : Shank	**Diameter** 032 : Ø32 mm	**Oil hole & Hand** R : With oil hole, Right-handed NR : Without oil hole, Right-handed		**No. of tooth** 2 : 2 teeth	**Shank type** C : Cylinder W : Weldon	**Shank diameter** 32 : Ø32 mm		**Overall length** 150 : 150 mm		**Available insert** AD17 : ADKT17 AD12 : ADKT12 AD10 : ADKT10

Application area





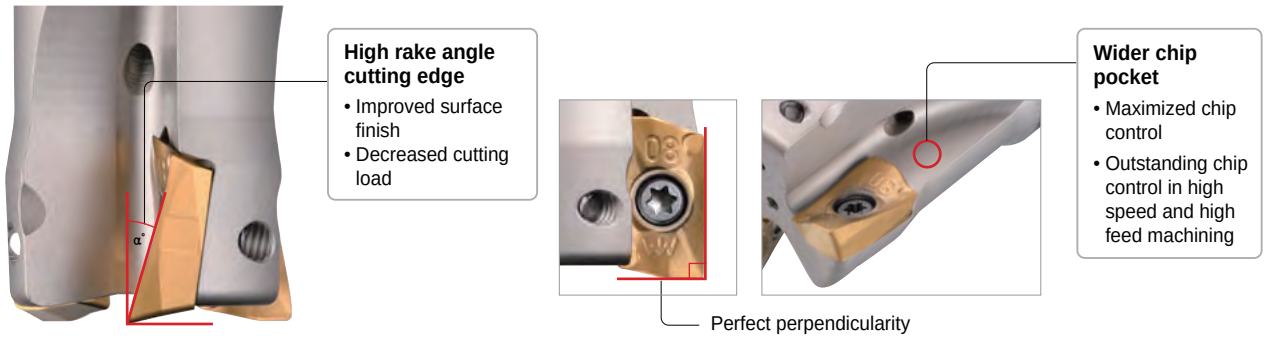
Features of insert



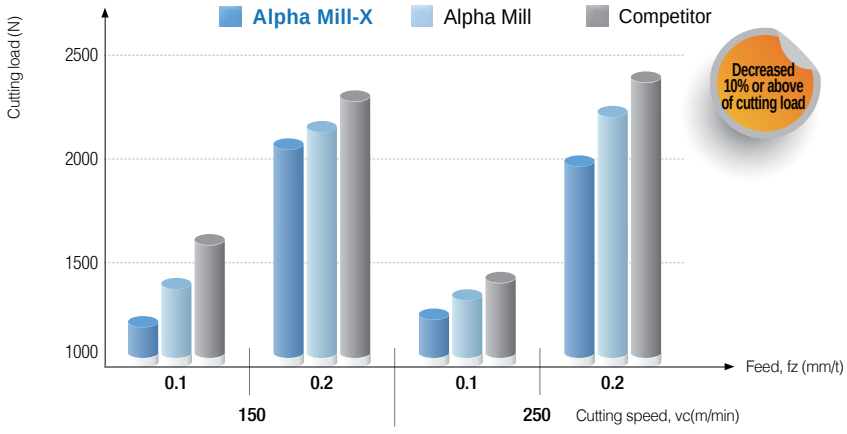
- Applying cutting edge with high rake angle: decreased cutting load
- Thicker insert: high rigidity of insert

» Optimal for high speed and high feed machining

Features of Cutter



Cutting load



Recommended cutting conditions

• In face machining and shouldering

Workpiece		Grade	Cutting speed vc (m/min)	Feed, fz (mm/t)		
				ADKT17	ADKT12	ADKT10
P	Steel	PC5300	150-240	0.3-0.05	0.25-0.05	0.2-0.05
		PC5400	130-210			
		PC3700	160-270			
		NCM535	250-350			
M	Stainless steel	PC5300	90-150	0.25-0.05	0.2-0.05	0.15-0.05
		PC5400	70-120			
		PC9540	50-120			
K	Cast iron	PC6100	150-200	0.35-0.08	0.3-0.08	0.25-0.08
		PC5300	120-200			
		NCM535	200-300			
S	HRSA	PC5300	40-70	0.2-0.05	0.15-0.05	0.1-0.05
		PC5400	30-50			

※ The above data refer to general cutting conditions and can be adjustable up to 350 m/min and 0.4 mm/t depending on user environment.

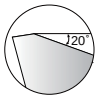
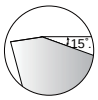
• In grooving, ramping and helical machining

Workpiece		Grade	Cutting speed vc (m/min)	Feed, fz (mm/t)		
				ADKT17	ADKT12	ADKT10
P	Steel	PC5300	150-240	0.15-0.05	0.15-0.05	0.15-0.05
		PC5400	130-210			
		PC3700	160-270			
		NCM535	250-350			
M	Stainless steel	PC5300	90-150	0.15-0.05	0.15-0.05	0.15-0.05
		PC5400	70-120			
		PC9540	50-120			
K	Cast iron	PC6100	150-250	0.2-0.08	0.2-0.08	0.2-0.08
		PC5300	120-200			
		NCM535	200-300			
S	HRSA	PC5300	40-70	0.15-0.05	0.15-0.05	0.1-0.05
		PC5400	30-50			

※ In deep grooving, set the ap under 5 mm and use coolant and air.

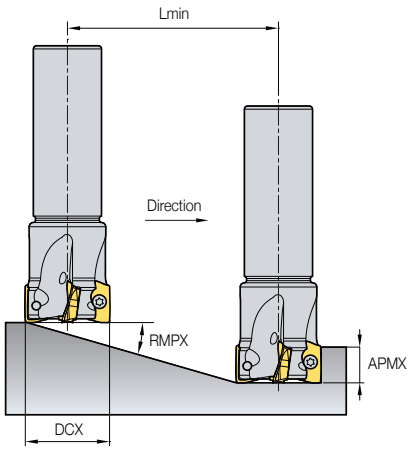
Recommended grades and chip breakers

(● : 1st Recommendation)

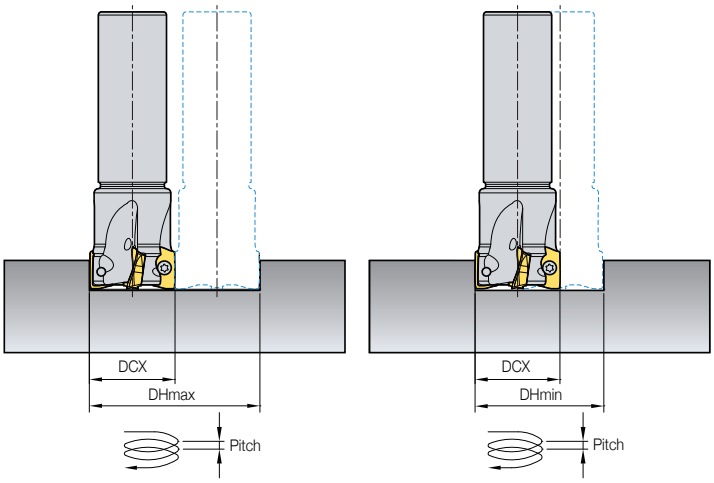
C/B	Cutting edge	P				M		K		N		S	
		Low carbon steel/ Mild steel		High carbon steel/ Alloy steel		Stainless steel		Cast iron		Non-ferrous metal		HRSA	
		C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
ML		-	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	-	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	●	● PC5300 ○ PC5400 ○ PC9540	-	● PC6100 ○ PC5300 ○ PC5400 ○ NCM535	-	-	●	● PC5300 ○ PC5400
MM		●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	-	● PC5300 ○ PC5400 ○ PC9540	●	● PC6100 ○ PC5300 ○ PC5400 ○ NCM535	-	-	-	● PC5300 ○ PC5400

Ramping and helical cutting

Ramping



Helical cutting



(mm)

Designation	DCX	APMX	Ramping		Blind hole helical cutting				Through hole helical cutting	
			RMPX	Lmin	DHmin	Max. pitch dmax	DHmax	Max. pitch dmax	DHmin	Max. pitch dmax
ADKT17	20	16.5	13	71	30	7.0	38	8.9	21	4.8
	25		8.0	117	40	5.7	48	6.8	31	4.3
	32		3.7	255	54	3.5	62	4.0	45	2.9
	33		3.6	262	56	3.5	64	4.1	47	2.9
	40		2.6	363	70	3.2	78	3.6	61	2.8
	50		1.9	497	90	3.0	98	3.3	81	2.7
	63		1.3	727	116	2.6	124	2.8	107	2.4
	80		1.1	859	150	2.9	158	3.0	141	2.7
	100		0.7	1350	190	2.3	198	2.4	181	2.2
	125		0.5	1891	240	2.1	248	2.2	231	2.0
ADKT12	18	11.5	7.0	98	29	3.6	34	4.2	23	2.8
	20		5.5	125	33	3.2	38	3.7	27	2.6
	25		3.5	196	43	2.7	48	3.0	37	2.3
	32		2.5	275	57	2.5	62	2.7	51	2.2
	33		2.4	286	59	2.5	64	2.7	53	2.2
	40		1.5	458	73	1.9	78	2.1	67	1.7
	50		1.2	573	93	2.0	98	2.1	87	1.8
	63		1.0	687	119	2.1	124	2.2	113	2.0
	80		0.7	982	153	1.9	158	1.9	147	1.8
ADKT10	16	9.5	4.5	121	28	2.2	31	2.5	24	1.9
	18		3.5	155	32	2.0	35	2.2	28	1.7
	20		3.0	181	36	1.9	39	2.1	32	1.7
	25		2.2	247	46	1.8	49	1.9	42	1.6
	32		1.5	363	60	1.6	63	1.7	56	1.5
	33		1.4	389	62	1.5	65	1.6	58	1.4
	40		1.2	454	76	1.6	79	1.7	72	1.5
	50		0.8	680	96	1.3	99	1.4	92	1.3
	63		0.6	907	122	1.3	125	1.3	118	1.2
	80		0.5	1089	156	1.4	159	1.4	152	1.3

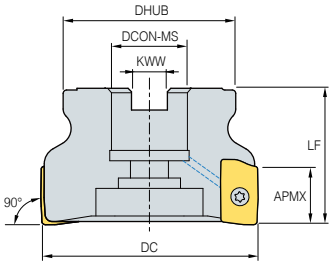
※ In ramping and helical machining, use coolant and air.

※ Lmin : Cutting length in machining with Min. rake angle
RPMX : Rake angle for ramping
ap : Depth of cut in axial direction

$$Lmin = \frac{APMX}{\tan(RMPX)} (mm)$$

AMXS-AD10/12





KAPR 90°

• GAMP : 8°
• GAMF : −10°~−3°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMXCM	040R-16-5-AD10	●	5	40	35	16	8.4	40	9.5	0.2
	040R-16-6-AD10	●	6	40	35	16	8.4	40	9.5	0.2
	050R-22-6-AD10	●	6	50	42	22	10.4	40	9.5	0.2
	050R-22-7-AD10	●	7	50	42	22	10.4	40	9.5	0.2
	063R-22-7-AD10	●	7	63	49	22	10.4	40	9.5	0.2
	063R-22-8-AD10	●	8	63	49	22	10.4	40	9.5	0.5
	080R-27-8-AD10	●	8	80	57	27	12.4	50	9.5	0.9
	080R-27-9-AD10	●	9	80	57	27	12.4	50	9.5	0.9
	040R-16-4-AD12	●	4	40	35	16	8.4	40	11.5	0.2
	040R-16-5-AD12	●	5	40	35	16	8.4	40	11.5	0.2
	050R-22-5-AD12	●	5	50	42	22	10.4	40	11.5	0.2
	050R-22-7-AD12	●	7	50	42	22	10.4	40	11.5	0.2
	063R-22-6-AD12	●	6	63	49	22	10.4	40	11.5	0.2
	063R-22-7-AD12	●	7	63	49	22	10.4	40	11.5	0.5
	080R-27-7-AD12	●	7	80	57	27	12.4	50	11.5	0.9
	080R-27-8-AD12	●	8	80	57	27	12.4	50	11.5	0.9

● : Stock item

Available inserts

ADKT-ML



ADKT-MM



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
10 type	ADKT	10T304PEER-ML					●				●	●		●	●	●			B4
		10T304PESR-MM					●				●	●		●	●	●			
		10T308PESR-MM													●	●			
		10T312PESR-MM														●			
12 type	ADKT	120408PESR-ML					●				●	●		●	●	●			
		120408PESR-MM					●				●	●		●	●	●			
		120412PESR-MM									●	●			●	●			
		120416PESR-MM									●	●			●	●			

Available arbors

	Designation	DCON-MS	Available arbors
AMXCM	040R-16-□-AD□□	16	BT□□-FMC16-□□
	050R-22-□-AD□□	22	BT□□-FMC22-□□

	Designation	DCON-MS	Available arbors
AMXCM	063R-22-□-AD□□	22	BT□□-FMC22-□□
	080R-27-□-AD□□	27	BT□□-FMC27-□□

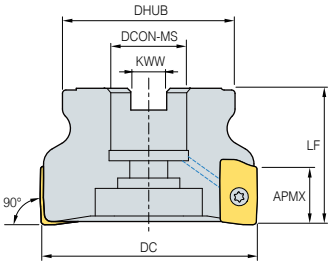
Parts

Specification	Screw	Wrench
Ø40~Ø80(10 type)	FTKA02555S	TW08S
Ø40~Ø80(12 type)	FTNA0306	TW08S

Available inserts **B4** Available arbors and bolt **E96**

AMXCM-AD17





KAPR 90°

- GAMP : 8°
- GAMF : −10°~−3°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMXCM	040R-16-3-AD17	●	3	40	35	16	8.4	40	16.5	0.2
	040R-16-4-AD17	●	4	40	35	16	8.4	40	16.5	0.2
	050R-22-4-AD17	●	4	50	42	22	10.4	40	16.5	0.2
	050R-22-5-AD17	●	5	50	42	22	10.4	40	16.5	0.2
	063R-22-5-AD17	●	5	63	49	22	10.4	40	16.5	0.4
	063R-22-6-AD17	●	6	63	49	22	10.4	40	16.5	0.5
	080R-27-6-AD17	●	6	80	57	27	12.4	50	16.5	0.9
	080R-27-7-AD17	●	7	80	57	27	12.4	50	16.5	0.9
	100R-32-8-AD17	●	8	100	70	32	14.4	63	16.5	1.8
	100R-32-10-AD17	●	10	100	70	32	14.4	63	16.5	1.7
	125R-40-8-AD17	●	8	125	90	40	16.4	63	16.5	2.9
	125R-40-10-AD17	●	10	125	90	40	16.4	63	16.5	4.8

● : Stock item

Available inserts

ADKT-ML



ADKT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
ADKT	170608PESR-ML					●				●	●		●	●	●			B4
	170604PESR-MM									●				●				
	170608PESR-MM					●				●	●		●	●	●			
	170616PESR-MM													●	●			
	170620PESR-MM													●	●			

Available arbors

	Designation	DCON-MS	Available arbors
AMXCM	040R-16-□-AD□□	16	BT□□-FMC16-□□
	050R-22-□-AD□□	22	BT□□-FMC22-□□
	063R-22-□-AD□□		

	Designation	DCON-MS	Available arbors
AMXCM	080R-27-□-AD□□	27	BT□□-FMC27-□□
	100R-32-□-AD□□	32	BT□□-FMC32-□□
	125R-40-□-AD□□	40	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø40~Ø125	FTKA0408	TW15S

Available inserts **B4** Available arbors and bolt **E96**

AMXS-AD10/12



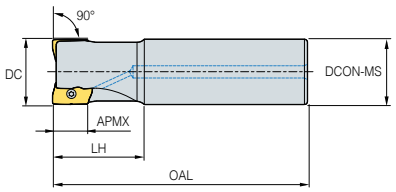


Fig. 1

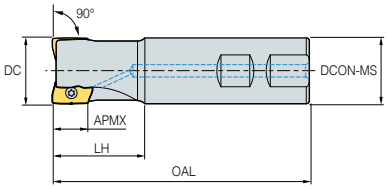


Fig. 2



KAPR 90°

- GAMP : 8°
- GAMF : −10°~−3°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMXS	016R-2W16-90-AD10	●	2	16	16	25	90	9.5	0.1	2
	016R-2C16-180-AD10	●	2	16	16	25	180	9.5	0.2	1
	018R-2W16-100-AD10	●	2	18	16	35	100	9.5	0.1	2
	018R-2C16-200-AD10	●	2	18	16	35	200	9.5	0.2	1
	020R-3W20-100-AD10	●	3	20	20	35	100	9.5	0.2	2
	020R-3C20-200-AD10	●	3	20	20	35	200	9.5	0.4	1
	025R-4W25-115-AD10	●	4	25	25	40	115	9.5	0.4	2
	025R-4C25-200-AD10	●	4	25	25	40	200	9.5	0.6	1
	032R-4W32-125-AD10	●	4	32	32	45	125	9.5	0.7	2
	032R-4C32-200-AD10	●	4	32	32	45	200	9.5	1.0	1
	040R-5W32-130-AD10	●	5	40	32	50	130	9.5	1.1	2
	040R-5C32-200-AD10	●	5	40	32	50	200	9.5	1.2	1
	018R-2W16-100-AD12	●	2	18	16	35	100	11.5	0.1	2
	018R-2C16-200-AD12	●	2	18	16	35	200	11.5	0.3	1
	020R-2W20-100-AD12	●	2	20	20	35	100	11.5	0.2	2
	020R-2C20-200-AD12	●	2	20	20	35	200	11.5	0.4	1
	025R-3W25-115-AD12	●	3	25	25	40	115	11.5	0.3	2
	025R-3C25-200-AD12	●	3	25	25	40	200	11.5	0.7	1
	032R-4W32-125-AD12	●	4	32	32	45	125	11.5	0.6	2
	032R-4C32-200-AD12	●	4	32	32	45	200	11.5	1.1	1
	040R-4W32-130-AD12	●	4	40	32	50	130	11.5	0.8	2
	040R-4C32-200-AD12	●	4	40	32	50	200	11.5	1.2	1

● : Stock item

Available inserts

ADKT-ML



ADKT-MM



Type	Designation		Cermet	Coated												Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
10 type	ADKT	10T304PEER-ML					●				●	●		●	●	●			B4
		10T304PESR-MM					●				●	●		●	●	●			
		10T308PESR-MM													●	●			
		10T312PESR-MM														●			
12 type	ADKT	120408PESR-ML					●				●	●		●	●	●			
		120408PESR-MM					●				●	●		●	●	●			
		120412PESR-MM									●	●			●	●			
		120416PESR-MM									●	●			●	●			

Parts

Specification	Screw	Wrench
Ø16~Ø40(10 type)	FTKA02555S	TW08S
Ø18~Ø40(12 type)	FTNA0306	TW08S

Available inserts **B4**

AMXS-AD17



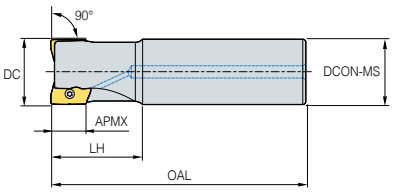


Fig. 1

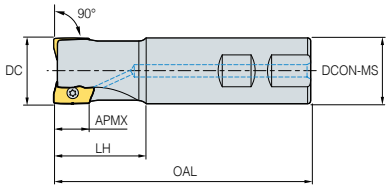


Fig. 2



KAPR 90°

- GAMP : 8°
- GAMF : −10°~−3°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMXS	020R-1W20-100-AD17	●	1	20	20	35	100	16.5	0.2	2
	020R-1C20-200-AD17	●	1	20	20	35	200	16.5	0.4	1
	025R-2W25-115-AD17	●	2	25	25	35	115	16.5	0.4	2
	025R-2C25-200-AD17	●	2	25	25	35	200	16.5	0.5	1
	032R-3W32-125-AD17	●	3	32	32	45	125	16.5	0.6	2
	032R-3C32-200-AD17	●	3	32	32	45	200	16.5	1.1	1
	033R-3W32-125-AD17	●	3	33	32	45	125	16.5	0.6	2
	033R-3C32-200-AD17	●	3	33	32	45	200	16.5	1.1	1
	040R-3W32-130-AD17	●	3	40	32	50	130	16.5	0.8	2
	040R-3C32-200-AD17	●	3	40	32	50	200	16.5	1.2	1
	040R-4W32-130-AD17	●	4	40	32	50	130	16.5	0.7	2
	040R-4C32-200-AD17	●	4	40	32	50	200	16.5	1.1	1

● : Stock item

Available inserts

ADKT-ML



ADKT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
ADKT	170608PESR-ML					●				●	●		●	●	●			B4
	170604PESR-MM									●				●				
	170608PESR-MM					●				●	●		●	●	●			
	170616PESR-MM													●	●			
	170620PESR-MM													●	●			

Parts

Specification	Screw	Wrench
Ø20~Ø40	FTKA0408	TW15S

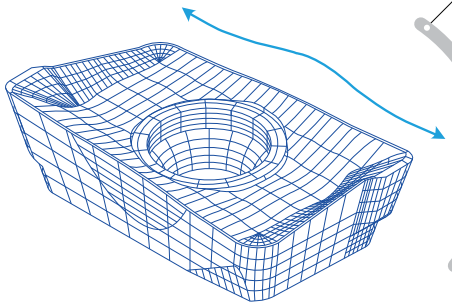
Available inserts **B4**

Various applications are available with multi-functional cutters

Alpha Mill

- Innovative curve cutting-edge and chip-breaker design ensures ideal 90-degree cutting, lower cutting resistance, and improved insert life.
- Various applications are available with multi-functional cutters. (Facing, Slotting, Square shoulder milling, etc.)
- Excellent performance ensured at large depth of cut operations due to strong cutting-edge and low cutting resistance.

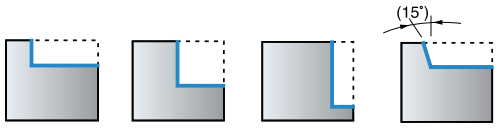
Features of insert



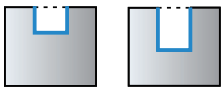
- Long tool life at high speed, high feed and deeper cutting by low cutting resistance and strong cutting-edge
- Distinguished features of Alpha-Curve reduce cutting resistance and improve cutting-edge strength and wear resistance
- Low cutting resistance is realized by KORLOY unique design-the alpha curve cutting-edge and optimal convex and concave design
- Highly efficient machining is available by the ideal application of the grade to material

Application example

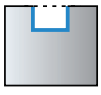
Shouldering



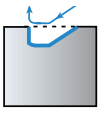
Slotting



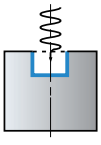
Drilling



Ramping



Helical cutting





Alpha Mill Nick

- New nick cutting edge reduces cutting load
- High productivity
- APMT standard holders are compatible with Alpha Mill nick that is reducing stock management cost.

Features

Lower cutting load due to the overlapping system



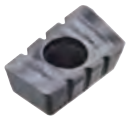
Nick types



Normal types

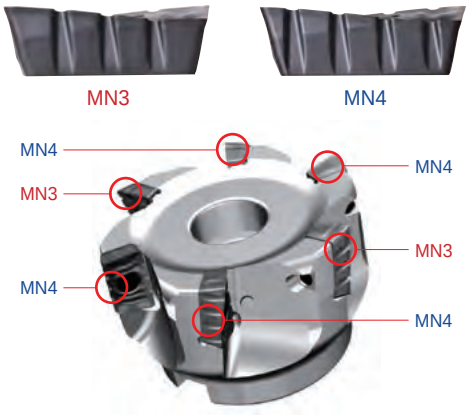


※Nick types require both chip breaker types for application.
※Can be used with the existing Alpha Mill holders. Use multi-edges for maximum results. (cutters with even-numbered teeth)

Type	Nick type		General type
Required No. of teeth	20		20
For AMCM3080M (4 Flute x 5 teeth)	 x 10 APMT16-**MN3**	 x 10 APMT16-**MN4**	 x 20 APMT16-**MM, MF, ML, MA**

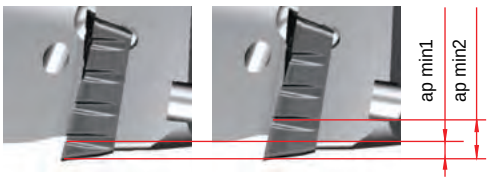
How to clamp

- Alternate the two types of chip breakers when clamping an insert.



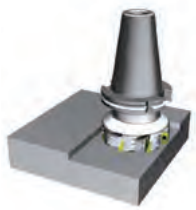
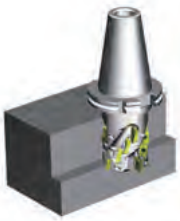
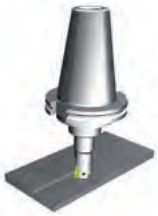
Min. depth of cut

- The depth of cut must be greater than ap min1 for chip breaking.

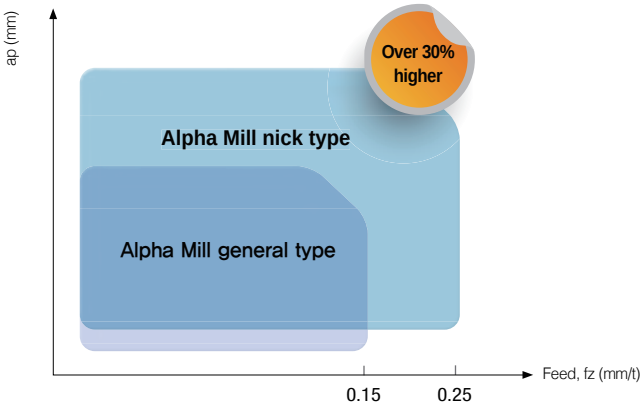


Type	ap min1	ap min2
APMT11(2000 type)	1.6mm	4.1mm
APMT16(3000 type)	2.2mm	5mm
APMT18(4000 type)	2.3mm	5.5mm

Application examples

Deep cutting	Long overhang	Unstable clamping
		

Application area



» 30% or higher cutting conditions available compared to normal types

Recommended cutting conditions

ISO	Grade	APMT 2000 type			APMT 3000 type			APMT 4000 type		
		vc(m/min)	fz(mm/t)	APMX(mm)	vc(m/min)	fz(mm/t)	APMX(mm)	vc(m/min)	fz(mm/t)	APMX(mm)
P	PC3700	180~280	0.05~0.15	11	160~270	0.05~0.18	16	160~270	0.05~0.18	17
P	PC5300	150~250	0.05~0.15		150~240	0.05~0.18		150~240	0.05~0.18	
M	PC5300	90~170	0.05~0.15		90~150	0.05~0.18		90~150	0.05~0.18	
K	PC5300	120~240	0.1~0.2		120~200	0.1~0.23		120~200	0.1~0.23	

※ Above cutting conditionSs can be applied up to cutting speed of 300 m/min and feed per tooth of 0.4 mm/t.

Features of chip breakers

Chip breakers Insert		Cutting-edge	Use	Features
MA			Al	Optimal cutting-edge and buffed surface for aluminum workpieces ensure high performance in machining
ML			Hard-to-cut material	breaker with low cutting load is optimal for machining hard-to-cut materials
MF			Light cutting	Chip breaker with low cutting load and harder cutting-edge than ML's are optimal for light cutting
MM			General cutting	Optimal for milling in general ranges
MN			Roughing (Nick)	Design for easy chip cutting ensures high machinability in toughing

Product constitution

Item description	Type	Nose R	MA	ML
APMT	1000 type	0.4	APMT0602PDFR-MA	-
		0.8	APMT060208PDFR-MA	-
	1500 type	0.4	APMT0903PDFR-MA	APMT0903PDER-ML
		0.8	APMT090308PDFR-MA	APMT090308PDER-ML
	2000 type	0.5	APMT11T3PDFR-MA	APMT11T3PDER-ML
		0.8	APMT11T308PDFR-MA	APMT11T308PDER-ML
	3000 type	0.4	APMT160404PDFR-MA	APMT160404PDER-ML
		0.8	APMT1604PDFR-MA	APMT1604PDER-ML
	4000 type	0.4	APMT180604PDFR-MA	APMT180604PDER-ML
		0.8	APMT1806PDFR-MA	APMT1806PDER-ML
		1.2	APMT180612PDFR-MA	APMT180612PDER-ML
		1.6	APMT180616PDFR-MA	APMT180616PDER-ML
		2.0	APMT180620PDFR-MA	APMT180620PDER-ML
		2.4	APMT180624PDFR-MA	APMT180624PDER-ML
		3.0	APMT180630R-MA	APMT180630R-ML

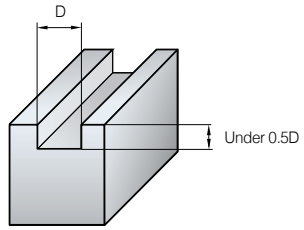
※ The inserts can switch to the APMT type holders.

Recommended grades and chip breakers by workpiece

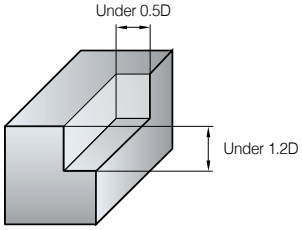
Chip breaker	Cutting edge	Recommended C/B and grade as per workpiece (● : 1st)											
		P				M		K		N		S	
		Low carbon steel/Mild steel		High carbon steel/Mild steel		STS		Cast iron		Aluminum alloy		Ti/Inconel	
		C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
MA		-	-	-	-	-	-	-	-	●	● H01	-	-
ML		-	-	-	-	●	● PC5300 ○ PC5400 ○ PC9530	-	-	-	-	●	● PC5300 ○ PC5400
MF		●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM325 ○ NCM335	-	○ PC3700 ○ NCM325 ○ NCM335	-	● PC5300 ○ PC5400 ○ PC9530	-	● PC6100 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400
MM		-	● PC3700 ○ PC5300 ○ PC5400 ○ NCM325 ○ NCM335	●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM325 ○ NCM335	-	● PC5300 ○ PC5400 ○ PC9530	●	● PC6100 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400
MN		-	● PC3700 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400 ○ PC9530	-	● PC6100 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400

Recommended depth of cut

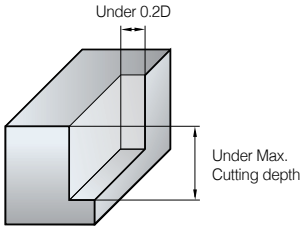
1. Slotting



2. Shouldering



3. Shouldering



Recommended cutting conditions (for Multi-edge type)

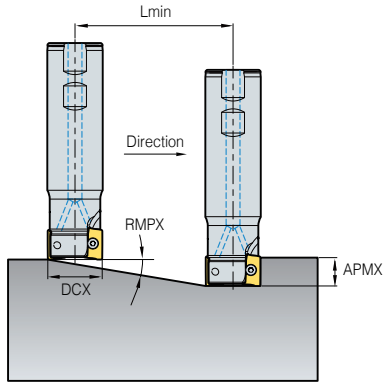
Workpiece	Grade	Fig.	Tool dia.									
			Ø10, 16		Ø20, 25		Ø32, 40		Ø50, 63		Ø80, 100	
			vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)
Mild steel, Low carbon steel (SS, SM)	NCM535 NCM325 PC5400 PC5300 PC3700	①	50~80	0.05~0.08	80~100	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08
		②	65~90	0.08~0.1	100~120	0.08~0.1	120~140	0.08~0.1	120~140	0.08~0.1	120~140	0.08~0.1
		③	65~95	0.1~0.15	100~120	0.1~0.15	120~140	0.1~0.15	120~140	0.1~0.15	130~150	0.1~0.15
High carbon steel, Alloy steel (SM-C, SCM)	NCM535 NCM325 PC5300 PC3700	①	45~60	0.05	60~80	0.05	80~100	0.05	80~100	0.05	80~100	0.05
		②	50~80	0.05~0.08	80~100	0.05~0.08	100~120	0.08~0.1	100~120	0.08~0.1	100~120	0.08~0.1
		③	50~80	0.1~0.15	80~100	0.1~0.15	110~130	0.1~0.15	100~120	0.1~0.15	110~130	0.1~0.15
Alloy tool steel (STD, STF)	PC5300 PC3700 PC2510 PC2505	①	40~55	0.05	50~70	0.05	70~90	0.05	70~90	0.05	70~90	0.05
		②	45~60	0.05~0.08	60~80	0.05~0.08	90~120	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08
		③	50~75	0.12~0.18	90~110	0.12~0.18	100~130	0.1~0.15	100~120	0.1~0.15	110~130	0.1~0.15
Stainless steel (STS)	PC5300 PC9530	①	35~50	0.054	50~70	0.054	70~90	0.05	70~90	0.05	70~90	0.05
		②	45~60	0.05~0.08	60~80	0.05~0.08	90~120	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08
		③	50~75	0.1~0.15	90~110	0.1~0.15	100~130	0.1~0.15	110~130	0.1~0.15	110~130	0.1~0.15
Cast iron (GC, GCD)	PC6100 PC5300	①	50~70	0.1~0.12	70~90	0.1~0.12	70~90	0.1~0.12	90~120	0.1~0.12	90~120	0.1~0.12
		②	50~80	0.12	80~100	0.12	90~120	0.12	100~140	0.12	100~140	0.12
		③	50~80	0.15~0.2	80~100	0.15~0.2	100~130	0.15~0.2	120~150	0.15~0.2	120~150	0.15~0.2
Aluminum alloy (AL Alloy)	H01	①	160~600	0.1~0.2	200~800	0.1~0.2	300~900	0.1~0.2	400~1,000	0.1~0.2	400~1,000	0.1~0.2
		②	200~650	0.15~0.3	250~900	0.15~0.3	300~950	0.15~0.3	400~1,000	0.1~0.4	400~1,000	0.1~0.4
		③	200~650	0.15~0.3	250~900	0.15~0.3	300~950	0.15~0.3	400~1,000	0.1~0.4	400~1,000	0.1~0.4
Hardened steel	PC5300 PC2510 PC2505	①	35~50	0.03	50~70	0.03	60~90	0.03	60~90	0.03	60~90	0.03
		②	45~60	0.05~0.08	60~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08
		③	50~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08

Recommended cutting conditions (for Single-edge type)

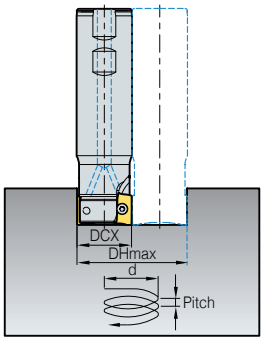
Workpiece	Grade	Fig.	Tool dia.									
			Ø10, 16		Ø20, 25		Ø32, 40		Ø50, 63		Ø80, 100	
			vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)
Mild steel, Low carbon steel (SS, SM)	NCM535 NCM325 PC5400 PC5300 PC3700	①	45~60	0.05~0.08	60~80	0.05~0.08	80~120	0.05~0.08	120~200	0.05~0.08	150~200	0.05~0.08
		②	60~90	0.08~0.1	80~120	0.08~0.1	120~180	0.08~0.1	180~250	0.08~0.1	200~250	0.08~0.1
		③	60~90	0.1~0.15	80~120	0.1~0.15	120~180	0.1~0.15	180~250	0.1~0.15	200~250	0.1~0.15
High carbon steel, Alloy steel (SM-C, SCM)	NCM535 NCM325 PC5300 PC3700	①	40~60	0.05	50~80	0.05	80~110	0.05	100~150	0.05	100~150	0.05
		②	50~80	0.05~0.08	80~100	0.05~0.08	110~150	0.05~0.1	150~200	0.05~0.1	150~200	0.05~0.1
		③	50~80	0.1~0.15	80~100	0.1~0.15	120~150	0.1~0.15	180~200	0.1~0.15	180~200	0.1~0.15
Alloy tool steel (STD, STF)	PC5300 PC3700 PC2510 PC2505	①	35~50	0.05	50~70	0.05	80~100	0.05	100~130	0.05	100~130	0.05
		②	45~70	0.05~0.08	70~100	0.05~0.08	100~130	0.05~0.1	130~180	0.05~0.1	130~180	0.05~0.1
		③	45~70	0.1~0.15	70~100	0.1~0.15	100~150	0.1~0.15	130~180	0.1~0.15	130~180	0.1~0.15
Stainless steel (STS)	PC5300 PC9530	①	35~50	0.05	50~70	0.05	80~100	0.05	100~130	0.05	100~130	0.05
		②	45~70	0.05~0.08	70~100	0.05~0.08	100~130	0.05~0.1	130~180	0.05~0.1	130~180	0.05~0.1
		③	45~70	0.1~0.15	70~100	0.1~0.15	100~150	0.1~0.15	130~180	0.1~0.15	130~180	0.1~0.15
Cast iron (GC, GCD)	PC6100 PC5300	①	50~80	0.08~0.12	80~100	0.08~0.12	80~100	0.15	120~150	0.15	120~150	0.15
		②	65~90	0.12~0.15	100~120	0.12~0.15	100~130	0.15~0.18	150~200	0.15~0.18	150~200	0.15~0.18
		③	65~90	0.15~0.2	100~120	0.15~0.2	100~130	0.15~0.2	150~200	0.15~0.2	150~200	0.15~0.2
Aluminum alloy (AL Alloy)	H01	①	200~600	0.15~0.2	250~800	0.15~0.2	300~900	0.15~0.2	400~1,000	0.1~0.2	400~1,000	0.1~0.2
		②	200~650	0.2~0.25	250~900	0.2~0.25	350~950	0.2~0.25	400~1,000	0.2~0.3	400~1,000	0.2~0.3
		③	200~650	0.25~0.3	250~900	0.25~0.3	350~950	0.25~0.3	400~1,000	0.3~0.4	400~1,000	0.3~0.4
Hardened steel	PC5300 PC2510 PC2505	①	35~50	0.03	50~70	0.03	60~90	0.03	60~90	0.03	60~90	0.03
		②	45~65	0.05~0.08	60~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08
		③	50~80	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08	80~100	0.05~0.08

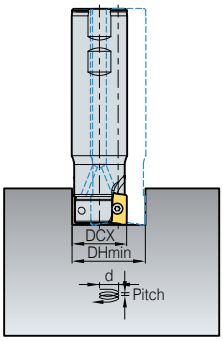
Ramping and helical cutting

Ramping



Helical cutting





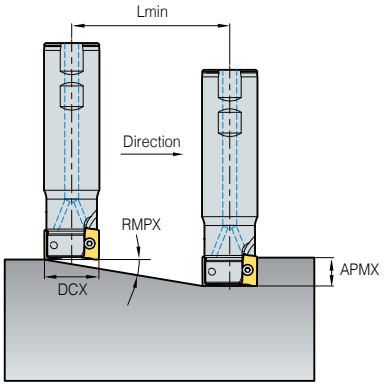
(mm)

Designation	DCX	ap	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
			RMPX	Lmin	DHmin	Max. pitch dmax	DHmax	Max. pitch dmax	DHmin	Max. pitch dmax
AMS1010HS	10	5	6.5	44	17.6	2.0	18.8	2.1	13	1.5
AMS1011HS	11		5.6	51	19.6	1.9	20.8	2.0	15	1.5
AMS1012HS	12		4.9	58	21.6	1.9	22.8	2.0	17	1.5
AMS1014HS	14		3.9	73	25.6	1.8	26.8	1.8	21	1.4
AMS1015HS	15		3.6	80	27.6	1.7	28.8	1.8	23	1.4
AMS1016HS	16		3.3	87	29.6	1.7	30.8	1.8	25	1.4
AMS1017HS	17		3.0	94	31.6	1.7	32.8	1.7	27	1.4
AMS1018HS	18		2.8	101	33.6	1.7	34.8	1.7	29	1.4
AMS1020HS	20		2.5	115	37.6	1.6	38.8	1.7	33	1.4
AMS1021HS	21		2.3	123	39.6	1.6	40.8	1.7	35	1.4
AMS1022HS	22		2.2	130	41.6	1.6	42.8	1.6	37	1.4
AMS1025HS	25		1.9	151	47.6	1.6	48.8	1.6	43	1.4
AMS1026HS	26		1.8	158	49.6	1.6	50.8	1.6	45	1.4
AMS1032HS	32		1.4	201	61.6	1.5	62.8	1.6	57	1.4
AMS1033HS	33		1.4	208	63.6	1.5	64.8	1.6	59	1.4
AMCM1032HS	32		1.4	201	61.6	1.5	62.8	1.6	57	1.4
AMCM1040HS	40		1.1	258	77.6	1.5	78.8	1.5	73	1.4
AMCM1050HS	50		0.9	330	97.6	1.5	98.8	1.5	93	1.4
AMCM1063HS	63		0.7	423	123.6	1.5	124.8	1.5	119	1.4
AMS1510HS	10	9	7.5	68	17.4	2.3	18.8	2.5	11	1.5
AMS1512HS	12		6.5	79	21.4	2.4	22.8	2.6	15	1.7
AMS1513HS	13		5.7	90	23.4	2.3	24.8	2.5	17	1.7
AMS1514HS	14		6.3	82	25.4	2.8	26.8	2.9	19	2.1
AMS1516HS	16		5.0	102	29.4	2.6	30.8	2.7	23	2.0
AMS1517HS	17		4.6	112	31.4	2.5	32.8	2.6	25	2.0
AMS1518HS	18		4.2	122	33.4	2.5	34.8	2.6	27	2.0
AMS1519HS	19		3.9	132	35.4	2.4	36.8	2.5	29	2.0
AMS1520HS	20		3.6	142	37.4	2.4	38.8	2.5	31	2.0
AMS1521HS	21		3.4	152	39.4	2.3	40.8	2.4	33	2.0
AMS1522HS	22		3.2	162	41.4	2.3	42.8	2.4	35	1.9
AMS1524HS	24		2.8	182	45.4	2.2	46.8	2.3	39	1.9
AMS1525HS	25		2.7	192	47.4	2.2	48.8	2.3	41	1.9
AMS1528HS	28		2.3	222	53.4	2.2	54.8	2.2	47	1.9
AMS1530HS	30		2.1	242	57.4	2.1	58.8	2.2	51	1.9
AMS1532HS	32		2.0	262	61.4	2.1	62.8	2.2	55	1.9
AMS1535HS	35		1.8	292	67.4	2.1	68.8	2.1	61	1.9
AMS1540HS	40		1.5	342	77.4	2.0	78.8	2.1	71	1.9
AMCM15040HS	40		1.5	342	77.4	2.0	78.8	2.1	71	1.9
AMCM15050HS	50		1.2	442	97.4	2.0	98.8	2.0	91	1.9
AMCM15063HS	63		0.9	572	123.4	1.9	124.8	2.0	117	1.8
AMCM15080HS	80		0.7	742	157.4	1.9	158.8	1.9	151	1.8
AMCM15100HS	100		0.5	942	197.4	1.9	198.8	1.9	191	1.8

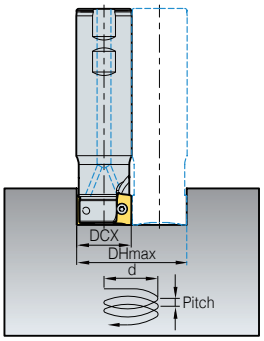
$$Lmin = \frac{ap}{\tan(RMPX)} \text{ (mm)}$$

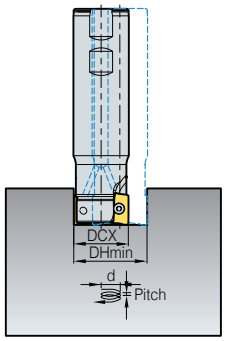
Ramping and helical cutting

Ramping



Helical cutting



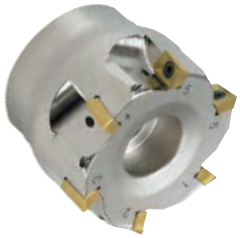


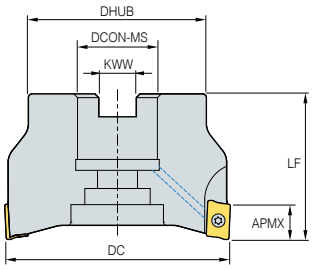
(mm)

Designation	DCX	ap	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
			RMPX	Lmin	DHmin	Max. pitch dmax	DHmax	Max. pitch dmax	DHmin	Max. pitch dmax
AMS2010HS	10	10	16.82	33	16.4	5.0	18	5.4	11	3.3
AMS2012HS	12		11.69	48	20.4	4.2	22	4.6	15	3.1
AMS2014HS	14		7.55	75	24.4	3.2	26	3.4	19	2.5
AMS2016HS	16		10.30	55	28	5.1	30	5.5	23	4.2
AMS2018HS	18		8.23	69	32	4.6	34	4.9	27	3.9
AMS2020HS	20		5.60	102	36	3.5	38	3.7	31	3.0
AMS2022HS	22		5.15	111	40	3.6	42	3.8	35	3.2
AMS2025HS	25		3.92	146	46	3.2	48	3.3	41	2.8
AMS2032HS	32		2.70	212	60	2.8	62	2.9	55	2.6
AMS2040HS	40		1.98	289	76	2.6	78	2.7	71	2.5
AMS2050HS	50		1.48	386	96	2.5	98	2.5	91	2.4
AMS2063HS	63		1.11	514	122	2.4	124	2.4	117	2.3
AMCM2040HS	40		1.29	445	76	2.5	78	2.6	71	2.1
AMCM2050HS	50		0.36	1576	96	0.6	98	0.6	91	0.6
AMCM2063HS	63		0.27	2104	122	0.6	124	0.6	117	0.6
AMCM2080HS	80		0.21	2784	156	0.6	158	0.6	151	0.5
AMCM2100HS	100		0.16	3584	196	0.5	198	0.6	191	0.5
AMS3025HS	25	10	4.72	121	46	3.8	48	4.0	36	3.0
AMS3032HS	32		3.00	191	60	3.1	62	3.2	50	2.6
AMS3040HS	40		2.29	250	76	3.0	78	3.1	66	2.6
AMS3050HS	50		1.64	350	96	2.7	98	2.8	86	2.5
AMS3063HS	63		1.22	470	122	2.6	124	2.6	112	2.4
AMCM3040HS	40		1.99	288	76	2.6	78	2.7	66	2.3
AMCM3050HS	50		1.67	343	96	2.8	98	2.9	86	2.5
AMCM3063HS	63		1.22	470	122	2.6	124	2.6	112	2.4
AMCM3080HS	80		0.90	636	156	2.5	158	2.5	146	2.3
AMCM3100HS	100		0.69	830	196	2.4	198	2.4	186	2.2
AMS2025MH	25	10	1.50	764	46	1.2	48	1.3	-	-
AMS2032MH	32		1.50	1146	60	1.6	62	1.6	-	-
AMS3040MH	40	16	1.50	1528	76	2.0	78	2.0	-	-
AMS4020HS	20	16	9.5	98	37.4	6.2	38.8	6.5	31	5.2
AMS4021HS	21		5.2	179	39.4	3.6	40.8	3.7	33	3.0
AMS4025HS	25		7.6	122	47.4	6.3	48.8	6.5	41	5.5
AMS4026HS	26		7.1	130	49.4	6.2	50.8	6.4	43	5.4
AMS4032HS	32		3.4	276	61.4	3.6	62.8	3.7	55	3.3
AMS4033HS	33		3.2	288	63.4	3.6	64.8	3.7	57	3.2
AMS4040HS	40		2.5	376	77.4	3.4	78.8	3.4	71	3.1
AMS4050HS	50		1.9	502	97.4	3.2	98.8	3.2	91	3.0
AMS4063HS	63		1.4	665	123.4	3.0	124.8	3.1	117	2.9
AMCM4050HS	50		1.9	502	97.4	3.2	98.8	3.2	91	3.0
AMCM4063HS	63		1.4	665	123.4	3.0	124.8	3.1	117	2.9
AMCM4080HS	80		1.1	878	157.4	2.9	158.8	2.9	151	2.8
AMCM4100HS	100		0.8	1128	197.4	2.9	198.8	2.9	191	2.8
AMCM4125HS	125		0.6	1442	247.4	2.8	248.8	2.8	241	2.7

$$Lmin = \frac{ap}{\tan(RMPX)} (mm)$$

AMCM1000S





KAPR 90°

- GAMP : 9°~13°
- GAMF : −14°~5°

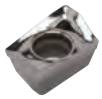
(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMCM	1032HS	●	8	32	30	16	8.4	40	5.6	0.1
	1040HS-16	●	10	40	34	16	8.4	40	5.6	0.2
	1040HS-22		10	40	34	22	10.4	40	5.6	0.2
	1050HS	●	12	50	42	22	10.4	40	5.6	0.4
	1063HS	●	14	63	49	22	10.4	40	5.6	0.6

● : Stock item

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																●	B5 B6
	060208PDFR-MA																	
	060202PDSR-MM		●							●				●	●			
	0602PDSR-MM		●					●	●	●	●	●		●	●			
	060208PDSR-MM		●							●				●	●			
	060212R-MM		●											●	●			
	060216R-MM													●	●			

Available arbors

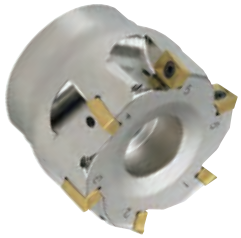
	Designation	DCON-MS	NC arbors
AMCM	1032HS	16	BT□□-FMC16-□□
	1040HS-16		
	1040HS-22	22	BT□□-FMC22-□□
	1050HS		
	1063HS		

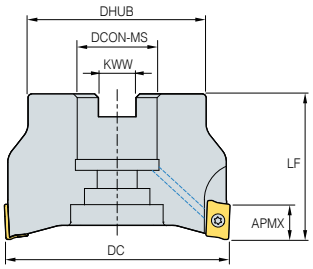
Parts

Specification	Screw	Wrench
Ø32~Ø63	FTKA01842	TW06S-A

Available inserts **B5, B6** Available arbors and bolt **E96**

AMC(M)1500S





KAPR 90°

- GAMP : 9°~13°
- GAMF : −14°~5°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMCM	15040HS	●	5	40	34	16	8.4	40	9	0.2
	15050HS	●	6	50	42	22	10.4	40	9	0.3
	15063HS	●	8	63	49	22	10.4	40	9	0.6
AMC (AMCM)	15080HS	● (●)	10	80	57	25.4(27)	9.5(12.4)	50	9	1.1
	15100HS	●	12	100	67	31.75(32)	12.7(14.4)	63	9	2.1

( )Metric size, ● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	B5 B6
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM		●					●	●	●	●			●	●			
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

Available arbors

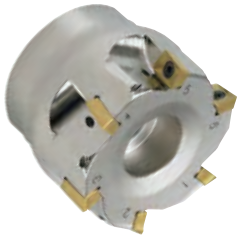
	Designation	DCON-MS	NC arbors
AMCM	15040HS	16	BT□□-FMC16-□□
	15050HS 15063HS	22	BT□□-FMC22-□□
AMC (AMCM)	15080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	15100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

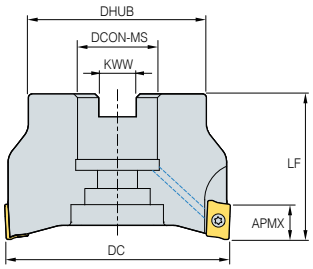
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA02565S	TW08S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)2000S





KAPR 90°

- GAMP : 9°~13°
- GAMF : −14°~5°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMCM	2040HS	●	5	40	34	16	8.4	40	11	0.2
	2050HS	●	6	50	42	22	10.4	40	11	0.3
	2063HS	●	8	63	49	22	10.4	40	11	0.5
AMC (AMCM)	2080HS	(●)	8	80	57	25.4(27)	9.5(12.4)	50	11	1
	2100HS		10	100	67	31.75(32)	12.7(16.4)	63	11	2.1

( )Metric size, ● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

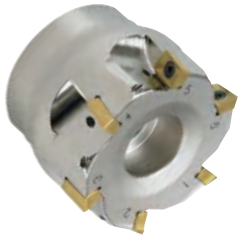
	Designation	DCON-MS	NC arbors
AMCM	2040HS	16	BT□□-FMC16-□□
	2050HS 2063HS	22	BT□□-FMC22-□□
AMC (AMCM)	2080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	2100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

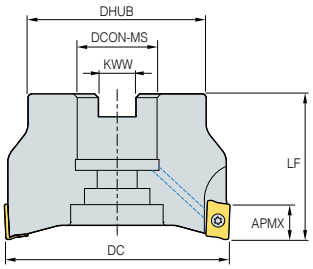
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)3000S





KAPR 90°

• GAMP : 14°
• GAMF : −12°~8°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMCM	3040HS	●	4	40	34	16	8.4	40	16	0.2
	3050HS	●	5	50	42	22	10.4	40	16	0.3
	3063HS	●	6	63	49	22	10.4	40	16	0.5
AMC (AMCM)	3080HS	● (●)	7	80	57	25.4(27)	9.5(12.4)	50	16	1
	3100HS	● (●)	8	100	67	31.75(32)	12.7(14.4)	63	16	2

( )Metric size, ● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM									●				●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

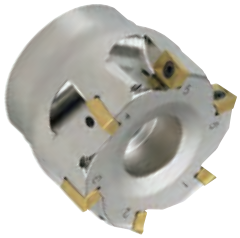
	Designation	DCON-MS	NC arbors
AMCM	3040HS	16	BT□□-FMC16-□□
	3050HS 3063HS	22	BT□□-FMC22-□□
AMC (AMCM)	3080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

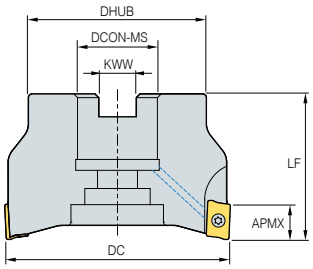
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)3000S-K





KAPR 90°

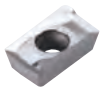
- GAMP : 14°
- GAMF : −12°~8°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMCM	3040HS-K		4	40	34	16	8.4	40	16	0.2
	3050HS-K	●	5	50	42	22	10.4	40	16	0.3
	3063HS-K	●	6	63	49	22	10.4	40	16	0.5
AMC (AMCM)	3080HS-K	●	7	80	57	25.4(27)	9.5(12.4)	50	16	1.1
	3100HS-K	●	8	100	67	31.75(32)	12.7(14.4)	63	16	2.3

( )Metric size, ● : Stock item

Available inserts

APKT	APKT-MF	APKT-MM	APKT-MA	APKT-MA2	APKT-MA3
					

	Designation	Cermet	Coated												Uncoated			Page
		CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	G10	H01	H05	
APKT	1604PDSR		●						●	●									B4
	1604PDSR-MF		●										●						
	1604PDSR-MM		●	●					●	●	●		●						
	1604PDFR-MA														●		●	●	
	1604PDFR-MA2																●		
	160416FR-MA2																●		
	160432FR-MA2																		
	1604PDFR-MA3															●	●	●	
	160420FR-MA3																		

Available arbors

	Designation	DCON-MS	NC arbors
AMCM	3040HS-K	16	BT□□-FMC16-□□
	3050HS-K 3063HS-K	22	BT□□-FMC22-□□
AMC (AMCM)	3080HS-K	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS-K	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

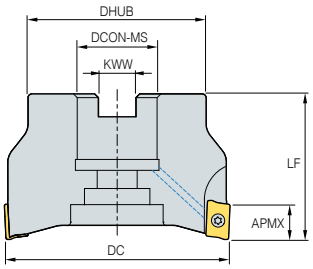
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts **B4** Available arbors and bolt **E94 ~ E96**

AMC(M)4000S





KAPR 90°

• GAMP : 13°~15°
• GAMF : −12°~7°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
AMCM	4050HS	●	5	50	42	22	10.4	40	17	0.3
	4063HS	●	6	63	49	22	10.4	40	17	0.5
AMC (AMCM)	4080HS	● (●)	7	80	57	25.4(27)	9.5(12.4)	50	17	1
	4100HS	(●)	8	100	67	31.75(32)	12.7(14.4)	63	17	2.1
	4125HS	● (●)	9	125	87	38.1(40)	15.9(16.4)	63	17	3.3
	4160S		10	160	107	50.8(40)	19(16.4)	63	17	3.6
	4200S		10	200	108	47.625(60)	25.4(25.7)	63	17	5.3

( )Metric size, ● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA														●			
	180604PDFR-MA														●			
	180612PDFR-MA														●			
	180616PDFR-MA														●			
	180620PDFR-MA														●			
	180624PDFR-MA														●			E5
	180630R-MA														●			E6
	1806PDER-ML												●	●				
	180604PDER-ML												●	●				
	180612PDER-ML												●	●				
	180616PDER-ML												●					
	180620PDER-ML												●	●				

Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			E5
	180620PDSR-MM																	E6
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

Designation		DCON-MS	NC arbors
AMCM	4050HS 4063HS	22	BT□□-FMC22-□□
AMC (AMCM)	4080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

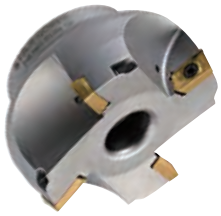
Designation		DCON-MS	NC arbors
AMC (AMCM)	4125HS	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	4160S	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	4200S	47.625	BBT□□-FMA47.625-□□
		60	BT□□-FMB60-□□

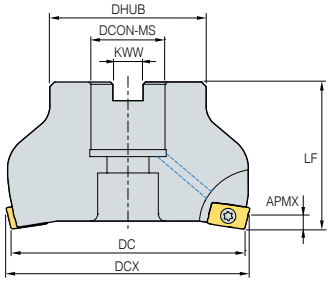
Parts

Specification	Screw	Wrench
Ø50~Ø200	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)1000SE/2000SE





KAPR 75°

- GAMP : 45°
- GAMF : 0°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg
AMCM	1040HSE		4	40	41.76	34	16	8.4	40	2.5	0.3
	1050HSE		5	50	51.76	42	22	10.4	40	2.5	0.4
AMC (AMCM)	2080HSE	(●)	5	80	83.79	57	25.4(27)	9.5(10.4)	50	4	1.1
	2100HSE		6	100	102.884	67	31.75(32)	12.7(14.4)	63	4	2.3

( )Metric size, ● : Stock item

Available inserts

APMT-MM



APMT-MF



Type	Designation		Cermet	Coated												Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	060202PDSR-MM		●							●				●	●			E5 E6
		0602PDSR-MM		●					●	●	●	●	●		●	●			
		060208PDSR-MM		●							●				●	●			
		060212R-MM		●											●	●			
2000 type	APMT	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
		11T3PDSR-MF		●							●	●			●	●			
		11T308PDSR-MM		●							●		●	●	●	●			
		11T312PDSR-MM		●							●		●		●	●			
		11T316R-MM		●							●				●	●			
		11T318R-MM																	
		11T324R-MM		●							●				●	●			

Available arbors

Type	Designation		DCON-MS	NC arbors
1000 type	AMC (AMCM)	1040HSE	16	BT□□-FMC16-□□
		1050HSE	22	BT□□-FMC22-□□
2000 type	AMC (AMCM)	2080HSE	25.4	BT□□-FMA25.4-□□
			27	BT□□-FMC27-□□
		2100HSE	31.75	BT□□-FMA31.75-□□
			32	BT□□-FMC32-□□

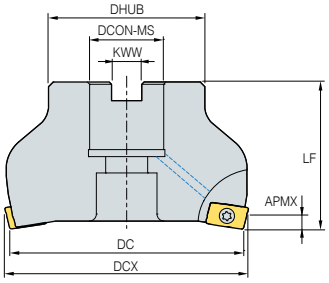
Parts

Specification	 Screw	 Wrench	 Wrench
Ø40~Ø50(1000 type)	FTKA01842	-	TW06S-A
Ø80~Ø100(2000 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)3000SE





KAPR 75°

- GAMP : 45°
- GAMF : 0°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg
AMC (AMCM)	3080HSE		4	80	83.79	57	25.4(27)	9.5(12.4)	50	6	0.9
	3100HSE		5	100	103.786	67	31.75(32)	12.7(14.4)	63	6	1.9

( )Metric size, ● : Stock item

Available inserts

APMT-MM APMT-MF





	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			B5 B6
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM									●				●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			

Available arbors

	Designation	DCON-MS	NC arbors
AMC (AMCM)	3080HSE	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HSE	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

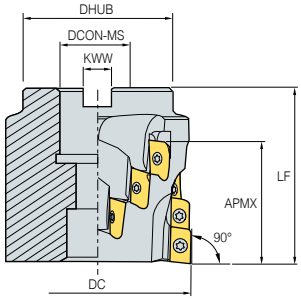
Parts

Specification	Screw	Wrench
Ø80~Ø100	FTKA0410	TW08S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)2000M









KAPR 90°

- GAMP : 9°
- GAMF : –9°~–5°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	ZEFF	APMX	kg
AMCM	2050M	●	16	50	40	22	10.4	58	4	39	0.5
AMC (AMCM)	2063M	● (●)	16	63	50	25.4(27)	9.5(12.4)	58	4	39	0.9
	2080M	● (●)	20	80	60	31.75(32)	12.7(14.4)	63	5	39	1.3
	2100M	(●)	24	100	80	38.1(40)	15.9(16.4)	63	6	39	2.2

( )Metric size, ● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN







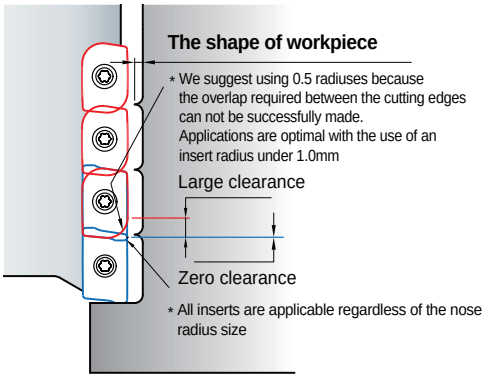
	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

Designation		DCON-MS	NC arbors	
AMC (AMCM)	2050M	22	BT□□-FMC22-□□	BT□□-SMC22-□□
	2063M	25.4	BT□□-FMA25.4-□□	BT□□-SMA25.4-□□
		27	BT□□-FMC27-□□	BT□□-SMC27-□□
	2080M	31.75	BT□□-FMA31.75-□□	BT□□-SMA31.75-□□
		32	BT□□-FMC32-□□	BT□□-SMC32-□□
	2100M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□

Caution when clamping the inserts



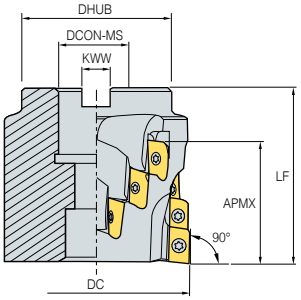
Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA02565S	TW08S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)3000M









KAPR 90°

- GAMP : 9°
- GAMF : −9°~−5°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	ZEFF	APMX	kg
AMC (AMCM)	3063M		16	63	57	25.4(27)	9.5(12.4)	85	4	57	1.1
	3080M		20	80	67	31.75(32)	12.7(14.4)	100	4	71	2.1
	3100M		30	100	87	38.1(40)	15.9(16.4)	100	6	71	3.6

( )Metric size, ● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



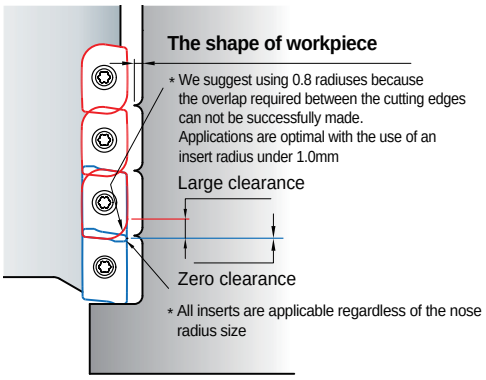
	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM									●				●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

Designation		DCON-MS	NC arbors	
AMC (AMCM)	3063M	25.4	BT□□-FMA25.4-□□	BT□□-SMA25.4-□□
		27	BT□□-FMC27-□□	BT□□-SMC27-□□
	3080M	31.75	BT□□-FMA31.75-□□	BT□□-SMA31.75-□□
		32	BT□□-FMC32-□□	BT□□-SMC32-□□
	3100M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□

Caution when clamping the inserts



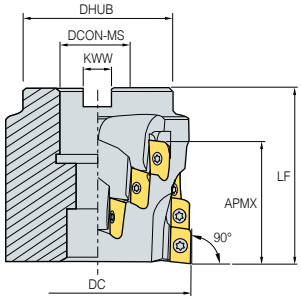
Parts

Specification	Screw	Wrench
Ø63~Ø100	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMC(M)4000M









KAPR 90°

- GAMP : 9°
- GAMF : −9°~−5°

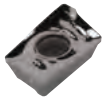
(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	ZEFF	APMX	kg
AMC (AMCM)	4063M		16	63	57	25.4(27)	9.5(12.4)	85	4	61.1	1
	4080M		20	80	67	31.75(32)	12.7(14.4)	100	4	76.1	2.1
	4100M		30	100	87	38.1(40)	15.9(16.4)	100	6	76.1	3.6
	4125M		18	125	87	38.1(40)	15.9(16.4)	68	6	46.1	4.1

( )Metric size, ● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA														●			
	180604PDFR-MA														●			
	180612PDFR-MA														●			
	180616PDFR-MA														●			
	180620PDFR-MA														●			
	180624PDFR-MA														●			B5
	180630R-MA														●			B6
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			
	180620PDER-ML													●	●			

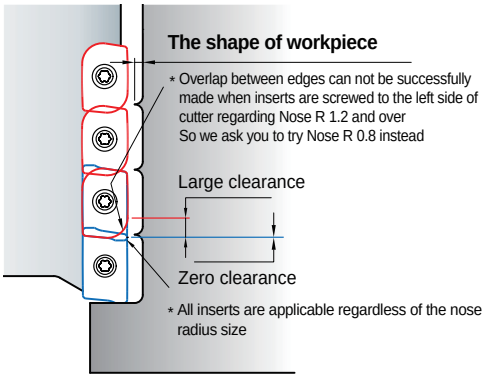
Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			B5
	180620PDSR-MM																	B6
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Available arbors

Designation		DCON-MS	NC arbors	
AMC (AMCM)	4063M	25.4	BT□□-FMA25.4-□□	BT□□-SMA25.4-□□
		27	BT□□-FMC27-□□	BT□□-SMC27-□□
	4080M	31.75	BT□□-FMA31.75-□□	BT□□-SMA31.75-□□
		32	BT□□-FMC32-□□	BT□□-SMC32-□□
	4100M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□
	4125M	38.1	BT□□-FMA38.1-□□	BT□□-SMA38.1-□□
		40	BT□□-FMC40-□□	BT□□-SMC40-□□

Caution when clamping the inserts



Parts

Specification	Screw	Wrench
Ø63~Ø125	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMS1000S



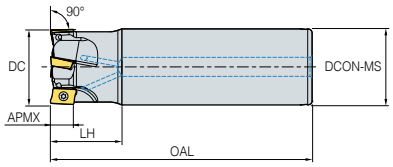


Fig. 1

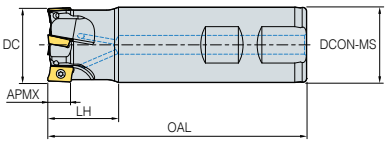


Fig. 2



KAPR 90°

- GAMP : 7.5°~13°
- GAMF : −17°~−6°

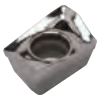
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	1010HS	●	2	10	10	20	80	5.6	0.1	2
	1011HS	●	2	11	10	20	80	5.6	0.1	2
	1012HS-2	●	2	12	12	25	80	5.6	0.1	2
	1012HS-2L12	●	2	12	12	25	120	5.6	0.1	1
	1012HS-3	●	3	12	12	25	80	5.6	0.1	2
	1014HS-2	●	2	14	16	25	90	5.6	0.1	2
	1014HS-2L16		2	14	16	25	140	5.6	0.2	1
	1014HS-3	●	3	14	16	25	90	5.6	0.1	2
	1015HS	●	3	15	16	25	90	5.6	0.1	2
	1015HS-3L16		3	15	16	25	140	5.6	0.2	1
	1016HS-3	●	3	16	16	25	90	5.6	0.1	2
	1016HS-3L16		3	16	16	25	160	5.6	0.2	1
	1016HS-4	●	4	16	16	25	90	5.6	0.1	2
	1017HS	●	4	17	16	25	90	5.6	0.1	2
	1017HS-3L16		3	17	16	25	160	5.6	0.2	1
	1018HS	●	4	18	16	25	90	5.6	0.1	2
	1018HS-4L16		4	18	16	25	180	5.6	0.2	1
	1020HS-4	●	4	20	20	30	110	5.6	0.2	2
	1020HS-4L20		4	20	20	30	200	5.6	0.4	1
	1020HS-5	●	5	20	20	30	110	5.6	0.2	2
	1021HS	●	5	21	20	30	110	5.6	0.2	2
	1021HS-4L20		4	21	20	30	200	5.6	0.4	1
	1022HS	●	5	22	20	30	110	5.6	0.2	2
	1025HS	●	7	25	25	30	120	5.6	0.4	2
	1026HS	●	7	26	25	30	120	5.6	0.4	2
	1032HS	●	8	32	32	35	120	5.6	0.6	2
	1033HS	●	8	33	32	35	120	5.6	0.7	2

● : Stock item

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																●	B5 B6
	060208PDFR-MA																	
	060202PDSR-MM		●							●				●	●			
	0602PDSR-MM		●					●	●	●	●	●		●	●			
	060208PDSR-MM		●							●				●	●			
	060212R-MM		●											●	●			
	060216R-MM													●	●			

Parts

Specification	Screw	Wrench
Ø10~Ø33	FTKA01842	TW06S-A

Available inserts **B5, B6**

AMS1500S



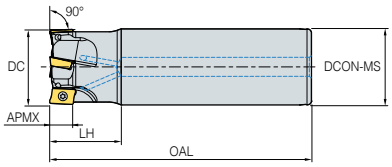


Fig. 1

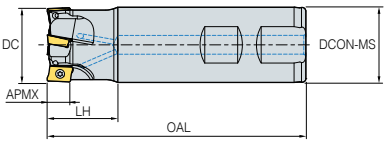
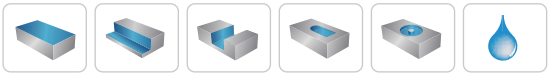


Fig. 2



KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : −28°~−14°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	15010HS	●	1	10	10	25	80	9	0.1	2
	15010HS-1L16		1	10	16	30	160	9	0.2	1
	15012HS	●	1	12	16	25	80	9	0.1	2
	15012HS-1L16		1	12	16	30	160	9	0.2	1
	15013HS	●	1	13	16	25	80	9	0.1	2
	15014HS	●	1	14	16	25	80	9	0.1	2
	15014HS-1L16		1	14	16	30	160	9	0.2	1
	15016HS	●	2	16	16	30	90	9	0.1	2
	15016HS-2L16	●	2	16	16	30	160	9	0.2	1
	15017HS	●	2	17	16	30	90	9	0.1	2
	15017HS-2L16		2	17	16	30	160	9	0.2	1
	15018HS	●	2	18	16	30	90	9	0.1	2
	15018HS-2L16		2	18	16	30	160	9	0.2	1
	15019HS	●	2	19	16	30	90	9	0.1	2
	15020HS	●	2	20	20	30	90	9	0.2	2
	15020HS-2L20	●	2	20	20	30	160	9	0.3	1
	15020HS-3	●	3	20	20	30	90	9	0.2	2
	15021HS	●	2	21	20	30	90	9	0.2	2
	15021HS-2L20		2	21	20	30	160	9	0.3	1
	15021HS-3	●	3	21	20	30	90	9	0.2	2
	15022HS	●	3	22	20	30	110	9	0.2	2
	15022HS-3L20		3	22	20	30	180	9	0.4	1
	15024HS	●	3	24	20	30	110	9	0.2	2
	15024HS-4	●	4	24	20	30	110	9	0.2	2
	15025HS-3S20	●	3	25	20	30	110	9	0.2	2
	15025HS	●	3	25	25	30	110	9	0.3	2
	15025HS-3L25	●	3	25	25	30	180	9	0.6	1

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	B5 B6
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM		●					●	●	●	●			●	●			
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

Parts

Specification	Screw	Wrench
Ø10~Ø14	FTKA02555S	TW08S
Ø16~Ø25	FTKA02565S	TW08S

Available inserts **B5, B6**

AMS1500S



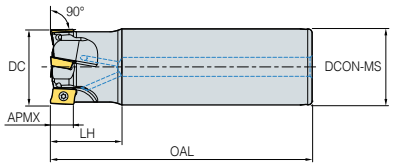


Fig. 1

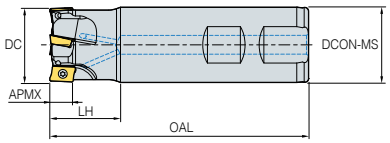


Fig. 2








KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : −28°~−14°

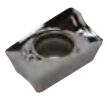
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	15025HS-4S20	●	4	25	20	30	110	9	0.2	2
	15025HS-4S25	●	4	25	25	30	110	9	0.3	2
	15028HS	●	4	28	25	30	110	9	0.4	2
	15028HS-4L25		4	28	25	30	180	9	0.6	1
	15028HS-5	●	5	28	25	30	110	9	0.4	2
	15030HS	●	4	30	25	30	110	9	0.4	2
	15030HS-4L25		4	30	25	30	180	9	0.6	1
	15030HS-5		5	30	25	30	110	9	0.4	2
	15032HS		4	32	32	30	110	9	0.6	2
	15032HS-4L32	●	4	32	32	30	180	9	1	1
	15032HS-5		5	32	32	30	110	9	0.6	2
	15035HS	●	5	35	32	30	110	9	0.6	2
	15035HS-6		6	35	32	30	110	9	0.6	2
	15040HS-S32	●	5	40	32	35	130	9	0.8	2
	15040HS-5L32		5	40	32	35	200	9	1.2	1
	15040HS-6S32		6	40	32	35	130	9	0.8	2
	15040HS-S40	●	5	40	40	35	130	9	1.1	2
	15040HS-6S40	●	6	40	40	35	130	9	1.1	2
	15040HS-S42	●	5	40	42	35	130	9	1.2	2
	15040HS-6S42	●	6	40	42	35	130	9	1.2	2

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	B5 B6
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM		●					●	●	●	●			●	●			
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA02565S	TW08S

Available inserts **B5, B6**

AMS2000S



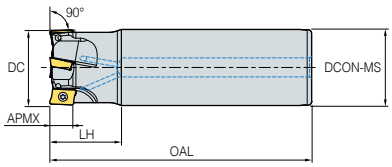


Fig. 1

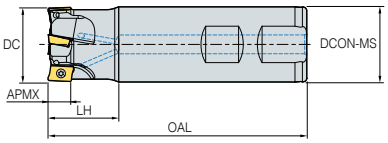
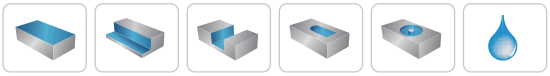


Fig. 2



KAPR 90°

- GAMP : 3°~14°
- GAMF : −25°~−18°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	2010HS	●	1	10	10	20	85	11	0.1	2
	2010HS-1L16		1	10	16	30	160	11	0.2	1
	2012HS	●	1	12	16	25	85	11	0.1	2
	2012HS-1L16		1	12	16	30	160	11	0.2	1
	2014HS	●	1	14	16	25	90	11	0.1	2
	2014HS-1L16		1	14	16	30	160	11	0.2	1
	2016HS	●	2	16	16	25	90	11	0.1	2
	2016HS-2L16	●	2	16	16	30	180	11	0.2	1
	2018HS	●	2	18	16	25	90	11	0.1	2
	2018HS-2L16	●	2	18	16	30	180	11	0.2	1
	2020HS	●	2	20	20	30	100	11	0.2	2
	2020HS-2L20	●	2	20	20	30	210	11	0.5	1
	2022HS	●	3	22	20	35	115	11	0.2	2
	2022HS-3L20		3	22	20	35	180	11	0.4	1

● : Stock item

Available inserts

	APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
					

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	 Screw	 Wrench
Ø10~Ø14	FTKA02555S	TW08S
Ø16~Ø63	FTKA02565S	TW08S

Available inserts **B5, B6**

AMS2000S



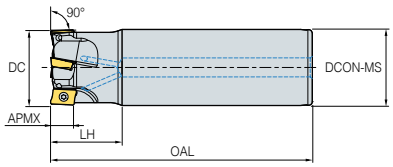


Fig. 1

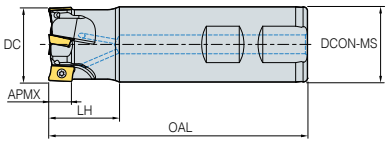


Fig. 2

KAPR 90°

- GAMP : 3°~14°
- GAMF : −25°~−18°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	2025HS	●	3	25	25	35	115	11	0.4	2
	2025HS-3L25	●	3	25	25	40	180	11	0.6	1
	2032HS	●	4	32	32	40	125	11	0.7	2
	2032HS-4L32	●	4	32	32	50	180	11	1	1
	2040HS	●	5	40	32	42	130	11	0.8	2
	2040HS-5L32	●	5	40	32	50	200	11	1.3	1
	2040HS-S40		5	40	40	42	130	11	1.1	2
	2040HS-S42		5	40	42	42	130	11	1.1	2
	2050HS	●	6	50	32	45	135	11	1	2
	2050HS-S40		6	50	40	45	135	11	1.3	2
	2050HS-S42		6	50	42	45	135	11	1.3	2
	2063HS		8	63	32	45	135	11	1.3	2
	2063HS-S40		8	63	40	45	135	11	1.6	2
	2063HS-S42		8	63	42	45	135	11	1.7	2

● : Stock item

Available inserts

	APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
					

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø10~Ø14	FTKA02555S	TW08S
Ø16~Ø63	FTKA02565S	TW08S

Available inserts **B5, B6**

AMS3000S



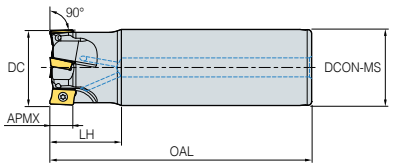


Fig. 1

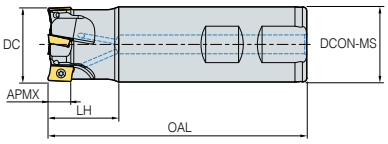
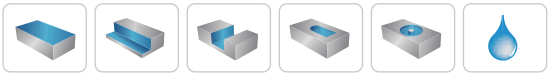


Fig. 2



KAPR 90°

- GAMP : 3°~14°
- GAMF : −18°~−10°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	3025HS	●	2	25	25	35	115	16	0.4	2
	3025HS-2M25	●	2	25	25	35	180	16	0.6	1
	3025HS-2L25	●	2	25	25	60	220	16	0.7	1
	3032HS	●	3	32	32	40	125	16	0.7	2
	3032HS-2M32	●	2	32	32	40	200	16	1.1	1
	3032HS-2L32		2	32	32	65	260	16	1.5	1
	3032HS-3M32		3	32	32	40	200	16	1.1	1
	3032HS-3L32	●	3	32	32	65	260	16	1.5	1
	3040HS	●	4	40	32	42	130	16	0.8	2
	3040HS-3M32	●	3	40	32	42	200	16	1.2	1
	3040HS-3L32		3	40	32	42	260	16	1.6	1
	3040HS-4M32		4	40	32	42	200	16	1.2	1
	3040HS-4L32	●	4	40	32	42	260	16	1.6	1
	3040HS-S40		4	40	40	42	130	16	1.1	2
	3040HS-S42		4	40	42	42	130	16	1.2	2
	3050HS	●	5	50	32	45	135	16	1	2
	3050HS-S40		5	50	40	45	135	16	1.3	2
	3050HS-S42		5	50	42	45	135	16	1.4	2
	3063HS	●	6	63	32	45	135	16	1.2	2
	3063HS-S40		6	63	40	45	135	16	1.5	2
	3063HS-S42	●	9	96	75	78	468	49	1.54	2

● : Stock item

Available inserts

APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
				

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM									●				●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

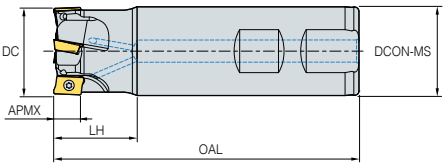
Parts

Specification	Screw	Wrench
Ø25	FTKA0408	TW15S
Ø32~Ø63	FTKA0410	TW15S

Available inserts **B5, B6**

AMS3000S-K





KAPR 90°

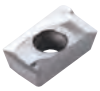
• GAMP : 14°
• GAMF : −18°~−10°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
AMS	3025HS-K	●	2	25	25	35	115	16	0.4
	3032HS-K	●	3	32	32	40	125	16	0.7
	3040HS-K	●	4	40	32	42	130	16	0.8
	3040HS-K-S40		4	40	40	42	130	16	1.1
	3040HS-K-S42	●	4	40	42	42	130	16	1.2
	3050HS-K		5	50	32	45	135	16	0.9
	3050HS-K-S40	●	5	50	40	45	135	16	1.3
	3050HS-K-S42	●	5	50	42	45	135	16	1.4
	3063HS-K		6	63	32	45	135	16	1.2
	3063HS-K-S40	●	6	63	40	45	135	16	1.3
	3063HS-K-S42	●	6	63	42	45	135	16	1.5

● : Stock item

Available inserts

APKT	APKT-MF	APKT-MM	APKT-MA	APKT-MA2	APKT-MA3
					

	Designation	Cermet	Coated												Uncoated			Page
		CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	G10	H01	H05	
APKT	1604PDSR		●						●	●									B4
	1604PDSR-MF		●										●						
	1604PDSR-MM		●	●					●	●	●		●						
	1604PDFR-MA														●		●	●	
	1604PDFR-MA2																●		
	160416FR-MA2																●		
	160432FR-MA2																		
	1604PDFR-MA3															●	●	●	

Parts

Specification	Screw	Wrench
Ø25	FTKA0408	TW15S
Ø32~Ø63	FTKA0410	TW15S

Available inserts **B4**

AMS4000S



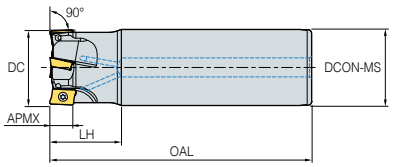


Fig. 1

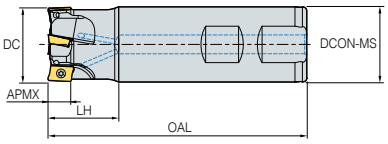
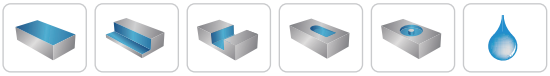


Fig. 2



KAPR 90°

- GAMP : 7°~13°
- GAMF : −20°~−6°

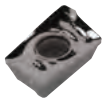
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	4020HS	●	1	20	20	30	90	17	0.2	2
	4020HS-M		1	20	20	30	160	17	1.6	1
	4021HS		1	21	20	30	90	17	0.2	2
	4021HS-M		1	21	20	30	160	17	0.3	1
	4025HS	●	2	25	25	40	110	17	0.3	2
	4025HS-2M25		2	25	25	40	180	17	0.6	1
	4025HS-2L25	●	2	25	25	40	230	17	0.7	1
	4026HS	●	2	26	25	40	110	17	0.3	2
	4026HS-2M25		2	26	25	40	180	17	0.6	1
	4026HS-2L25		2	26	25	40	230	17	0.7	1
	4032HS	●	3	32	32	40	125	17	0.6	2
	4032HS-2M32		2	32	32	50	200	17	1.2	1
	4032HS-2L32	●	2	32	32	50	260	17	1.5	1
	4032HS-3M32	●	3	32	32	50	200	17	1.1	1
	4032HS-3L32		3	32	32	50	260	17	1.4	1
	4033HS	●	3	33	32	40	125	17	0.6	2
	4033HS-2M32		2	33	32	50	200	17	1.1	1
	4033HS-2L32	●	2	33	32	50	260	17	1.4	1
	4033HS-3M32	●	3	33	32	50	200	17	1.1	1
	4033HS-3L32		3	33	32	50	260	17	1.4	1

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT 1806PDFR-MA																●	
180604PDFR-MA																●	
180612PDFR-MA																●	
180616PDFR-MA																●	
180620PDFR-MA																●	
180624PDFR-MA																●	B5
180630R-MA																●	B6
1806PDER-ML													●	●			
180604PDER-ML													●	●			
180612PDER-ML													●	●			
180616PDER-ML													●				
180620PDER-ML													●	●			

Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT 180624PDER-ML													●	●			
180630R-ML													●	●			
1806PDSR-MM		●					●	●	●	●	●	●	●	●			
1806PDSR-MF		●								●			●	●			
180612PDSR-MM		●							●				●	●			
180616PDSR-MM		●											●	●			B5
180620PDSR-MM																	B6
180624PDSR-MM		●											●	●			
180630R-MM													●	●			
180632R-MM		●											●	●			
1806PDSR-MN3													●				
1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø20~Ø21	FTKA0408	TW15S
Ø25~Ø33	FTKA0410	TW15S

Available inserts **B5, B6**

AMS4000S



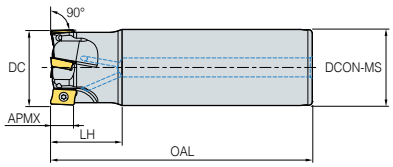


Fig. 1

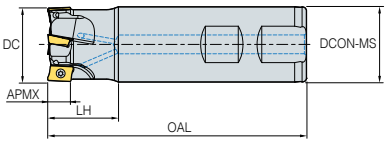


Fig. 2



KAPR 90°

• GAMP : 7°~13°
• GAMF : −20°~−6°

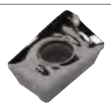
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
AMS	4040HS-3M32	●	3	40	32	50	200	17	1.2	1
	4040HS-3L32	●	3	40	32	50	260	17	1.6	1
	4040HS-4M32		4	40	32	50	200	17	1.2	1
	4040HS-4L32		4	40	32	50	260	17	1.6	1
	4040HS-S32	●	4	40	32	40	130	17	0.8	2
	4040HS-S40		4	40	40	40	130	17	1.1	2
	4040HS-S42		4	40	42	40	130	17	1.2	2
	4050HS-S32	●	5	50	32	40	135	17	1	2
	4050HS-S40		5	50	40	40	135	17	1.3	2
	4050HS-S42	●	5	50	42	40	135	17	1.4	2
	4063HS-S32	●	6	63	32	40	135	17	1.2	2
	4063HS-S40		6	63	40	40	135	17	1.6	2
	4063HS-S42	●	6	63	42	40	135	17	1.7	2

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT 1806PDFR-MA															●		
180604PDFR-MA															●		
180612PDFR-MA															●		
180616PDFR-MA															●		
180620PDFR-MA															●		
180624PDFR-MA															●		B5
180630R-MA															●		B6
1806PDER-ML													●	●			
180604PDER-ML													●	●			
180612PDER-ML													●	●			
180616PDER-ML													●				
180620PDER-ML													●	●			

Designation	Cermet	Coated												Uncoated		Page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT 180624PDER-ML													●	●			
180630R-ML													●	●			
1806PDSR-MM		●					●	●	●	●	●	●	●	●			
1806PDSR-MF		●								●			●	●			
180612PDSR-MM		●							●				●	●			
180616PDSR-MM		●											●	●			B5
180620PDSR-MM																	B6
180624PDSR-MM		●											●	●			
180630R-MM													●	●			
180632R-MM		●											●	●			
1806PDSR-MN3													●				
1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

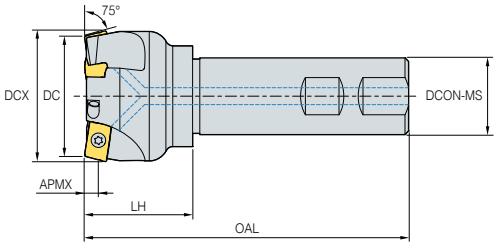
Parts

Specification	Screw	Wrench
Ø40~Ø63	FTKA0410	TW15S

Available inserts **B5, B6**

AMS1000SE/2000SE





KAPR 75°

• GAMP : −4.5°~−1°
• GAMF : −3°~0°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
AMS	1025HSE		3	25	25	30	115	2.5	0.4
AMS	2025HSE	●	2	25	25	30	115	4	0.4
	2032HSE	●	3	32	32	40	125	4	0.7
	2040HSE	●	3	40	32	40	130	4	0.8
	2040HSE-S40		3	40	40	40	130	4	1.2
	2040HSE-S42		3	40	42	40	130	4	1.3
	2050HSE		4	50	32	40	135	4	0.9
	2050HSE-S40		4	50	40	40	135	4	1.3
	2050HSE-S42		4	50	42	40	135	4	1.4
	2063HSE		5	63	32	40	135	4	1.2
	2063HSE-S40		5	63	40	40	135	4	1.5
	2063HSE-S42		5	63	42	40	135	4	1.6

● : Stock item

Available inserts

APMT-MF



APMT-MM



Type	Designation		Cermet	Coated												Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	060202PDSR-MM		●							●				●	●			
		0602PDSR-MM		●					●	●	●	●	●		●	●			
		060208PDSR-MM		●							●				●	●			
		060212R-MM		●											●	●			
		060216R-MM													●	●			
2000 type	APMT	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			B5
		11T3PDSR-MF		●							●	●			●	●			B6
		11T308PDSR-MM		●							●		●	●	●	●			
		11T312PDSR-MM		●							●		●		●	●			
		11T316R-MM		●							●				●	●			
		11T318R-MM																	
		11T324R-MM		●							●				●	●			

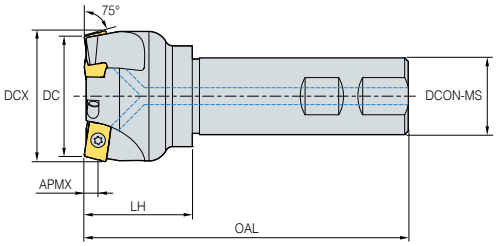
Parts

Specification	Screw	Wrench	Wrench
Ø25(1000 type)	FTKA01842	-	TW06S-A
Ø25~Ø63(2000 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6**

AMS3000SE





KAPR 75°

- GAMP : −4.5°~−1°
- GAMF : −3°~0°

(mm)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	kg
AMS	3050HSE		3	50	53.8	32	45	135	6	0.9
	3050HSE-S40		3	50	53.8	40	45	135	6	1.3
	3050HSE-S42		3	50	53.8	42	45	135	6	1.4
	3063HSE		4	63	66.794	32	45	135	6	1.2
	3063HSE-S40		4	63	66.794	40	45	135	6	1.5
	3063HSE-S42		4	63	66.794	42	45	135	6	1.7

● : Stock item

Available inserts

APMT-MF



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			B5 B6
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM									●				●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			

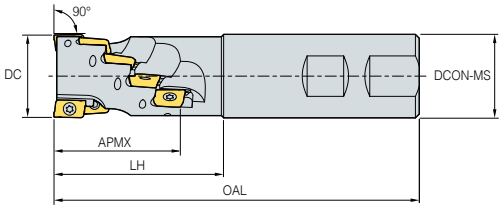
Parts

Specification	Screw	Wrench
Ø50~Ø63	FTKA0410	TW15S

Available inserts **B5, B6**

AMS1000M/1500M









KAPR 90°

- GAMP : 7°~9°
- GAMF : −13°~−10°

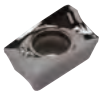
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	kg
AMS	1016M		6	16	16	30	80	2	15.5	0.3
	1020M		12	20	20	32	85	3	20.5	0.2
	1025M		20	25	25	39	95	4	25.5	0.3
	15020M		3	20	20	42	105	1	26.5	0.2
	15025M		8	25	25	50	110	2	35	0.3
	15032M		10	32	32	60	120	2	44	0.6

● : Stock item

Available inserts

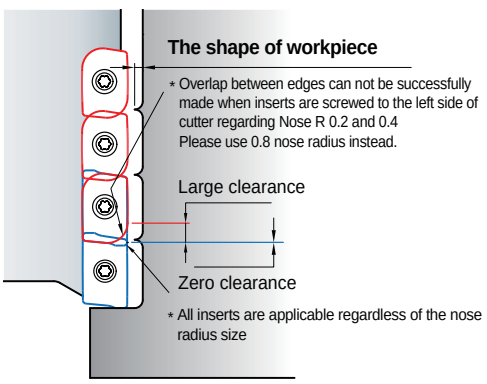
APMT-MA APMT-ML APMT-MM





Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	0602PDFR-MA																●	
		060208PDFR-MA																	
		060202PDSR-MM		●							●				●	●			
		0602PDSR-MM		●					●	●	●	●	●		●	●			
		060208PDSR-MM		●							●				●	●			
		060212R-MM		●											●	●			
		060216R-MM													●	●			
1500 type	APMT	0903PDFR-MA																●	B5
		090308PDFR-MA																	B6
		0903PDER-ML													●	●			
		090308PDER-ML													●	●			
		0903PDSR-MM		●					●	●	●	●			●	●			
		090308PDSR-MM		●							●				●	●			
		090312R-MM									●				●	●			
		090316R-MM		●							●				●	●			
		090320R-MM									●				●	●			

Caution when clamping the inserts



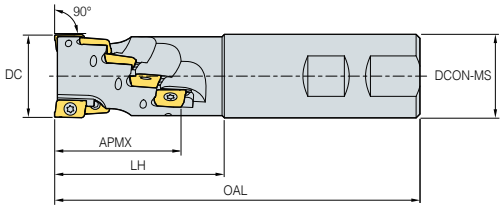
Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø25(1000 type)	FTKA01842	-	TW06S-A
Ø20~Ø32(1500 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6**

AMS2000M







KAPR 90°

- GAMP : 7°~9°
- GAMF : −13°~−10°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	kg
AMS	2020M	●	3	20	20	45	120	1	29.4	0.3
	2025M	●	8	25	25	55	130	2	38.9	0.4
	2032M	●	10	32	32	65	140	2	48.5	0.7
	2040M	●	14	40	40	75	150	2	58	1.2

● : Stock item

Available inserts


APMT-MA


APMT-ML


APMT-MM

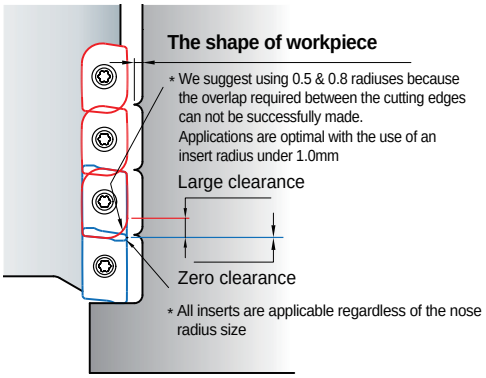

APMT-MF


APMT-MN

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

Caution when clamping the inserts



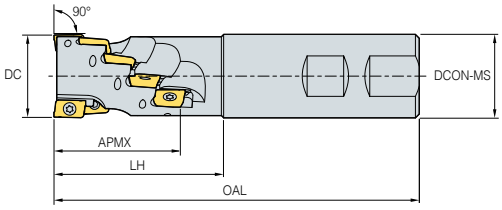
Parts

Specification	Screw	Wrench
Ø20~Ø40	FTKA02565S	TW08S

Available inserts **B5, B6**

AMS4000M







KAPR 90°

- GAMP : 7°~9°
- GAMF : −13°~−10°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	kg
AMS	4032M		4	32	32	60	130	2	31	0.7
	4040M		6	40	40	70	140	2	46	1.1
	4050M-S40		6	50	40	55	125	2	46	1.2
	4050M		8	50	40	70	140	2	61	1.4

● : Stock item

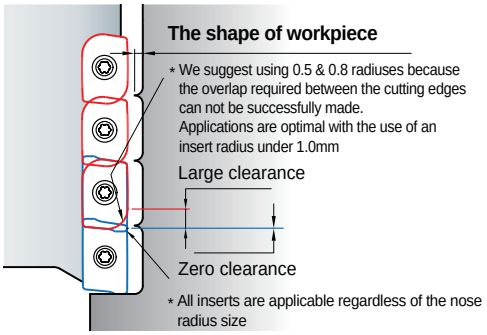
Available inserts



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●	
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	
	180630R-MA																●	
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●				
	180620PDER-ML													●	●			B5
	180624PDER-ML													●	●			B6
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			
	180620PDSR-MM																	
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts



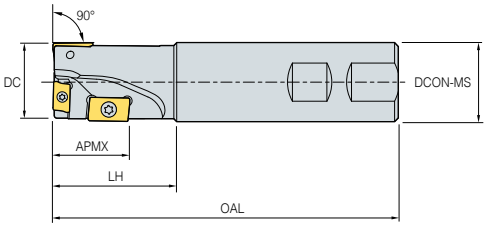
Parts

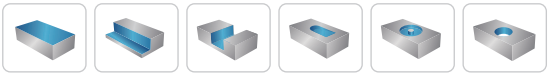
Specification	Screw	Wrench
Ø32~Ø50	FTKA0410	TW15S

Available inserts **B5, B6**

AMS1000MH/1500MH







KAPR 90°

- GAMP : 9°~12°
- GAMF : −12°~−10°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	kg
AMS	1014MH	●	3	14	12	30	120	2	11	0.1
	1016MH	●	3	16	14	30	140	2	11	0.2
	1018MH	●	3	18	16	30	140	2	11	0.2
AMS	15020MH	●	3	20	20	35	140	2	17	0.3

● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM



Type	Designation		Cermet	Coated												Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	0602PDFR-MA																●	B5 B6
		060208PDFR-MA																	
		060202PDSR-MM		●							●				●	●			
		0602PDSR-MM		●					●	●	●	●	●		●	●			
		060208PDSR-MM		●							●				●	●			
1500 type	APMT	0903PDFR-MA																●	
		090308PDFR-MA																	
		0903PDER-ML													●	●			
		090308PDER-ML													●	●			
		0903PDSR-MM		●					●	●	●	●			●	●			
		090308PDSR-MM		●							●				●	●			

Parts

Specification	Screw	Wrench	Wrench
Ø14~Ø18(1000 type)	FTKA01842	-	TW06S-A
Ø20(1500 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6**



	Drilling	Shouldering	Slotting
vc(m/min)	80~200	80~200	80~200
fz(mm/t)	0.03~0.06	0.05~0.25	0.05~0.20

- Please keep the drill depth under 0.25D when you're drilling
- Please keep the step depth from 0.2 to 0.3mm

AMS2000MH/3000MH(-K)



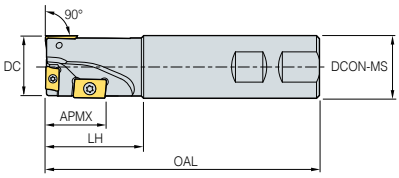


Fig. 1

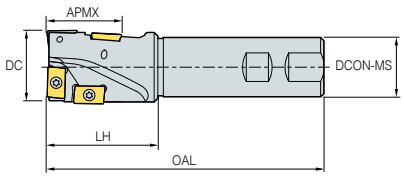
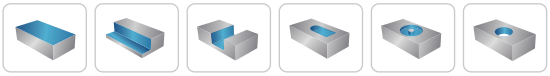


Fig. 2



KAPR 90°

- GAMP : 9°~12°
- GAMF : −12°~−10°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	kg	Fig.
AMS	2025MH	●	3	25	25	40	130	2	20	0.4	1
	2032MH	●	3	32	32	50	140	2	30	0.7	1
	3040MH		4	40	32	60	150	2	40	0.9	2
	3040MH-K	●	4	40	32	60	150	2	40	0.9	2

● : Stock item

Available inserts

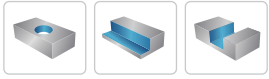


Type	Designation		Cermet	Coated											Uncoated	Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	H01	
2000 type	APMT	11T3PDFR-MA															●	
		11T308PDFR-MA																
		11T3PDER-ML													●	●		
		11T308PDER-ML													●	●		
		11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●		
		11T3PDSR-MF		●							●	●			●	●		
		11T308PDSR-MM		●							●		●	●	●	●		B4
		11T312PDSR-MM		●							●		●		●	●		B5
		11T316R-MM		●							●				●	●		B6
		11T318R-MM		●														
		11T324R-MM		●							●				●	●		
3000 type	APMT	1604PDSR-MM		●	●				●	●	●	●	●		●	●		
		1604PDSR-MF		●							●	●			●	●		
3000-K type	APKT	1604PDSR-MM			●	●					●	●	●		●			
		1604PDSR-MF			●										●			

Parts

Specification	Screw	Wrench	Wrench
Ø25(2000 type)	FTKA02565S	TW08S	-
Ø32(2000 type)	FTKA02565S+FTKA0410	TW08S+TW15S	-
Ø40(3000 type)	FTKA0410	TW15S	-

Available inserts **B4 ~ B6**

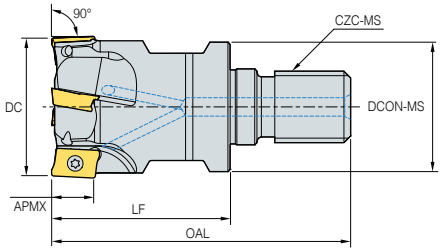


	Drilling	Shouldering	Slotting
vc(m/min)	80~200	80~200	80~200
fz(mm/t)	0.03~0.06	0.05~0.25	0.05~0.20

- Please keep the drill depth under 0.25D when you're drilling
- Please keep the step depth from 0.2 to

AMM1000





KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : −28°~−6°

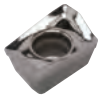
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
AMM	1012HR-M06	●	3	12	11	25	40	M06	5.6	0.1
	1016HR-M08		4	16	14.5	25	42	M08	5.6	0.1
	1020HR-M10	●	5	20	18	30	51	M10	5.6	0.1
	1025HR-M12		7	25	23	35	59	M12	5.6	0.1
	1032HR-M16		8	32	29	40	67	M16	5.6	0.2

● : Stock item

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																●	B5 B6
	060208PDFR-MA																	
	060202PDSR-MM		●							●				●	●			
	0602PDSR-MM		●					●	●	●	●	●		●	●			
	060208PDSR-MM		●							●				●	●			
	060212R-MM		●											●	●			
	060216R-MM													●	●			

Available adaptors

	Designation	Available adaptors
AMM	1012HR-M06	MAT-M06
	1016HR-M08	MAT-M08
	1020HR-M10	MAT-M10
	1025HR-M12	MAT-M12
	1032HR-M16	MAT-M16

Designation : AMM1032HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

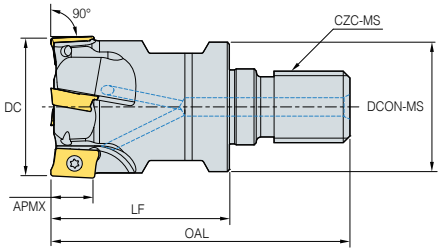
Parts

Specification	Screw	Wrench
Ø12~Ø32	FTKA01842	TW06S-A

Available inserts **B5, B6** Available adaptors **B400**

AMM1500





KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : −28°~−6°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
AMM	15010HR-M06		1	10	9.5	25	40	M06	9	0.1
	15012HR-M06		1	12	11	25	40	M06	9	0.1
	15016HR-M08	●	2	16	14.5	25	42	M08	9	0.1
	15020HR-M10	●	2	20	18	30	51	M10	9	0.1
	15025HR-M12	●	3	25	23	35	59	M12	9	0.1
	15032HR-M16	●	4	32	29	40	67	M16	9	0.2

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	B5 B6
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM		●					●	●	●	●			●	●			
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

Available adaptors

	Designation	Available adaptors
AMM	15010HR-M06	MAT-M06
	15012HR-M06	
	15016HR-M08	MAT-M08
	15020HR-M10	MAT-M10
	15025HR-M12	MAT-M12
	15032HR-M16	MAT-M16

Designation : AMM15032HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

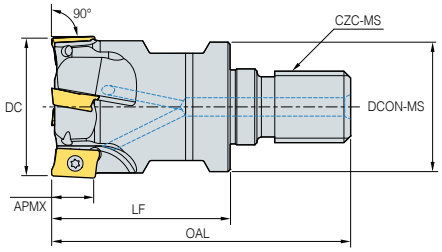
Parts

Specification	Screw	Wrench
Ø10~Ø14	FTKA02555S	TW08S
Ø16~Ø100	FTKA02565S	TW08S

Available inserts **B5, B6** Available adaptors **B400**

AMM2000





KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : −28°~−6°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
AMM	2016HR-M08		2	16	14.5	25	42	M08	11	0.1
	2020HR-M10		2	20	18	30	51	M10	11	0.1
	2025HR-M12	●	3	25	23	35	59	M12	11	0.1
	2032HR-M16		4	32	29	40	67	M16	11	0.2
	2040HR-M16		5	40	29	40	67	M16	11	0.3

● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN







	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase MN2 / MN3 and use them together. ※ It is recommended to use them to cutters with the even flute number.

Available adaptors

	Designation	Available adaptors
AMM	2016HR-M08	MAT-M08
	2020HR-M10	MAT-M10
	2025HR-M12	MAT-M12
	2032HR-M16	MAT-M16
	2040HR-M16	

Designation : AMM2032HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø16~Ø40	FTKA02565S	TW08S

Available inserts **B5 ~ B6** Available adaptors **B400**

Excellent performance in high speed machining, tapping center, low power machine with its Aluminum body

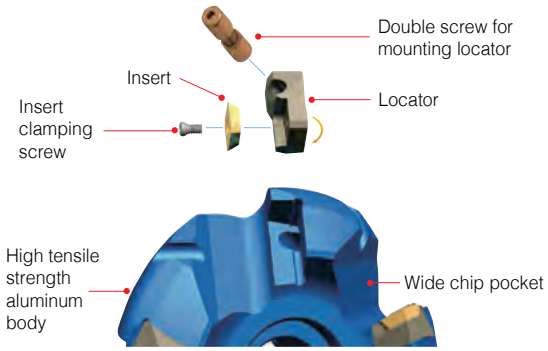
Future Mill

- Light-weight aluminum body (50% of steel body) can be used for high speed cutting, tapping center, and on low power machines
- Easy handling
- It can be used for Aluminum alloys, and light cutting of Steel and Cast Iron
- Rigid body employs high tensile aluminum
- Locators are applied as the insert seats which ensures excellent durability
- A variety of chip breakers are available for the wide range of the workpiece application
- The high rake angle provides low cutting loads and good surface roughness

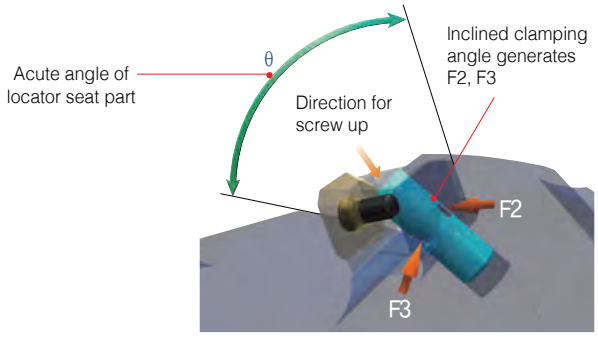
Features of cutter

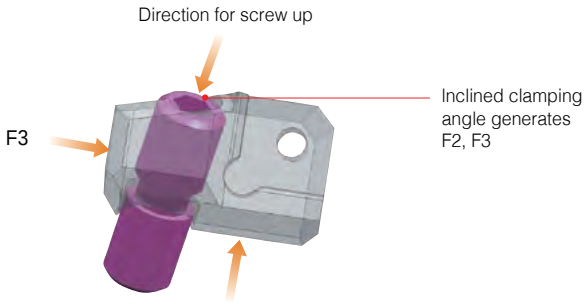
- Strong clamping between aluminum body and locator with double screw provides high efficiency machining
- Acute angle of locator seat provides strong clamping even in high speed machining
- Wide chip pocket area provides good chip evacuation and less chip jamming
- High tensile strength aluminum body features to realize excellent performance

Assembly structure of cutter



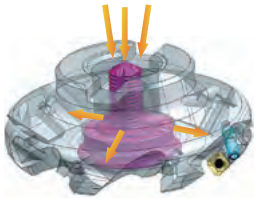
Assembly structure of locator



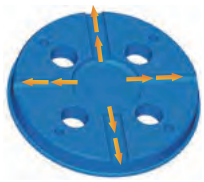


Through coolant system

- Exclusively designed coolant bolt and cover provide excellent coolant action and chip evacuation for improved tool life
- Exact coolant direction to cutting area
- Coolant bolt covers Ø63~160 and Coolant cover is applied for Ø200 range. Both are sold separately, and Through coolant arbor has to be used together.

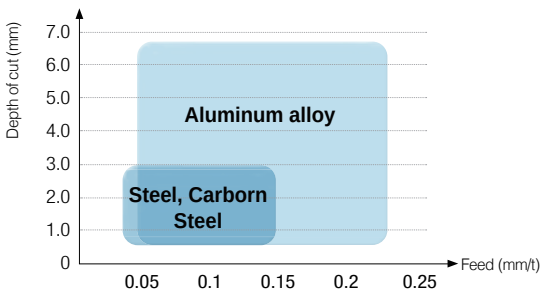


[Bolt: Ø63~Ø160]

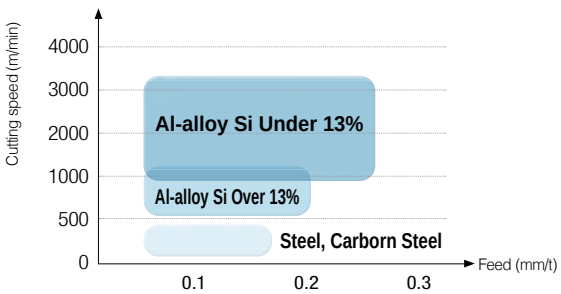


[Cover: Over Ø200]

Application range



Cutting speed



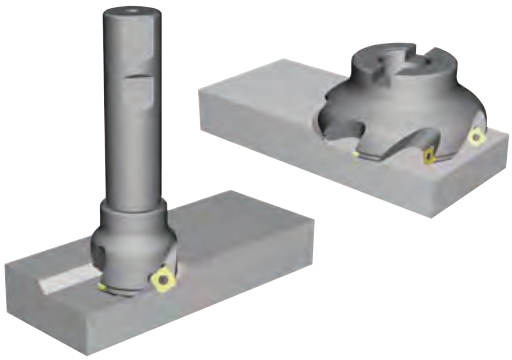
Max. available revolution

Cutter diameter	Max. revolution (rpm)
Ø63	20,000
Ø80	16,000
Ø100	13,000
Ø125	10,000
Ø160	8,000
Ø200	6,500
Ø250	5,000
Ø315	4,000

Future Mill (FMA)

Features

- General milling cutter for high productivity
- Adjustable pitch of cutter and various chip breaker offer wide application range.
- Light cutter body allows high speed cutting and can be used in low horse power machine
- Smooth cutting with low cutting load is accomplished with high-rake angle



Features of chip breaker

Chip breaker Insert		Cutting-edge	Use	Features
None C/B			Light cutting	Superior surface roughness at finishing due to ground type cermet insert
MF			Light cutting	Superior cutting quality for light and dif ficult-to-cut material machining through the low cutting load of chip breaker
MM			General cutting	Suitable for various cutting due to special shape design for general cutting
MR			Roughing	Tough cutting-edge provides stable cutting performance in severe interruption
MA			For aluminum	Superior cutting quality for aluminum due to sharp cutting-edge and buffed surface · S□ET-MA: Sharp cutting-edge due to high accurate grinding · S□XT-MA: Suitable cutting-edge for roughing

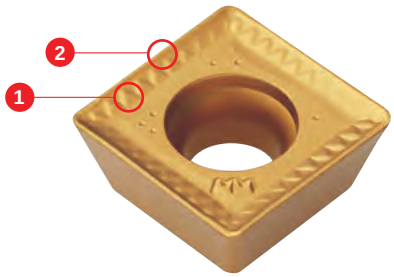
Recommended cutting conditions

ISO	Grade	vc(m/min)	MF	MM	MR	MA
			fz(mm/t)	fz(mm/t)	fz(mm/t)	fz(mm/t)
P	NC5330	210~350	0.05~0.20	0.10~0.30	0.10~0.30	-
	NCM325	190~310	0.05~0.20	0.10~0.30	0.10~0.30	-
	PC3700	160~270	0.05~0.20	0.10~0.30	0.10~0.30	-
M	PC9530	90~150	0.05~0.15	0.10~0.30	-	-
	NCM335	70~120	0.05~0.15	0.10~0.30	-	-
K	PC5300	110~180	0.05~0.20	0.10~0.30	-	-
N	H01	260~440	-	-	-	0.10~0.35

Future Mill (FMP)

Features

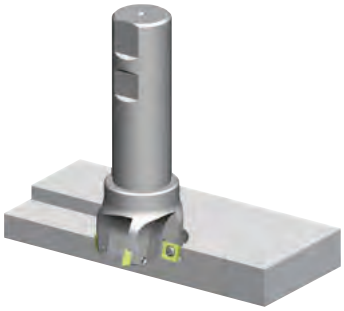
- The strong cutting-edge ensures excellent tool life in high feed and high speed, deep depth of cut, with low cutting loads
- Optimal grades for most workpieces make high efficiency cutting possible
- Unique chip breaker makes good chip evacuation and lower cutting loads (❶)
- Innovative curve cutting-edge lowers cutting load and provides a stronger cutting-edge (❷)



Machining examples







Features of chip breaker

- Innovative special cutting-edge and chip breaker design ensures ideal 90˚cutting and low cutting load
- Various applications are available with multi functional cutters (Facing, Slotting, Shouldering)
- Improved tool life due to special coated grades
- Superior cutting quality at deep cutting depth through the low cutting load and strong cutting-edge

Recommended C/B and grade as per workpiece

Chip breaker Insert		Cutting edge	Use	Recommended C/B and grade as per workpiece (●: 1st)									
				Low carbon steel/Mild steel		High carbon steel/Mild steel		Stainless steel		Cast iron		Aluminum alloy	
				C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
MF			Low cutting load type	●	○ NCM325 ○ NC5330 ● NCM335		● NCM325 ○ NC5330 ○ NCM335	●	○ NCM325 ○ NC5330 ● NCM335	●	● PC6100 ○ PC215K	-	-
MM			Reinforced cutting edge type		○ NCM325 ○ NC5330 ● NCM335		● NCM325 ○ NC5330 ○ NCM335		○ NCM325 ○ NC5330 ● NCM335		● PC6100 ○ PC215K	-	-
MA			Sharp cutting edge type	-	-	-	-	-	-	-	-	●	○ H01 ○ G10

Recommended cutting conditions

ISO	Cutting Speed vc (m/min)							
	CVD Coated		PVD Coated					Uncoated
	NCM325	NCM335	PC3700	PC6100	PC5300	PC9530	PC5400	H01
P	190~310	180~290	160-270	-	150-240	-	130-210	-
M	110~180	100~160	-	-	90-150	90-150	70-120	-
K	-	-	-	140-230	120-200	-	100-160	-
N	-	-	-	-	-	-	-	260-440

FMAC(M)3000



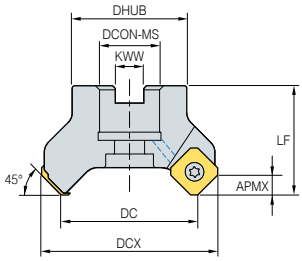


Fig. 1

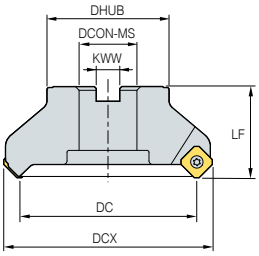


Fig. 2

KAPR 45°

• GAMP : 21°
• GAMF : −17°~−12°

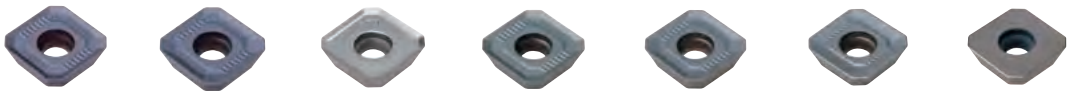
(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMACM	3050HR		4	50	58.39	42	22	10.4	40	4.0	0.4	1
	3050HR-H	●	6	50	58.39	42	22	10.4	40	4.0	0.4	1
	3063HR		5	63	71.42	49	22	10.4	40	4.0	0.5	1
	3063HR-H	●	8	63	71.42	49	22	10.4	40	4.0	0.6	1
FMAC (FMACM)	3080HR	● (●)	6	80	88.47	57	25.4(27)	9.5(12.4)	50	4.0	1.1	1
	3080HR-H	(●)	10	80	88.47	57	25.4(27)	9.5(12.4)	50	4.0	1.2	1
	3100HR		7	100	108.61	67	31.75(32)	12.7(14.4)	50	4.0	1.6	2(1)
	3100HR-H		12	100	108.61	67	31.75(32)	12.7(14.4)	50	4.0	1.7	2(1)
	3125HR		8	125	133.58	87	38.1(40)	15.9(16.4)	63	4.0	3.3	2(1)
	3125HR-H		14	125	133.58	87	38.1(40)	15.9(16.4)	63	4.0	3.3	2(1)

( )Metric size, ● : Stock item

Available inserts

SEET-MF SEET-MM SEET-MA SEXT-MF SEXT-MM SEXT-MR SEEW



	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																	●	●	B21 B22
	0903AGSN-MF										●	●		●	●					
	0903AGSN-MM			●							●			●	●					
SEXT	0903AGSN-MF										●			●	●					
	0903AGSN-MM									●	●			●	●					
	0903AGSN-MR																			
SEEW	0903AGTN																			

Available arbors

	Designation	DCON-MS	NC arbors
FMACM	3050HR-□	22	BT□□-FMC22-□□
	3063HR-□		
FMAC (FMACM)	3080HR-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HR-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	3125HR-□	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMB/FMC40-□□

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTKA0307	TW09S

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E96**

FMAC(M)4000



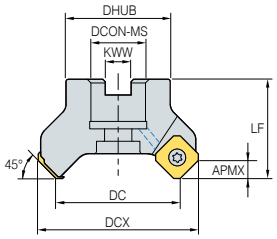


Fig. 1

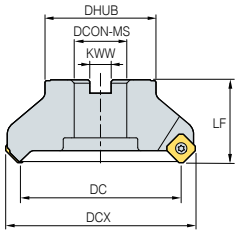


Fig. 2

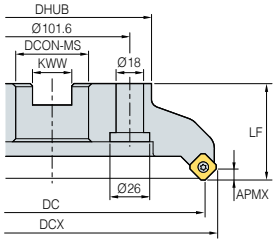


Fig. 3

KAPR 45°

- GAMP : 21°
- GAMF : −17°~−12°

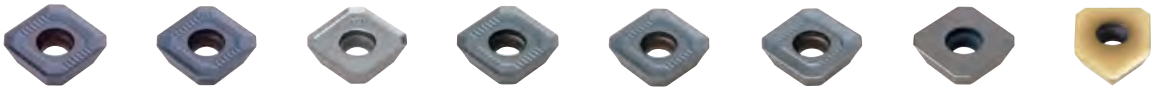
(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMACM	4050HR	●	3	50	63.033	42	22	10.4	40	6.5	0.4	1
	4063HR	●	4	63	76.046	49	22	10.4	40	6.5	0.6	1
	4063HR-M		5	63	76.046	49	22	10.4	40	6.5	0.5	1
	4063HR-H	●	6	63	76.046	49	22	10.4	40	6.5	0.6	1
FMAC (FMACM)	4080HR	(●)	5	80	93.08	57	25.4(27)	9.5(12.4)	50	6.5	1	1
	4080HR-M	●	6	80	93.08	57	25.4(27)	9.5(12.4)	50	6.5	1.1	1
	4080HR-H		8	80	93.08	57	25.4(27)	9.5(12.4)	50	6.5	1.1	1
	4100HR	● (●)	5	100	113	67	31.75(32)	12.7(14.4)	63	6.5	2.1	1
	4100HR-M	● (●)	7	100	113	67	31.75(32)	12.7(14.4)	63	6.5	2	1
	4100HR-H		10	100	113	67	31.75(32)	12.7(14.4)	63	6.5	2	1
	4125HR		6	125	138.48	87	38.1(40)	15.9(16.4)	63	6.5	3.1	1
	4125HR-M	● (●)	8	125	138.48	87	38.1(40)	15.9(16.4)	63	6.5	3.2	1
	4125HR-H		12	125	138.48	87	38.1(40)	15.9(16.4)	63	6.5	3.4	1
	4160R	● (●)	7	160	173.16	107	50.8(40)	19(16.4)	63	6.5	5.4	2
	4160R-M	● (●)	10	160	173.16	107	50.8(40)	19(16.4)	63	6.5	5.2	2
	4160R-H	●	16	160	173.16	107	50.8(40)	19(16.4)	63	6.5	5.1	2
	4200R	● (●)	8	200	213.12	130	47.625(60)	25.4(25.7)	63	6.5	6.7	3
	4200R-M	● (●)	12	200	213.12	130	47.625(60)	25.4(25.7)	63	6.5	7.8	3
	4200R-H		18	200	213.12	130	47.625(60)	25.4(25.7)	63	6.5	7.8	3

( )Metric size, ● : Stock item

Available inserts

SEET-MF | SEET-MM | SEET-MA | SEXT-MF | SEXT-MM | SEXT-MR | SEEW | SEEW-W



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	H01	H05	
SEET	14M4AGFN-MA												●	●	●	●	B21 B22
	14M4AGSN-MF				●				●	●		●	●					
	14M4AGSN-MM				●				●	●	●		●	●				
SEXT	14M4AGSN-MF								●				●	●				
	14M4AGSN-MM			●					●	●	●		●	●				

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	H01	H05	
SEXT	14M4AGSN-MR											●		●				B21 B22
SEEW	14M4AGTN																	
	14M4AGFN-W																	
	14M4AGSN-W													●				
	14M4AGTN-W										●							

Available arbors

Designation		DCON-MS	NC arbors
FMACM	4050HR-□	22	BT□□-FMC22-□□
	4063HR-□		
FMAC (FMACM)	4080HR-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HR-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

Designation		DCON-MS	NC arbors
FMAC (FMACM)	4125HR-□	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMB40-□□
	4160R-□	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMB/FMC40-□□
	4200R-□	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMB60-□□

Parts

Specification	Screw	Shim	Shim Screw	Insert wrench	Shim wrench
Ø50~Ø200	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E96**

FMAC(M)3000-A

Aluminum body



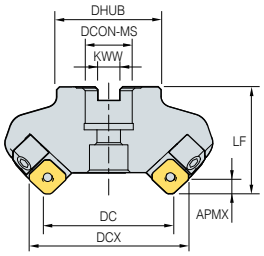


Fig. 1

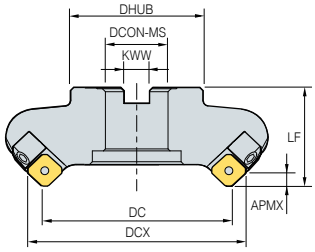


Fig. 2



KAPR 45°

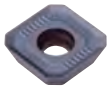
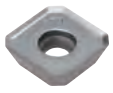
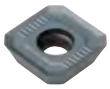
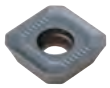
- GAMP : 21°
- GAMF : −16°~−12°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMACM	3063R-A		3	63	71.3	49	22	10.4	40	4	0.7	1
FMAC (FMACM)	3080R-A	●	4	80	88.4	57	25.4(27)	9.5(12.4)	50	4	0.7	1
	3100R-A		5	100	108.61	67	31.75(32)	12.7(14.4)	50	4	0.7	2
	3100R-25.4-A	●	5	100	108.6	67	25.4	9.5	50	4	0.7	2
	3125R-A	●	6	125	133.5	87	38.1(40)	15.9(16.4)	63	4	1.9	2
	3125R-25.4-A		6	125	133.5	70	25.4	9.5	63	4	1.4	2

( )Metric size, ● : Stock item

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW
						

	Designation	Cermet	Coated												Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																	●	●	B21 B22
	0903AGSN-MF										●	●		●	●					
	0903AGSN-MM			●							●			●	●					
SEXT	0903AGSN-MF										●			●	●					
	0903AGSN-MM									●	●			●	●					
	0903AGSN-MR																			
SEEW	0903AGTN																			

Available arbors

	Designation	DCON-MS	NC arbors
FMACM	3063R-□	22	BT□□-FMC22-□□
FMAC (FMACM)	3080R-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100R-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	3125R-□	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMB40-□□

Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw
Ø63~Ø125	FTKA0307	TW09S	HW30L	LFMA3R-A	DHA0620

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E96**

FMAC(M)4000-A

Aluminum body



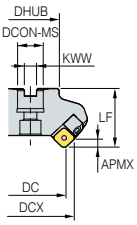


Fig. 1

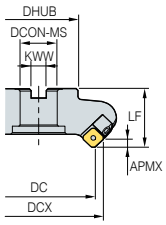


Fig. 2

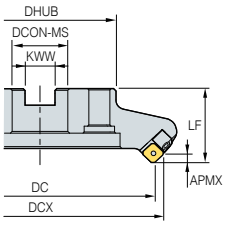


Fig. 3

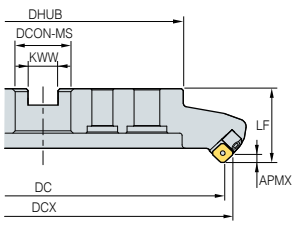


Fig. 4

KAPR 45°

- GAMP : 21°
- GAMF : −16°~−12°

(mm)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMACM	4063R-A	●	3	63	75.8	49	22	10.4	50	6.5	0.5	1
FMAC (FMACM)	4080R-A	● (●)	4	80	92.9	67	25.4(27)	9.5(12.4)	50	6.5	0.7	1
	4100R-A	● (●)	5	100	113	67	31.75(32)	12.7(14.4)	50	6.5	0.9	2
	4100R-25.4-A	●	5	100	113	60	25.4	9.5	50	6.5	1	2
	4125R-A	●	6	125	138.4	87	38.1(40)	15.9(16.4)	63	6.5	2.3	2
	4125R-25.4-A	●	6	125	138.4	70	25.4	9.5	63	6.5	1.7	2
	4160R-A	●	7	160	172.9	107	50.8(40)	19.1(16.4)	63	6.5	3	2
	4200R-A	● (●)	8	200	213	130	47.625(60)	25.4(25.7)	63	6.5	3.9	3
	4250R-A		10	250	263.1	180	47.625(60)	25.4(25.7)	63	6.5	5.3	3
	4315R-A		12	315	328.2	240	47.625(60)	25.4(25.4)	63	6.5	7.6	4

※ Through coolant is applied to the cutter range within Ø50~Ø125

( )Metric size, ● : Stock item

Available inserts

SEET-MF SEET-MM SEET-MA SEXT-MF SEXT-MM SEXT-MR SEEW SEEW-W



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	H01	H05	
SEET	14M4AGFN-MA													●	●	●	●	B21 B22
	14M4AGSN-MF				●				●	●		●	●					
	14M4AGSN-MM				●				●	●	●		●	●				
SEXT	14M4AGSN-MF									●			●	●				
	14M4AGSN-MM			●					●	●	●		●	●				

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	H01	H05	
SEXT	14M4AGSN-MR											●	●					B21 B22
SEEW	14M4AGTN	●																
	14M4AGFN-W																	
	14M4AGSN-W													●				
	14M4AGTN-W										●							

Available arbors

Designation		DCON-MS	NC arbors
FMACM	4063R-□	22	BT□□-FMC22-□□
FMAC (FMACM)	4080R-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HR-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	4125R-□	38.1	BT□□-FMA38.1-□□

Designation		DCON-MS	NC arbors
FMAC (FMACM)	4125R-□	40	BT□□-FMB40-□□
	4160R-□	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMB/FMC40-□□
	4200R-□	47.625	BT□□-FMA47.625-□□
	4250R-□	60	BT□□-FMB60-□□
	4315R-□	60	BT□□-FMB60-□□

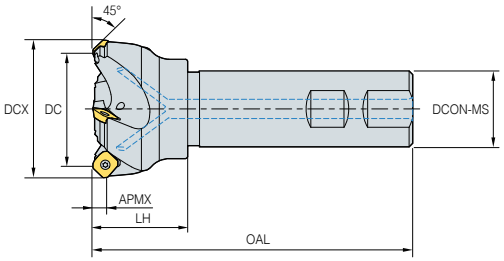
Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw
Ø63~Ø315	FTGA03510	TW15S	HW40L	LFMA4R-A	DHA0830

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E96**

FMAS3000





KAPR 45°

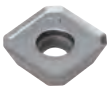
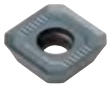
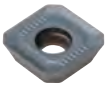
• GAMP : 23°
• GAMF : −17°~−13°

(mm)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	kg
FMAS	3025HR		2	25	33.38	25	35	115	4	0.4
	3032HR		3	32	40.44	25	40	125	4	0.5
	3032HR-S32		3	32	40.44	32	40	130	4	0.8
	3040HR	●	3	40	48.45	32	40	130	4	0.9
	3040HR-S40		3	40	48.45	40	40	140	4	1.3
	3040HR-S42		3	40	48.45	42	40	140	4	1.4
	3050HR		4	50	58.39	32	40	135	4	1
	3050HR-S40		4	50	58.39	40	40	140	4	1.4
	3050HR-S42		4	50	58.39	42	40	140	4	1.5
	3063HR	●	5	63	71.42	32	45	135	4	1.2
	3063HR-S40		5	63	71.42	40	45	145	4	1.6
	3063HR-S42		5	63	71.42	42	45	145	4	1.7

● : Stock item

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW
						

	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																	●	●	B21 B22
	0903AGSN-MF										●	●		●	●					
	0903AGSN-MM			●							●			●	●					
SEXT	0903AGSN-MF										●			●	●					
	0903AGSN-MM									●	●			●	●					
	0903AGSN-MR																			
SEEW	0903AGTN																			

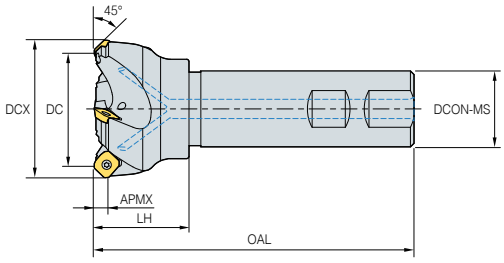
Parts

Specification	Screw	Wrench
Ø25~Ø63	FTKA0307	TW09S

Available inserts **B21, B22**

FMAS4000





KAPR 45°

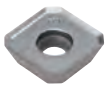
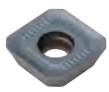
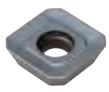
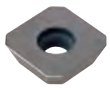
- GAMP : 23°
- GAMF : −17°~−13°

(mm)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	kg
FMAS	4050HR		3	50	63.03	32	45	135	6.5	1
	4050HR-S40		3	50	63.03	40	45	135	6.5	1.3
	4050HR-S42		3	50	60.03	42	45	135	6.5	1.5
	4063HR		4	63	76.046	32	45	135	6.5	1.2
	4063HR-S40		4	63	76.046	40	45	135	6.5	1.5
	4063HR-S42		4	63	76.046	42	45	135	6.5	1.6

● : Stock item

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW	SEEW-W
							

	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	H01	H05	
SEET	14M4AGFN-MA														●	●		●	●	
	14M4AGSN-MF				●					●	●		●	●						
	14M4AGSN-MM				●				●	●	●		●	●						
SEXT	14M4AGSN-MF									●			●	●						
	14M4AGSN-MM			●					●	●	●		●	●						B21
	14M4AGSN-MR										●		●							B22
SEEW	14M4AGTN	●																		
	14M4AGFN-W																			
	14M4AGSN-W												●							
	14M4AGTN-W									●										

Parts

Specification	Screw	Shim	Shim Screw	Insert wrench	Shim wrench
Ø50~Ø63	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts **B21, B22**

FMPC(M)3000



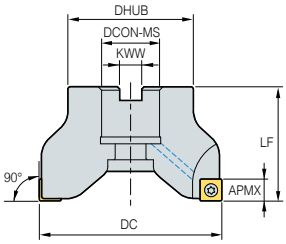


Fig. 1

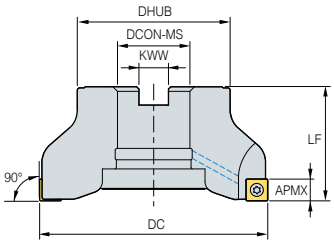


Fig. 2

KAPR 90°

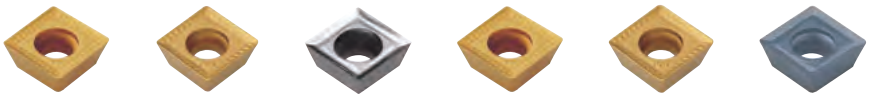
- GAMP : 10°
- GAMF : –9°~–8°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
FMPCM	3050HS	●	5	50	40	22	10.4	40	7	0.3
	3063HS	●	6	63	40	22	10.4	40	7	0.4
FMPC (FMPCM)	3080HS	● (●)	7	80	55	25.4	9.5	50	7	1
	3100HS	(●)	8	100	67	31.75	12.7	50	7	1.4
	3080HS		7	80	55	27	12.4	50	7	1
	3100HS		8	100	67	32	14.4	50	7	1.5

( )Metric size, ● : Stock item

Available inserts



	Designation	Cermet	Coated												Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA														●			●	●	
	09M405R-MF																			
	09M405R-MM																			
SDXT	09M405R-MF			●					●	●	●		●	●						B19
	09M405L-MF																			B20
	09M405R-MM			●	●				●	●	●		●	●						
	09M405L-MM									●										
	09M405R-MA																	●	●	

Available arbors

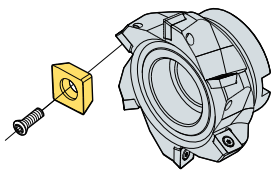
	Designation	DCON-MS	NC arbors
FMPCM	3050HS	22	BT□□-FMC22-□□
	3063HS		
FMPC (FMPCM)	3080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø50~Ø100	FTGA03508	TW15S

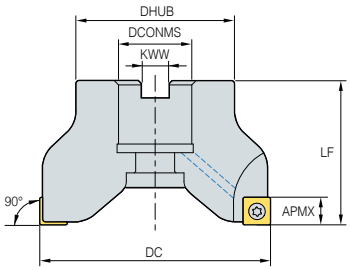
Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

Assembling



FMPC(M)4000





KAPR 90°

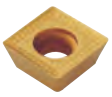
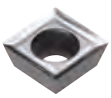
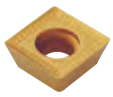
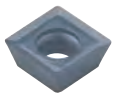
- GAMP : 10°
- GAMF : –9°~–8°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
FMPCM	4063HS	●	5	63	49	22	10.4	50	11	0.4
FMPC (FMPCM)	4080HS	● (●)	6	80	57	25.4(27)	9.5(12.4)	50	11	0.9
	4100HS	(●)	7	100	67	31.75(32)	12.7(14.4)	63	11	1.9
	4125HS	● (●)	8	125	87	38.1(40)	15.9(16.4)	63	11	3.1

( )Metric size, ● : Stock item

Available inserts

SDET-MF	SDET-MM	SDET-MA	SDXT-MF	SDXT-MM	SDXT-MA
					

	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA														●			●	●	
	130508R-MF																			
	130508R-MM																			B19
SDXT	130508R-MF			●						●	●		●	●						B20
	130508R-MM			●	●				●	●	●		●	●						
	130508R-MA																	●	●	

Available arbors

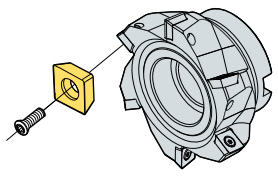
	Designation	DCON-MS	NC arbors
FMPCM	4063HS	22	BT□□-FMC22-□□
FMPC (FMPCM)	4080HS	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HS	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	4125HS	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMB/FMC40-□□

Parts

Specification	Screw	Wrench
Ø63~Ø125	FTNC04511	TW20S

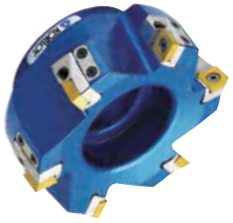
Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

Assembling



FMPC(M)3000-A

Aluminum body



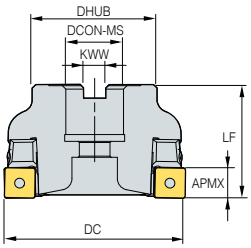


Fig. 1

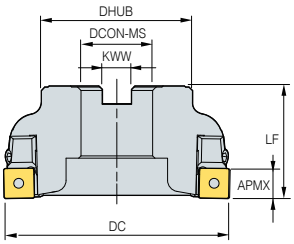


Fig. 2





KAPR 90°

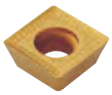
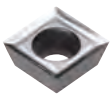
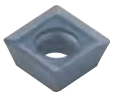
- GAMP : 10°
- GAMF : –9°~–7.3°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMPCM	3063S-A	●	3	63	40	22	10.4	40	7	0.2	1
FMPC (FMPCM)	3080S-A	● (●)	4	80	55	25.4(27)	9.5(12.4)	50	7	0.4	1
	3100S-A	●	5	100	67	31.75(32)	12.7(14.4)	50	7	1	2
	3100S-25.4-A	●	5	100	67	25.4	9.5	50	7	0.6	2

( )Metric size, ● : Stock item

Available inserts

SDET-MF	SDET-MM	SDET-MA	SDXT-MF	SDXT-MM	SDXT-MA
					

	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA														●			●	●	
	09M405R-MF																			
	09M405R-MM																			
SDXT	09M405R-MF			●					●	●	●		●	●						B19
	09M405L-MF																			B20
	09M405R-MM			●	●				●	●	●		●	●						
	09M405L-MM									●										
	09M405R-MA																	●	●	

Available arbors

	Designation	DCON-MS	NC arbors
FMPCM	3063S-□	22	BT□□-FMC22-□□
FMPC (FMPCM)	3080S-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	3100S-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	3100S-25.4-□	25.4	BT□□-FMA25.4-□□

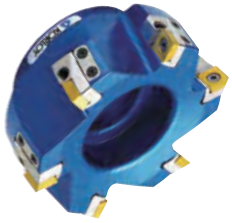
Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw	Chip cover	Chip cover Screw
Ø63	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R14R1-A	PXMA0306
Ø80~Ø100	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R-A	PXMA0306

Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

FMPC(M)4000-A

Aluminum body



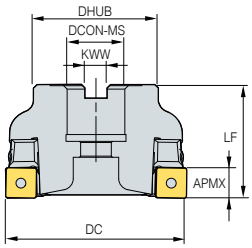


Fig. 1

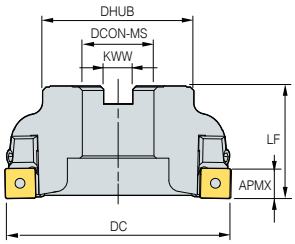


Fig. 2





KAPR 90°

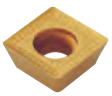
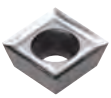
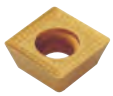
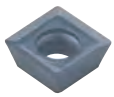
- GAMP : 10° Fig. 1
- GAMF : −9°~−7.3°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMPCM	4063S-A	●	3	63	50	22	10.4	50	11	0.6	1
FMPC (FMPCM)	4080S-A	● (●)	4	80	55	25.4(27)	9.5(12.4)	50	11	0.5	1
	4100S-A	● (●)	5	100	67	31.75(32)	12.7(14.4)	50	11	0.6	2
	4100S-25.4-A	●	5	100	67	25.4	9.5	50	11	0.6	2
	4125S-A	● (●)	6	125	80	38.1(40)	15.9(16.4)	63	11	1.1	2
	4125S-25.4-A	●	6	125	80	25.4	9.5	63	11	1.2	2
	4160S-A		8	160	107	50.8(40)	19.1(16.4)	63	11	2	2
	4200S-A		10	200	130	47.625(60)	25.4(25.7)	63	11	2.4	2
	4250S-A		12	250	180	47.625(60)	25.4(25.7)	63	11	4.5	2
	4315S-A		15	315	240	47.625(60)	25.4(25.7)	63	11	7	2

( )Metric size, ● : Stock item

Available inserts

	SDET-MF	SDET-MM	SDET-MA	SDXT-MF	SDXT-MM	SDXT-MA
						

	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA														●			●	●	
	130508R-MF																			
	130508R-MM																			B19
SDXT	130508R-MF			●						●	●		●	●						B20
	130508R-MM			●	●				●	●	●		●	●						
	130508R-MA																	●	●	

Available arbors

Designation		DCON-MS	NC arbors
FMPCM	4063S-□	22	BT□□-FMC22-□□
FMPC (FMPCM)	4080S-□	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100S-□	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	4100S-25.4-□	25.4	BT□□-FMA25.4-□□

Designation		DCON-MS	NC arbors
FMPC (FMPCM)	4125S-□	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMB40-□□
	4125S-25.4-□	25.4	BT□□-FMA25.4-□□
	4160S-□	50.8	BT□□-FMA38.1-□□
		40	BT□□-FMB/FMC40-□□
	4200S-□	47.625	BT□□-FMA47.625-□□
	4250S-□	60	BT□□-FMB60-□□
	4315S-□	60	BT□□-FMB60-□□

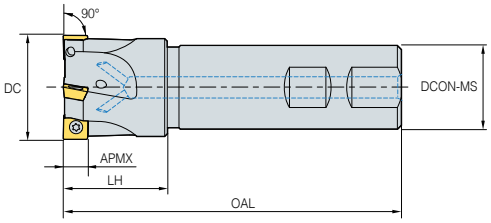
Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw	Chip cover	Chip cover Screw
Ø63~Ø80	FTNC04509	TW20S	HW40L	LFMP4R1-A	DHA0825	CFMP3R14R1-A	PXMA0306
Ø100~Ø315	FTNC04509	TW20S	HW40L	LFMP4R-A	DHA0830	CFMP4R-A	PXMA0306

Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

FMPS3000





KAPR 90°

- GAMP : 10°
- GAMF : −9°~−8°

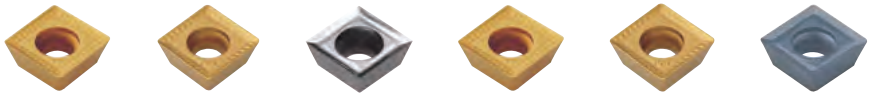
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
FMPS	3025HS	●	2	25	25	35	115	7	0.4
	3032HS	●	3	32	25	40	125	7	0.4
	3040HS	●	4	40	32	40	130	7	0.8
	3040HS-S40		4	40	40	45	140	7	1.2
	3040HS-S42		4	40	42	45	140	7	1.3
	3050HS	●	5	50	32	40	135	7	0.9
	3050HS-S40		5	50	40	40	140	7	1.3
	3050HS-S42		5	50	42	40	140	7	1.4
	3063HS	●	6	63	32	45	135	7	1.2
	3063HS-S40		6	63	40	45	145	7	1.6
	3063HS-S42		6	63	42	45	145	7	1.7

● : Stock item

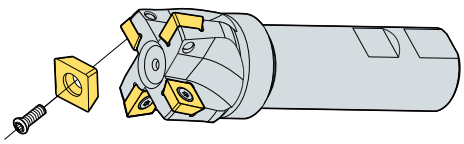
Available inserts

SDET-MF SDET-MM SDET-MA SDXT-MF SDXT-MM SDXT-MA



	Designation	Cermet	Coated												Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA														●			●	●	
	09M405R-MF																			
	09M405R-MM																			
SDXT	09M405R-MF			●					●	●	●		●	●						B19
	09M405L-MF																			B20
	09M405R-MM			●	●				●	●	●		●	●						
	09M405L-MM									●										
	09M405R-MA																	●	●	

Assembling



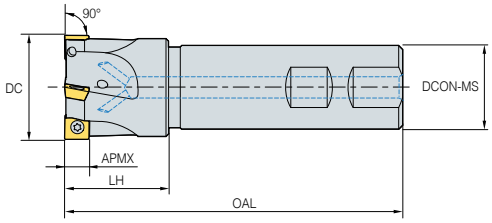
Parts

Specification	Screw	Wrench
Ø25~Ø63	FTGA03508	TW15S

Available inserts **B19, B20**

FMPS4000





KAPR 90°

- GAMP : 10°
- GAMF : –9°~–8°

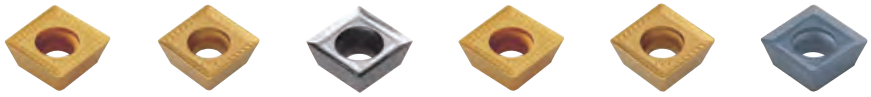
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
FMPS	4040HS	●	3	40	32	40	130	11	0.7
	4040HS-S40		3	40	40	40	140	11	1.2
	4040HS-S42		3	40	42	40	140	11	1.4
	4050HS	●	4	50	32	45	135	11	0.9
	4050HS-S40		4	50	40	45	145	11	1.4
	4050HS-S42		4	50	42	45	145	11	1.6
	4063HS		5	63	32	45	135	11	1.1
	4063HS-S40		5	63	40	45	145	11	1.5
	4063HS-S42		5	63	42	45	145	11	2.6

● : Stock item

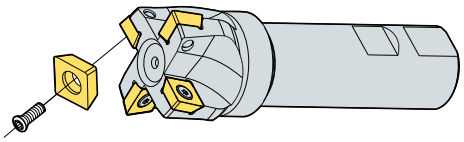
Available inserts

SDET-MF SDET-MM SDET-MA SDXT-MF SDXT-MM SDXT-MA



	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA														●			●	●	
	130508R-MF																			
	130508R-MM																			B19
SDXT	130508R-MF			●						●	●		●	●						B20
	130508R-MM			●	●				●	●	●		●	●						
	130508R-MA																	●	●	

Assembling



Parts

Specification	Screw	Wrench
Ø40~Ø63	FTNC04511	TW20S

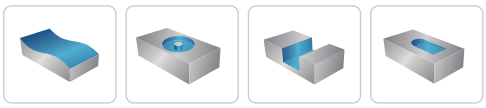
Available inserts **B19, B20**

Future Mill (FMR)

Features

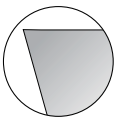
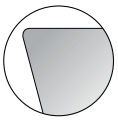
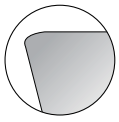
- Wide coverage for medium to roughing, general steel to high hardness mold materials
- 2 step shape of insert provides strong clamping and can minimize components to replace the shim
- 4-8 cutting-edge available per insert (Inscribed circle 05, 06, 07, 08, 10, 12, 16, 20)
- Uneven flute spacing prevents vibration on high speed applications and provides more stable machining
- Precise design of the insert seat prevents insert from chattering and provides better surface roughness
- Special design of the insert bottom prevents movement and chatter of insert
- Easy to change cutting-edge due to the rotation prevention design of the insert

Use



Copying | Helical | Slotting & Side cutting | Ramping

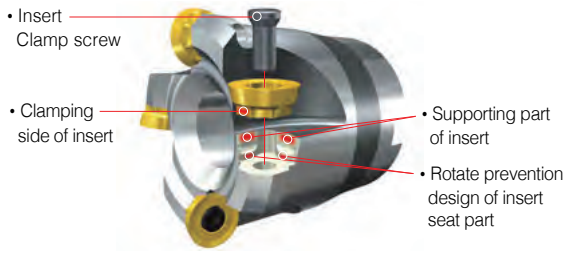
FMR Insert cutting-edge shape

Designation	RDHW□□□□M0F	RDHW□□□□M0E	RDHW□□□□M0S
Cutting edge shape (G calss)			

Features of chip breaker

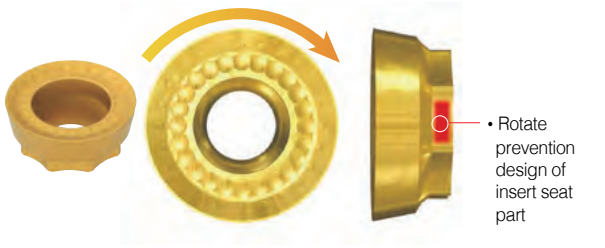
Chip breaker insert		Cutting-edge	Use	Features
MF			Light cutting	Low cutting resistance chip breaker design guarantees long tool life good performance at finishing and difficult-to-cut material machining
MM			General	Suitable for general milling at wide application range
MA			Aluminum	Sharp cutting-edge and buffed top face for aluminum machining prevent welding and control chip flow

Clamping system



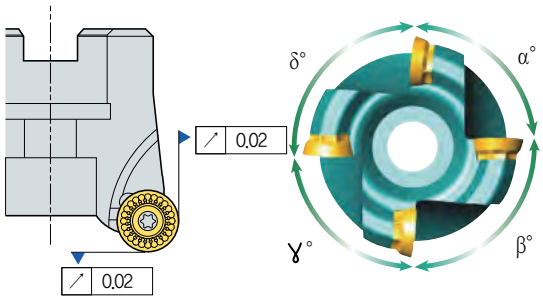
FMR□ 3000 type
FMR□ 4000 type

FMR□ 5000 type
FMR□ 6000 type



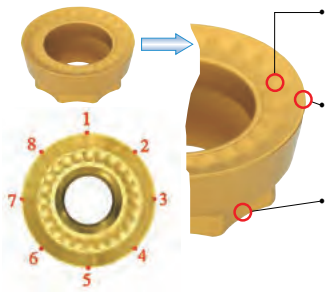
RDKT10T3M0-□□
RDKT1204M0-□□

RDKT1605M0-MM
RDKT2006M0-MM



Good surface finish due to the precise design of insert seat part of cutter

Uneven flute spacing prevents vibration at high speed application and provides stable machining



4-8 cutting-edge available per insert

Special chip breaker for low cutting load
Minimized heat generation due to smooth chip flow

Smooth cutting-edge preparation
Inclined land angle
Low cutting load and better surface roughness

Facial contact through curved face
Prevent rotation at high speed cutting
Stable and tight clamping of insert
Good positioning of insert repeatedly

Future Mill (FMR)

Chip removal rate (cm³/min)

Workpiece		Grade	Ø8	Ø10	Ø12	Ø15	Ø16	Ø20	Ø21	Ø25	Ø26	Ø32	Ø33	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø160
P	General structure steel (under 200HB)	PC3700 PC5300	4.97	9.94	9.94	14.92	31.83	31.83	47.74	47.74	47.74	71.61	38.19	95.49	119.36	143.23	167.11	190.98	133.69	509.29
			vc = 250, fz = 0.25, ap = 0.5, ae = 0.5D				vc = 300, fz = 0.4 ap = 1.0, ae = 0.5D		vc = 250, fz = 0.4, ap = 1.5, ae = 0.5D											vc = 200, fz = 0.5 ap = 4.0, ae = 0.5D
	General carbon steel (under 30 HRC)		3.97	7.95	7.95	11.93	25.46	25.46	38.19	38.19	38.19	57.29	38.19	76.39	95.49	114.59	133.69	152.78	133.69	458.36
			vc = 200, fz = 0.25, ap = 0.5, ae = 0.5D				vc = 250, fz = 0.4 ap = 1.0, ae = 0.5D		vc = 200, fz = 0.4, ap = 1.5, ae = 0.5D											vc = 180, fz = 0.5 ap = 4.0, ae = 0.5D
	High carbon steel, Alloy steel (30~40 HRC)		2.86	5.72	5.72	8.59	22.91	22.91	34.37	34.37	34.37	51.56	34.37	68.75	85.94	103.13	120.32	137.5	120.32	407.43
			vc = 180, fz = 0.20, ap = 0.5, ae = 0.5D				vc = 200, fz = 0.4 ap = 1.0, ae = 0.5D		vc = 180, fz = 0.4, ap = 1.5, ae = 0.5D											vc = 160, fz = 0.5 ap = 4.0, ae = 0.5D
	High carbon steel, Alloy steel (40~50 HRC)		1.24	2.48	2.48	3.72	11.45	11.45	14.32	17.18	14.32	21.48	14.32	28.64	35.8	42.97	50.13	57.29	50.13	249.55
			vc = 130, fz = 0.15, ap = 0.4, ae = 0.5D				vc = 170, fz = 0.3 ap = 0.9, ae = 0.5D		vc = 150, fz = 0.3, ap = 1.0, ae = 0.5D											vc = 140, fz = 0.4 ap = 3.5, ae = 0.5D
	Alloy steel (over 50 HRC)		0.95	1.9	1.9	2.86	7.63	7.63	9.54	11.45	9.54	14.32	9.54	19.09	23.87	28.64	33.42	38.19	33.42	152.78
			vc = 100, fz = 0.15, ap = 0.4, ae = 0.5D				vc = 130, fz = 0.3 ap = 0.9, ae = 0.5D		vc = 100, fz = 0.3, ap = 1.0, ae = 0.5D											vc = 100, fz = 0.4 ap = 3.0, ae = 0.5D
M	Stainless steel (STS)	PC5300	2.06	4.13	4.13	6.2	16.55	16.55	12.41	24.82	12.41	18.62	12.41	24.82	31.03	37.24	43.44	49.65	43.44	331.04
			vc = 130, fz = 0.20, ap = 0.5, ae = 0.5D				vc = 200, fz = 0.2 ap = 1.0, ae = 0.5D		vc = 100, fz = 0.3, ap = 1.0, ae = 0.5D											vc = 130, fz = 0.5 ap = 4.0, ae = 0.5D
K	Cast iron (GC, GCD)	PC5300	2.86	5.72	5.72	8.59	14.32	14.32	21.48	21.48	21.48	32.22	21.48	42.97	53.71	64.45	75.2	85.94	75.2	366.69
			vc = 180, fz = 0.20, ap = 0.5, ae = 0.5D				vc = 180, fz = 0.2 ap = 1.0, ae = 0.5D		vc = 180, fz = 0.2, ap = 1.5, ae = 0.5D											vc = 180, fz = 0.4 ap = 4.0, ae = 0.5D

Required machine power (PC = 0.75xPhp)

• **RDKT10□□**

Workpiece		Grade	Ø21	Ø25	Ø26	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Cutting conditions vc	fz	ap	ae
P	General structure steel (under 200HB)	PC3700 PC5300	2.2	2.2	2.2	3.3	4.4	5.5	6.6	7.7	8.8	250	0.4	1.5	0.5D
	General carbon steel (under 30 HRC)		2.1	2.1	2.1	3.1	4.1	5.2	6.2	7.3	8.3	200	0.4	1.5	0.5D
	High carbon steel, Alloy steel (30~40 HRC)		2.2	2.2	2.2	3.3	4.5	5.6	6.7	7.9	9	180	0.4	1.5	0.5D
	High carbon steel, Alloy steel (40~50 HRC)		1.1	1.1	1.1	1.6	2.1	2.6	3.2	3.7	4.2	150	0.3	1.0	0.5D
	Alloy steel (over 50 HRC)		0.7	0.7	0.7	1.1	1.4	1.7	2.1	2.4	2.8	100	0.3	1.0	0.5D
M	Stainless steel(STS)	PC5300	0.6	0.6	0.6	0.8	1.2	1.5	1.7	2	2.3	130	0.2	1.5	0.5D
K	Cast iron(GC, GCD)	PC5300	0.6	0.6	0.6	0.9	1.2	1.5	1.8	2.1	2.4	180	0.2	1.5	0.5D

* The figures in the above chart means Php value.

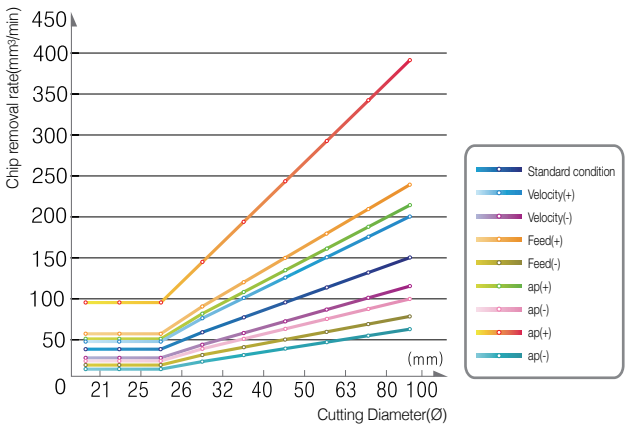
• **RDKT12□□**

Workpiece		Grade	Ø32	Ø33	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Cutting conditions vc	fz	ap	ae
P	General structure steel (under 200HB)	PC3700 PC5300	1.7	1.7	2.6	3.5	3.5	4.4	5.3	6.1	200	0.4	1.5	0.5D
	General carbon steel (under 30 HRC)		2	2	3.1	4.1	2.6	5.2	6.2	7.2	180	0.4	1.5	0.5D
	High carbon steel, Alloy steel (30~40 HRC)		2.2	2.2	3.3	4.4	2.8	5.6	6.7	7.8	160	0.4	1.5	0.5D
	High carbon steel, Alloy steel (40~50 HRC)		1	1	1.5	1.6	2.1	2.6	3.1	3.6	140	0.3	1.0	0.5D
	Alloy steel (over 50 HRC)		0.7	0.7	1	1.4	0.8	1.7	2.1	2.4	100	0.3	1.0	0.5D
M	Stainless steel(STS)	PC5300	0.5	0.5	0.8	1.1	0.7	1.4	1.7	2	130	0.2	1.5	0.5D
K	Cast iron(GC, GCD)	PC5300	0.6	0.6	0.9	1.2	0.7	1.5	1.8	2.1	180	0.2	1.5	0.5D

* The figures in the above chart means Php value.

Chip removal rate by cutting conditions

• **Used insert: : RDKT10□□**



• **Variation of cutting conditions**

Standard	ISO vc=200 fz=0.4 ap=1.5 ae=0.5D
Speed(+)	250
Speed(-)	150
Feed(+)	0.6
Feed(-)	0.2
ap(+)	2
ap(-)	1
ae(+)	D
ae(-)	0.2D

Recommended cutting conditions

• Side milling, slotting, ramping, copying

Workpiece		Hardness	Grade	Cutting speed (m/min)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)
P	Cabon steel	200HB ≤	PC5300	280	≤ 1.0	≤ 0.4	≤ 1.2	≤ 0.4	≤ 1.5	≤ 0.4	≤ 1.7	≤ 0.4	≤ 2.0	≤ 0.5	≤ 2.4	≤ 0.6	≤ 3.0	≤ 0.7	≤ 4.0	≤ 0.8
			PC5400	245																
		30HRC ≤	PC5300	250	≤ 0.7	≤ 0.4	≤ 1.2	≤ 0.4	≤ 1.5	≤ 0.4	≤ 1.7	≤ 0.4	≤ 2.0	≤ 0.5	≤ 2.4	≤ 0.6	≤ 3.0	≤ 0.7	≤ 4.0	≤ 0.8
			PC5400	210																
	Alloy steel	30~40HRC	PC5300	195	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	170																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	150	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	130																
		Tensile strength 350MPa ≤	PC5300	120	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	105																
M	Stainless steel	270HB ≤	PC5300	130	≤ 0.7	≤ 0.2	≤ 0.9	≤ 0.2	≤ 1.2	≤ 0.2	≤ 1.5	≤ 0.2	≤ 1.7	≤ 0.3	≤ 2.0	≤ 0.4	≤ 2.7	≤ 0.5	≤ 3.7	≤ 0.6
			PC5400	110																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	145	≤ 0.7	≤ 0.4	≤ 1.2	≤ 0.4	≤ 1.5	≤ 0.4	≤ 1.7	≤ 0.4	≤ 2.0	≤ 0.5	≤ 2.4	≤ 0.6	≤ 3.0	≤ 0.7	≤ 4.0	≤ 0.8
			PC5400	110																

• Plunging

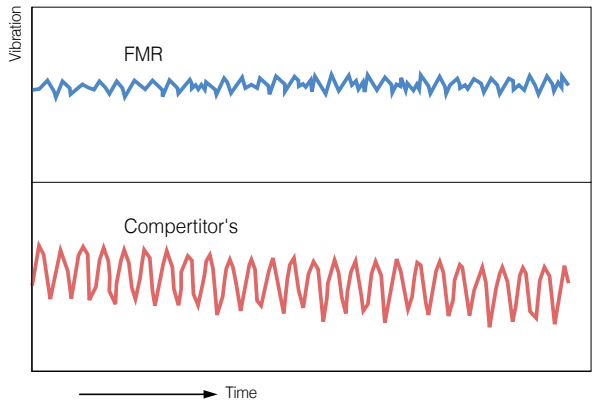
Workpiece		Hardness	Grade	Cutting speed (m/min)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)
P	Cabon steel	200HB ≤	PC5300	280	≤ 2.5	≤ 0.2	≤ 3.0	≤ 0.2	≤ 3.5	≤ 0.2	≤ 4.0	≤ 0.2	≤ 5.0	≤ 0.3	≤ 6.0	≤ 0.4	≤ 8.0	≤ 0.5	≤ 10.0	≤ 0.6
			PC5400	245																
		30HRC ≤	PC5300	250	≤ 2.5	≤ 0.2	≤ 3.0	≤ 0.2	≤ 3.5	≤ 0.2	≤ 4.0	≤ 0.2	≤ 5.0	≤ 0.3	≤ 6.0	≤ 0.4	≤ 8.0	≤ 0.5	≤ 10.0	≤ 0.6
			PC5400	210																
	Alloy steel	30~40HRC	PC5300	195	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	170																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	150	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	130																
		Tensile strength 350MPa ≤	PC5300	120	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	105																
M	Stainless steel	270HB ≤	PC5300	130	≤ 2.5	≤ 0.1	≤ 3.0	≤ 0.1	≤ 3.5	≤ 0.1	≤ 4.0	≤ 0.1	≤ 5.0	≤ 0.2	≤ 6.0	≤ 0.3	≤ 8.0	≤ 0.4	≤ 10.0	≤ 0.5
			PC5400	110																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	145	≤ 2.5	≤ 0.2	≤ 3.0	≤ 0.2	≤ 3.5	≤ 0.2	≤ 4.0	≤ 0.2	≤ 5.0	≤ 0.3	≤ 6.0	≤ 0.4	≤ 8.0	≤ 0.5	≤ 10.0	≤ 0.6
			PC5400	110																

• Helical cutting

Workpiece		Hardness	Grade	Cutting speed (m/min)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)
P	Cabon steel	200HB ≤	PC5300	280	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 2.0	≤ 0.3	≤ 2.0	≤ 0.4	≤ 4.0	≤ 0.5	≤ 4.0	≤ 0.6
			PC5400	245																
		30HRC ≤	PC5300	250	≤ 0.7	≤ 0.2	≤ 0.7	≤ 0.2	≤ 0.7	≤ 0.2	≤ 0.7	≤ 0.2	≤ 2.0	≤ 0.3	≤ 2.0	≤ 0.4	≤ 4.0	≤ 0.5	≤ 4.0	≤ 0.6
			PC5400	210																
	Alloy steel	30~40HRC	PC5300	195	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	170																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	150	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	130																
		Tensile strength 350MPa ≤	PC5300	120	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	105																
M	Stainless steel	270HB ≤	PC5300	130	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 0.7	≤ 0.1	≤ 1.7	≤ 0.2	≤ 1.7	≤ 0.3	≤ 3.7	≤ 0.4	≤ 3.7	≤ 0.5
			PC5400	110																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	145	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 1.0	≤ 0.2	≤ 2.0	≤ 0.3	≤ 2.0	≤ 0.4	≤ 4.0	≤ 0.5	≤ 4.0	≤ 0.6
			PC5400	110																

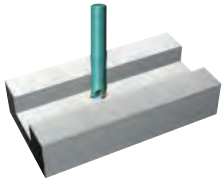
Future Mill (FMR)

FMR Vibration test



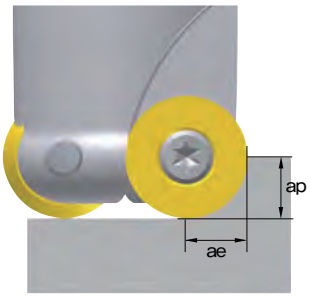
BOLT : Q36 ~ Q160

Workpiece	STD11
Cutting condition	vc = 200m/min fz = 0.40mm/t ap = 2.0mm ae = 4.0mm
Tools	Insert : RDKT10T3M0–MM(PC3700) Holder : FMRS3032RD–S



Cutting condition formulas for milling

Cutting speed	RPM
$vc = \frac{\pi \times DCX \times n}{1000}$ (m/min)	$n = \frac{vc \times 1000}{\pi \times DCX}$ (min^{-1})
Feed (per tooth)	**Feed (per minute)**
$fz = \frac{vf}{Z \times n}$ (mm/t)	$vf = fz \times n \times z$ (mm/min)
Chip removal rate	**Required machine power**
$Q = \frac{ap \times ae \times vf}{1000}$ (cm^3/min)	$Pkw = \frac{Q \times kc}{60 \times 102 \times \eta}$ (kW) $Php = \frac{Pc}{0.75}$ (hp)



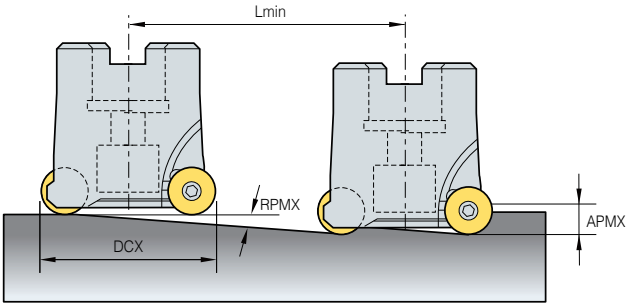
vc = Cutting speed (m/min)	**Pkw** = Required machine power (kW)
n = Revolution per a minute (min^{-1})	**Php** = Horsepower requirement (hp)
DCX = Cutting diameter(mm)	**Q** = Chip removal amount (cm^3/min)
De = Efficient cutting diameter (mm)	**ap** = Depth of cut (mm)
vf = Feed per a minute (mm/min)	**ae** = Width of cut (mm)
fz = Feed per tooth (mm/t)	**kc** = Specific cutting resistance(kgf/mm^2)
z = Number of tooth	η = Mechanical efficiency (%)
Pc = Power requirement (kW)	

Feed as per cutting depth

Designation	Chip breaker	Depth of cut (mm)								
		0.2~0.5	0.5~1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
RDHW0501M0	-	0.25	0.15	-	-	-	-	-	-	-
RDHW06T1M0	-	0.30	0.20	0.10	-	-	-	-	-	-
RDHW0702M0	-	0.35	0.25	0.10	0.07	-	-	-	-	-
RDHW0803M0	-	0.40	0.30	0.15	0.01	-	-	-	-	-
RDKT10T3M0	MF/MM	-	0.40	0.35	0.30	0.20	-	-	-	-
RDKT1204M0	MF/MM	-	0.50	0.45	0.30	0.25	0.22	-	-	-
RDHW1605M0	-	-	0.60	0.50	0.45	0.35	0.30	0.20	0.10	-
RDHW2006M0	-	-	-	0.60	0.50	0.40	0.30	0.25	0.15	0.10
RDKT1605M0	MM	-	0.60	0.50	0.45	0.35	0.30	0.20	0.10	-
RDKT2006M0	MM	-	-	0.60	0.50	0.40	0.30	0.25	0.15	0.10

Future Mill (FMR)

Ramping technical data



$$Lmin = \frac{APMX}{\tan(RMPX)} \ (mm)$$

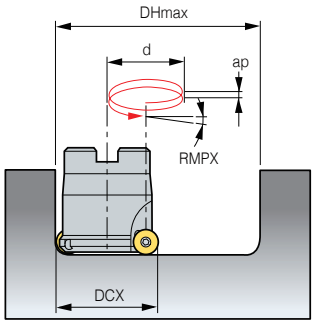
- **Lmin** = Min. inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

(mm)

Type	DCX	RPMX	Cutting length Lmin by ramping angle									
			ap = **1**	ap = **2**	ap = **2.5**	ap = **3**	ap = **3.5**	ap = **4**	ap = **5**	ap = **6**	ap = **8**	ap = **10**
FMR1000	08	18.14	3	6	8	-	-	-	-	-	-	-
	10	11.7	5	10	12	-	-	-	-	-	-	-
	12	8.43	7	13	17	-	-	-	-	-	-	-
	15	5.93	10	19	24	-	-	-	-	-	-	-
FMR1500	10	20.67	21	5	7	8	-	-	-	-	-	-
	12	10.05	10	11	14	17	-	-	-	-	-	-
	16	6.12	6	19	23	28	-	-	-	-	-	-
	20	4.36	4	26	33	39	-	-	-	-	-	-
FMR2000	15	9.42	6	12	15	18	21	-	-	-	-	-
	20	5.85	10	20	24	29	34	-	-	-	-	-
FMR2500	16	13.7	4	8	10	12	14	16	-	-	-	-
	20	9.29	6	12	15	18	21	24	-	-	-	-
	25	6.56	9	17	22	26	30	35	-	-	-	-
FMR3000	25	21.8	3	5	6	8	9	10	13	-	-	-
	32	13.24	4	9	11	13	15	17	21	-	-	-
	40	9.09	6	13	16	19	22	25	31	-	-	-
	50	6.52	9	17	22	26	31	35	44	-	-	-
	63	4.76	12	24	30	36	42	48	60	-	-	-
	80	3.52	16	33	41	49	57	65	81	-	-	-
	100	2.69	21	43	53	64	74	85	106	-	-	-
FMR4000	32	15.95	3	7	9	10	12	14	17	21	-	-
	40	10.3	6	11	14	17	19	22	28	33	-	-
	50	7.13	8	16	20	24	28	32	40	48	-	-
	63	5.08	11	22	28	34	39	45	56	67	-	-
	80	3.69	16	31	39	47	54	62	78	93	-	-
	100	2.79	21	41	51	62	72	82	103	123	-	-
	125	2.14	27	54	67	80	94	107	134	161	-	-
FMR5000	40	7.4	8	15	19	23	27	31	38	46	62	-
	50	5.22	11	22	27	33	38	44	55	66	88	-
	63	3.79	15	30	38	45	53	60	75	91	121	-
	80	2.97	19	39	48	58	67	77	96	116	154	-
	100	2.09	27	55	69	82	96	110	137	164	219	-
	125	1.63	35	70	88	105	123	141	176	211	281	-
FMR6000	40	7.44	8	15	19	23	27	31	38	46	61	77
	50	4.97	11	23	29	34	40	46	57	69	92	46
	63	3.69	16	31	39	47	54	62	78	93	124	62
	80	2.72	21	42	53	63	74	84	105	126	168	84
	100	2.12	27	54	68	81	95	108	135	162	216	108
	125	1.57	36	73	91	109	128	146	182	219	292	146

Future Mill (FMR)

Helical cutting technical data - DHmin



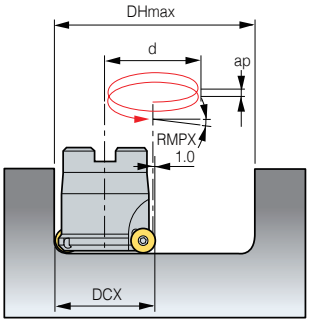
- **DCX =** Tool dia. (mm), ØDHmin, Max = Min, Max diameter (mm)
- **d =** Tool path (mm)
- **DHmin(Min diameter)** = DCX×2-Insert size, **DHmax(Max diameter)** = DCX×2-2
- **d(Tool path)** = DHmin, max-DCX

(mm)

Type	Insert (IC)	DCX	DHmin	d	Ramping angle									
					ap = **1**	ap = **2**	ap = **2.5**	ap = **3**	ap = **3.5**	ap = **4**	ap = **5**	ap = **6**	ap = **8**	ap = **10**
FMR1000	5	08	11	3	6.11	12.35	15.57	-	-	-	-	-	-	-
	5	10	15	5	3.65	7.34	7.34	-	-	-	-	-	-	-
	5	12	19	7	2.61	5.23	5.23	-	-	-	-	-	-	-
	5	15	25	10	1.83	3.65	3.65	-	-	-	-	-	-	-
FMR1500	6	10	14	4	4.57	9.20	9.20	13.95	-	-	-	-	-	-
	6	12	18	6	3.04	6.11	6.11	9.20	-	-	-	-	-	-
	6	16	26	10	1.83	3.65	3.65	5.49	-	-	-	-	-	-
	6	20	34	14	1.30	2.61	2.61	3.92	-	-	-	-	-	-
FMR2000	7	15	23	8	2.28	4.57	4.57	6.88	8.04	-	-	-	-	-
	7	20	33	13	1.40	2.81	2.81	4.22	4.92	-	-	-	-	-
FMR2500	8	16	24	8	2.28	4.57	4.57	6.88	8.04	9.20	-	-	-	-
	8	20	32	12	1.52	3.04	3.04	4.57	5.34	6.11	-	-	-	-
	8	25	42	17	1.07	2.15	2.15	3.22	3.76	4.30	-	-	-	-
FMR3000	10	25	40	15	1.22	2.43	2.43	3.65	4.27	4.88	6.11	-	-	-
	10	32	54	22	0.83	1.66	1.66	2.49	2.91	3.32	4.15	-	-	-
	10	40	70	30	0.61	1.22	1.22	1.83	2.13	2.43	3.04	-	-	-
	10	50	90	40	0.46	0.91	0.91	1.37	1.60	1.83	2.28	-	-	-
	10	63	116	53	0.34	0.69	0.69	1.03	1.21	1.38	1.72	-	-	-
	10	80	150	70	0.26	0.52	0.52	0.78	0.91	1.04	1.30	-	-	-
	10	100	190	90	0.20	0.41	0.41	0.61	0.71	0.81	1.01	-	-	-
FMR4000	12	32	52	20	0.91	1.83	1.83	2.74	3.20	3.65	4.57	5.49	-	-
	12	40	68	28	0.65	1.30	1.30	1.96	2.28	2.61	3.26	3.92	-	-
	12	50	88	38	0.48	0.96	0.96	1.44	1.68	1.92	2.40	2.88	-	-
	12	63	114	51	0.36	0.72	0.72	1.07	1.25	1.43	1.79	2.15	-	-
	12	80	148	68	0.27	0.54	0.54	0.81	0.94	1.07	1.34	1.61	-	-
	12	100	188	88	0.21	0.41	0.41	0.62	0.73	0.83	1.04	1.24	-	-
	12	125	238	113	0.16	0.32	0.32	0.48	0.57	0.65	0.81	0.97	-	-
FMR5000	16	40	64	24	0.76	1.52	1.52	2.28	2.66	3.04	3.81	4.57	6.11	-
	16	50	84	34	0.54	1.07	1.07	1.61	1.88	2.15	2.69	3.22	4.30	-
	16	63	110	47	0.39	0.78	0.78	1.16	1.36	1.55	1.94	2.33	3.11	-
	16	80	144	64	0.29	0.57	0.57	0.86	1.00	1.14	1.43	1.71	2.28	-
	16	100	184	84	0.22	0.43	0.43	0.65	0.76	0.87	1.09	1.30	1.74	-
	16	125	234	109	0.17	0.33	0.33	0.50	0.59	0.67	0.84	1.00	1.34	-
FMR6000	20	50	80	30	0.61	1.22	1.22	1.83	2.13	2.43	3.04	3.65	4.88	6.11
	20	63	106	43	0.42	0.85	0.85	1.27	1.49	1.70	2.12	2.55	3.40	4.25
	20	80	140	60	0.30	0.61	0.61	0.91	1.06	1.22	1.52	1.83	2.43	3.04
	20	100	180	80	0.23	0.46	0.46	0.68	0.80	0.91	1.14	1.37	1.83	2.28
	20	125	230	105	0.17	0.35	0.35	0.52	0.61	0.70	0.87	1.04	1.39	1.74
	20	160	300	140	0.13	0.26	0.26	0.39	0.46	0.52	0.65	0.78	1.04	1.30

Future Mill (FMR)

Helical cutting technical data - DHmin



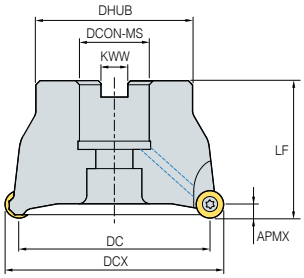
- **DCX =** Tool dia. (mm), ØDHmin, Max = Min, Max diameter (mm)
- **d =** Tool path (mm)
- **DHmin(Min diameter)** = DCX×2-Insert size, **DHmax(Max diameter)** = DCX×2-2
- **d(Tool path)** = DHmin, max-DCX

(mm)

Type	Insert (IC)	DCX	DHmin	d	Ramping angle									
					ap = **1**	ap = **2**	ap = **2.5**	ap = **3**	ap = **3.5**	ap = **4**	ap = **5**	ap = **6**	ap = **8**	ap = **10**
FMR1000	5	08	14	6	3.04	6.11	7.65	-	-	-	-	-	-	-
	5	10	18	8	2.28	4.57	5.72	-	-	-	-	-	-	-
	5	12	22	10	1.83	3.65	4.57	-	-	-	-	-	-	-
	5	15	28	13	1.40	2.81	3.51	-	-	-	-	-	-	-
FMR1500	6	10	18	8	2.28	4.57	5.72	6.88	-	-	-	-	-	-
	6	12	22	10	1.83	3.65	4.57	5.49	-	-	-	-	-	-
	6	16	30	14	1.30	2.61	3.26	3.92	-	-	-	-	-	-
	6	20	38	18	1.01	2.03	2.54	3.04	-	-	-	-	-	-
FMR2000	7	15	28	13	1.40	2.81	3.51	4.22	4.92	-	-	-	-	-
	7	20	38	18	1.01	2.03	2.54	3.04	3.55	-	-	-	-	-
FMR2500	8	16	30	14	1.30	2.61	3.26	3.92	4.57	5.23	-	-	-	-
	8	20	38	18	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-
	8	25	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
FMR3000	10	25	48	23	0.79	1.59	1.98	2.38	2.78	3.18	3.97	-	-	-
	10	32	62	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	-	-	-
	10	40	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	-	-	-
	10	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	-	-	-
	10	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	-	-	-
	10	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	-	-	-
	10	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	-	-	-
FMR4000	12	32	62	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	3.65	-	-
	12	40	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	-	-
	12	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	-	-
	12	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	-	-
	12	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	-	-
	12	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	-	-
	12	125	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	-	-
FMR5000	16	40	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	3.85	-
	16	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	-
	16	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	-
	16	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	-
	16	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	-
	16	125	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	-
FMR6000	20	50	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	3.81
	20	63	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	2.99
	20	80	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	2.34
	20	100	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	1.86
	20	125	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	1.48
	20	160	318	158	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	1.16

FMRC(M)3000







• GAMP : 5°
• GAMF : –5°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
FMRCM	3040HRD		3	40	30	36	16	8.4	40	5	0.2
	3040HRD-H		4	40	30	36	16	8.4	40	5	0.2
	3050HRD	●	4	50	40	42	22	10.4	40	5	0.3
	3050HRD-H	●	5	50	40	42	22	10.4	40	5	0.3
	3063HRD		5	63	53	49	22	10.4	50	5	0.6
	3063HRD-H	●	6	63	53	49	22	10.4	50	5	0.6
FMRC (FMRCM)	3080HRD		6	80	70	57	25.4(27)	9.5(12.4)	50	5	1.1
	3080HRD-H		7	80	70	57	25.4(27)	9.5(12.4)	50	5	1.1
	3100HRD		7	100	90	67	31.75(32)	12.7(14.4)	63	5	2.1
	3100HRD-H		8	100	90	67	31.75(32)	12.7(14.4)	63	5	2.1

Note) Inner diameter is based on Metric standard for both FMRC/FMRCM if its cutting diameter range within Ø40~Ø63 ( )Metric size, ● : Stock item

Available inserts

RDKT-MF RDKT-MM RDCT-MA



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA															●	B16 B17
RDKT	10T3M0-MF										●		●				
	10T3M0-MM			●					●	●	●		●				

Available arbors

	Designation	DCON-MS	NC arbors
FMRCM	3040HRD	16	BT□□-FMC16-□□
	3040HRD-H		
	3050HRD	22	BT□□-FMC22-□□
	3050HRD-H		
	3063HRD		
	3063HRD-H		
FMRC (FMRCM)	3080HRD	25.4	BT□□-FMA/FMB25.4-□□
	3080HRD-H	27	BT□□-FMB/FMC27-□□
	3100HRD	31.75	BT□□-FMA31.75-□□
	3100HRD-H	32	BT□□-FMC32-□□

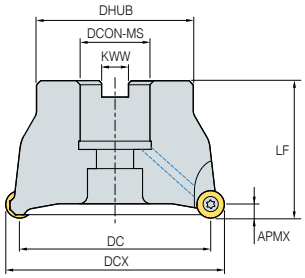
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTGA03508	TW15S

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRC(M)4000







• GAMP : 5°
• GAMF : −5°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
FMRCM	4050HRD	●	4	50	38	42	22	10.4	50	6	0.3
	4063HRD	●	4	63	51	49	22	10.4	50	6	0.6
	4063HRD-M		5	63	51	49	22	10.4	50	6	0.6
FMRC (FMRCM)	4080HRD	●	5	80	68	57	25.4(27)	9.5(12.4)	50	6	1
	4080HRD-M	(●)	6	80	68	57	25.4(27)	9.5(12.4)	50	6	1
	4100HRD		6	100	88	67	31.75(32)	12.7(14.4)	63(50)	6	1.9
	4100HRD-M		7	100	88	67	31.75(32)	12.7(14.4)	63(50)	6	1.9
	4125HRD		7	125	113	87	38.1(40)	15.9(16.4)	63	6	3.1
	4125HRD-M		8	125	113	87	38.1(40)	15.9(16.4)	63	6	3.1

Note) Inner diameter is based on Metric standard for both FMRC/FMRCM if its cutting diameter range within Ø50~Ø63 ( )Metric size, ● : Stock item

Available inserts

RDKT-MF RDKT-MM RDCT-MA



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	1204M0-MA															●	B16 B17
RDKT	1204M0-MF								●		●		●				
	1204M0-MM			●					●	●	●		●				

Available arbors

	Designation	DCON-MS	Available arbors
FMRCM	4063HRD	22	BT□□-FMC22-□□
	4063HRD-M		
FMRC (FMRCM)	4080HRD	25.4	BT□□-FMA/FMB25.4-□□
	4080HRD-M	27	BT□□-FMB/FMC27-□□
	4100HRD	31.75	BT□□-FMA31.75-□□
	4100HRD-M	32	BT□□-FMC32-□□
	4125HRD	38.1	BT□□-FMA/FMB38.1-□□
	4125HRD-M	40	BT□□-FMB/FMC40-□□

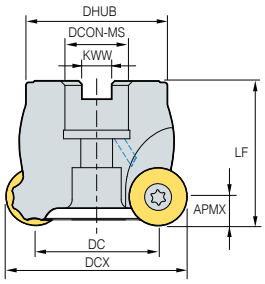
Parts

Specification	Screw	Wrench
Ø50~Ø125	FTKA0410	TW15S

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRC(M)5000







• GAMP : 5°
• GAMF : −5°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
FMRCM	5050HRD		3	50	34	42	22	10.4	50	8	0.3
	5063HRD		4	63	47	49	22	10.4	50	8	0.5
	5063HRD-H		5	63	47	49	22	10.4	50	8	0.5
FMRC (FMRCM)	5080HRD	● (●)	5	80	64	57	25.4(27)	9.5(12.4)	50	8	0.9
	5080HRD-H		6	80	64	57	25.4(27)	9.5(12.4)	50	8	0.9
	5100HRD	● (●)	6	100	84	67	31.75(32)	12.7(14.4)	63(50)	8	1.9
	5100HRD-H		7	100	84	67	31.75(32)	12.7(14.4)	63(50)	8	1.9
	5125HRD	(●)	7	125	109	87	38.1(40)	15.9(16.4)	63	8	3
	5125HRD-H		8	125	109	87	38.1(40)	15.9(16.4)	63	8	3

Note) Inner diameter is based on Metric standard for both FMRC/FMRCM if its cutting diameter range within Ø50~Ø63 ( )Metric size, ● : Stock item

Available inserts

RDHW-E,F,S | RDKT-MF | RDKT-ML | RDKT-MM



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	1605M0E																
	1605M0F																
	1605M0S																B16
RDKT	1605M0-MM								●								B17
	1605M0-MF																
	1605M0-ML																

Available arbors

	Designation	DCON-MS	Available arbors
FMRCM	5050HRD	22	BT□□-FMC22-□□
	5063HRD		
	5063HRD-H		
FMRC (FMRCM)	5080HRD	25.4	BT□□-FMA/FMB25.4-□□
	5080HRD-H	27	BT□□-FMB/FMC27-□□
	5100HRD	31.75	BT□□-FMA31.75-□□
	5100HRD-H	32	BT□□-FMC32-□□
	5125HRD	38.1	BT□□-FMA/FMB38.1-□□
	5125HRD-H	40	BT□□-FMB/FMC40-□□

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTGA0513-P	TW20-100

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRC(M)6000



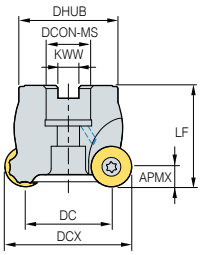


Fig. 1

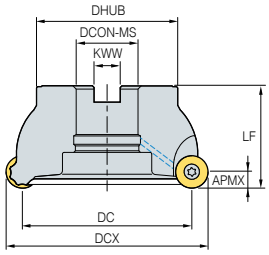


Fig. 2

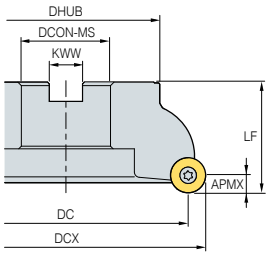


Fig. 3



• GAMP : 5°
• GAMF : −5°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMRCM	6063HRD		3	63	43	49	22	10.4	50	10	0.5	1
	6063HRD-M		4	63	43	49	22	10.4	50	10	0.5	1
FMRC (FMRCM)	6080HRD	(●)	4	80	60	57	25.4(27)	9.5(12.4)	50	10	0.8	1
	6080HRD-M		5	80	60	57	25.4(27)	9.5(12.4)	50	10	0.8	1
	6100HRD	● (●)	5	100	80	67	31.75(32)	12.7(14.4)	63	10	1.6	1
	6100HRD-M		6	100	80	67	31.75(32)	12.7(14.4)	63	10	1.6	1
	6125HRD	●	6	125	105	87	38.1(40)	15.9(16.4)	63	10	2.6	2(1)
	6125HRD-M		7	125	105	87	38.1(40)	15.9(16.4)	63	10	2.7	2(1)
	6160RD	(●)	8	160	140	107	50.8(40)	19(16.4)	63	10	4.4	3
	6160RD-M		8	160	140	107	50.8(40)	19(16.4)	63	10	4.4	3

( )Metric size, ● : Stock item

Available inserts

RDHW-E,F,S



RDKT-MM



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	2006M0E																B16
	2006M0F																B17
	2006M0S																
RDKT	2006M0-MM								●								

Available arbors

	Designation	DCON-MS	Available arbors
FMRCM	6063HRD	22	BT□□-FMC22-□□
	6063HRD-M		
FMRC (FMRCM)	6080HRD	25.4	BT□□-FMA/FMB25.4-□□
	6080HRD-M	27	BT□□-FMB/FMC27-□□
	6100HRD	31.75	BT□□-FMA31.75-□□
	6100HRD-M	32	BT□□-FMC32-□□
	6125HRD	38.1	BT□□-FMA/FMB38.1-□□
	6125HRD-M	40	BT□□-FMB/FMC40-□□
	6160RD	50.8	BT□□-FMA50.8-□□
	6160RD-M	40	BT□□-FMB/FMC40-□□

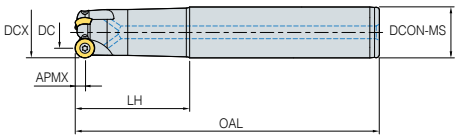
Parts

Specification	Screw	Wrench
Ø63~Ø160	FTGA0515-P	TW20-100

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRS1000/1500







• GAMP : 5°
• GAMF : −5°~−1°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
FMRS	1008HRD-M		1	8	2.97	10	30	80	2.5	0
	1008HRD-L		1	8	2.97	10	50	100	2.5	0.1
	1010HRD-M		2	10	5	12	44	100	2.5	0.8
	1010HRD-L		2	10	5	12	64	120	2.5	0.8
	1012HRD-M	●	2	12	7	12	44	100	2.5	0.1
	1012HRD-L		2	12	7	16	80	160	2.5	0.2
	1015HRD-M		3	15	10	16	80	160	2.5	0.2
	1015HRD-L		3	15	10	16	90	200	2.5	0.3
FMRS	1510HRD-M		1	10	3.9	12	44	100	3	0.7
	1510HRD-L		1	10	3.9	12	64	120	3	0.1
	1512HRD-M		2	12	6	12	54	110	3	0.1
	1512HRD-L	●	2	12	6	16	80	160	3	0.2
	1516HRD-M		3	16	10	16	60	130	3	0.2
	1516HRD-L		3	16	10	20	90	180	3	0.4
	1520HRD-M		3	20	14	20	80	150	3	0.3
	1520HRD-L		3	20	14	20	90	200	3	0.4

● : Stock item

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
1000 type	RDHW	0501M0E										●						
		0501M0F																
		0501M0S																
	RDKW	0501M0E								●								B16
1500 type	RDHW	06T1M0E										●						B17
		06T1M0F																
		06T1M0S																
	RDKW	06T1M0E								●								

Parts

Specification	Screw	Wrench
Ø8~Ø15(1000 type)	FTNA0203	TW06P
Ø10~Ø20(1500 type)	FTNA02205	TW06P

Available inserts **B16, B17**

FMRS2000/2500



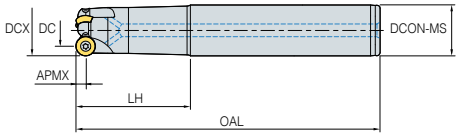


Fig. 1

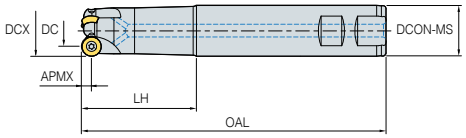


Fig. 2



• GAMP : 5°
• GAMF : −5°~−1°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	2015HRD-S		2	15	8	16	55	115	3.5	0.1	2
	2015HRD-M	●	2	15	8	20	80	150	3.5	0.3	1
	2015HRD-L		2	15	8	20	90	200	3.5	0.4	1
	2020HRD-S		3	20	14	20	65	125	3.5	0.3	2
	2020HRD-M		3	20	14	20	80	150	3.5	0.3	1
	2020HRD-L		3	20	14	25	90	200	3.5	0.6	1
FMRS	2516HRD-S		2	16	8	16	65	125	4	0.2	2
	2516HRD-M		2	16	8	16	80	150	4	0.2	1
	2516HRD-L		2	16	8	20	90	200	4	0.4	1
	2520HRD-S		2	20	12	20	65	125	4	0.2	2
	2520HRD-M	●	2	20	12	20	80	150	4	0.4	1
	2520HRD-L	●	2	20	12	20	90	200	4	0.6	1
	2525HRD-S	●	3	25	17	25	55	125	4	0.4	2
	2525HRD-M		3	25	17	25	90	200	4	0.7	1
	2525HRD-L		3	25	17	32	110	250	4	1.3	1

● : Stock item

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
2000 type	RDHW	0702M0E										●						
		0702M0F																
		0702M0S																
	RDKW	0702M0E								●								B16
2500 type	RDHW	0803M0E										●						B17
		0803M0F																
		0803M0S																
	RDKW	0803M0E								●								

Parts

Specification	Screw	Wrench
Ø15~Ø20(2000 type)	FTNA02555	TW07S
Ø16~Ø25(2500 type)	FTNA0305 FTNA0306(Ø20 over)	TW09S

Available inserts **B16, B17**

FMRS3000



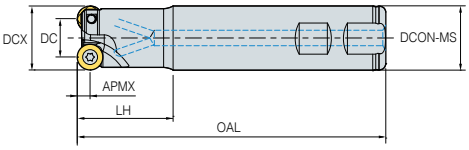


Fig. 1

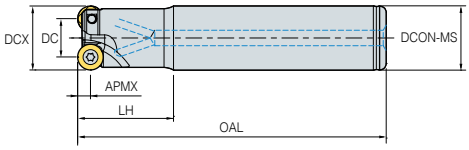


Fig. 2



• GAMP : 5°
• GAMF : −8°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	3021HRD-M		1	21	11	20	40	150	5	0.3	1
	3021HRD-M2		2	21	11	20	40	150	5	0.3	1
	3021HRD-L		1	21	11	20	50	200	5	0.4	1
	3021HRD-L2	●	2	21	11	20	50	200	5	0.4	1
	3025HRD-S	●	2	25	15	25	35	115	5	0.4	2
	3025HRD-M	●	2	25	15	25	70	200	5	0.6	1
	3025HRD-L	●	2	25	15	25	100	250	5	0.8	1
	3026HRD-M	●	2	26	16	25	70	200	5	0.6	1
	3026HRD-L		2	26	16	25	100	250	5	0.8	1
	3032HRD-S	●	3	32	22	32	40	125	5	0.7	2
	3032HRD-M	●	3	32	22	32	70	200	5	1.1	1
	3032HRD-L		3	32	22	32	150	300	5	1.6	1
	3040HRD-S		4	40	30	32	40	125	5	0.7	2
	3040HRD-M	●	4	40	30	32	70	200	5	1.1	1
	3040HRD-L		4	40	30	32	150	300	5	1.7	1

● : Stock item

Available inserts

RDKT-MF



RDKT-MM



RDCT-MA



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA															●	B16 B17
RDKT	10T3M0-MF										●		●				
	10T3M0-MM			●					●	●	●		●				

Parts

Specification	Screw	Wrench
Ø21	FTGA03507	TW15S
Ø25~Ø40	FTGA03508	TW15S

Available inserts **B16, B17**

FMRS4000



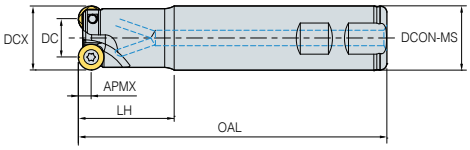


Fig. 1

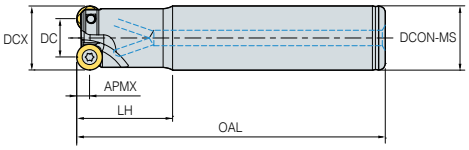


Fig. 2



• GAMP : 5°
• GAMF : −8°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	4032HRD-S	●	2	32	20	32	40	125	6	0.6	2
	4032HRD-M	●	2	32	20	32	70	200	6	1	1
	4032HRD-L		2	32	20	32	150	300	6	1.6	1
	4033HRD-S		2	33	21	32	40	125	6	0.7	2
	4033HRD-M	●	2	33	21	32	70	200	6	1.1	1
	4033HRD-L		2	33	21	32	150	300	6	1.6	1
	4040HRD-S		3	40	28	32	40	125	6	0.7	2
	4040HRD-M	●	3	40	28	32	70	200	6	1.1	1
	4040HRD-L	●	3	40	28	32	150	300	6	1.6	1
	4040HRD-S40		3	40	28	40	40	125	6	1.1	2
	4040HRD-M40		3	40	28	40	70	200	6	1.6	1
	4040HRD-L40		3	40	28	40	150	300	6	2.3	1
	4040HRD-S42		3	40	28	42	40	125	6	1.6	2
	4040HRD-M42		3	40	28	42	70	200	6	1.7	1
	4040HRD-L42		3	40	28	42	150	300	6	2.4	1
	4050HRD-S	●	4	50	38	42	50	150	6	1.5	2
	4050HRD-M	●	4	50	38	42	50	250	6	2.1	1
	4050HRD-L		4	50	38	42	50	300	6	2.9	1
	4050HRD-S40		4	50	38	40	50	150	6	1.4	2
	4050HRD-M40		4	50	38	40	50	250	6	2.3	1
	4050HRD-L40		4	50	38	40	50	300	6	2.9	1

● : Stock item

Available inserts

RDKT-MF



RDKT-MM



RDCT-MA



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	1204M0-MA															●	B16
RDKT	1204M0-MF								●		●		●				B17
	1204M0-MM			●					●	●	●		●				

Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0410	TW15S

Available inserts **B16, B17**

FMRS5000



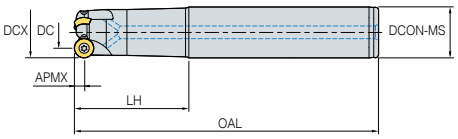


Fig. 1

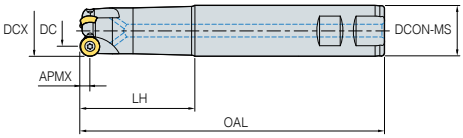


Fig. 2



• GAMP : 5°
• GAMF : −8°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	5040HRD-S		2	40	24	32	43	125	8	1.4	2
	5040HRD-M		2	40	24	32	70	200	8	1.1	1
	5040HRD-L		2	40	24	32	150	300	8	1.7	1
	5040HRD-S40		2	40	24	40	40	125	8	1	2
	5040HRD-M40		2	40	24	40	70	200	8	2.3	1
	5040HRD-L40		2	40	24	40	150	300	8	2.3	1
	5040HRD-S42		2	40	24	42	40	125	8	0	2
	5040HRD-M42		2	40	24	42	70	200	8	2.4	1
	5040HRD-L42		2	40	24	42	150	300	8	2.4	1
	5050HRD-S40		3	50	34	40	50	150	8	1.4	2
	5050HRD-M40		3	50	34	40	50	250	8	1.7	1
	5050HRD-L40		3	50	34	40	50	300	8	3	1
	5050HRD-S		3	50	34	42	50	150	8	1.4	2
	5050HRD-M		3	50	34	42	50	250	8	1.8	1
	5050HRD-L		3	50	34	42	50	300	8	3	1
	5063HRD-S40		4	63	47	40	50	150	8	1.6	2
	5063HRD-M40		4	63	47	40	50	250	8	2.5	1
	5063HRD-L40		4	63	47	40	50	300	8	3	1
	5063HRD-S		4	63	47	42	50	150	8	1.6	2
	5063HRD-M		4	63	47	42	50	250	8	2.7	1
	5063HRD-L		4	63	47	42	50	300	8	3.2	1

● : Stock item

Available inserts

RDHW-E,F,S



RDKT-MF



RDKT-ML



RDKT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	1605M0E																
	1605M0F																
	1605M0S																B16
RDKT	1605M0-MF								●								B17
	1605M0-MM																
	1605M0-ML																

Parts

Specification	Screw	Wrench
Ø40~Ø63	FTGA0513-P	TW20-100

Available inserts **B16, B17**

FMRS6000



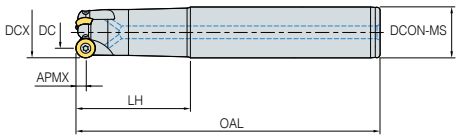


Fig. 1

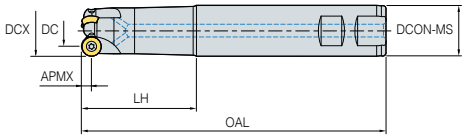


Fig. 2



• GAMP : 5°
• GAMF : −8°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	6050HRD-S40		3	50	31	40	50	150	10	1.3	2
	6050HRD-S42		3	50	31	42	50	150	10	0	2
	6050HRD-M40		3	50	31	40	50	250	10	2.2	1
	6050HRD-M42		3	50	31	42	50	250	10	2.4	1
	6050HRD-L40		3	50	31	40	50	300	10	2.7	1
	6050HRD-L42		3	50	31	42	50	300	10	1.3	1
	6063HRD-S40		4	63	44	40	50	150	10	1.5	2
	6063HRD-S42		4	63	44	42	50	150	10	1.3	2
	6063HRD-M40		4	63	44	40	50	250	10	2.5	1
	6063HRD-M42		4	63	44	42	50	250	10	2.7	1
	6063HRD-L40		4	63	44	40	50	300	10	3	1
	6063HRD-L42		4	63	44	42	50	300	10	3.2	1

● : Stock item

Available inserts

RDHW-E,F,S



RDKT-MM



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	2006M0E																
	2006M0F																B16
	2006M0S																B17
RDKT	2006M0-MM								●								

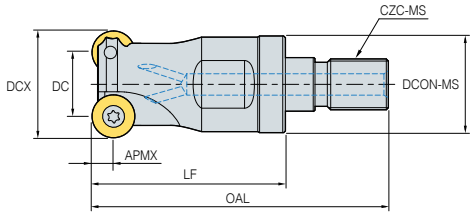
Parts

Specification	Screw	Wrench
Ø50~Ø63	FTGA0515-P	TW20-100

Available inserts **B16, B17**

FMRM1000/1500







• GAMP : 0°~5°
• GAMF : −5°~−1°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	1008HRD-M06		1	8	2.97	9.5	25	40	M06	2.5	0.1
	1010HRD-M06		2	10	5	9.5	25	40	M06	2.5	0.1
	1012HRD-M06		2	12	7	11	25	40	M06	2.5	0.1
	1015HRD-M08		3	15	10	14.5	30	47	M08	2.5	0.1
FMRM	1510HRD-M06		1	10	3.9	9.5	25	40	M06	3	0.1
	1512HRD-M06	●	2	12	6	11	25	40	M06	3	0.1
	1516HRD-M08		3	16	10	14.5	30	47	M08	3	0.1
	1520HRD-M10		3	20	14	18	35	56	M10	3	0.1

● : Stock item

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated										Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
1000 type	RDHW	0501M0E										●						
		0501M0F																
		0501M0S																
	RDKW	0501M0E								●								B16
1500 type	RDHW	06T1M0E										●						B17
		06T1M0F																
		06T1M0S																
	RDKW	06T1M0E								●								

Available adaptors

	Designation	Available adaptors
FMRM	1008HRD-M06	MAT-M06
	1010HRD-M06	
	1012HRD-M06	
	1015HRD-M08	MAT-M08
	1510HRD-M06	MAT-M06
	1512HRD-M06	
	1515HRD-M08	MAT-M08
	1520HRD-M10	MAT-M10

Designation : FMRM1008HRD-M06
Modular head threading measure size (M06)

II

Adaptor spec.: MAT-M06-020-S10S
Adaptor threading measure (M06)

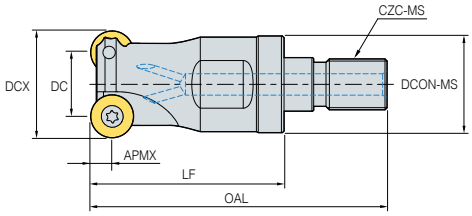
Parts

Specification	Screw	Wrench
Ø8~Ø15(1000 type)	FTNA0203	TW06P
Ø10~Ø20(1500 type)	FTNA02205	TW06P

Available inserts **B16, B17** Available adaptors **B400**

FMRM2000/2500







• GAMP : 0°~5°
• GAMF : −5°~−1°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	2015HRD-M08		2	15	8	14.5	30	47	M08	3.5	0.1
	2020HRD-M10		3	20	13	18	35	56	M10	3.5	0.1
FMRM	2516HRD-M08		2	16	8	14.5	30	47	M08	4	0.1
	2520HRD-M10		2	20	12	18	35	56	M10	4	0.1
	2525HRD-M12		3	25	17	22.5	45	69	M12	4	0.1

● : Stock item

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated										Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
2000 type	RDHW	0702M0E										●						
		0702M0F																
		0702M0S																
	RDKW	0702M0E								●								B16
2500 type	RDHW	0803M0E										●						B17
		0803M0F																
		0803M0S																
	RDKW	0803M0E								●								

Available adaptors

	Designation	Available adaptors
FMRM	2015HRD-M08	MAT-M08
	2020HRD-M10	MAT-M10
	2516HRD-M08	MAT-M08
	2520HRD-M10	MAT-M10
	2525HRD-M12	MAT-M12

Designation : FMRM2015HRD-M08
Modular head threading measure size (M08)

=

Adaptor spec.: MAT-M08-020-S16S
Adaptor threading measure (M08)

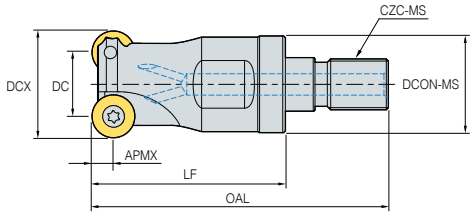
Parts

Specification	Screw	Wrench
Ø15~Ø20(2000 type)	FTNA02555	TW07S
Ø16~Ø25(2500 type)	FTNA0305	TW09S

Available inserts **B16, B17** Available adaptors **B400**

FMRM3000













• GAMP : 5°
• GAMF : –8°~–5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	3021HRD-M10		2	21	11	18	35	56	M10	5	0.1
	3025HRD-M12	●	2	25	15	22.5	45	69	M12	5	0.1
	3032HRD-M16		3	32	22	29	50	77	M16	5	0.2
	3042HRD-M16		4	42	32	29	50	77	M16	5	0.3

● : Stock item

Available inserts

RDHW-E,F,S



RDCT-MA



RDKT-MF



RDKT-ML



RDKT-MM



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA															●	B16 B17
RDKT	10T3M0-MF										●		●				
	10T3M0-MM			●					●	●	●		●				

Available adaptors

	Designation	Available adaptors
FMRM	3021HRD-M10	MAT-M10
	3025HRD-M12	MAT-M12
	3032HRD-M16	MAT-M16
	3042HRD-M16	

Designation : FMRM3021HRD-M10
Modular head threading measure size (M10)

II

Adaptor spec.: MAT-M10-030-S20S
Adaptor threading measure (M10)

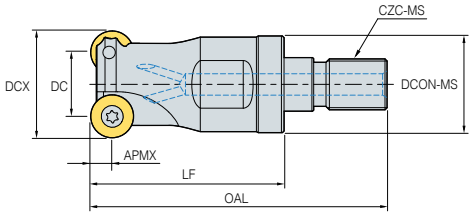
Parts

Specification	Screw	Wrench
Ø21	FTGA03507	TW15S
Ø25~Ø42	FTGA03508	TW15S

Available inserts **B16, B17** Available adaptors **B400**

FMRM4000/5000







• GAMP : 5°
• GAMF : −8°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	4025HRD-M12		2	25	13	22.5	45	69	M12	6	0.1
	4032HRD-M16		2	32	20	29	50	77	M16	6	0.2
	4040HRD-M16		3	40	28	29	50	77	M16	6	0.3
	4042HRD-M16		4	42	30	29	50	77	M16	6	0.3
FMRM	5040HRD-M16		2	40	24	29	50	77	M16	8	0.2

● : Stock item

Available inserts

RDHW-E RDCT-MA RDKT-MF RDKT-ML RDKT-MM



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
4000 type	RDCT	1204M0-MA															●	B16 B17
	RDKT	1204M0-MF								●		●		●				
		1204M0-MM			●					●	●	●		●				
5000 type	RDHW	1605M0-E																
	RDKT	1605M0-MF																
		1605M0-ML																
		1605M0-MM								●								

Available adaptors

	Designation	Available adaptors
FMRM	4025HRD-M12	MAT-M12
	4032HRD-M16	MAT-M16
	4040HRD-M16	
	4042HRD-M16	
	5040HRD-M16	MAT-M16

Designation : FMRM4025HRD-M12
Modular head threading measure size (M12)

II

Adaptor spec.: MAT-M12-030-S25S
Adaptor threading measure (M12)

Parts

Specification	Screw	Wrench
Ø25~Ø42(4000 type)	FTKA0410	TW15S
Ø40(5000 type)	FTGA0513-P	TW20-100

Available inserts **B16, B17** Available adaptors **B400**

Future Mill series for mold making

FMR P-Positive

- Enhanced rigidty and Damped vibration
- Stable clamping system enables stable machining and productivity
- Varied product line-up ensures wide application range
- Optimal shape and grade with high hardness for hard-to-cut material machining

Features

- P-Positive relief angle (11˚) ensures high rigidity and high machinability in die steel and high-resistant alloy machining
- Flat clearance face of insert prevents interference and revolution while machining
- **Chip breaker** → Concave shape ensures wide chip pocket and lowers cutting temperature
- **Through-coolant system** - Superb chip evacuation - Low cutting heat ensures long tool life
- **Clearance face for preventing rotation** - Prevents rotation in machining
  - Prevents interference in high-feed machining
  - Divides corners
  - Ensures stable clamping
- Optimal grades and chip breakers for various workpieces

Features of chip breaker

Chip breaker insert		Cutting-edge	Use	Features
MA			Aluminum machining	Optimal cutting-edge for aluminum machining and buffed surface ensure high machinability
ML			Titanium & Inconel machining	Excellent results in titanium machining thanks to a high hardness cutting-edge and the chip breaker reducing the cutting load
MF			Light machining	Chip breaker for low cutting resistance enables fine finishing.
MM			General machining	Optimal for general machining
None C/B			Super hard material machining	Optimal for high hardness die steel and heat resistant alloy

Recommended cutting conditions

∗Recommended chip breaker: ● First ○Second

Workpiece			Hardness	Grade	Cutting conditions				Chip breaker					
					vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	MA	ML	MF	MM	None C/B 1	None C/B 2
P	Low carbon steel		HB80~180	PC5400	100~250	0.12~0.70	0.3~6.0	0.7D~0.1D	-	-	●	○	-	-
	High carbon steel		HB180~280	PC5400	100~220	0.12~0.70	0.3~6.0	0.7D~0.1D	-	-	●	○	-	-
	Low alloy steel		Under HRC27	PC3700	180~290	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	-	●	○	-
				PC5400/PC5300	100~200	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	-	●	○	-
	Low pre-hardened steel		HRC20~50	PC3700	130~250	0.30~0.50	~ 0.5	0.7D~0.1D	-	-	-	-	●	○
				PC2510/PC5300	50~150	0.30~0.50	~ 0.5	0.7D~0.1D	-	-	-	-	●	○
	High alloy steel		Under HRC27	PC3700	130~250	0.30~0.50	~ 0.5	0.7D~0.1D	-	-	-	●	○	-
				PC5300	100~220	0.30~0.50	~ 0.5	0.7D~0.1D	-	-	-	●	○	-
	High pre-hardened steel		HRC20~48	PC2510/PC5300	50~150	0.30~0.50	~ 0.5	0.7D~0.1D	-	-	-	-	●	○
M	Stainless steel		Under HB270	PC5300/PC5400	100~150	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	○	●	-	-
K	Gray cast iron, Ductile cast iron		Under 350MPa	PC5300	120~210	0.20~0.60	0.3~6.0	0.7D~0.1D	-	-	○	●	-	-
N	Aluminum		-	H01	300~800	0.30~0.60	0.3~6.0	0.7D~0.1D	●	-	-	-	-	-
S	Heat resistant alloy	Fe	HRC20~30	PC5300/PC5400	35~60	0.30~0.50	~ 0.5	0.7D~0.1D	-	●	○	-	-	-
		Ni or Co	HRC40~45	PC5300/PC5400	30~50	0.30~0.50	~ 0.5	0.7D~0.1D	-	●	○	-	-	-
	Titanium		HRC35~45	PC5300/PC5400	40~70	0.30~0.50	~ 1.5	0.7D~0.1D	-	●	○	-	-	-
H	High hardened materials		Over HRC50	PC2505/PC2510	30~50	0.30~0.50	~ 0.5	0.7D~0.1D	-	-	-	-	●	○

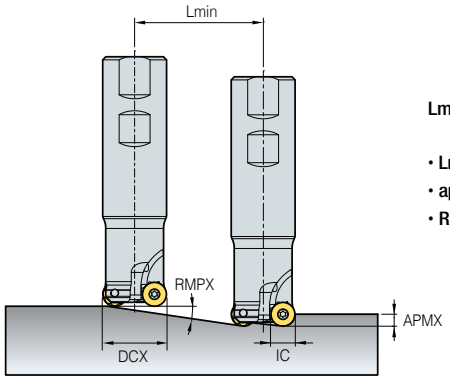
Feed per tooth according to ap (fz, mm/t)

(mm)

Type	Insert size (IC)	Feed per footh according to ap							
		ap = 1	ap = 2	ap = 3	ap = 4	ap = 5	ap = 6	ap = 8	ap = 10
RPMT08	8	0.30	0.22	0.18	0.15	-	-	-	-
RPMT10	10	0.40	0.28	0.25	0.20	0.12	-	-	-
RPMT12	12	0.60	0.45	0.35	0.30	0.25	0.20	-	-
RPMT16	16	0.65	0.45	0.40	0.32	0.30	0.28	0.23	-
RPMT20	20	0.70	0.50	0.42	0.35	0.32	0.29	0.25	0.22

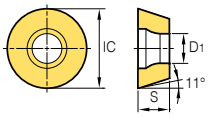
FMR P-Positive

Maximum angle table for ramping machining



$$Lmin = \frac{APMX}{\tan(RMPX)} \ (mm)$$

- **Lmin** = Maximum angle table for ramping machining
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle



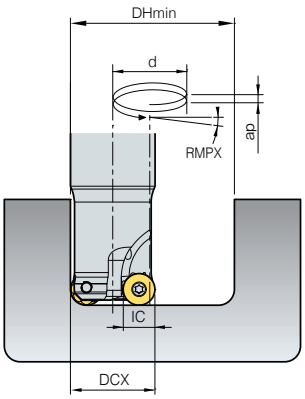
(mm)

Type	Insert size (IC)	DCX	RMPX	Cutting length L (mm) by ap									
				ap=1	ap=2	ap=2.5	ap=3	ap=3.5	ap=4	ap=5	ap=6	ap=8	ap=10
FMR2500	8	17	4.7	12	24	30	36	42	48	-	-	-	-
	8	18	4.1	14	28	34	41	48	55	-	-	-	-
	8	20	15.4	4	7	9	11	13	14	-	-	-	-
	8	21	13.9	4	8	10	12	14	16	-	-	-	-
	8	25	9.8	6	12	14	17	20	23	-	-	-	-
	8	26	9.2	6	12	16	19	22	25	-	-	-	-
FMR3000	10	25	13.8	4	8	10	12	14	16	20	-	-	-
	10	26	12.6	4	9	11	13	16	18	22	-	-	-
	10	32	8.4	7	14	17	20	24	27	34	-	-	-
	10	33	8.0	7	14	18	21	25	29	36	-	-	-
	10	40	5.8	10	20	25	30	34	39	49	-	-	-
	10	50	4.2	14	27	34	41	48	55	68	-	-	-
	10	63	3.1	19	37	47	56	65	75	93	-	-	-
	10	66	2.9	20	40	50	60	69	79	99	-	-	-
FMR4000	12	25	4.5	13	25	32	38	44	51	63	76	-	-
	12	26	4.1	14	28	35	42	49	56	70	84	-	-
	12	32	14.7	4	8	10	11	13	15	19	23	-	-
	12	33	13.8	4	8	10	12	14	16	20	24	-	-
	12	40	9.6	6	12	15	18	21	24	30	36	-	-
	12	50	6.7	9	17	21	26	30	34	43	51	-	-
	12	63	4.8	12	24	30	36	42	48	60	72	-	-
	12	66	4.5	13	26	32	38	45	51	64	77	-	-
	12	80	3.5	17	33	41	50	58	66	83	99	-	-
	12	100	2.6	22	44	55	65	76	87	109	131	-	-
FMR5000	16	40	17.8	3	6	8	9	11	12	16	19	25	-
	16	50	11.3	5	10	13	15	18	20	25	30	40	-
	16	63	7.6	7	15	19	22	26	30	37	45	60	-
	16	66	7.1	8	16	20	24	28	32	40	48	64	-
	16	80	5.3	11	21	27	32	37	43	53	64	85	-
	16	100	4.0	14	29	36	43	51	58	72	87	116	-
	16	125	3.0	19	38	48	58	67	77	96	115	154	-
	16	160	2.2	26	52	65	78	90	103	129	155	207	-
FMR6000	20	50	17.8	3	6	8	9	11	12	16	19	25	31
	20	63	11.1	5	10	13	15	18	20	25	30	41	51
	20	80	7.4	8	15	19	23	27	31	38	46	61	77
	20	100	5.3	11	21	27	32	37	43	53	64	85	107
	20	125	4.0	14	29	36	43	51	58	72	87	116	145
	20	160	2.9	20	40	49	59	69	79	99	119	158	198
	20	200	2.2	26	52	65	78	90	103	129	155	207	258
	20	250	1.7	33	67	84	100	117	134	167	200	267	334

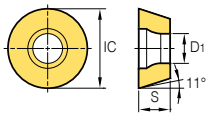
* Insert size (IC): Please refer page B17, B18 applicable insert drawing.

FMR P-Positive

Minimum hole diameter table for helical machining (ØDHmin)



- DCX = Tool dia. (mm), DHmin, max = DCX(mm)
- IC = Tool Path, mm
- DHmin(Minimum hole diameter) = DCX×2–Insert size
- DHmax(Maximum hole diameter) = DCX×2–2
- d(Tool path, mm) = DHmin, max– DCX



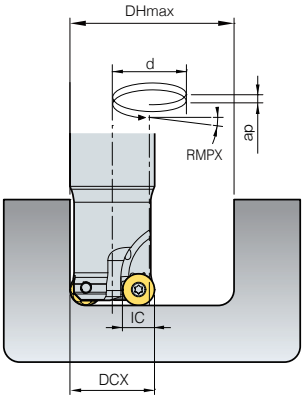
(mm)

Type	Insert size (IC)	DCX	RMPX	ØDH min	d	Ramping angle									
						ap=1	ap=2	ap=2.5	ap=3	ap=3.5	ap=4	ap=5	ap=6	ap=8	ap=10
FMR2500	8	17	4.7	26	9	2.03	4.06	-	-	-	-	-	-	-	-
	8	18	4.1	28	10	1.83	3.65	-	-	-	-	-	-	-	-
	8	20	15.4	32	12	1.52	3.04	3.81	4.57	5.34	6.11	-	-	-	-
	8	21	13.9	34	13	1.40	2.81	3.51	4.22	4.92	5.63	-	-	-	-
	8	25	9.8	42	17	1.07	2.15	2.69	3.22	3.76	4.30	-	-	-	-
	8	26	9.2	44	18	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-
FMR3000	10	25	13.8	40	15	1.22	2.43	3.04	3.65	4.27	4.88	-	-	-	-
	10	26	12.6	42	16	1.14	2.28	2.85	3.43	4.00	4.57	-	-	-	-
	10	32	8.4	54	22	0.83	1.66	2.07	2.49	2.91	3.32	-	-	-	-
	10	33	8.0	56	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	10	40	5.8	70	30	0.61	1.22	1.52	1.83	2.13	2.43	-	-	-	-
	10	50	4.2	90	40	0.46	0.91	1.14	1.37	1.60	1.83	-	-	-	-
	10	63	3.1	116	53	0.34	0.69	0.86	1.03	1.21	1.38	-	-	-	-
	10	66	2.9	122	56	0.33	0.65	0.81	0.98	1.14	1.30	-	-	-	-
FMR4000	12	25	4.5	38	13	1.40	2.81	3.51	-	-	-	-	-	-	-
	12	26	4.1	40	14	1.30	2.61	3.26	-	-	-	-	-	-	-
	12	32	14.7	52	20	0.91	1.83	2.28	2.74	3.20	3.65	4.57	5.49	-	-
	12	33	13.8	54	21	0.87	1.74	2.17	2.61	3.04	3.48	4.35	5.23	-	-
	12	40	9.6	68	28	0.65	1.30	1.63	1.96	2.28	2.61	3.26	3.92	-	-
	12	50	6.7	88	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	-	-
	12	63	4.8	114	51	0.36	0.72	0.89	1.07	1.25	1.43	1.79	2.15	-	-
	12	66	4.5	120	54	0.34	0.68	0.84	1.01	1.18	1.35	1.69	2.03	-	-
	12	80	3.5	148	68	0.27	0.54	0.67	0.81	0.94	1.07	1.34	1.61	-	-
	12	100	2.6	188	88	0.21	0.41	0.52	0.62	0.73	0.83	1.04	1.24	-	-
FMR5000	16	40	17.8	64	24	0.76	1.52	1.90	2.28	2.66	3.04	3.81	4.57	6.11	-
	16	50	11.3	84	34	0.54	1.07	1.34	1.61	1.88	2.15	2.69	3.22	4.30	-
	16	63	7.6	110	47	0.39	0.78	0.97	1.16	1.36	1.55	1.94	2.33	3.11	-
	16	66	7.1	116	50	0.36	0.73	0.91	1.09	1.28	1.46	1.83	2.19	2.92	-
	16	80	5.3	144	64	0.29	0.57	0.71	0.86	1.00	1.14	1.43	1.71	2.28	-
	16	100	4.0	184	84	0.22	0.43	0.54	0.65	0.76	0.87	1.09	1.30	1.74	-
	16	125	3.0	234	109	0.17	0.33	0.42	0.50	0.59	0.67	0.84	1.00	1.34	-
	16	160	2.2	304	144	0.13	0.25	0.32	0.38	0.44	0.51	0.63	0.76	1.01	-
FMR6000	20	50	17.8	80	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	3.65	4.88	6.11
	20	63	11.1	106	43	0.42	0.85	1.06	1.27	1.49	1.70	2.12	2.55	3.40	4.25
	20	80	7.4	140	60	0.30	0.61	0.76	0.91	1.06	1.22	1.52	1.83	2.43	3.04
	20	100	5.3	180	80	0.23	0.46	0.57	0.68	0.80	0.91	1.14	1.37	1.83	2.28
	20	125	4.0	230	105	0.17	0.35	0.43	0.52	0.61	0.70	0.87	1.04	1.39	1.74
	20	160	2.9	300	140	0.13	0.26	0.33	0.39	0.46	0.52	0.65	0.78	1.04	1.30
	20	200	2.2	380	180	0.10	0.20	0.25	0.30	0.35	0.41	0.51	0.61	0.81	1.01
	20	250	1.7	480	230	0.08	0.16	0.20	0.24	0.28	0.32	0.40	0.48	0.63	0.79

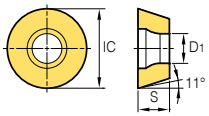
∗ Insert size (IC): Please refer page B17, B18 applicable insert drawing.

FMR P-Positive

Maximum hole diameter table for helical machining (ØDHmax)



- DCX = Tool dia. (mm), DHmin, max = DCX(mm)
- d = Tool Path, mm
- DHmin(Minimum hole diameter) = DCX×2–Insert size
- DHmax(Maximum hole diameter) = DCX×2–2
- d(Tool path, mm) = DHmin, max– DCX



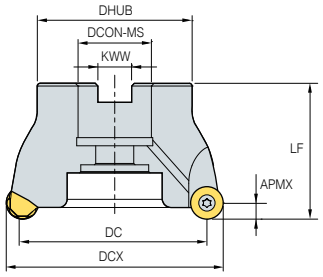
(mm)

Type	Insert size (IC)	DCX	RMPX	ØDH min	d	Ramping angle									
						ap=1	ap=2	ap=2.5	ap=3	ap=3.5	ap=4	ap=5	ap=6	ap=8	ap=10
FMR2500	8	17	4.7	32	15	1.22	2.43	3.04	3.65	-	-	-	-	-	-
	8	18	4.1	34	16	1.14	2.28	2.85	3.43	-	-	-	-	-	-
	8	20	15.4	38	18	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-
	8	21	13.9	40	19	0.96	1.92	2.40	2.88	3.37	3.85	-	-	-	-
	8	25	9.8	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	8	26	9.2	50	24	0.76	1.52	1.90	2.28	2.66	3.04	-	-	-	-
FMR3000	10	25	13.8	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	10	26	12.6	50	24	0.76	1.52	1.90	2.28	2.66	3.04	-	-	-	-
	10	32	8.4	62	30	0.61	1.22	1.52	1.83	2.13	2.43	-	-	-	-
	10	33	8.0	64	31	0.59	1.18	1.47	1.77	2.06	2.36	-	-	-	-
	10	40	5.8	78	38	0.48	0.96	1.20	1.44	1.68	1.92	-	-	-	-
	10	50	4.2	98	48	0.38	0.76	0.95	1.14	1.33	1.52	-	-	-	-
	10	63	3.1	124	61	0.30	0.60	0.75	0.90	1.05	1.20	-	-	-	-
	10	66	2.9	130	64	0.29	0.57	0.71	0.86	1.00	1.14	-	-	-	-
FMR4000	12	25	4.5	48	23	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
	12	26	4.1	50	24	0.76	1.52	1.90	2.28	2.66	3.04	-	-	-	-
	12	32	14.7	62	30	0.61	1.22	1.52	1.83	2.13	2.43	3.04	3.65	-	-
	12	33	13.8	64	31	0.59	1.18	1.47	1.77	2.06	2.36	2.95	3.54	-	-
	12	40	9.6	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	-	-
	12	50	6.7	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	-	-
	12	63	4.8	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	-	-
	12	66	4.5	130	64	0.29	0.57	0.71	0.86	1.00	1.14	1.43	1.71	-	-
	12	80	3.5	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	-	-
	12	100	2.6	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	-	-
FMR5000	16	40	17.8	78	38	0.48	0.96	1.20	1.44	1.68	1.92	2.40	2.88	3.85	-
	16	50	11.3	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	-
	16	63	7.6	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	-
	16	66	7.1	130	64	0.29	0.57	0.71	0.86	1.00	1.14	1.43	1.71	2.28	-
	16	80	5.3	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	-
	16	100	4.0	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	-
	16	125	3.0	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	-
	16	160	2.2	318	158	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	-
FMR6000	20	50	17.8	98	48	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	3.81
	20	63	11.1	124	61	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	2.99
	20	80	7.4	158	78	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	2.34
	20	100	5.3	198	98	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	1.86
	20	125	4.0	248	123	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	1.48
	20	160	2.9	318	158	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	1.16
	20	200	2.2	398	198	0.09	0.18	0.23	0.28	0.32	0.37	0.46	0.55	0.74	0.92
	20	250	1.7	498	248	0.07	0.15	0.18	0.22	0.26	0.29	0.37	0.44	0.59	0.74

* Insert size (IC): Please refer page B17, B18 applicable insert drawing.

FMRCM3000







• GAMP : 5°
• GAMF : −4°~ 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
FMRCM	3040HRP-5	●	5	40	30	37.8	16	8.4	40	5	0.2
	3050HRP-6	●	6	50	40	45	22	10.4	40	5	0.4
	3052HRP-6		6	52	42	45	22	10.4	40	5	0.4
	3063HRP-6	●	6	63	53	50	22	10.4	40	5	0.6
	3063HRP-7	●	7	63	53	50	22	10.4	40	5	0.6
	3066HRP-7		7	66	56	50	22	10.4	40	5	0.6

● : Stock item

Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA															●	B17 B18
RPET	10T3M0E-ML												●	●			
RPMT	10T3M0E-MF												●	●			
	10T3M0S-MM						●	●	●				●	●			
RPMW	10T3M0E1						●	●					●	●			

Available arbors

	Designation	DCON-MS	Available arbors
FMRCM	3040HRP-5	16	BT□□-FMC16-□□
	3050HRP-6	22	BT□□-FMC22-□□
	3052HRP-6		
	3063HRP-6		
	3063HRP-7		
	3066HRP-7		

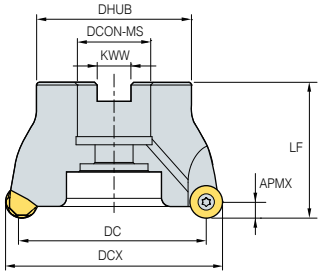
Parts

Specification	Screw	Wrench
Ø40~Ø66	FTGA03508	TW15S

Available inserts **B17, B18** Available arbors and bolt **E96**

FMRC(M)4000







• GAMP : 5°
• GAMF : −2°~ 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
FMRCM	4050HRP-4	●	4	50	38	45	22	10.4	40	6	0.3
	4050HRP-5	●	5	50	38	45	22	10.4	40	6	0.3
	4052HRP-5		5	52	40	45	22	10.4	40	6	0.3
FMRC (FMRCM)	4063HRP-5	● (●)	5	63	51	50	22	10.4	40	6	0.4
	4063HRP-6	● (●)	6	63	51	50	22	10.4	40	6	0.5
	4066HRP-6	● (●)	6	66	54	50	22	10.4	40	6	0.5
	4080HRP-6	● (●)	6	80	68	57	25.4(27)	9.5(12.4)	50	6	0.9
	4080HRP-7	● (●)	7	80	68	57	25.4(27)	9.5(12.4)	50	6	0.5
	4100HRP-7		7	100	88	67	31.75(32)	12.7(14.4)	63(53)	6	1.5

( )Metric size, ● : Stock item

Available inserts



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA															●	
RPET	1204M0E-ML												●	●			
RPMT	1204M0E-MF											●	●	●			B17
	1204M0S-MM						●	●	●			●	●	●			B18
RPMW	1204M0S1						●	●	●				●				
	1204M0S2												●	●			

Available arbors

	Designation	DCON-MS	Available arbors
FMRCM	4050HRP-4	22	BT□□-FMC22-□□
	4050HRP-5		
	4052HRP-5		
	4063HRP-5		
	4063HRP-6		
	4066HRP-6		
FMRC (FMRCM)	4080HRP-6	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4080HRP-7	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	4100HRP-7	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□

Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA0410	TW15S

Available inserts **B17, B18** Available arbors and bolt **E94 ~ E96**

FMRC(M)5000



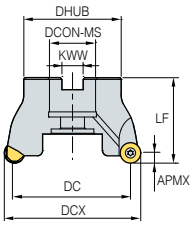


Fig. 1

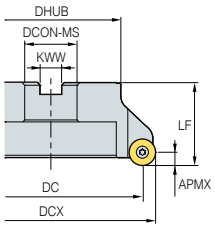


Fig. 2

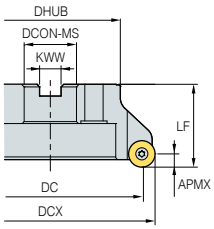


Fig. 3



• GAMP : 5°
• GAMF : −1°~ 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMRCM	5063HRP-4	●	4	63	47	50	22	10.4	40	8	0.4	1
	5063HRP-5	●	5	63	47	50	22	10.4	40	8	0.5	1
	5066HRP-5		5	66	50	50	22	10.4	40	8	0.5	1
FMRC (FMRCM)	5080HRP-5	● (●)	5	80	64	57	25.4(27)	9.5(12.4)	50	8	0.8	1
	5080HRP-6	● (●)	6	80	64	57	25.4(27)	9.5(12.4)	50	8	0.8	1
	5100HRP-6	● (●)	6	100	84	67	31.75(32)	12.7(14.4)	63(55)	8	1.4	1
	5125HRP-7	● (●)	7	125	109	87	38.1(40)	15.9(16.4)	68(63)	8	2.8	1
	5125HRP-8	● (●)	8	125	109	87	38.1(40)	15.9(16.4)	68(63)	8	2.8	1
	5160RP-8		8	160	144	107	50.8(40)	19(16.4)	68(63)	8	0.82	2(3)

( )Metric size, ● : Stock item

Available inserts

RPCT-MA RPET-ML RPMT-MF RPMT-MM RPMW



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1606M0-MA															●	B17 B18
RPET	1606M0E-ML												●	●			
RPMT	1606M0E-MF												●	●			
	1606M0S-MM						●	●	●				●	●			
RPMW	1606M0S1						●	●						●			

Available arbors

	Designation	DCON-MS	Available arbors
FMRCM	5063HRP-4	22	BT□□-FMC22-□□
	5063HRP-5		
	5066HRP-5		
FMRC (FMRCM)	5080HRP-5	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	5080HRP-6	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	5100HRP-6	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	5125HRP-7	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	5125HRP-8	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	5160RP-8	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø63~Ø160	FTGA0512-P	TW20-100

Available inserts **B17, B18** Available arbors and bolt **E94 ~ E96**

FMRC(M)6000



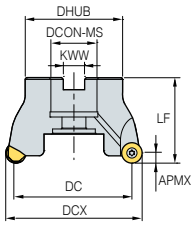


Fig. 1

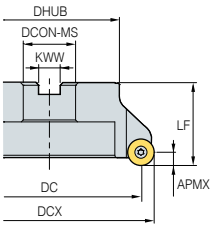


Fig. 2

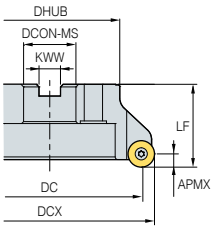


Fig. 3

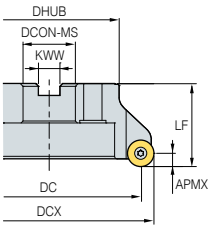


Fig. 4



• GAMP : 5°
• GAMF : 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
FMRCM	6063HRP-4	●	4	63	43	50	22	10.4	40	10	0.4	1
FMRC (FMRCM)	6080HRP-5	● (●)	5	80	60	57	25.4(27)	9.5(12.4)	50	10	0.9	1
	6100HRP-5	● (●)	5	100	80	67	31.75(32)	12.7(14.4)	63(55)	10	1.3	1
	6100HRP-6	● (●)	6	100	80	67	31.75(32)	12.7(14.4)	63(55)	10	1.4	1
	6125HRP-5	● (●)	5	125	105	87	38.1(40)	15.9(16.4)	68(63)	10	2.8	1
	6125HRP-7	● (●)	7	125	105	87	38.1(40)	15.9(16.4)	68(63)	10	2.8	1
	6160RP-6	(●)	6	160	140	107	50.8(40)	19(16.4)	63	10	3.6	2(3)
	6160RP-8	(●)	8	160	140	107	50.8(40)	19(16.4)	63	10	3.5	2(3)
	6200RP-8	(●)	8	200	180	130	47.625(60)	25.4(25.7)	63	10	5.2	4
	6250RP-9	(●)	9	250	230	180	47.625(60)	25.4(25.7)	63	10	9.7	4

( )Metric size, ● : Stock item

Available inserts



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	2007M0-MA															●	B17 B18
RPET	2007M0E-ML												●	●			
RPMT	2007M0E-MF												●	●			
	2007M0S-MM						●	●	●				●	●			
RPMW	2007M0S1						●	●					●	●			

Available arbors

Designation		DCON-MS	NC arbors
FMRCM	6063HRP-4	22	BT□□-FMC22-□□
FMRC (FMRCM)	6080HRP-5	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	6100HRP-5	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	6100HRP-6	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	6125HRP-5	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

Designation		DCON-MS	NC arbors
FMRC (FMRCM)	6125HRP-7	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□
	6160RP-6	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	6160RP-8	50.8	BT□□-FMA50.8-□□
		40	BT□□-FMC40-□□
	6200RP-8	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMC60-□□
	6250RP-9	47.625	BT□□-FMA47.625-□□
		60	BT□□-FMC60-□□

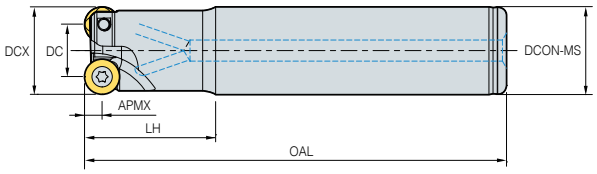
Parts

Specification	Screw	Wrench
Ø63~Ø160	FTKA0615-P	TW25-100

Available inserts **B17, B18** Available arbors and bolt **E94 ~ E96**

FMRS2500







• GAMP : −4°
• GAMF : −4°~−1°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
FMRS	2517HRP-2S16	●	2	17	9	16	35	90	4	0.1
	2517HRP-2M16	●	2	17	9	16	35	150	4	0.2
	2517HRP-2L16	●	2	17	9	16	35	200	4	0.3
	2518HRP-2M16		2	18	10	16	35	150	4	0.2
	2518HRP-2L16		2	18	10	16	35	200	4	0.3
	2520HRP-3S20	●	3	20	12	20	35	130	4	0.3
	2520HRP-3M20	●	3	20	12	20	100	180	4	0.4
	2520HRP-3L20	●	3	20	12	20	130	250	4	0.5
	2521HRP-3S20	●	3	21	13	20	35	130	4	0.3
	2521HRP-3M20	●	3	21	13	20	35	180	4	0.4
	2521HRP-3L20	●	3	21	13	20	35	250	4	0.6
	2525HRP-4S25	●	4	25	17	25	35	150	4	0.5
	2525HRP-4M25	●	4	25	17	25	60	180	4	0.6
	2525HRP-4L25	●	4	25	17	25	130	250	4	0.8
	2526HRP-4S25	●	4	26	18	25	35	150	4	0.5
	2526HRP-4L25	●	4	26	18	25	130	250	4	0.9

● : Stock item

Available inserts

	RPET-ML	RPMT-MF	RPMT-MM	RPMW
				

	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPET	0803M0E-ML												●	●			B17
RPMT	0803M0E-MF												●	●			B17
	0803M0S-MM						●	●					●	●			B18
RPMW	0803M0E1												●	●			B17

Parts

Specification	Screw	Wrench
Ø17	FTNA0305	TW09S
Ø18~Ø26	FTNA0306	TW09S

Available inserts **B17, B18**

FMRS3000



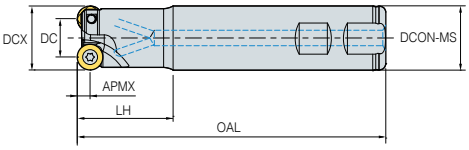


Fig. 1

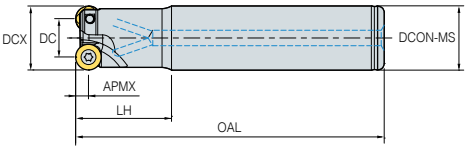


Fig. 2



• GAMP : −4°
• GAMF : −1°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	3025HRP-2M20	●	2	25	15	20	40	170	5	0.4	2
	3025HRP-2S25	●	2	25	15	25	40	120	5	0.4	1
	3025HRP-2M25	●	2	25	15	25	60	160	5	0.5	2
	3025HRP-2L25	●	2	25	15	25	130	250	5	0.8	2
	3026HRP-2L25	●	2	26	16	25	30	200	5	0.7	2
	3032HRP-3S32	●	3	32	22	32	40	125	5	0.7	1
	3032HRP-3L32	●	3	32	22	32	60	200	5	1.1	2
	3032HRP-4S32	●	4	32	22	32	40	125	5	0.7	1
	3032HRP-4L25	●	4	32	22	25	60	200	5	0.7	2
	3033HRP-4S32	●	4	33	23	32	40	125	5	0.7	1
	3033HRP-4M32	●	4	33	23	32	60	180	5	1.0	2
	3033HRP-4L32	●	4	33	23	32	180	300	5	1.6	2

● : Stock item

Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA															●	B17 B18
RPET	10T3M0E-ML												●	●			
RPMT	10T3M0E-MF												●	●			
	10T3M0S-MM						●	●	●				●	●			
RPMW	10T3M0E1						●	●					●	●			

Parts

Specification	Screw	Wrench
Ø25~Ø26	FTGA03507	TW15S
Ø32~Ø33	FTGA03508	TW15S

Available inserts **B17, B18**

FMRS4000



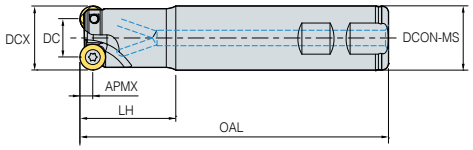


Fig. 1

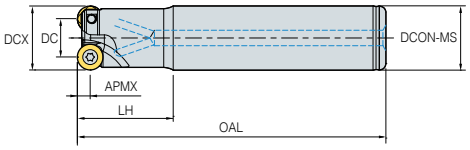


Fig. 2



• GAMP : −4°
• GAMF : −2°~ 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	4025HRP-2S25	●	2	25	13	25	60	160	6	0.5	1
	4026HRP-2L25	●	2	26	14	25	60	200	6	0.7	2
	4032HRP-2L25	●	2	32	20	25	40	190	6	0.7	2
	4032HRP-2S32	●	2	32	20	32	50	125	6	0.6	1
	4032HRP-2L32	●	2	32	20	32	50	250	6	1.4	2
	4032HRP-3S32	●	3	32	20	32	50	125	6	0.6	1
	4032HRP-3M32	●	3	32	20	32	60	160	6	0.9	2
	4033HRP-3M32	●	3	33	21	32	60	200	6	1.1	2
	4033HRP-3L32	●	3	33	21	32	60	300	6	1.7	2
	4040HRP-3S32	●	3	40	28	32	35	105	6	0.6	1
	4040HRP-3M32	●	3	40	28	32	50	160	6	1	2
	4040HRP-4S32	●	4	40	28	32	35	105	6	0.6	1
	4040HRP-4M32	●	4	40	28	32	35	150	6	0.9	2
	4040HRP-4L32	●	4	40	28	32	35	250	6	14.7	2
	4050HRP-4M32	●	4	50	38	32	50	150	6	1.1	2
	4050HRP-4M40	●	4	50	38	40	50	150	6	1.4	2
	4050HRP-4M42	●	4	50	38	42	50	150	6	1.6	2

● : Stock item

Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA															●	
RPET	1204M0E-ML												●	●			
RPMT	1204M0E-MF											●	●	●			B17
	1204M0S-MM						●	●	●			●	●	●			B18
RPMW	1204M0S1						●	●	●				●				
	1204M0S2												●	●			

Parts

Specification	Screw	Wrench
Ø25~Ø26	FTKA0408	TW15S
Ø32~Ø50	FTKA0410	TW15S

Available inserts **B17, B18**

FMRS5000/6000



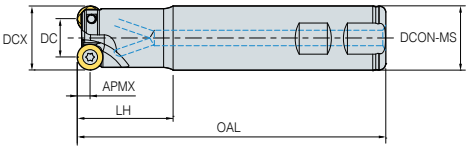


Fig. 1

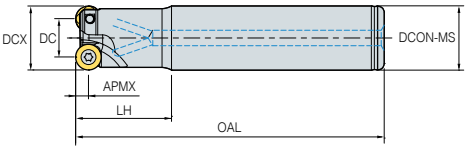


Fig. 2



• GAMP : −4°
• GAMF : 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
FMRS	5040HRP-2M32	●	2	40	24	32	50	160	8	0.9	2
	5040HRP-2L32	●	2	40	24	32	50	250	8	1.5	2
	5050HRP-3M40	●	3	50	34	40	50	160	8	1.5	2
	5050HRP-3L40	●	3	50	34	40	50	300	8	2.9	2
FMRS	6050HRP-3S32	●	3	50	30	32	50	160	10	1.1	1
	6050HRP-3M32	●	3	50	30	32	50	200	10	1.3	2
	6050HRP-3S40	●	3	50	30	40	50	125	10	1.5	1
	6050HRP-3M40	●	3	50	30	40	50	200	10	1.9	2

● : Stock item

Available inserts



Type	Designation		Cermet	Coated										Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
5000 type	RPCT	1606M0-MA															●	B17
	RPET	1606M0E-ML												●	●			
	RPMT	1606M0E-MF												●	●			
		1606M0S-MM						●	●	●				●	●			
	RPMW	1606M0S1						●	●						●			
6000 type	RPCT	2007M0-MA															●	B18
	RPET	2007M0E-ML												●	●			
	RPMT	2007M0E-MF												●	●			
		2007M0S-MM						●	●	●				●	●			
	RPMW	2007M0S1						●	●					●	●			

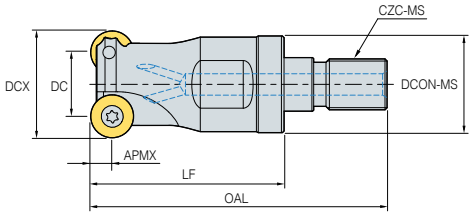
Parts

Specification	Screw	Wrench
Ø40~Ø50(5000 type)	FTGA0511-P	TW20-100
Ø50(6000 type)	FTKA0615-P	TW25-100

Available inserts **B17, B18**

FMRM2500







• GAMP : −4°
• GAMF : −4°~ 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	2517HRP-M08		2	17	9	14.5	25	42	M08	4	0.1
	2521HRP-M10		3	21	13	18	30	51	M10	4	0.1
	2526HRP-M12		4	26	18	23	35	59	M12	4	0.1
	2533HRP-M16		4	33	25	29	40	67	M16	4	7.5
	2540HRP-M16		5	40	32	29	40	67	M16	4	0.3

● : Stock item

Available inserts

RPCT-MA RPET-ML RPMT-MF RPMT-MM RPMW



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPET	0803M0E-ML												●	●			
RPMT	0803M0E-MF												●	●			B17
	0803M0S-MM						●	●					●	●			B18
RPMW	0803M0E1												●	●			

Available adaptors

	Designation	Available adaptors
FMRM	2517HRP-M08	MAT-M08
	2521HRP-M10	MAT-M10
	2526HRP-M12	MAT-M12
	2533HRP-M16	MAT-M16
	2540HRP-M16	

Designation : FMRM2517HRp-M08
Modular head threading measure size (M08)

II

Adaptor spec.: MAT-M08-020-S16S
Adaptor threading measure (M08)

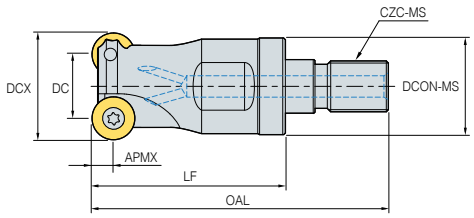
Parts

Specification	Screw	Wrench
Ø17	FTNA0305	TW09S
Ø21~Ø40	FTNA0306	TW09S

Available inserts **B17, B18** Available adaptors **B400**

FMRM3000







• GAMP : −4°
• GAMF : −1°~ 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	3026HRP-M12		2	26	16	23	35	59	M12	5	0.1
	3033HRP-M16		3	33	23	29	40	67	M16	5	0.2
	3035HRP-M16		3	35	25	29	40	67	M16	5	0.2
	3040HRP-M16		3	40	30	29	40	67	M16	5	0.3
	3042HRP-M16		3	42	32	29	40	67	M16	5	0.3

● : Stock item

Available inserts



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA															●	B17 B18
RPET	10T3M0E-ML												●	●			
RPMT	10T3M0E-MF												●	●			
	10T3M0S-MM						●	●	●				●	●			
RPMW	10T3M0E1						●	●					●	●			

Available adaptors

	Designation	Available adaptors
FMRM	3026HRP-M12	MAT-M12
	3033HRP-M16	MAT-M16
	3035HRP-M16	
	3040HRP-M16	
	3042HRP-M16	

Designation : FMRM3026HRP-M12
Modular head threading measure size (M12)

II

Adaptor spec.: MAT-M12-030-S25S
Adaptor threading measure (M12)

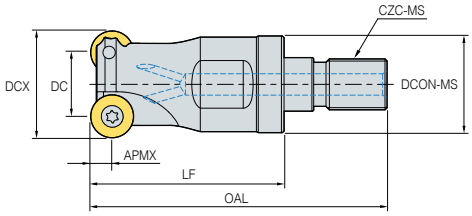
Parts

Specification	Screw	Wrench
Ø26	FTGA03507	TW15S
Ø33~Ø42	FTGA03508	TW15S

Available inserts **B17, B18** Available adaptors **B400**

FMRM4000







• GAMP : −4°
• GAMF : −4°~ 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	4026HRP-M12		2	26	14	23	35	59	M12	6	0.1
	4033HRP-M16		3	33	21	29	40	67	M16	6	0.2
	4035HRP-M16		3	35	23	29	40	67	M16	6	0.2
	4040HRP-M16		4	40	28	29	40	67	M16	6	0.2
	4042HRP-M16		4	42	30	29	40	67	M16	6	0.3

● : Stock item

Available inserts

RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
				

	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA															●	
RPET	1204M0E-ML												●	●			
RPMT	1204M0E-MF											●	●	●			B17
	1204M0S-MM						●	●	●			●	●	●			B18
RPMW	1204M0S1						●	●	●				●				
	1204M0S2												●	●			

Available adaptors

	Designation	Available adaptors
FMRM	4026HRP-M12	MAT-M12
	4033HRP-M16	MAT-M16
	4035HRP-M16	
	4040HRP-M16	
	4042HRP-M16	

Designation : FMRM4026HRP-M12
Modular head threading measure size (M12)

II

Adaptor spec.: MAT-M12-030-S25S
Adaptor threading measure (M12)

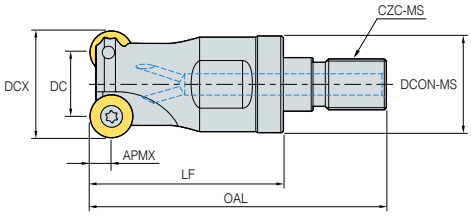
Parts

Specification	Screw	Wrench
Ø26	FTKA0408	TW15S
Ø33~Ø42	FTKA0410	TW15S

Available inserts **B17, B18** Available adaptors **B400**

FMRM5000







• GAMP : −4°
• GAMF : 0°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
FMRM	5040HRP-M16		2	40	24	29	40	67	M16	8	0.2
	5042HRP-M16		2	42	26	29	40	67	M16	8	2.3

● : Stock item

Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1606M0-MA															●	B17 B18
RPET	1606M0E-ML												●	●			
RPMT	1606M0E-MF												●	●			
	1606M0S-MM						●	●	●				●	●			
RPMW	1606M0S1						●	●						●			

Available adaptors

	Designation	Available adaptors
FMRM	5040HRP-M16	MAT-M16
	5042HRP-M16	

Designation : FMRM5040HRP-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench	Wrench
Ø40~Ø42	FTGA0511-P	-	TW20-100

Available inserts **B17, B18** Available adaptors **B400**

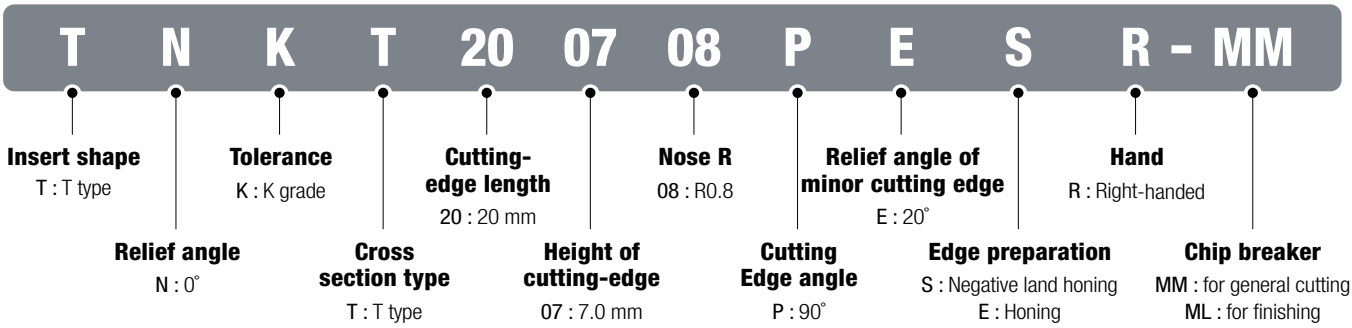
High depth of cut milling tool with 3 corners for perpendicularity

Triple Mill

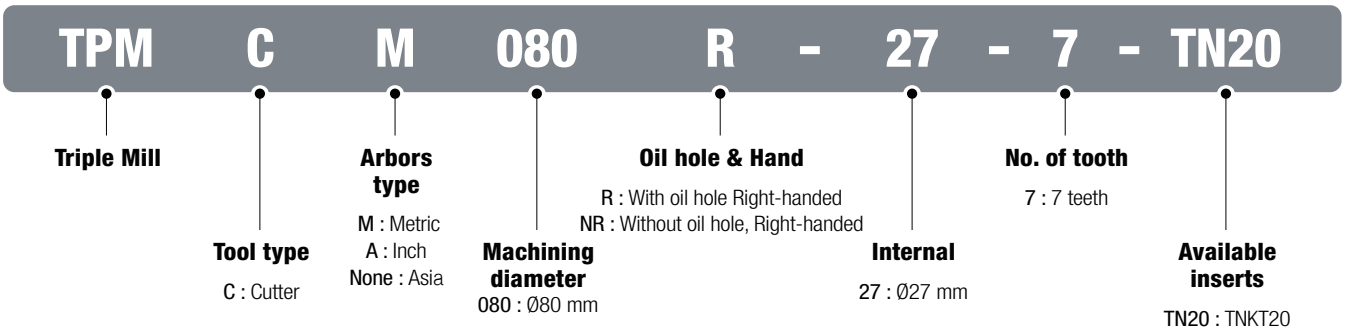
- Economical milling tool with 3 corners with positive cutting edge for high depth of cut machining
- Stable machinability in high feed machining due to enhanced chip evacuation and thicker insert
- High precision machining from less cutting load due to high helix and sharp cutting edge

Code system

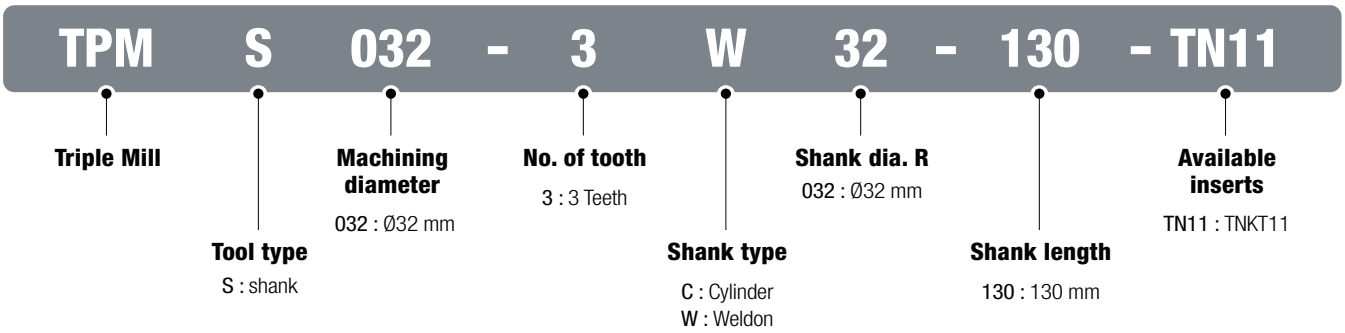
• Insert



• Cutter

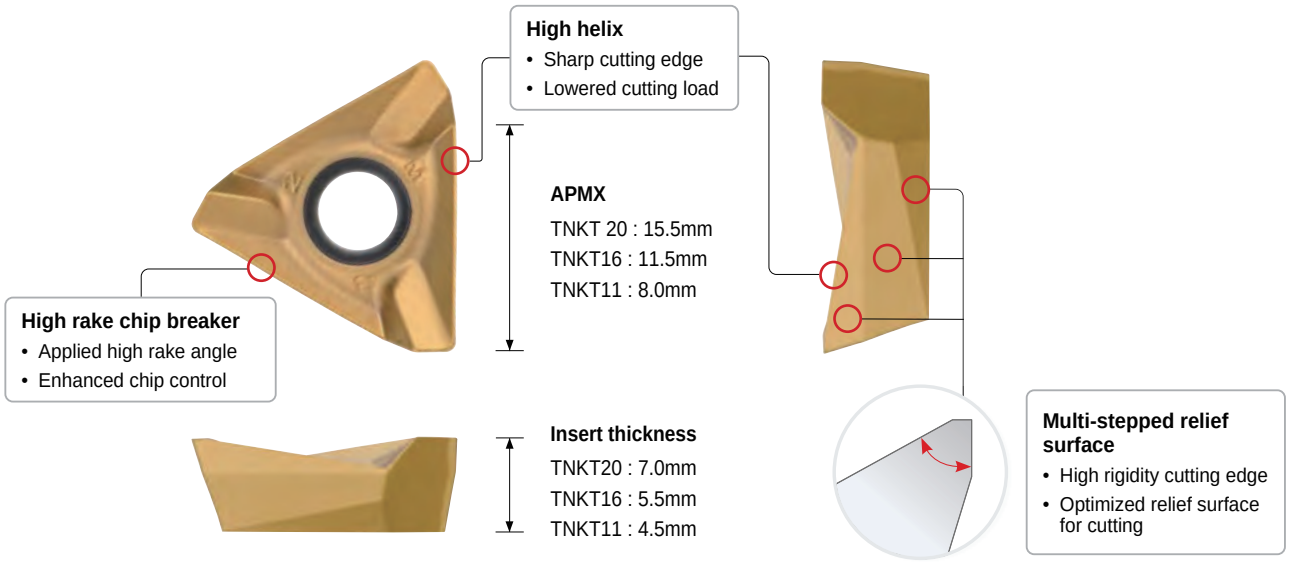


• Shank

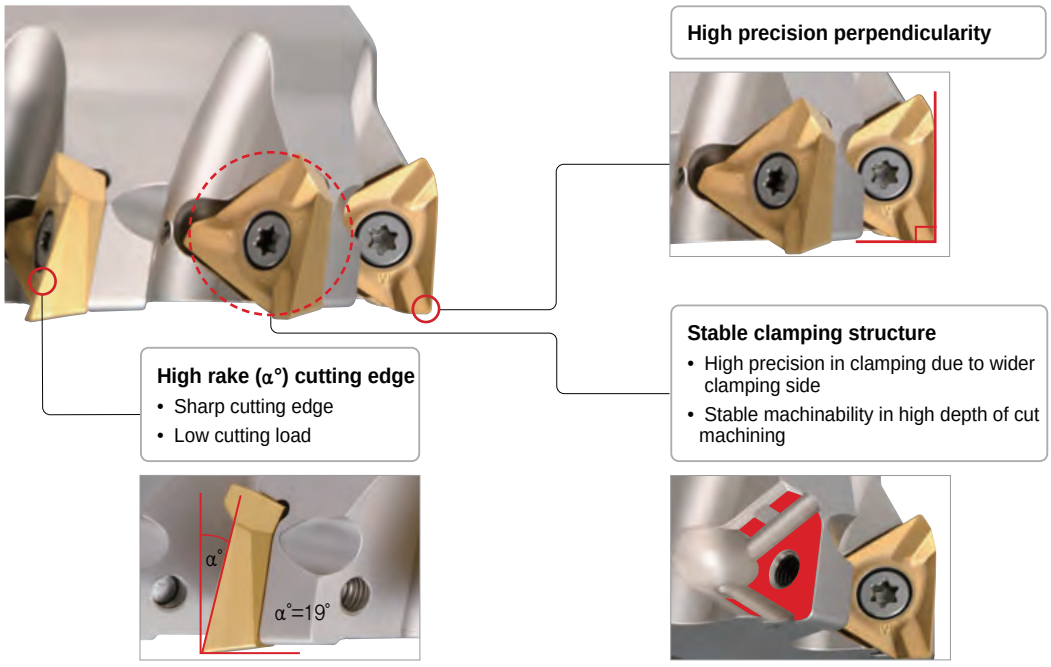


Features of insert

- Economical insert with 3 corners due to high depth of cut cutting edge
- Lowered cutting load and enhanced chip evacuation by sharp chip breaker and high helix cutting edge
- Stable machinability even in high cutting conditions from high rigidity design



Features of cutter



Recommended grade and chip breaker

(● : 1st Recommendation)

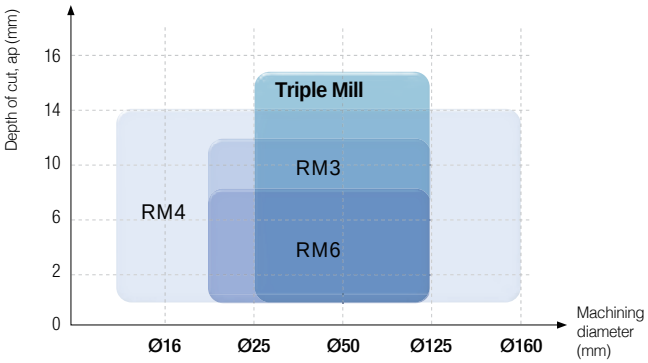
C/B	Cutting edge	P				M		K		S	
		Low carbon steel/ Mild steel		High carbon steel/ Alloy steel		Stainless steel		Cast iron		HRSA	
		C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
ML		-	● PC3700 ○ PC5300 ○ PC5400	-	● PC3700 ○ PC5300 ○ PC5400	●	● PC5300 ○ PC5400 ○ PC9540	-	● PC6100 ○ PC5300 ○ PC5400	-	○ PC5300 ○ PC5400
MM		●	● PC3700 ○ PC5300 ○ PC5400	●	● PC3700 ○ PC5300 ○ PC5400	-	● PC5300 ○ PC5400 ○ PC9540	●	● PC6100 ○ PC5300 ○ PC5400	-	○ PC5300 ○ PC5400

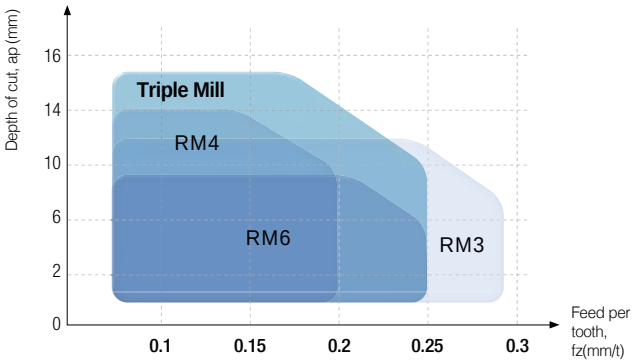
Recommended cutting conditions

Workpiece		Grade	Cutting speed vc(m/min)	TNKT11		TNKT16		TNKT20	
				fz (mm/t)	APMX (mm)	fz (mm/t)	APMX (mm)	fz (mm/t)	APMX (mm)
P	Steel	PC3700	160-270	0.25-0.1	8.0	0.25-0.1	11.5	0.25-0.1	15.5
		PC5300	140-240	0.25-0.1	8.0	0.25-0.1	11.5	0.25-0.1	15.5
M	Stainless steel	PC5300	90-150	0.2 - 0.05	8.0	0.2-0.05	11.5	0.2-0.05	15.5
		PC5400	70-120	0.2 - 0.05	8.0	0.2-0.05	11.5	0.2-0.05	15.5
		PC9540	70-120	0.2-0.05	8.0	0.2-0.05	11.5	0.2-0.05	15.5
K	Cast iron	PC6100	150-250	0.3-0.1	8.0	0.3-0.10	11.5	0.3-0.1	15.5
S	HRSA	PC5300	20-50	0.15-0.05	8.0	0.15-0.05	11.5	0.15-0.05	15.5

* The above data refer to general cutting conditions and can be adjustable to the speed of 350 m/min and the feed per tooth of 0.3 mm/t depending on user environment.

Application range





TPMCM-TN16



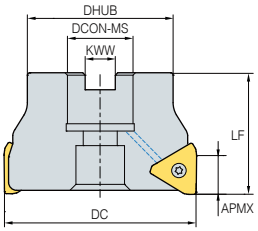


Fig. 1

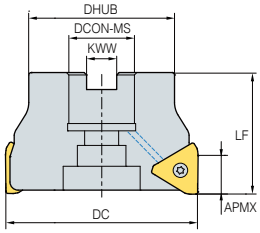


Fig. 2

KAPR 90°

- GAMP : 10°
- GAMF : −11°~−13.5°

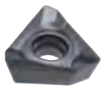
(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
TPMCM	050R-22-4-TN16		4	50	42	22	10.4	40	11.5	0.3	1
	050R-22-5-TN16	●	5	50	42	22	10.4	40	11.5	0.3	1
	063R-22-4-TN16		4	63	50	22	10.4	40	11.5	0.5	1
	063R-22-6-TN16	●	6	63	50	22	10.4	40	11.5	0.5	1
	080R-27-6-TN16		6	80	60	27	12.4	50	11.5	1.0	1
	080R-27-8-TN16	●	8	80	60	27	12.4	50	11.5	1.0	1
	100R-32-8-TN16		8	100	70	32	14.4	63	11.5	1.8	2
	100R-32-10-TN16	●	10	100	70	32	14.4	63	11.5	1.8	2
	125R-40-12-TN16		12	125	90	40	16.4	63	11.5	3.1	2
	125R-40-14-TN16	●	14	125	90	40	16.4	63	11.5	3.1	2

● : Stock item

Available inserts

TNKT-ML



TNKT-MM



	Designation	Cermet	Coated											Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	160608PEER-ML									●				●		B28
	160608PESR-MM									●	●			●		

Available arbors

	Designation	DCON-MS	NC arbors
TPMCM	050R-22-□-TN□□	22	BT□□-FMC22-□□
	063R-22-□-TN□□		
	080R-27-□-TN□□	27	BT□□-FMC27-□□
	100R-32-□-TN□□	32	BT□□-FMC32-□□
	125R-40-□-TN□□	40	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø50~Ø125	FTKA0410	TW15S

Available inserts **B28** Available arbors and bolt **E96**

TPMCM-TN20



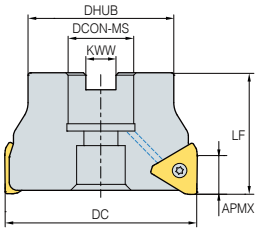


Fig. 1

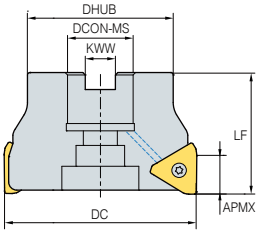


Fig. 2

KAPR 90°

- GAMP : 10°
- GAMF : −10.5°~−14°

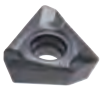
(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
TPMCM	063R-22-5-TN20	●	5	63	50	22	10.4	50	15.5	0.6	1
	063R-22-6-TN20	●	6	63	50	22	10.4	50	15.5	0.6	1
	080R-27-5-TN20	●	5	80	60	27	12.4	50	15.5	0.9	1
	080R-27-7-TN20	●	7	80	60	27	12.4	50	15.5	0.8	1
	100R-32-7-TN20	●	7	100	70	32	14.4	50	15.5	1.8	2
	100R-32-9-TN20	●	9	100	70	32	14.4	50	15.5	1.7	2
	125R-40-8-TN20		8	125	90	40	16.4	63	15.5	3.1	2
	125R-40-11-TN20	●	11	125	90	40	16.4	63	15.5	3.0	2

● : Stock item

Available inserts

TNKT-ML



TNKT-MM



	Designation	Cermet	Coated											Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	200708PEER-ML									●			●	●		B28
	200708PESR-MM									●	●			●		

Available arbors

	Designation	DCON-MS	NC arbors
TPMCM	063R-22-□-TN□□	22	BT□□-FMC22-□□
	080R-27-□-TN□□	27	BT□□-FMC27-□□
	100R-32-□-TN□□	32	BT□□-FMC32-□□
	125R-40-□-TN□□	40	BT□□-FMC40-□□

Parts

Specification	Screw	Wrench
Ø63~Ø125	FTGA0511-P	TW20-100

Available inserts **B28** Available arbors and bolt **E96**

TPMS-TN16



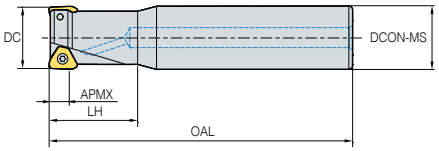


Fig. 1

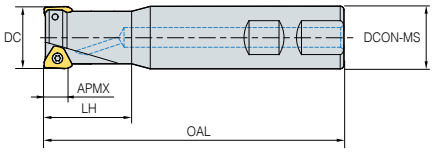


Fig. 2

KAPR 90°

• GAMP : 10°
• GAMF : −13.5°

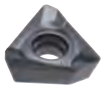
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
TPMS	032R-2W32-130-TN16	●	2	32	32	40	130	11.5	0.7	1
	032R-2C32-200-TN16	●	2	32	32	40	200	11.5	1.1	2
	040R-3W40-130-TN16		3	40	40	40	130	11.5	1.1	1
	040R-3C40-200-TN16	●	3	40	40	40	200	11.5	1.8	2
	040R-4W40-130-TN16	●	4	40	40	40	130	11.5	1.1	1

● : Stock item

Available inserts

TNKT-ML



TNKT-MM



	Designation	Cermet	Coated											Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	160608PEER-ML									●				●		B28
	160608PESR-MM									●	●			●		

Parts

Specification	Screw	Wrench
Ø32~Ø40	FTKA0410	TW15S

Available inserts **B28**

TPMS-TN11



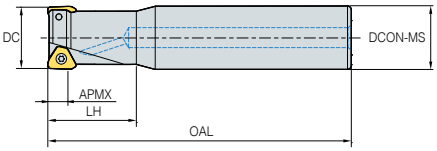


Fig. 1

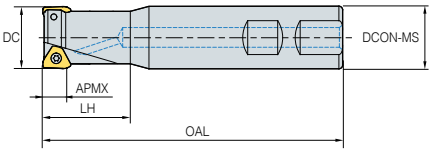


Fig. 2

KAPR 90°

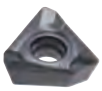
- GAMP : 8°~10°
- GAMF : −14°~−15°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
TPMS	025R-2W25-120-TN11		2	25	25	35	120	8	0.4	1
	025R-2C25-200-TN11	●	2	25	25	35	200	8	0.7	2
	025R-3W25-120-TN11	●	3	25	25	35	120	8	0.4	1
	025R-3C25-200-TN11	●	3	25	25	35	200	8	0.6	2
	032R-2W32-130-TN11		2	32	32	40	130	8	0.7	1
	032R-2C32-200-TN11		2	32	32	40	200	8	1.1	2
	032R-3W32-130-TN11		3	32	32	40	130	8	0.7	1
	032R-3C32-200-TN11	●	3	32	32	40	200	8	1.1	2
	032R-4W32-130-TN11	●	4	32	32	40	130	8	0.7	1
	032R-4C32-200-TN11	●	4	32	32	40	200	8	1.1	2
	040R-4W40-130-TN11		4	40	40	40	130	8	1.1	1
	040R-5W40-130-TN11	●	5	40	40	40	130	8	1.1	1

● : Stock item

Available inserts

		TNKT-ML	TNKT-MM
			

	Designation	Cermet	Coated												Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	110508PEER-ML									●			●	●		B28
	110508PESR-MM									●	●			●		

Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

Available inserts **B28**

High Feed Milling Tool with 4 Corners for Small Diameter

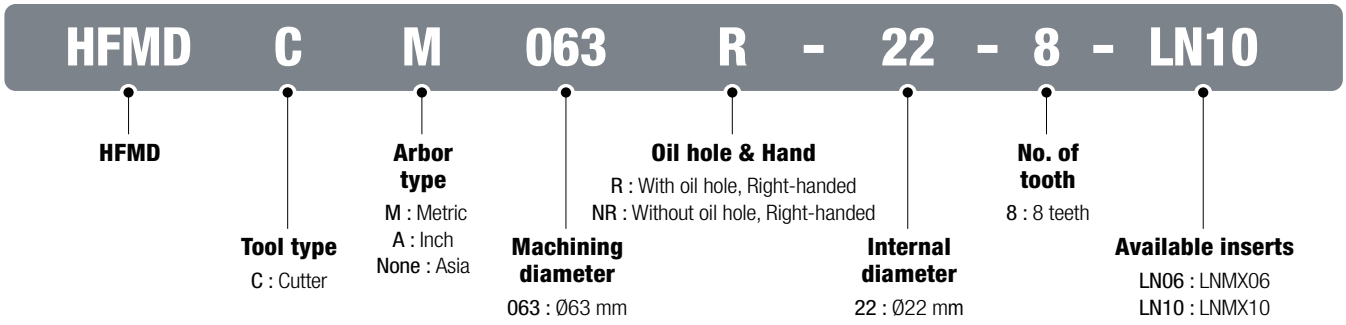
HFMD

High Feed Mill Double

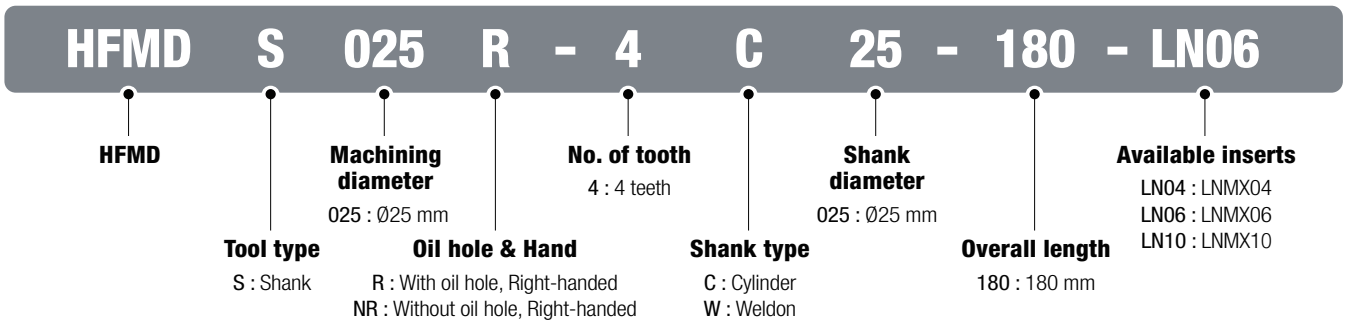
- Economical 4-corner double sided insert
- Increased productivity due to thinner and elongated shape of the insert which makes fine pitch available
- Insert designed for low cutting resistance with high rake angle and helix angle which reduces cutting load
- Inhibiting chipping and breakage due to concave clamping system and stronger screw

Code system

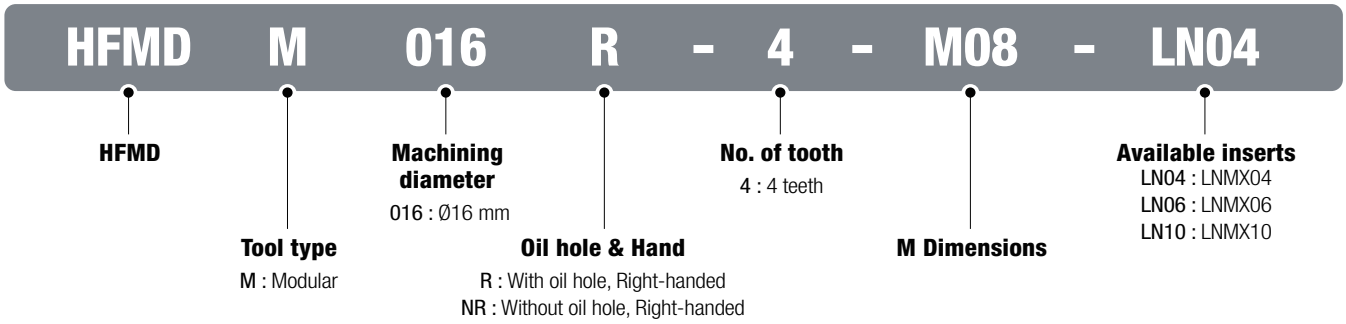
• Cutter



• Shank



• Modular



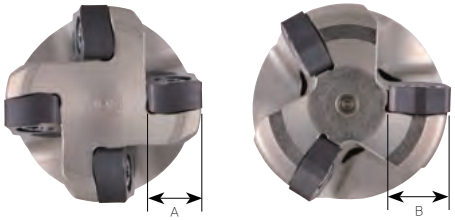
Features



• **Economical 4-corner insert**
- Can use 4 corners with 1 insert by utilizing front/back face; High feed due to finer pitch



• **Highly efficient insert due to fine pitch**
- Able to use fine pitch at the same machining diameter with typical types of milling cutters due to smaller inscribed circle (A < B)

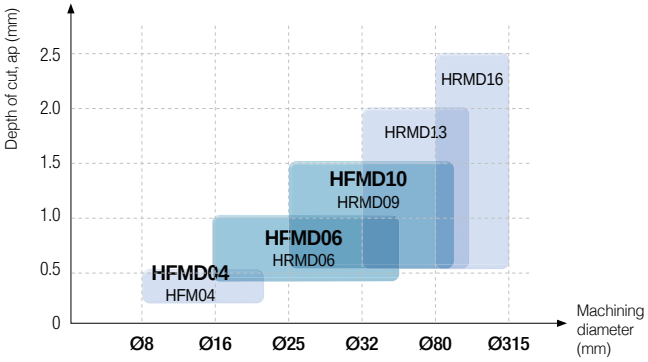


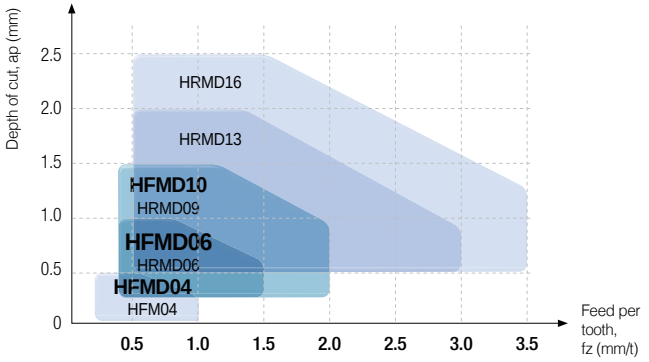
HFMD HRMD

Features of chip breaker

Insert		Cutting-edge	Use	Features
ML			For heat resistant alloy and titanium	Ensures superior machining quality by applying a low cutting resistance chip breaker and high-strength cutting edge design suitable for machining heat resistant alloy
MF			For light cutting	Suitable for light cutting with a low cutting resistance chip breaker design
MM			For multi-purpose	Available for most cutting area with its exclusive design suitable for general high feed machining

Application area





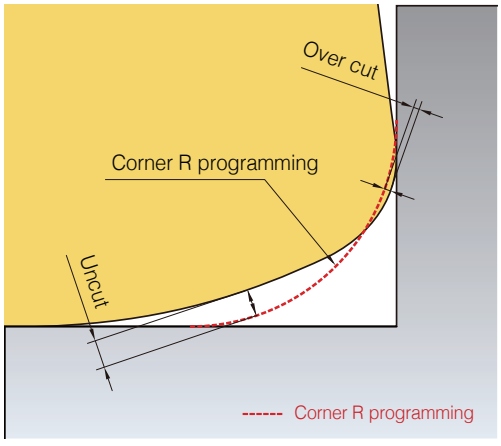
Recommended cutting conditions

※ Recommended chip breaker: ●1st ○2nd



Workpiece				Grade	vc (m/min)	LNMX04		LNMX06		LNMX10		ae	Available chip breaker		
ISO	Workpiece materials	KS	HB (HRC)			fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)	fz (mm/t)	ap (mm)		ML	MF	MM
P	Mild steel	SM20C	120 - 180	PC5400 (PC5300)	100-240	1.2-0.3	0.2-0.5	1.2-0.3	0.2-1.0	1.4-0.3	0.3-1.5	0.7D-0.1D	○	●	
	Carbon steel	SM45C	200	PC5400 (PC5300)	100-240	1.2-0.3	0.2-0.5	1.2-0.3	0.2-1.0	1.4-0.3	0.3-1.5	0.7D-0.1D	○	●	
	Alloy steel	SCM440	270 (28)	PC3700 (PC5300)	100-220	1.2-0.3	0.2-0.5	1.2-0.3	0.2-1.0	1.4-0.3	0.3-1.5	0.7D-0.1D		●	○
	Pre-hardened steel	KP4M	300 (32)	PC3700 (PC5300)	100-200	1.0-0.3	0.2-0.4	1.0-0.3	0.2-0.8	1.2-0.3	0.3-1.2	0.7D-0.1D		○	●
		NIMAX	370 (40)	PC3700 (PC5300)	100-200	1.0-0.3	0.2-0.4	1.0-0.3	0.2-0.8	1.2-0.3	0.3-1.2	0.7D-0.1D		○	●
		CENA1	370 (40)	PC3700 (PC5300)	100-200	1.0-0.3	0.2-0.4	1.0-0.3	0.2-0.8	1.2-0.3	0.3-1.2	0.7D-0.1D		○	●
		NAK80	400 (43)	PC5300 (PC3700)	100-200	1.0-0.3	0.2-0.4	1.0-0.3	0.2-0.8	1.2-0.3	0.3-1.2	0.7D-0.1D		○	●
		STAVAX	510 (52)	PC3700 (PC2510)	80-160	0.7-0.3	0.2-0.4	0.7-0.3	0.2-0.8	0.9-0.3	0.3-1.2	0.7D-0.1D		○	●
	Alloy tool steel	STD11 STD61	- (40-50)	PC2510 (PC5300)	80-130	0.7-0.3	0.2-0.3	0.65-0.3	0.2-0.6	0.8-0.3	0.3-0.9	0.7D-0.1D		○	●
M	Stainless steel	STS316	Under 270	PC9540 (PC5400)	90-180	0.8-0.3	0.2-0.5	0.8-0.3	0.2-0.8	1.0-0.3	0.3-1.2	0.7D-0.1D	●	○	
K	Grey cast iron, Ductile cast iron	GCD450	Tensile Strergth Over 450Mpoa	PC5300 (PC5400)	130-220	0.9-0.3	0.2-0.5	0.9-0.3	0.2-1.0	1.2-0.3	0.3-1.5	0.7D-0.1D		●	○
S	HRSA Fe series	Incoroy901	- (25-35)	PC9540 (PC5300)	30-100	0.7-0.3	0.2-0.3	0.6-0.3	0.2-0.6	0.7-0.3	0.3-0.9	0.7D-0.4D	●	○	
	HRSA Ni or Co series	Inconel718	- (35-45)	PC9540 (PC5300)	30-45	0.7-0.3	0.2-0.3	0.7-0.3	0.2-0.6	0.8-0.3	0.3-0.9	0.7D-0.4D	○	●	
	Titanium	Ti-6AL-4V	- (40-45)	PC9540 (PC5300)	30-50	08-0.3	0.2-0.3	1.0-0.3	0.2-0.6	1.2-0.3	0.3-0.9	0.7D-0.1D	●	○	

Corner R programming



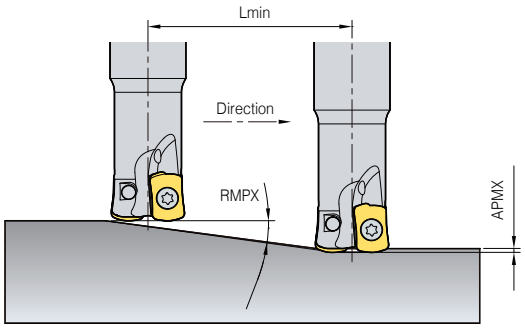
(mm)

Insert	Corner R programming	Cutting conditions		Over Cut	Uncut
		Nose R	APMX		
LNMX040205R-ML LNMX040205R-MM	R0.8	0.5	0.5	0	0.27
	R0.9 (Standard)			0	0.24
	R1.0			0.01	0.22
LNMX060310R-ML LNMX060310R-MF LNMX060310R-MM	R1.5	1.0	1.0	0	0.41
	R1.6 (Standard)			0	0.41
	R2.0			0.06	0.38
LNMX100412R-ML LNMX100412R-MF LNMX100412R-MM	R2.0	1.2	1.5	0	0.84
	R2.5 (Standard)			0	0.60
	R3.0			0.06	0.51

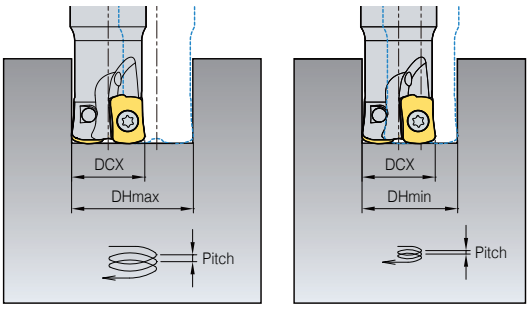
- During usage of CNC program, over cut & uncut would be occurred on the corner processing site if entering the correct program corner R value for each insert
- To prevent overcut, you will need to complete a CNC program considering the above overcut

Ramping and helical cutting

Ramping



Helical cutting



(mm)

Designation	DCX	APMX	Ramping		Blind hole helical cutting				Thru hole helical cutting	
			RMPX	Lmin	DHmax	Max pitch	DHmin	Max pitch	DHmin	Max pitch
LNMX04	8	0.4	0.5	45	12	0.2	10	0.2	9	0.2
	10		0.6	37	16	0.3	14	0.3	13	0.3
	11	0.5	0.8	37	18	0.3	15	0.3	15	0.3
	12		1.0	28	20	0.4	17	0.4	17	0.4
	13		1.0	27	22	0.4	19	0.4	19	0.4
	16		1.0	28	28	0.5	25	0.5	25	0.5
	17		1.0	29	30	0.5	27	0.5	27	0.5
	20		0.9	33	36	0.5	33	0.5	33	0.5
	21		0.7	44	38	0.5	35	0.5	35	0.5
	25		0.7	43	46	0.5	43	0.5	43	0.5
	32		0.5	57	60	0.5	57	0.5	57	0.5
	33		0.4	74	62	0.5	59	0.5	59	0.5
	35		0.4	79	66	0.5	63	0.5	63	0.5
LNMX06	16	0.7	3.0	13	30	0.7	22	0.7	21	0.7
	17	1.0	2.3	25	32	1.0	24	1.0	22	1.0
	18		2.1	27	34	1.0	26	1.0	24	1.0
	19		1.9	30	36	1.0	28	1.0	26	1.0
	20		1.5	37	38	1.0	30	1.0	28	1.0
	21		1.5	39	40	1.0	32	1.0	30	1.0
	25		1.4	40	48	1.0	40	1.0	38	1.0
	26		1.4	42	50	1.0	42	1.0	40	1.0
	30		1.1	51	58	1.0	50	1.0	48	1.0
	32		1.0	55	62	1.0	54	1.0	52	1.0
	33		1.0	57	64	1.0	56	1.0	54	1.0
	35		0.9	61	68	1.0	60	1.0	58	1.0
	40		0.8	71	78	1.0	70	1.0	68	1.0
	42		0.8	76	82	1.0	74	1.0	72	1.0
	50		0.6	92	98	1.0	90	1.0	88	1.0
	52		0.6	96	102	1.0	94	1.0	92	1.0
	63		0.5	119	124	1.0	116	1.0	114	1.0
	66		0.5	126	130	1.0	122	1.0	120	1.0
LNMX10	25	1.5	2.9	30	42	1.5	35	1.5	32	1.5
	26		2.7	32	44	1.5	37	1.5	34	1.5
	30		2.2	39	52	1.5	45	1.5	42	1.5
	32		2.0	43	56	1.5	49	1.5	46	1.5
	33		1.9	45	58	1.5	51	1.5	48	1.5
	35		1.8	49	62	1.5	55	1.5	52	1.5
	40		1.5	58	72	1.5	65	1.5	62	1.5
	42		1.4	62	76	1.5	69	1.5	66	1.5
	50		1.1	77	92	1.5	85	1.5	82	1.5
	52		1.1	81	96	1.5	89	1.5	86	1.5
	63		0.8	101	118	1.5	111	1.5	108	1.5
	66		0.8	107	124	1.5	117	1.5	114	1.5
	80		0.6	133	152	1.5	145	1.5	142	1.5
	100		0.5	171	192	1.5	185	1.5	182	1.5

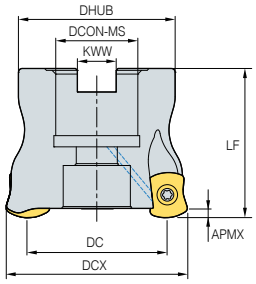
- When ramping and helical milling, table feed, vf (mm/min) should be lower than 70% of the recommended cutting conditions.
- When helical milling, Max. pitch, DHmax should be lower than max. depth of cut, ap.
- When ramping, the depth of cut should be lower than max. depth of cut, ap.

$$\text{Lmin} = \frac{\text{APMX}}{\tan(\text{RMPX})} \text{ (mm)}$$

- **Lmin** = length of ramping
- **ap** : Depth of cut
- **RMPX** : Max. rake angle in ramping

HFMDCM-LN06







• GAMP : -9°
• GAMF : -12°~-10°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
HFMDCM	032R-16-5-LN06		5	32	24.6	30	16	8.4	40	1.0	0.1
	040R-16-6-LN06	●	6	40	32.6	34	16	8.4	40	1.0	0.2
	050R-22-6-LN06		6	50	42.6	42	22	10.4	40	1.0	0.3
	050R-22-7-LN06		7	50	42.6	42	22	10.4	40	1.0	0.3
	050R-22-8-LN06	●	8	50	42.6	42	22	10.4	40	1.0	0.3
	052R-22-7-LN06		7	52	44.6	42	22	10.4	40	1.0	0.4
	052R-22-8-LN06		8	52	44.6	42	22	10.4	40	1.0	0.3
	063R-22-8-LN06		8	63	55.6	49	22	10.4	40	1.0	0.5
	063R-22-9-LN06	●	9	63	55.6	49	22	10.4	40	1.0	0.5
	066R-22-8-LN06		8	66	58.6	49	22	10.4	40	1.0	0.6
	066R-22-9-LN06		9	66	58.6	49	22	10.4	40	1.0	0.6

● : Stock item

Available inserts

LNMX-ML



LNMX-MF



LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML													●	●			B12
	060310R-MF								●	●				●	●			
	060310R-MM								●	●				●	●			

Available arbors

	Designation	DCON-MS	Available arbors
HFMDCM	032R-16-□-LN06	Ø32	BT□□-FMC16-□□
	040R-16-□-LN06	Ø40	
	050R-22-□-LN06	Ø50	BT□□-FMC22-□□

	Designation	DCON-MS	Available arbors
HFMDCM	052R-22-□-LN06	Ø52	BT□□-FMC22-□□
	063R-22-□-LN06	Ø63	
	066R-22-□-LN06	Ø66	

Parts

Specification	Screw	Wrench
Ø32~Ø066	FTNA0306	TW09S

Available inserts **B12** Available arbors and bolt **E96**

HFMDC(M)-LN10



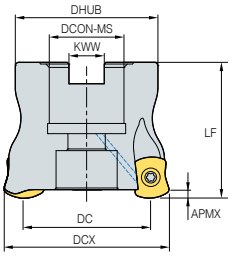


Fig. 1

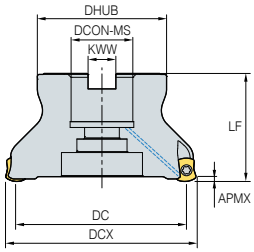
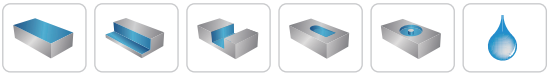


Fig. 2



• GAMP : -9°
• GAMF : -16°~-13°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg	Fig.
HFMDCM	040R-16-4-LN10		4	40	29	38	16	8.4	40	1.5	0.2	1
	040R-16-5-LN10	●	5	40	29	38	16	8.4	40	1.5	0.2	1
	042R-16-4-LN10		4	42	31	38	16	8.4	40	1.5	0.2	1
	042R-16-5-LN10	●	5	42	31	38	16	8.4	40	1.5	0.2	1
	050R-22-6-LN10	●	6	50	39	42	22	10.4	40	1.5	0.3	1
	050R-22-7-LN10	●	7	50	39	42	22	10.4	40	1.5	0.3	1
	052R-22-6-LN10		6	52	41	42	22	10.4	40	1.5	0.3	1
	052R-22-7-LN10	●	7	52	41	42	22	10.4	40	1.5	0.3	1
	063R-22-7-LN10	●	7	63	52	49	22	10.4	40	1.5	0.5	1
	063R-22-8-LN10	●	8	63	52	49	22	10.4	40	1.5	0.5	1
	066R-22-7-LN10		7	66	55	49	22	10.4	40	1.5	0.5	1
	066R-22-8-LN10	●	8	66	55	49	22	10.4	40	1.5	0.5	1
	080R-27-9-LN10		9	80	69	60	27	12.4	50	1.5	0.8	2
	080R-27-10-LN10	●	10	80	69	60	27	12.4	50	1.5	0.8	2
	100R-32-10-LN10		10	100	89	67	32	14.4	56	1.5	1.5	2
	100R-32-11-LN10	●	11	100	89	67	32	14.4	56	1.5	1.5	2
	100R-32-12-LN10		12	100	89	67	32	14.4	56	1.5	1.5	2
HFMDC	080R-25.4-9-LN10		9	80	69	60	25.4	9.5	50	1.5	0.9	2
	080R-25.4-10-LN10		10	80	69	60	25.4	9.5	50	1.5	0.9	2
	100R-31.75-10-LN10		10	100	89	67	31.75	12.7	56	1.5	1.5	2
	100R-31.75-11-LN10		11	100	89	67	31.75	12.7	56	1.5	1.5	2
	100R-31.75-12-LN10		12	100	89	67	31.75	12.7	56	1.5	1.5	2

● : Stock item

Available inserts

LNMX-ML LNMX-MF LNMX-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	100412R-ML												●	●	●			B12
	100412R-MF								●	●			●	●	●			
	100412R-MM								●	●				●	●			

Available arbors

Designation		DCON-MS	Available arbors
HFMDCM	040R-16-□-LN10	Ø40	BT□□-FMC16-□□
	042R-16-□-LN10	Ø42	
	050R-22-□-LN10	Ø50	BT□□-FMC22-□□
	052R-22-□-LN10	Ø52	
	063R-22-□-LN10	Ø63	

Designation		DCON-MS	Available arbors
HFMDCM	066R-22-□-LN10	Ø66	BT□□-FMC22-□□
	080R-27-□-LN10	Ø80	BT□□-FMC27-□□
	100R-32-□-LN10	Ø100	BT□□-FMC32-□□
HFMDC	080R-25.4-□-LN10	Ø80	BT□□-FMA25.4-□□
	100R-31.75-□-LN10	Ø100	BT□□-FMA31.75-□□

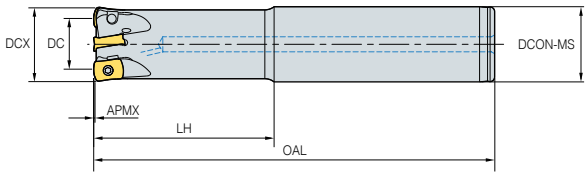
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTNA0408	TW15S

Available inserts **B12** Available arbors and bolt **E94 ~ E96**

HFMDS-LN04







• GAMP : -8°~-7°
• GAMF : -19°~-15°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HFMDS	008NR-1C08-080-LN04		1	8	3.68	8	20	80	0.5	0.1
	008NR-1C10-100-LN04		1	8	3.68	10	20	100	0.5	0.1
	010NR-2C08-080-LN04		2	10	5.68	8	20	80	0.5	0.1
	010NR-2C10-100-LN04		2	10	5.68	10	20	100	0.5	0.1
	010NR-2C10-150-LN04		2	10	5.68	10	40	150	0.5	0.1
	011NR-2C10-100-LN04		2	11	6.68	10	20	100	0.5	0.1
	011NR-2C10-150-LN04		2	11	6.68	10	20	150	0.5	0.1
	008R-1C08-080-LN04		1	8	3.68	8	20	80	0.5	0.1
	008R-1C10-100-LN04	●	1	8	3.68	10	20	100	0.5	0.1
	010R-2C08-080-LN04	●	2	10	5.68	8	20	80	0.5	0.1
	010R-2C10-080-LN04	●	2	10	5.68	10	35	80	0.5	0.1
	010R-2C10-100-LN04	●	2	10	5.68	10	20	100	0.5	0.1
	010R-2C10-150-LN04	●	2	10	5.68	10	40	150	0.5	0.1
	011R-2C10-100-LN04		2	11	6.68	10	20	100	0.5	0.1
	011R-2C10-150-LN04	●	2	11	6.68	10	20	150	0.5	0.1
	012R-3C12-100-LN04	●	3	12	7.68	12	50	100	0.5	0.1
	012R-3C12-105-LN04	●	3	12	7.68	12	20	105	0.5	0.1
	012R-3C12-150-LN04	●	3	12	7.68	12	40	150	0.5	0.1

● : Stock item

Available inserts

LNMX-ML



LNMX-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	040205R-ML													●	●			B12
	040205R-MM								●	●				●	●			

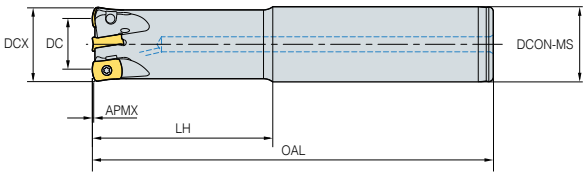
Parts

Specification	Screw	Wrench
Ø8~Ø12	FTKA01844-A	TW06S-A

Available inserts **B12**

HFMDS-LN04







• GAMP : -8°
• GAMF : -14°~-13°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HFMDS	013R-3C12-100-LN04		3	13	8.68	12	20	100	0.5	0.1
	013R-3C12-120-LN04	●	3	13	8.68	12	20	120	0.5	0.1
	013R-3C12-150-LN04	●	3	13	8.68	12	20	150	0.5	0.1
	016R-4C16-100-LN04	●	4	16	11.68	16	50	100	0.5	0.1
	016R-4C16-120-LN04	●	4	16	11.68	16	70	120	0.5	0.2
	016R-4C16-150-LN04	●	4	16	11.68	16	80	150	0.5	0.2
	016R-4C16-200-LN04	●	4	16	11.68	16	120	200	0.5	0.3
	017R-4C16-100-LN04		4	17	12.68	16	20	100	0.5	0
	017R-4C16-150-LN04	●	4	17	12.68	16	20	150	0.5	0.2
	017R-4C16-200-LN04	●	4	17	12.68	16	20	200	0.5	0.3
	020R-5C20-100-LN04	●	5	20	15.68	20	20	100	0.5	0.2
	020R-5C20-150-LN04	●	5	20	15.68	20	40	150	0.5	0.3
	020R-5C20-200-LN04	●	5	20	15.68	20	80	200	0.5	0.4
	021R-5C20-100-LN04		5	21	16.68	20	20	100	0.5	0.2
	021R-5C20-150-LN04	●	5	21	16.68	20	20	150	0.5	0.3
	021R-5C20-200-LN04	●	5	21	16.68	20	20	200	0.5	0.5

● : Stock item

Available inserts

LNMX-ML



LNMX-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	040205R-ML													●	●			B12
	040205R-MM								●	●				●	●			

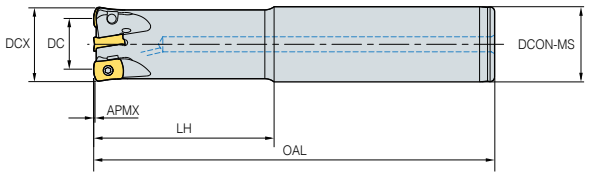
Parts

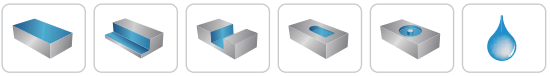
Specification	Screw	Wrench
Ø13~Ø21	FTKA01844-A	TW06S-A

Available inserts **B12**

HFMDS-LN06







• GAMP : -9°
• GAMF : -14°~-13°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HFMDS	016R-2C16-100-LN06	●	2	16	9	16	30	100	0.7	0.1
	016R-2C16-150-LN06	●	2	16	8.6	16	50	150	0.7	0.2
	017R-2C16-100-LN06	●	2	17	9.6	16	30	100	1	0.1
	017R-2C16-150-LN06	●	2	17	9.6	16	40	150	1	0.2
	017R-2C16-200-LN06		2	17	9.6	16	40	200	1	0.3
	018R-2C16-100-LN06		2	18	10.6	16	40	100	1	0.1
	018R-2C16-160-LN06		2	18	10.6	16	40	160	1	0.1
	018R-2C16-200-LN06		2	18	10.6	16	40	200	1	0.3
	019R-2C16-100-LN06		2	19	11.6	16	40	100	1	0.2
	019R-2C16-160-LN06		2	19	11.6	16	40	160	1	0.2
	019R-2C16-200-LN06		2	19	11.6	16	40	200	1	0.3
	020R-3C20-100-LN06		3	20	12.6	20	40	100	1	0.2
	020R-3C20-130-LN06	●	3	20	12.6	20	50	130	1	0.3
	020R-3C20-160-LN06	●	3	20	12.6	20	80	160	1	0.3
	020R-3C20-200-LN06	●	3	20	12.6	20	120	200	1	0.4
	021R-3C20-100-LN06		3	21	13.6	20	30	100	1	0.2
	021R-3C20-130-LN06		3	21	13.6	20	40	130	1	0.3
	021R-3C20-160-LN06	●	3	21	13.6	20	40	160	1	0.3
	021R-3C20-200-LN06	●	3	21	13.6	20	40	200	1	0.3

● : Stock item

Available inserts

LNMX-ML LNMX-MF LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML													●	●			B12
	060310R-MF								●	●				●	●			
	060310R-MM								●	●				●	●			

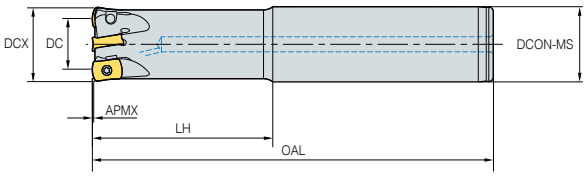
Parts

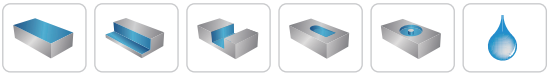
Specification	Screw	Wrench
Ø16~Ø21	FTNA0306	TW09S

Available inserts **B12**

HFMDS-LN06







• GAMP : -9°
• GAMF : -12°~-10°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HFMDS	025R-4C25-100-LN06	●	4	25	17.6	25	40	100	1.0	0.3
	025R-4C25-140-LN06	●	4	25	17.6	25	60	140	1.0	0.5
	025R-4C25-180-LN06	●	4	25	17.6	25	100	180	1.0	0.6
	025R-4C25-250-LN06		4	25	17.6	25	150	250	1.0	0.8
	026R-4C25-100-LN06		4	26	18.6	25	30	100	1.0	0.3
	026R-4C25-140-LN06	●	4	26	18.6	25	40	140	1.0	0.5
	026R-4C25-180-LN06	●	4	26	18.6	25	40	180	1.0	0.6
	026R-4C25-250-LN06	●	4	26	18.6	25	40	250	1.0	0.7
	032R-5C32-150-LN06	●	5	32	24.6	32	70	150	1.0	1.1
	032R-5C32-200-LN06	●	5	32	24.6	32	120	200	1.0	0.8
	032R-5C32-250-LN06		5	32	24.6	32	150	250	1.0	1.3
	033R-5C32-150-LN06		5	33	25.6	32	40	150	1.0	0.8
	033R-5C32-200-LN06	●	5	33	25.6	32	40	200	1.0	1.1
	033R-5C32-250-LN06	●	5	33	25.6	32	40	250	1.0	1.1
	035R-5C32-150-LN06		5	35	27.6	32	40	150	1.0	1.2
	035R-5C32-200-LN06		5	35	27.6	32	40	200	1.0	1.2
	035R-5C32-250-LN06		5	35	27.6	32	40	250	1.0	1.4
	040R-6C32-150-LN06		6	40	32.6	32	40	150	1.0	1.0
	040R-6C32-200-LN06		6	40	32.6	32	40	200	1.0	1.2
	040R-6C32-250-LN06		6	40	32.6	32	40	250	1.0	1.5

● : Stock item

Available inserts

LNMX-ML



LNMX-MF



LNMX-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML													●	●			B12
	060310R-MF								●	●				●	●			
	060310R-MM								●	●				●	●			

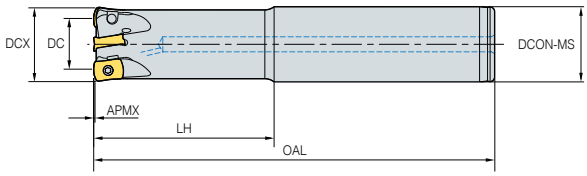
Parts

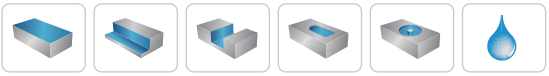
Specification	Screw	Wrench
Ø25~Ø40	FTNA0306	TW09S

Available inserts **B12**

HFMDS-LN10







• GAMP : -9°
• GAMF : -16°~-13°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HFMDS	025R-2C25-150-LN10	●	2	25	14	25	70	150	1.5	0.5
	025R-2C25-200-LN10	●	2	25	14	25	100	200	1.5	0.6
	025R-3C25-150-LN10	●	3	25	14	25	70	150	1.5	0.5
	025R-3C25-200-LN10	●	3	25	14	25	100	200	1.5	0.6
	026R-3C25-150-LN10	●	3	26	15	25	40	150	1.5	0.5
	026R-3C25-200-LN10	●	3	26	15	25	40	200	1.5	0.7
	030R-3C32-150-LN10	●	3	30	19	32	70	150	1.5	0.7
	030R-3C32-200-LN10	●	3	30	19	32	100	200	1.5	0.9
	032R-4C32-150-LN10	●	4	32	21	32	70	150	1.5	0.8
	032R-4C32-200-LN10	●	4	32	21	32	100	200	1.5	1
	032R-4C32-250-LN10	●	4	32	21	32	150	250	1.5	1.3
	033R-4C32-150-LN10	●	4	33	22	32	40	150	1.5	0.8
	033R-4C32-200-LN10	●	4	33	22	32	40	200	1.5	1
	033R-4C32-250-LN10	●	4	33	22	32	40	250	1.5	1.4
	035R-4C32-150-LN10		4	35	24	32	40	150	1.5	0
	035R-4C32-200-LN10		4	35	24	32	40	200	1.5	0
	035R-4C32-250-LN10		4	35	24	32	40	250	1.5	0
	040R-4C32-150-LN10		4	40	29	32	40	150	1.5	0.9
	040R-4C32-200-LN10		4	40	29	32	40	200	1.5	1.2
	040R-4C32-250-LN10	●	4	40	29	32	40	250	1.5	1.5
	040R-5C32-150-LN10		5	40	29	32	40	150	1.5	0.9
	040R-5C32-200-LN10		5	40	29	32	40	200	1.5	1.2
	040R-5C32-250-LN10	●	5	40	29	32	40	250	1.5	1.3
	042R-5C32-150-LN10		5	42	31	32	40	150	1.5	0.9
	042R-5C32-200-LN10		5	42	31	32	40	200	1.5	1.2
	042R-5C32-250-LN10	●	5	42	31	32	40	250	1.5	1.5

● : Stock item

Available inserts



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	100412R-ML												●	●	●			
	100412R-MF								●	●			●	●	●			B12
	100412R-MM								●	●				●	●			

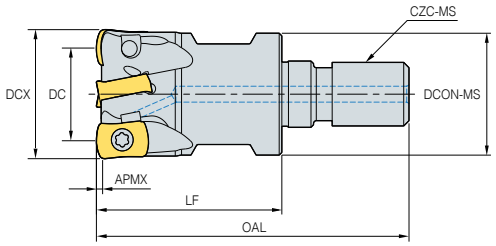
Parts

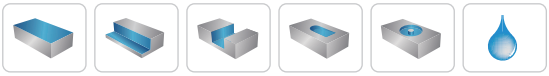
Specification	Screw	Wrench
Ø25~Ø42	FTNA0408	TW15S

Available inserts **B12**

HFMDM-LN04







• GAMP : -8°
• GAMF : -16°~-10°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HFMDM	010R-2-M06-LN04	●	2	10	5.68	9.5	22	37	M6	0.5	0.1
	011R-2-M06-LN04	●	2	11	6.68	11	22	37	M6	0.5	0.1
	012R-3-M06-LN04	●	3	12	7.68	11	22	37	M6	0.5	0.1
	013R-3-M06-LN04	●	3	13	8.68	11	22	37	M6	0.5	0.2
	016R-4-M08-LN04	●	4	16	11.68	14.5	22	39	M8	0.5	0.1
	017R-4-M08-LN04	●	4	17	12.68	14.5	22	39	M8	0.5	0.1
	020R-5-M10-LN04	●	5	20	15.68	18	30	51	M10	0.5	0.1
	025R-7-M12-LN04	●	7	25	20.68	18	30	54	M12	0.5	0.1
	032R-8-M16-LN04	●	8	32	27.68	29	35	62	M16	0.5	0.2
	033R-8-M16-LN04	●	8	33	28.68	29	35	62	M16	0.5	0.2
	035R-9-M16-LN04	●	9	35	30.68	29	35	62	M16	0.5	0.2

● : Stock item

Available inserts

LNMX-ML



LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	040205R-ML													●	●			B12
	040205R-MM								●	●				●	●			

Available adaptors

Designation		Available adaptors
HFMDM	010R-2-M06-LN04	MAT-M06
	011R-2-M06-LN04	
	012R-3-M06-LN04	
	013R-3-M06-LN04	
	016R-4-M08-LN04	MAT-M08
	017R-4-M08-LN04	

Designation		Available adaptors
HFMDM	020R-5-M10-LN04	MAT-M10
	025R-7-M12-LN04	MAT-M12
	032R-8-M16-LN04	MAT-M16
	033R-8-M16-LN04	
	035R-8-M16-LN04	

Designation : HFMDM016R-4-M08-LN04
Modular head threading measure size (M08)

II

Adaptor spec.: MAT-M08-040-S16T
Adaptor threading measure (M08)

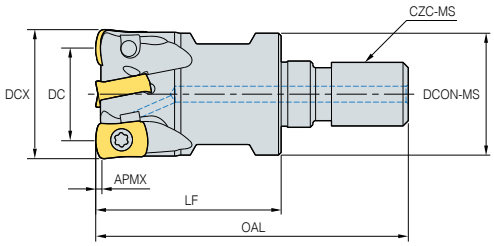
Parts

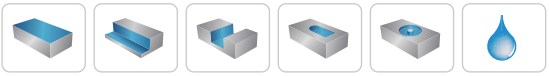
Specification	Screw	Wrench
Ø10~Ø35	FTKA01844-A	TW06S-A

Available inserts **B12** Available adaptors **B400**

HFMDM-LN06







• GAMP : -9°
• GAMF : -15°~-10°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HFMDM	016R-2-M08-LN06	●	2	16	8.6	14.5	25	42	M08	0.7	0.1
	017R-2-M08-LN06	●	2	17	9.6	14.5	25	42	M08	1	0.1
	018R-2-M08-LN06		2	18	10.6	14.5	25	42	M08	1	0.1
	019R-2-M08-LN06		2	19	11.6	14.5	25	42	M08	1	0.1
	020R-3-M10-LN06	●	3	20	12.6	18	30	51	M10	1	0.1
	021R-3-M10-LN06	●	3	21	13.6	18	30	51	M10	1	0.1
	025R-4-M12-LN06	●	4	25	17.6	23	35	59	M12	1	0.1
	026R-4-M12-LN06		4	26	18.6	23	35	59	M12	1	0.4
	032R-5-M16-LN06	●	5	32	24.6	29	40	67	M16	1	0.2
	033R-5-M16-LN06		5	33	25.6	29	40	67	M16	1	0.2
	035R-5-M16-LN06	●	5	35	27.6	29	40	67	M16	1	0.2
	040R-6-M16-LN06		6	40	32.6	29	40	67	M16	1	0.3
	042R-6-M16-LN06		6	42	34.6	29	40	67	M16	1	0.3

● : Stock item

Available inserts



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML													●	●			B12
	060310R-MF								●	●				●	●			
	060310R-MM								●	●				●	●			

Available adaptors

Designation		Available adaptors
HFMDM	016R-□-M08-LN06	MAT-M08
	017R-□-M08-LN06	
	018R-□-M08-LN06	
	019R-□-M08-LN06	
	020R-□-M10-LN06	MAT-M10
	021R-□-M10-LN06	
	025R-□-M12-LN06	MAT-M12

Designation		Available adaptors
HFMDM	026R-□-M12-LN06	MAT-M12
	030R-□-M16-LN06	MAT-M16
	032R-□-M16-LN06	
	033R-□-M16-LN06	
	040R-□-M16-LN06	
	042R-□-M16-LN06	

Designation : HFMDM025R-□-M12-LN06
Modular head threading measure size (M12)

=

Adaptor spec.: MAT-M12-050-S25T
Adaptor threading measure (M12)

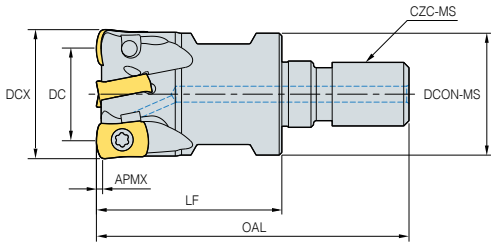
Parts

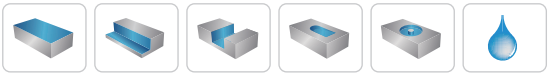
Specification	Screw	Wrench
Ø16~Ø42	FTNA0306	TW09S

Available inserts **B12** Available adaptors **B400**

HFMDM-LN10







• GAMP : -9°
• GAMF : -16°~-13°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HFMDM	025R-2-M12-LN10	●	2	25	14	23	35	59	M12	1.5	0.1
	025R-3-M12-LN10	●	3	25	14	23	35	59	M12	1.5	0.1
	026R-3-M12-LN10	●	3	26	15	23	35	59	M12	1.5	0.1
	030R-4-M16-LN10	●	4	30	19	29	40	67	M16	1.5	0.2
	032R-3-M16-LN10		3	32	21	29	40	67	M16	1.5	0.2
	032R-4-M16-LN10	●	4	32	21	29	40	67	M16	1.5	0.2
	033R-4-M16-LN10	●	4	33	22	29	40	67	M16	1.5	0.2
	035R-3-M16-LN10		3	35	24	29	40	67	M16	1.5	0.2
	035R-4-M16-LN10	●	4	35	24	29	40	67	M16	1.5	0.2
	040R-4-M16-LN10		4	40	29	29	40	67	M16	1.5	0.2
	040R-5-M16-LN10	●	5	40	29	29	40	67	M16	1.5	0.2
	042R-4-M16-LN10		4	42	31	29	40	67	M16	1.5	0.3
	042R-5-M16-LN10	●	5	42	31	29	40	67	M16	1.5	0.3

● : Stock item

Available inserts

LNMX-ML LNMX-MF LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	100412R-ML												●	●	●			B12
	100412R-MF								●	●			●	●	●			
	100412R-MM								●	●				●	●			

Available adaptors

Designation		Available adaptors
HFMDM	025R-□-M12-LN10	MAT-M12
	026R-□-M12-LN10	
	030R-□-M16-LN10	MAT-M16
	032R-□-M16-LN10	

Designation		Available adaptors
HFMDM	033R-□-M16-LN10	MAT-M16
	035R-□-M16-LN10	
	040R-□-M16-LN10	
	042R-□-M16-LN10	

Designation : HFMDM035R-□-M16-LN10
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø25~Ø42	FTNA0408	TW15S

Available inserts **B12** Available adaptors **B400**

Stable machining, high efficiency milling tools for small diameter machining

HFM

High Feed Mill

- Increase productivity through improved insert shape and size, high feed per tooth, and many cutting-edges, for small diameter machining
- Stable tool life through the combination of the reinforced toughness on corner and suitable grades of high hardness in the area of high speed and high hardness

Code system

• Shank

HFM	S	1	010	H	R	-	2	L	10
High Feed Mill	**Holder type** S : Shank	**Inscribed circle of insert** 1 : 04 type insert	**Tool diameter** 010 : Ø10	**Coolant type** No code : None H : Thru-hole	**Hand** R : Right-handed L : Left-handed		**No. of tooth** 2 : 2 teeth	**Shank length** S : Standard type M : Middle type L : Long type	**Shank diameter** 10 : Ø10

• Modular

HFM	M	1	010	H	R	-	M06
High Feed Mill	**Modular type** M : Modular	**Inscribed circle of insert** 1 : 04 type insert	**Tool diameter** 010 : Ø10	**Coolant type** No code: None H : Thru-hole	**Hand** R : Right-handed L : Left-handed		**M Dimensions**

• Modular adapter

MAT	-	M10	-	010	-	S20	S	-	C	-	170
Modular Adaptor		**M Dimensions** M10		**Neck length** 010 : 10 mm		**Shank diameter** S20 : Ø20	**Neck type** T : Taper S : Straight		**Adaptor material** Unmarked : Steel C : Carbide		**Adaptor length** 170 : 170 mm

Features

- Apply helix cutting-edge on insert, low cutting load and reinforce toughness on corner
- Increased rigidity with double relief angle (11, 13), prevent interference with high feed
- To apply the negative axial rake angle when set up the holder, increased chipping resistance
- Tool life is increased with suitable C/B and grade for every material

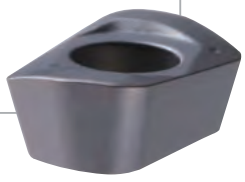


• **Holder setup**
  – To set up the negative axial rake angle, increased chipping resistance

• **No. of tooth**
  – Increased tool life with increased flutes
  – HRM(D) Ø20 (2 flutes) ➔ HFM Ø20 (5 flutes)

• **Major cutting-edge**
  - Improved sharpness of principle edge
  - Improved toughness of corner edge

• **Relief angle**
  - 11, 13 double relief angle increase rigidity and prevent interference

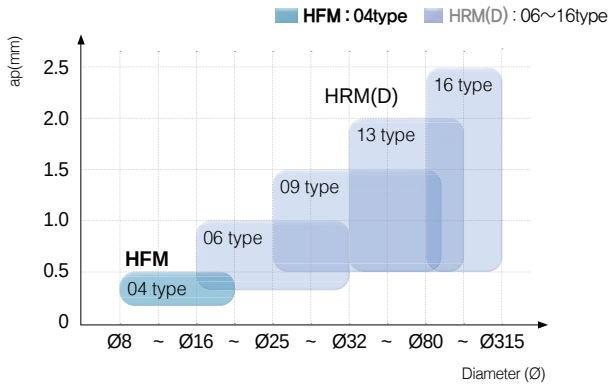


Features of chip breaker

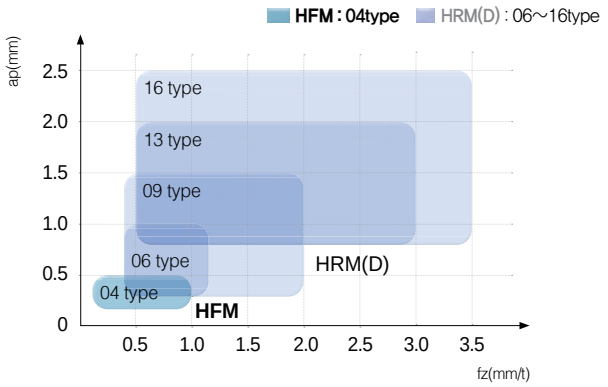
Insert		Cutting-edge	Use	Features
MF			Light cutting Titanium & Inconel machining	Low cutting resistance C/B, suitable for light cutting
None			Super hard material machining	High toughness shape, suitable for hard die steel cutting

Application area

Application area (ap & Diameter)



Application area (ap & fz)



Recommended cutting conditions

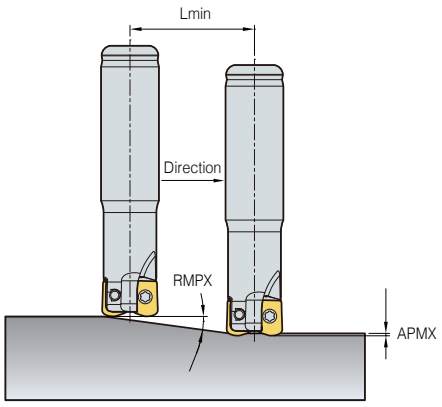
※ Recommended chip breaker: ●1st ○2nd



Workpiece			KS	AISI	ISO	HB (HRC)	Grade	Cutting conditions vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	Chip breaker MF	Chip breaker None C/B
P	Mild steel		SM20C	1020	C22	120~180	PC5400 (PC5300)	100~220	0.5~1.0	~0.5	0.7D~0.1D	●	-
	Carbon steel		SM45C	1045	C45	200	PC5400 (PC5300)	100~200	0.5~1.0	~0.5	0.7D~0.1D	●	-
	Alloy steel		SCM440	4140	41CrMo4	270(28)	PC5300	100~200	0.5~1.0	~0.5	0.7D~0.1D	●	-
	Pre-hardened steel		KP4M	P20 (Improved)	1.2738 (Improved)	300(32)	PC5300 (PC2510)	100~180	0.5~0.9	~0.4	0.7D~0.1D	●	○
			NIMAX	P21 (Improved)	-	370(40)	PC5300 (PC2510)	100~180	0.5~0.9	~0.4	0.7D~0.1D	●	○
			CENA1	P21 (Improved)	-	370(40)	PC5300 (PC2510)	100~180	0.5~0.9	~0.4	0.7D~0.1D	●	○
			NAK80	P21 (Improved)	-	400(43)	PC5300	100~160	0.5~0.7	~0.4	0.7D~0.1D	○	-
								100~180	0.5~0.9	~0.4	0.7D~0.1D	-	●
			STAVAX	420	X30Cr13	510(52)	PC2510 (PC5300)	80~150	0.3~0.6	~0.4	0.7D~0.1D	●	-
	Alloy tool steel		STD11 STD61	D2 H13	X155CrVMo12-1 X40CrMoV5-1	- (40~50)	PC2510 (PC2505)	80~130	0.3~0.55	~0.3	0.7D~0.1D	-	●
			STD11 (Cold forging)	D2	X155CrVMo12-1	630(60)	PC2505	30~75	0.3~0.5	~0.2	0.7D~0.1D	-	●
M	Stainless steel		STS316	316	X5CrNiMo17-12-2	Under 270	PC5400 (PC5300)	70~150	0.5~0.7	~0.5	0.7D~0.1D	●	-
K	Gray cast iron, Ductile cast iron		GCD450	65-45-12	GGG40.3	Tensile Strength Over 450Mpa	PC5300	130~220	0.6~0.8	~0.5	0.7D~0.1D	●	-
S	HRSA	Fe series	Incoloy901	N09901	- (WS 2.4662)	- (25~35)	PC5300 (PC5400)	30~100	0.3~0.5	~0.3	0.4D~0.7D	●	○
		Ni or Co series	Inconel718	N07718	NiCr19FeNbMo (WS 2.4668)	- (35~45)	PC5300 (PC5400)	20~50	0.3~0.6	~0.3	0.4D~0.7D	●	○
	Titanium		Ti-6Al-4V	R56400	TiAl6V4	- (40~45)	PC5300	30~50	0.4~1.0	~0.3	0.7D~0.1D	●	-

Ramping and helical cutting

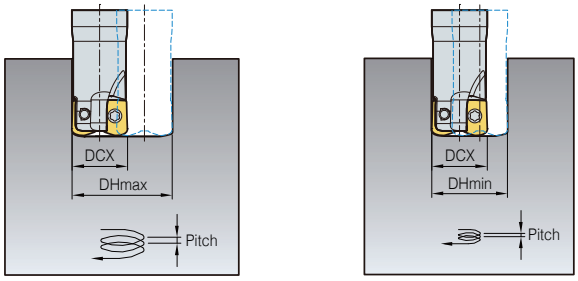
Ramping



$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (mm)}$$

- **Lmin** = Min. inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

Helical cutting



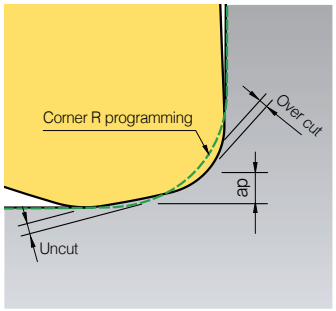
- DCX = Tool dia. (mm)
- d(Tool Path, mm) = DHmin, max–DCX
- DHmin(Min diameter, mm) = DCX×2–5.4
- DHmax(Max diameter, mm) = DCX×2–2

(mm)

Designation	DCX	APMX	Ramping		Helical cutting		
			RMPX	Lmin	DHmax	DHmin	Max pitch dmax
HFMS1010HR	10	0.4~0.5	3.5	7	18	15	0.4
HFMS1011HR	11	0.4~0.5	3.1	8	20	17	0.4
HFMS1012HR	12	0.4~0.5	2.7	9	22	19	0.4
HFMS1013HR	13	0.4~0.5	2.4	10	24	21	0.4
HFMS1014HR	14	0.4~0.5	2.2	11	26	23	0.4
HFMS1015HR	15	0.4~0.5	2.0	12	28	25	0.4
HFMS1016HR	16	0.4~0.5	1.8	13	30	27	0.4
HFMS1017HR	17	0.4~0.5	1.7	14	32	29	0.4
HFMS1018HR	18	0.4~0.5	1.6	15	34	31	0.4
HFMS1019HR	19	0.4~0.5	1.5	16	36	33	0.4
HFMS1020HR	20	0.4~0.5	1.4	17	38	35	0.4
HFMS1021HR	21	0.4~0.5	1.3	18	40	37	0.4
HFMM1025HR	25	0.4~0.5	1.1	22	48	45	0.4
HFMM1026HR	26	0.4~0.5	1.0	23	50	47	0.4
HFMM1030HR	30	0.4~0.5	0.9	27	58	55	0.4
HFMM1032HR	32	0.4~0.5	0.8	29	62	59	0.4
HFMM1033HR	33	0.4~0.5	0.8	30	64	61	0.4

- Adjust feed to under 70% of recommended cutting conditionS when ramping & helical cutting
- In helical ramping, max. cutting depth per 1 helical revolution of cutter should not exceed max. cutting depth as per insert size
- In ramping, max. cutting depth per 1 ramping process of cutter should not exceed max. depth of cut as per used insert size

Corner R programming



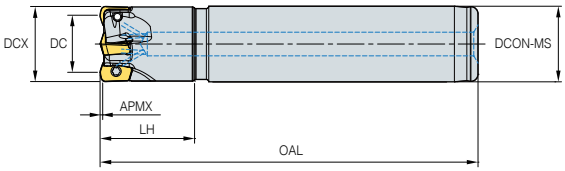
(mm)

Insert	Corner R programming	Cutting conditions		Over Cut	Uncut
		Nose R	APMX		
LPMT040210R-MF **LPMW040210R** **LPEW040210R**	R1.0 (Standard)	1.0	0.4	0	0.17
	R1.5			0.10	0.08
	R2.0			0.31	0
LPMT040220R-MF **LPMW040220R** **LPEW040220R**	R1.0	2.0	0.5	0	0.41
	R1.5			0	0.2
	R2.0 (Standard)			0	0

- When using CNC program, overcut & uncut occurs on the corner processing site if entering the correct program corner R value for each insert
- To prevent overcut, you will need to complete a CNC program considering the above overcut

HFMS1000





KAPR 13°

- GAMP : −4°
- GAMF : −14°~−7°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HFMS	1008HR-1S10		1	8	4.4	10	20	80	0.5	0.1
	1008HR-1M10		1	8	4.4	10	25	100	0.5	0.1
	1008HR-1L10	●	1	8	4.4	10	35	120	0.5	0.1
	1010HR-2S08		2	10	6.2	8	20	80	0.5	0.1
	1010HR-2M08		2	10	6.2	8	25	100	0.5	0.1
	1010HR-2L08	●	2	10	6.2	8	35	120	0.5	0.1
	1010HR-2S10		2	10	6.2	10	20	80	0.5	0.1
	1010HR-2M10		2	10	6.2	10	25	105	0.5	0.1
	1010HR-2L10	●	2	10	6.2	10	35	120	0.5	0.1
	1011HR-2S10	●	2	11	7.2	10	20	80	0.5	0.1
	1011HR-2M10	●	2	11	7.2	10	25	105	0.5	0.1
	1011HR-2L10	●	2	11	7.2	10	35	120	0.5	0.1
	1012HR-3S10		3	12	8.2	10	20	80	0.5	0.1
	1012HR-3M10		3	12	8.2	10	25	105	0.5	0.1
	1012HR-3L10	●	3	12	8.2	10	35	120	0.5	0.1
	1012HR-3S12		3	12	8.2	12	20	80	0.5	0.1
	1012HR-3M12		3	12	8.2	12	25	105	0.5	0.1
	1012HR-3L12	●	3	12	8.2	12	35	120	0.5	0.1
	1013HR-3S12	●	3	13	9.2	12	20	80	0.5	0.1
	1013HR-3M12	●	3	13	9.2	12	25	105	0.5	0.1
	1013HR-3L12	●	3	13	9.2	12	40	120	0.5	0.1
	1014HR-3S12		3	14	10.2	12	20	80	0.5	0.1
	1014HR-3M12		3	14	10.2	12	25	105	0.5	0.1
	1014HR-3L12	●	3	14	10.2	12	40	120	0.5	0.1

● : Stock item

Available inserts

LPMT-MF



LPMW



LPEW



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●	●				●	●				
	040220R-MF								●	●				●	●				
LPMW	040210R							●	●					●					B12
	040220R							●	●					●					B13
LPEW	040210R							●	●					●					
	040220R							●	●					●					

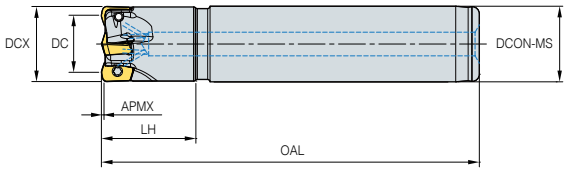
Parts

Specification	Screw	Wrench
Ø8~Ø10	FTKA01840	TW06S-A
Ø11~Ø14	FTKA01842	TW06S-A

Available inserts **B12, B13**

HFMS1000





KAPR 13°

- GAMP : −4°
- GAMF : −6°~−3°

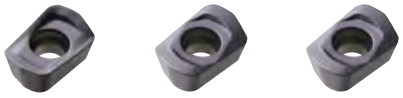
(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HFMS	1015HR-4S12		4	15	11.2	12	20	80	0.5	0.1
	1015HR-4M12		4	15	11.2	12	25	105	0.5	0.1
	1015HR-4L12	●	4	15	11.2	12	40	120	0.5	0.1
	1016HR-4S16		4	16	12.2	16	20	80	0.5	0.1
	1016HR-4M16		4	16	12.2	16	25	105	0.5	0.1
	1016HR-4L16	●	4	16	12.2	16	40	120	0.5	0.2
	1017HR-4S16	●	4	17	13.2	16	20	80	0.5	0.1
	1017HR-4M16	●	4	17	13.2	16	25	105	0.5	0.2
	1017HR-4L16	●	4	17	13.2	16	40	120	0.5	0.2
	1018HR-4S16		4	18	14.2	16	20	80	0.5	0.1
	1018HR-4M16		4	18	14.2	16	25	105	0.5	0.2
	1018HR-4L16	●	4	18	14.2	16	40	120	0.5	0.2
	1019HR-4S16		4	19	15.2	16	20	80	0.5	0.1
	1019HR-4M16		4	19	15.2	16	25	105	0.5	0.2
	1019HR-4L16	●	4	19	15.2	16	40	120	0.5	0.2
	1020HR-4S20		4	20	16.2	20	20	80	0.5	0.2
	1020HR-4M20		4	20	16.2	20	25	105	0.5	0.2
	1020HR-4L20	●	4	20	16.2	20	40	120	0.5	0.3
	1020HR-5S20		5	20	16.2	20	20	80	0.5	0.3
	1020HR-5M20		5	20	16.2	20	25	105	0.5	0.2
	1020HR-5L20	●	5	20	16.2	20	40	120	0.5	0.3
	1021HR-5S20	●	5	21	17.2	20	20	80	0.5	0.2
	1021HR-5M20	●	5	21	17.2	20	25	105	0.5	0.2
	1021HR-5L20	●	5	21	17.2	20	40	120	0.5	0.3

● : Stock item

Available inserts

LPMT-MF LPMW LPEW



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●	●				●	●				
	040220R-MF								●	●				●	●				
LPMW	040210R							●	●					●					B12
	040220R							●	●					●					B13
LPEW	040210R							●	●					●					
	040220R							●	●					●					

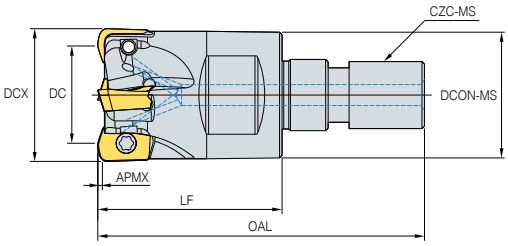
Parts

Specification	Screw	Wrench
Ø15~Ø21	FTKA01842	TW06S-A

Available inserts **B12, B13**

HFMM





KAPR 13°

- GAMP : −4°
- GAMF : −14°~−3°

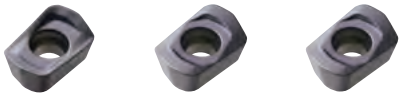
(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HFMM	1008HR-M06	●	1	8	4.4	9.5	17	32	M06	0.5	0.1
	1010HR-M06	●	2	10	6.2	9.5	17	32	M06	0.5	0.1
	1011HR-M06	●	2	11	7.2	9.5	17	32	M06	0.5	0.1
	1012HR-M06	●	3	12	8.2	11	19	34	M06	0.5	0.1
	1013HR-M06	●	3	13	9.2	11	19	34	M06	0.5	0.1
	1016HR-M08	●	4	16	12.2	14.5	22	39	M08	0.5	0.1
	1017HR-M08	●	4	17	13.2	14.5	22	39	M08	0.5	0.1
	1020HR-M10	●	5	20	16.2	18	25	46	M10	0.5	0.1
	1021HR-M10	●	5	21	17.2	18	25	46	M10	0.5	0.1
	1025HR-M12	●	6	25	21.2	23	27	51	M12	0.5	0.1
	1026HR-M12	●	6	26	22.2	23	27	51	M12	0.5	0.1
	1030HR-M16	●	7	30	26.2	29	30	60	M16	0.5	0.1
	1032HR-M16	●	8	32	28.2	29	30	60	M16	0.5	0.2
	1033HR-M16	●	8	33	29.2	29	30	60	M16	0.5	0.2

● : Stock item

Available inserts

LPMT-MF LPMW LPEW



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●	●				●	●				
	040220R-MF								●	●				●	●				
LPMW	040210R							●	●					●					B12
	040220R							●	●					●					B13
LPEW	040210R							●	●					●					
	040220R							●	●					●					

Available adaptors

	Designation	Available adaptors
HFMM	1008HR-M06	MAT-M06
	1010HR-M06	
	1011HR-M06	
	1012HR-M06	
	1013HR-M06	
	1016HR-M08	MAT-M08
	1017HR-M08	

	Designation	Available adaptors
HFMM	1020HR-M10	MAT-M10
	1021HR-M10	
	1025HR-M12	MAT-M12
	1026HR-M12	
	1030HR-M16	MAT-M16
	1032HR-M16	
	1033HR-M16	

Designation : HFMM1008HR-M06
Modular head threading measure size (M06)

II

Adaptor spec.: MAT-M06-020-S10S
Adaptor threading measure (M06)

Parts

Specification	Screw	Wrench
Ø8~Ø10	FTKA01840	TW06S-A
Ø11~Ø33	FTKA01842	TW06S-A

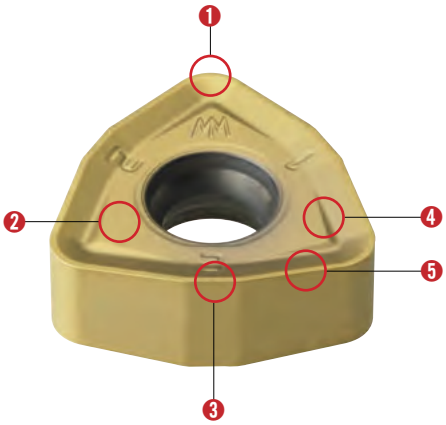
Available inserts **B12, B13** Available adaptors **B400**

Economical high feed milling tool with Negative type 6 corner cutting edges

HRMD

- HRMD is more economical due to the use of 6 cutting-edges compared to HRM tool with a 3-edge positive insert
- High-rake angle cutting-edge and chip breaker reduces cutting load
- Negative geometry has been designed for rigidity of cutting-edge and double-sided function
- Screw on system and stable support achieves strong clamping force
- Unique insert design for high feed and multifunctional machining
- With its unique design, HRMD insert can be used both right and left hand cutters and it ensures low cutting load machining

Features of insert



1 Nose R

- Security of rigid edge in ramping pocket machining
- Round edge suitable for high feed rates insert geometry
- Possible to use R/L type machining

2 Clamping surface

- Design for stable clamping
- Prevention of friction by chip

3 Minor cutting-edge

- Improvement of surface roughness in high feed machining
- Special design for decreasing thrust force
- Symmetrical insert design for R/L type tool

4 Chip breaker

- Reduction of cutting load due to High-rake angle
- Improvement of chip flow and evacuation in various applications
- Prevention of damage on clamping face of insert

5 Major cutting-edge

- Symmetrical design insert for R/L type tool
- Superior cutting performance due to high rake angle cutting-edge
- Low cutting resistance in high feed
- Special design for decreasing thrust force

Features of cutter



» Inner coolant system

- Improvement of chip control and evacuation
- Longer tool life due to reduced cutting temperature

» 3-surface constrained system

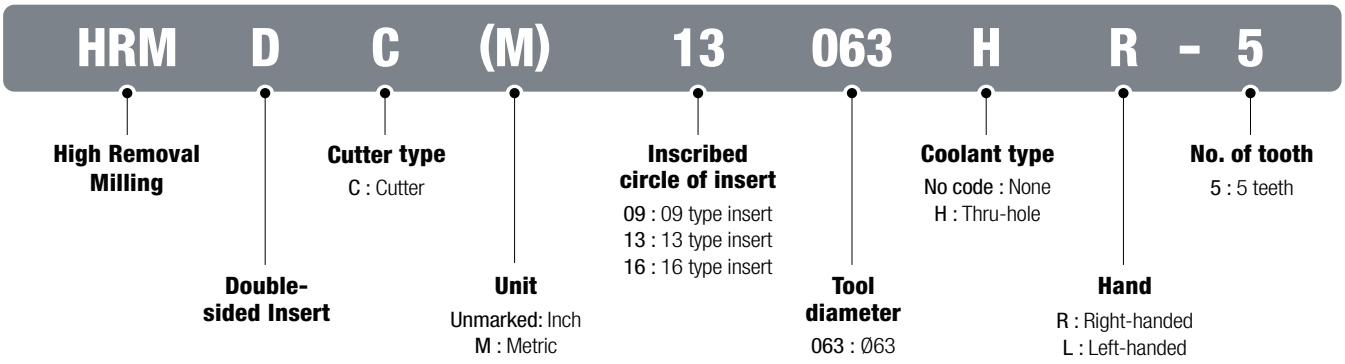
- Strong clamping system
- Stable clamping system against different cutting resistances in various machining applications

» Simple screw on system

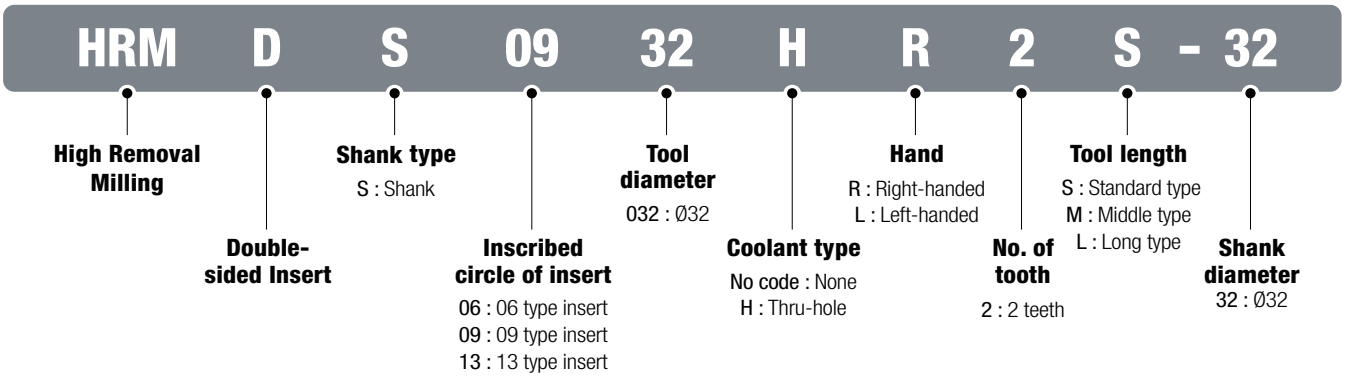
- Strong clamping of screw on system
- Convenient clamping system
- Wide chip pocket for better chip evacuation

Code system

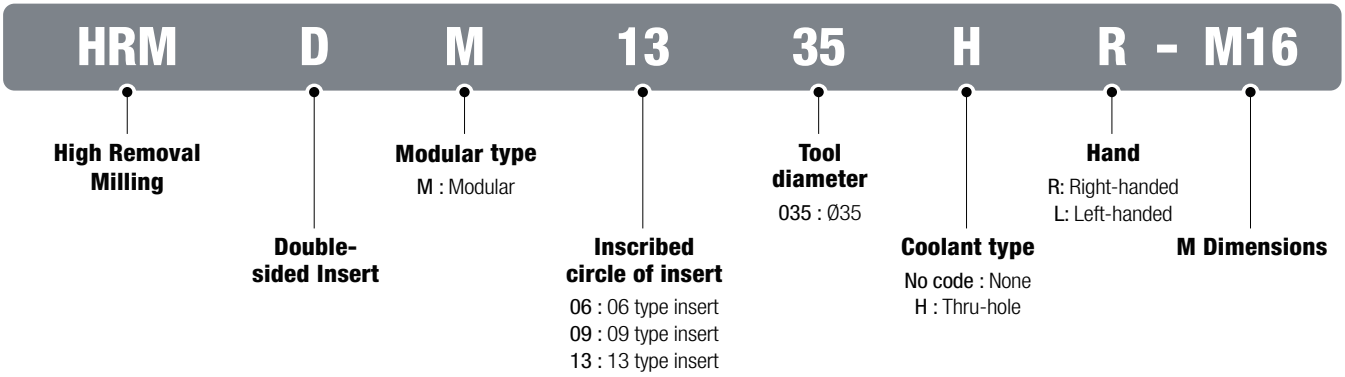
• Cutter



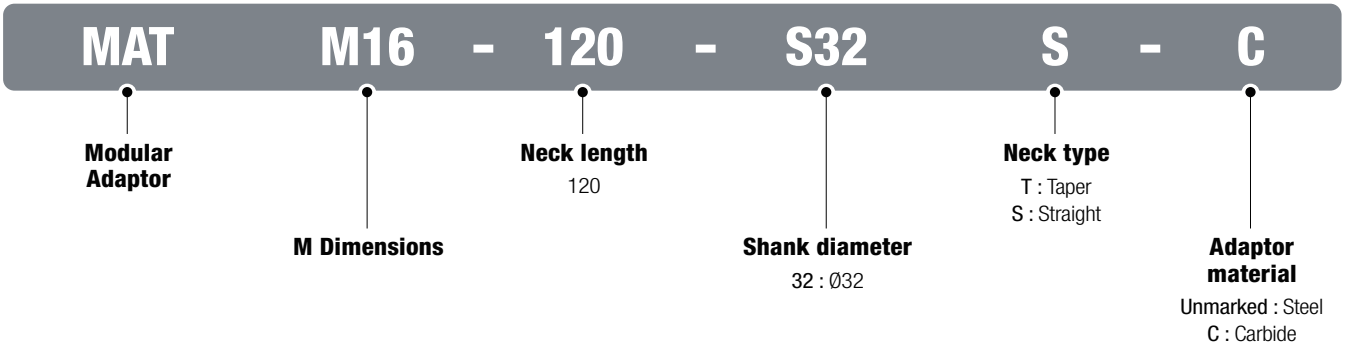
• Shank



• Modular head



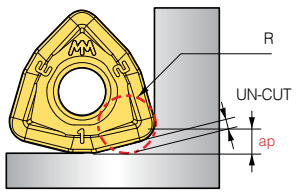
• Modular adaptor



Corner R programming

Designation	Cutting conditions		Approx. R (mm)	
	Max.ap(APMX)	Max.fz(mm/t)	Input. R	Uncut
WNMX060312ZNN-□□	1.0	1.2	1.8	0.4
WNMX09T316ZNN-□□	1.5	2.0	2.5	0.6
WNMX130520ZNN-□□	2.0	3.0	3.0	0.8
WNMX160720ZNN-□□	2.5	3.5	3.5	1.2

* Information for uncut part by using "Input.R" for CAM program

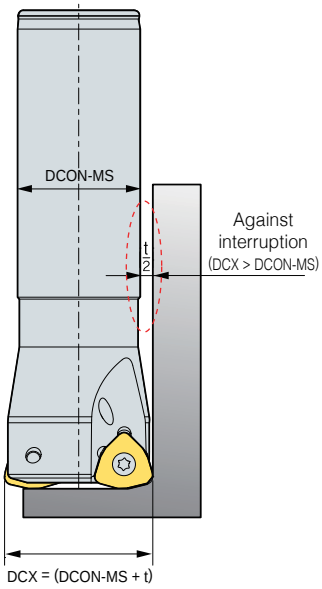


* Uncut part can be changed by poor machine conditions or weak clamp of workpiece, etc.

Interference prevent system

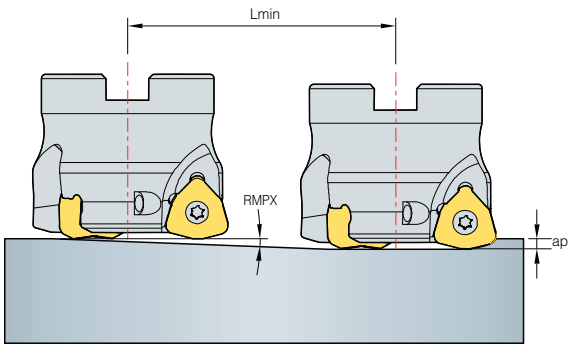
Designation	DCX(mm)	DCON-MS	t(mm)
HRMDS0617HR-2□16	17	16	1
HRMDS0618HR-2□16	18	16	2
HRMDS0621HR-2□20	21	20	1
HRMDS0626HR-3□25	26	25	1
HRMDS0633HR-4□32	33	32	1
HRMDS0926HR-2□25	26	25	1
HRMDS0933HR-3□32	33	32	1
HRMDS0935HR-4□32	35	32	3
HRMDS0940HR-4□32	40	32	8
HRMDS0950HR-5□32	50	32	18
HRMDS0950HR-5□40	50	40	10
HRMDS0950HR-5□42	50	42	8
HRMDS1333HR-3□32	33	32	1
HRMDS1335HR-4□32	35	32	3
HRMDS1340HR-4□30	40	30	8
HRMDS1350HR-4□32	50	32	18
HRMDS1350HR-4□40	50	40	10
HRMDS1350HR-4□42	50	42	8
HRMDS1363HR-5□32	63	32	31
HRMDS1363HR-5□40	63	40	23
HRMDS1363HR-5□42	63	42	21

* The side clearance prevents to interference between tool and workpiece even in deep hole machining

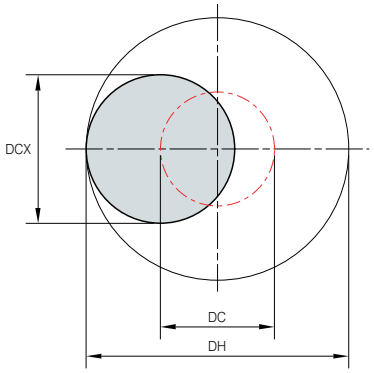


Ramping & helical cutting technical data

Ramping



Helical cutting



$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (mm)} \qquad DC = DH - DCX$$

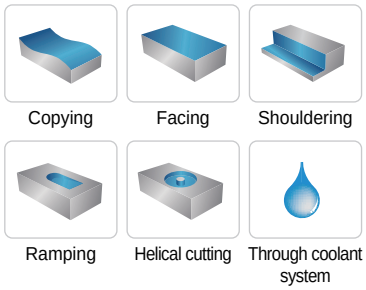
DC = Tool pass of tool center
DH = Desirable hole diameter on workpiece
DCX = Tool diameter

Note) - Adjust feed to under 70% of Recommended cutting conditions when ramping & helical cutting
- In helical ramping, max. cutting depth per 1 helical revolution of cutter should not exceed max. cutting depth as per insert size
- in ramping, max. cutting depth for 1 ramping process should not exceed max. depth of cut as per used insert size

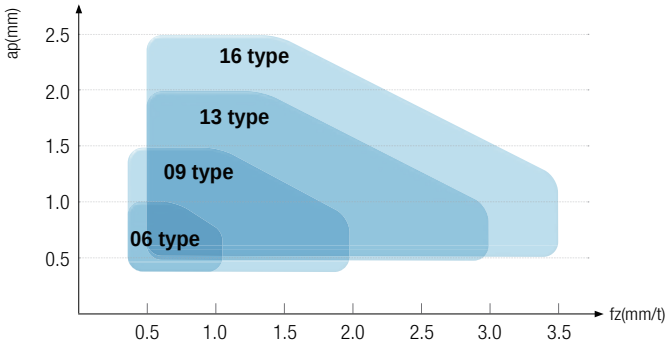
(mm)

Designation	DCX	Ramping			Helical ramping	
		APMX	RMPX	Lmin	Dh Min. Cutting diameter	Dh Max. Cutting diameter
HRMDS0616HR	16	1	4.8	11	23.8	29.6
HRMDS0617HR	17	1	4.1	13	25.8	31.6
HRMDS0618HR	18	1	3.5	16	27.8	33.6
HRMDS0620HR	20	1	2.5	22	31.8	37.6
HRMDS0621HR	21	1	2.2	26	33.8	39.6
HRMDS0625HR	25	1	1.3	44	41.8	47.6
HRMDS0626HR	26	1	1.2	47	43.8	49.6
HRMDS0632HR	32	1	0.6	95	55.8	61.6
HRMDS0633HR	33	1	0.5	114	57.8	63.6
HRMDS0925HR	25	1.5	5.4	15.8	37.6	46.8
HRMDS0926HR	26	1.5	5.0	17.0	39.6	48.8
HRMDS0930HR	30	1.5	3.9	22.0	47.6	56.8
HRMDS0932HR	32	1.5	3.5	24.5	51.6	60.8
HRMDS0933HR	33	1.5	3.3	25.8	53.6	62.8
HRMDS0935HR	35	1.5	3.0	28.3	57.6	66.8
HRMDS0940HR	40	1.5	2.5	34.5	67.6	76.8
HRMDS0950HR	50	1.5	1.8	47.0	87.6	96.8
HRMDS1332HR	32	2	5.7	20.0	47	60
HRMDS1333HR	33	2	5.4	21.3	49	62
HRMDS1335HR	35	2	4.8	24.0	53	66
HRMDS1340HR	40	2	3.7	30.7	63	76
HRMDS1350HR	50	2	2.6	44.0	83	96
HRMDS1363HR	63	2	1.9	61.3	109	122
HRMDCM09040HR	40	1.5	2.5	34.5	67.6	76.8
HRMDCM09050HR	50	1.5	1.8	47.0	87.6	96.8
HRMDCM09063HR	63	1.5	1.4	63.3	113.6	122.8
HRMDC(M)09080HR	80	1.5	1.0	84.5	147.6	156.8
HRMDC(M)09100HR	100	1.5	0.8	109.5	187.6	196.8
HRMDCM13050HR	50	2	2.6	44.0	83	96
HRMDCM13063HR	63	2	1.9	61.3	109	122
HRMDC(M)13080HR	80	2	1.4	84.0	143	156
HRMDC(M)13100HR	100	2	1.0	110.7	183	196
HRMDC(M)13125HR	125	2	0.8	144.0	233	246
HRMDC(M)16080HR	80	2.5	1.4	102	138	156
HRMDC(M)16100HR	100	2.5	1	143	178	196
HRMDC(M)16125HR	125	2.5	0.7	204	228	246
HRMDC(M)16160R	160	2.5	0.5	286	298	316
HRMDC(M)16200R	200	2.5	0.3	477	378	396
HRMDC(M)16250R	250	2.5	0.2	716	478	496
HRMDC(M)16315R	315	2.5	0.1	1432	608	626

Use



Application area

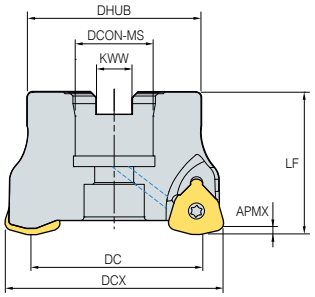


Recommended cutting conditions

ISO	Workpiece		Material	Grade	Cutting speed, vc (m/min)
P	Carbon steel	Low carbon steel	SUM22, C = 0.1~25	PC5300	280
				PC5400	245
		General carbon steel	C = 0.30~55	PC5300	255
				PC5400	220
		High carbon steel	C = 0.55~80	PC5300	240
				PC5400	205
	Low alloy steel (Alloy constituent < 5%)	-	SCM415(H), SCM420, SCM440	PC5300	195
				PC5400	170
		Hardened		PC5300	115
				PC5400	100
	High alloy steel (Alloy constituent > 5%)	Annealed	SKD61	PC5300	150
				PC5400	130
		Hardened	SKH51, SKH55	PC5300	120
				PC5400	105
M	Stainless steel	Ferritic / Martensitic	SUS410, SUS420, SUS430	PC5300	160
				PC5400	135
		Austenitic	SUS303, SUS304, SUS316	PC5300	130
				PC5400	110
		Duplex (Austenitic / Ferrictic)	F51	PC5300	100
				PC5400	85
K	Gray cast iron	Low tensile	GC200, GC250	PC5300	170
				PC5400	150
		Hight tensile	GC300, GC350	PC5300	150
				PC5400	130
	Ductile cast iron	Ferric	GCD400, GCD500	PC5300	170
				PC5400	150
		Pearlitic	GCD600, GCD700	PC5300	150
				PC5400	130
S	Fe Base	-	Incoloy	PC5300	60
				PC5400	50
	Ni Base	-	Inconel, Nimonic, Hastelloy	PC5300	55
				PC5400	45
	Co Base	-	stelite	PC5300	25
				PC5400	20
	Titanium alloys	-	pure Ti	PC5300	130
				PC5400	105
			alloy(TiAl6V4)	PC5300	65
				PC5400	55

HRMDC(M)09





KAPR 14°

- GAMP : −7°
- GAMF : −12°~−18°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
HRMDCM	09040HR-3		3	40	30.26	34	16	8.4	40	1.5	0.2
	09040HR-4	●	4	40	30.26	34	16	8.4	40	1.5	0.2
	09050HR-4	●	4	50	40.31	42	22	10.4	40	1.5	0.3
	09050HR-5	●	5	50	40.31	42	22	10.4	40	1.5	0.3
	09063HR-5	●	5	63	53.24	49	22	10.4	40	1.5	0.5
	09063HR-6	●	6	63	53.24	49	22	10.4	40	1.5	0.5
	09080HR-6		6	80	70.12	57	27	12.4	50	1.5	1
	09080HR-7	●	7	80	70.12	57	27	12.4	50	1.5	0.9
	09100HR-7	●	7	100	90.1	67	32	14.4	50	1.5	1.6
	09100HR-8		8	100	90.1	67	32	14.4	50	1.5	1.5
HRMDC	09080HR-6		6	80	70.12	57	25.4	9.5	50	1.5	1.1
	09080HR-7		7	80	70.12	57	25.4	9.5	50	1.5	1.1
	09080HR-31.75-6		6	80	70.12	67	31.75	12.7	63	1.5	1.5
	09080HR-31.75-7		7	80	70.12	67	31.75	12.7	63	1.5	1.5
	09100HR-7		7	100	90.1	67	31.75	12.7	63	1.5	2.1
	09100HR-8		8	100	90.1	67	31.75	12.7	63	1.5	2.1

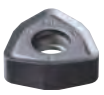
● : Stock item

Available inserts

WNMX-MF



WNMX-ML



WNMX-MM

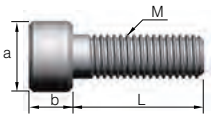


	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								●				●	●				B30
	09T316ZNN-ML								●				●	●				
	09T316ZNN-MM						●	●	●		●		●	●				

Available arbors

	Designation	NC arbors
HRMDCM	09040HR-□	BT□□-FMC16-□□
		SK□□-FMC16-□□
	09050HR-□	BT□□-FMC22-□□
	09063HR-□	SK□□-FMC22-□□
	09080HR-□	BT□□-FMC27-□□
		SK□□-FMC27-□□
	09100HR-□	BT□□-FMC32-□□
		SK□□-FMC32-□□
HRMDC	09080HR-□	BT□□-FMA25.4-□□
		SK□□-FMA25.4-□□
	09080HR-31.75-□	BT□□-FMA31.75-□□
	09100HR-□	SK□□-FMA31.75-□□

Bolt



Designation	Dimensions (mm)				
	M	a	b	L	pitch
SB0825	M08	13	8	25	1.25
SB1025	M10	16	10	25	1.5
SB1230	M12	18	12	30	1.75
SB1630	M16	24	16	30	2.0

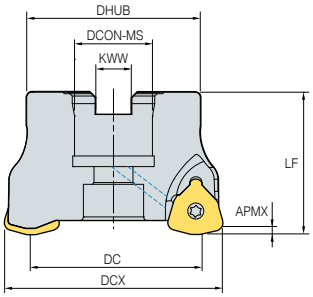
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0307	TW09S

Available inserts **B30** Available arbors and bolt **E94 ~ E96**

HRMDC(M)13





KAPR 14°

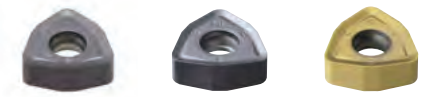
- GAMP : −7°
- GAMF : −12°~−4°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
HRMDCM	13050HR-3	●	3	50	19.53	42	22	10.4	40	2	0.3
	13050HR-4	●	4	50	20.53	42	22	10.4	40	2	0.2
	13063HR-4	●	4	63	22.53	49	22	10.4	40	2	0.5
	13063HR-5	●	5	63	27.36	49	22	10.4	40	2	0.4
	13080HR-5	●	5	80	37.11	57	27	12.4	50	2	0.9
	13080HR-6	●	6	80	37.11	57	27	12.4	50	2	0.9
	13100HR-6	●	6	100	50.11	67	32	14.4	50	2	1.4
	13100HR-7	●	7	100	50.11	67	32	14.4	50	2	1.5
	13125HR-7		7	125	67.06	87	40	16.4	63	2	3.2
	13125HR-8	●	8	125	67.06	87	40	16.4	63	2	3.0
HRMDC	13080HR-5		5	80	67.06	57	25.4	9.5	50	2	1.0
	13080HR-6	●	6	80	67.06	57	25.4	9.5	50	2	0.9
	13080HR-31.75-5		5	80	67.06	67	31.75	12.7	63	2	1.4
	13080HR-31.75-6	●	6	80	67.06	67	31.75	12.7	63	2	1.4
	13100HR-6	●	6	100	89.96	67	31.75	12.7	63	2	2.0
	13100HR-7	●	7	100	89.96	67	31.75	12.7	63	2	1.9
	13125HR-7		7	125	111.95	87	38.1	15.9	63	2	3.2
	13125HR-8	●	8	125	111.95	87	38.1	15.9	63	2	3.2

● : Stock item

Available inserts



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF												●	●				B30
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●		●	●	●	●				

Available arbors

	Designation	NC arbors
HRMDCM	13050HR-□	BT□□-FMC22-□□
		SK□□-FMC22-□□
	13063HR-□	BT□□-FMC22-□□
	13080HR-□	SK□□-FMC27-□□
	13100HR-□	BT□□-FMC32-□□
		SK□□-FMC32-□□
	13125HR-□	BT□□-FMC40-□□
		SK□□-FMC40-□□
HRMDC	13080HR-□	BT□□-FMA25.4-□□
	13080HR-31.75-□	SK□□-FMA25.4-□□
	13100HR-□	BT□□-FMA31.75-□□
		SK□□-FMA31.75-□□
	13125HR-□	BT□□-FMA38.1-□□
		SK□□-FMA38.1-□□

Bolt

Fig. 1

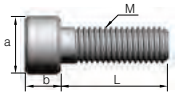
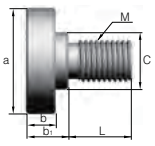


Fig. 2



Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1025	M10	16	10	-	-	25	1.5	1
SB1230	M12	18	12	-	-	30	1.75	1
SB1630	M16	24	16	-	-	30	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2

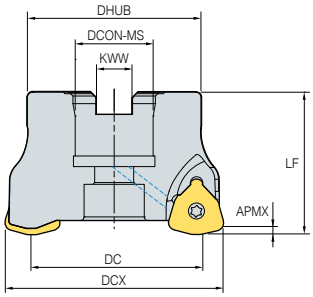
Parts

Specification	Screw	Wrench
Ø50~Ø125	FTKA0412B	TW15S

Available inserts **B30** Available arbors and bolt **E94 ~ E96**

HRMDC(M)16





KAPR 14°

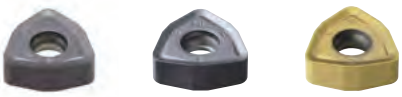
- GAMP : −7°
- GAMF : −12°~−4°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
HRMDC (HRMDCM)	16080HR-4		4	80	63.41	65	25.4(27)	9.5(12.4)	50	2.5	1.0
	16080HR-5		5	80	63.41	65	25.4(27)	9.5(12.4)	50	2.5	0.9
	16100HR-5		5	100	83.4	85	31.75(32)	12.7(14.4)	63(50)	2.5	2.3
	16100HR-6	(●)	6	100	83.4	85	31.75(32)	12.7(14.4)	63(50)	2.5	2.3
	16125HR-6		6	125	108.4	100	38.1(40)	15.9(16.4)	63	2.5	3.3
	16125HR-7	(●)	7	125	108.4	100	38.1(40)	15.9(16.4)	63	2.5	3.3
	16160R-7		7	160	143.4	107	50.8(40)	19(16.4)	63	2.5	3.9
	16160R-8	(●)	8	160	143.4	107	50.8(40)	19(16.4)	63	2.5	3.9
	16200R-8		8	200	183.38	145	47.625(60)	25.4(25.7)	63	2.5	6.8
	16200R-10		10	200	183.38	145	47.625(60)	25.4(25.7)	63	2.5	6.9
	16250R-10		10	250	233.4	190	47.625(60)	25.4(25.7)	63	2.5	11.3
	16250R-12		12	250	233.4	190	47.625(60)	25.4(25.7)	63	2.5	11.3
	16315R-12		12	315	298.39	250	47.625(60)	25.4(25.7)	63	2.5	18.6
	16315R-14		14	315	298.39	250	47.625(60)	25.4(25.7)	63	2.5	18.6

( )Metric size, ● : Stock item

Available inserts



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	160720ZNN-MF												●	●				B30
	160720ZNN-ML												●					
	160720ZNN-MM								●				●	●				

Available arbors

Designation		HRMDC	HRMDCM
HRMDC (HRMDCM)	16080HR-4	BT□□-FMA25.4-□□	BT□□-FMC27-□□
	16080HR-5		
	16100HR-5	BT□□-FMA31.75-□□	BT□□-FMC32-□□
	16100HR-6		
	16125HR-6	BT□□-FMA38.1-□□	BT□□-FMB40-□□
	16125HR-7		
	16160R-7	BT□□-FMA50.8-□□	BT□□-FMC40-□□
	16160R-8		
	16200R-8	BT□□-FMA47.625-□□	BT□□-FMB60-□□
	16200R-10		
	16250R-10		
	16250R-12		
	16315R-12		
	16315R-14		

Bolt

Fig. 1

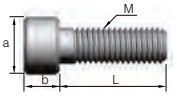
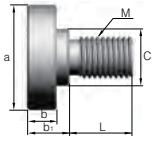


Fig. 2



Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1025	M10	16	10	-	-	25	1.5	1
SB1230	M12	18	12	-	-	30	1.75	1
SB1630	M16	24	16	-	-	30	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2
MBA-M24	M24	65	14	24	37	36	3.0	2

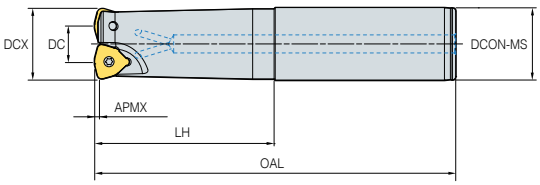
Parts

Specification	Screw	Wrench
Ø80~Ø315	FTGA0513-P	TW20-100

Available inserts **B30** Available arbors and bolt **E94 ~ E96**

HRMDS06





KAPR 14°

- GAMP : −7°
- GAMF : −17°~−25°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMDS	0616HR-2S16	●	2	16	9.73	16	30	110	1.0	0.1
	0616HR-2M16	●	2	16	9.73	16	70	150	1.0	0.2
	0616HR-2L16		2	16	9.73	16	100	200	1.0	0.3
	0617HR-2S16	●	2	17	10.62	16	20	110	1.0	0.1
	0617HR-2M16	●	2	17	10.62	16	20	150	1.0	0.2
	0617HR-2L16		2	17	10.62	16	20	200	1.0	0.3
	0618HR-2S16		2	18	11.65	16	20	110	1.0	0.2
	0618HR-2M16	●	2	18	11.65	16	20	150	1.0	0.2
	0618HR-2L16		2	18	11.65	16	20	200	1.0	0.3
	0620HR-2S20	●	2	20	13.6	20	50	130	1.0	0.3
	0620HR-2M20	●	2	20	13.6	20	100	180	1.0	0.4
	0620HR-2L20		2	20	13.6	20	130	250	1.0	0.5
	0621HR-2S20		2	21	14.59	20	20	130	1.0	0.3
	0621HR-2M20	●	2	21	14.59	20	20	180	1.0	0.4
	0621HR-2L20	●	2	21	14.59	20	20	250	1.0	0.6
	0625HR-3S25	●	3	25	18.5	25	60	140	1.0	0.4
	0625HR-3M25	●	3	25	18.5	25	80	180	1.0	0.6
	0625HR-3L25	●	3	25	18.5	25	120	250	1.0	0.8
	0626HR-3S25		3	26	19.5	25	30	140	1.0	0.5
	0626HR-3M25	●	3	26	19.5	25	30	180	1.0	0.6
	0626HR-3L25	●	3	26	19.5	25	30	250	1.0	0.8
	0632HR-4S32		4	32	25.49	32	70	150	1.0	0.8
	0632HR-4M32	●	4	32	25.49	32	100	200	1.0	1.1
	0632HR-4L32	●	4	32	25.49	32	180	300	1.0	1.7
	0633HR-4S32		4	33	26.49	32	40	200	1.0	1.1
	0633HR-4M32	●	4	33	26.49	32	40	250	1.0	1.4
	0633HR-4L32	●	4	33	26.49	32	40	300	1.0	1.7

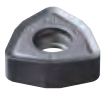
● : Stock item

Available inserts

WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	060312ZNN-MF												●	●				B30
	060312ZNN-ML												●	●				
	060312ZNN-MM						●	●	●				●	●				

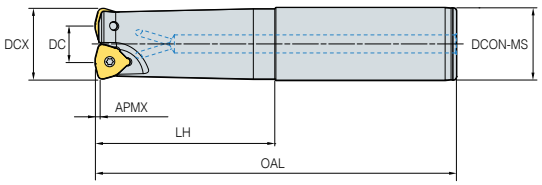
Parts

Specification	Screw	Wrench
Ø16~Ø33	ETNA02506	TW07S

Available inserts **B30**

HRMDS09











KAPR 14°

- GAMP : −7°
- GAMF : −17°~−25°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMDS	0925HR-2S25	●	2	25	15.64	25	60	140	1.5	0.4
	0925HR-2M25	●	2	25	15.64	25	120	200	1.5	0.6
	0925HR-2L25	●	2	25	15.64	25	180	300	1.5	1.0
	0926HR-2S25	●	2	26	16.65	25	60	140	1.5	0.4
	0926HR-2M25	●	2	26	16.65	25	60	200	1.5	0.6
	0926HR-2L25	●	2	26	16.5	25	60	300	1.5	1.0
	0930HR-3S32	●	3	30	20.56	32	70	150	1.5	0.8
	0930HR-3M32	●	3	30	20.56	32	120	200	1.5	1.0
	0930HR-3L32		3	30	20.56	32	180	300	1.5	1.5
	0932HR-3S32	●	3	32	22.48	32	70	150	1.5	0.8
	0932HR-3M32	●	3	32	22.48	32	120	200	1.5	1.1
	0932HR-3L32		3	32	22.48	32	180	300	1.5	1.6
	0933HR-3S32		3	33	23.48	32	70	150	1.5	0.8
	0933HR-3M32	●	3	33	23.48	32	70	200	1.5	1.1
	0933HR-3L32	●	3	33	23.48	32	70	300	1.5	1.7
	0935HR-4S32	●	4	35	25.57	32	50	150	1.5	0.8
	0935HR-4M32	●	4	35	25.57	32	50	200	1.5	1.1
	0935HR-4L32	●	4	35	25.57	32	50	300	1.5	1.7
	0940HR-4S32	●	4	40	30.35	32	50	150	1.5	0.9
	0940HR-4M32	●	4	40	30.35	32	50	250	1.5	1.5
	0940HR-4L32	●	4	40	30.35	32	50	300	1.5	1.8
	0940HR-4S40		4	40	30.35	40	60	150	1.5	1.3

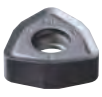
● : Stock item

Available inserts

WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								●				●	●				B30
	09T316ZNN-ML												●	●				
	09T316ZNN-MM						●	●	●		●		●	●				

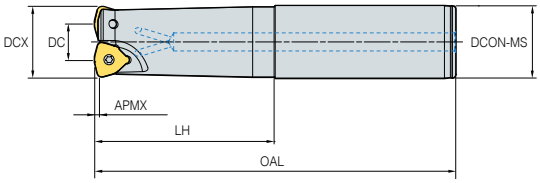
Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

Available inserts **B30**

HRMDS09







KAPR 14°

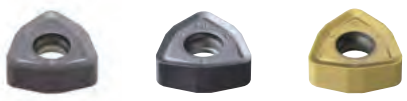
- GAMP : −7°
- GAMF : −17°~−25°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMDS	0940HR-4M40		4	40	30.35	40	130	250	1.5	2.2
	0940HR-4L40		4	40	30.35	40	180	300	1.5	2.7
	0940HR-4S42		4	40	30.35	42	60	150	1.5	1.4
	0940HR-4M42		4	40	30.35	42	130	250	1.5	2.3
	0940HR-4L42		4	40	30.35	42	180	300	1.5	2.8
	0950HR-4S32		4	50	40.31	32	40	150	1.5	1.1
	0950HR-4M32		4	50	40.31	32	40	250	1.5	1.6
	0950HR-4L32		4	50	40.31	32	40	300	1.5	2
	0950HR-4S40		4	50	40.31	40	40	150	1.5	1.4
	0950HR-4M40		4	50	40.31	40	40	250	1.5	2.4
	0950HR-4L40		4	50	40.31	40	40	300	1.5	2.9
	0950HR-4S42		4	50	40.31	42	40	150	1.5	1.6
	0950HR-4M42	●	4	50	40.31	42	40	250	1.5	2.6
	0950HR-4L42		4	50	40.31	42	40	300	1.5	3.1
	0950HR-5S32		5	50	40.31	32	40	150	1.5	1.1
	0950HR-5M32		5	50	40.31	32	40	250	1.5	1.6
	0950HR-5L32		5	50	40.31	32	40	300	1.5	2
	0950HR-5S40		5	50	40.31	40	40	150	1.5	1.4
	0950HR-5M40		5	50	40.31	40	40	250	1.5	2.4
	0950HR-5L40		5	50	40.31	40	40	300	1.5	2.9
	0950HR-5S42		5	50	40.31	42	40	150	1.5	1.6
	0950HR-5M42		5	50	40.31	42	40	250	1.5	2.6
	0950HR-5L42		5	50	40.31	42	40	300	1.5	3.1

● : Stock item

Available inserts



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								●				●	●				B30
	09T316ZNN-ML												●	●				
	09T316ZNN-MM						●	●	●		●		●	●				

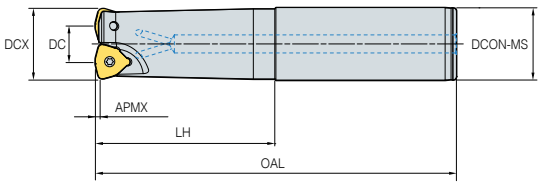
Parts

Specification	Screw	Wrench
Ø40~Ø50	FTKA0307	TW09S

Available inserts **B30**

HRMDS13





KAPR 14°

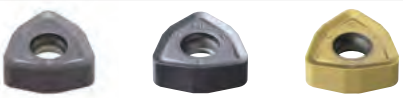
- GAMP : −7°
- GAMF : −14°~−16°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMDS	1332HR-2S32	●	2	32	19.53	32	70	150	2	0.8
	1332HR-2M32	●	2	32	19.53	32	120	200	2	1.1
	1332HR-2L32	●	2	32	19.53	32	180	300	2	1.6
	1333HR-2S32	●	2	33	20.53	32	70	150	2	0.8
	1333HR-2M32	●	2	33	20.53	32	70	200	2	1.1
	1333HR-2L32		2	33	20.53	32	70	300	2	1.7
	1335HR-2S32		2	35	22.53	32	50	150	2	0.8
	1335HR-2M32	●	2	35	22.53	32	50	200	2	1.1
	1335HR-2L32	●	2	35	22.53	32	50	300	2	1.7
	1340HR-3S32	●	3	40	27.36	32	50	150	2	0.8
	1340HR-3M32	●	3	40	27.36	32	50	200	2	1.4
	1340HR-3L32	●	3	40	27.36	32	50	300	2	1.7
	1340HR-3S40		3	40	27.36	40	60	150	2	1.3
	1340HR-3M40		3	40	27.36	40	130	250	2	2.2
	1340HR-3L40		3	40	27.36	40	180	300	2	2.6
	1340HR-3S42		3	40	27.36	42	60	150	2	1.3
	1340HR-3M42		3	40	27.36	42	130	250	2	2.3
	1340HR-3L42		3	40	27.36	42	180	300	2	2.7
	1350HR-3S32		3	50	37.11	32	50	150	2	1.1
	1350HR-3M32		3	50	37.11	32	50	250	2	1.7
	1350HR-3L32		3	50	37.11	32	50	300	2	2.0
	1350HR-3S40		3	50	37.11	40	50	150	2	1.5
	1350HR-3M40		3	50	37.11	40	50	250	2	2.4
	1350HR-3L40		3	50	37.11	40	50	300	2	2.9
	1350HR-3S42		3	50	37.11	42	50	150	2	1.6
	1350HR-3M42		3	50	37.11	42	50	250	2	2.6
	1350HR-3L42		3	50	37.11	42	50	300	2	3.1

● : Stock item

Available inserts



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF												●	●				B30
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●		●	●	●	●				

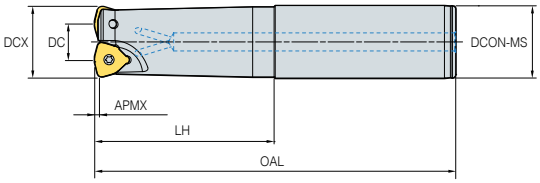
Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0412B	TW15S

Available inserts **B30**

HRMDS13





KAPR 14°

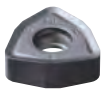
- GAMP : −7°
- GAMF : −14°~−16°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMDS	1350HR-4S32		4	50	37.11	32	50	150	2	1.1
	1350HR-4M32		4	50	37.11	32	50	250	2	1.7
	1350HR-4L32		4	50	37.11	32	50	300	2	2
	1350HR-4S40		4	50	37.11	40	50	150	2	1.5
	1350HR-4M40		4	50	37.11	40	50	250	2	2.4
	1350HR-4L40		4	50	37.11	40	50	300	2	2.9
	1350HR-4S42		4	50	37.11	42	50	150	2	1.5
	1350HR-4M42		4	50	37.11	42	50	250	2	2.5
	1350HR-4L42		4	50	37.11	42	50	300	2	3.1
	1363HR-4S32		4	63	50.11	32	50	150	2	1.4
	1363HR-4M32		4	63	50.11	32	50	250	2	2.1
	1363HR-4L32		4	63	50.11	32	50	300	2	2.4
	1363HR-4S40		4	63	50.11	40	50	150	2	1.8
	1363HR-4M40		4	63	50.11	40	50	250	2	2.8
	1363HR-4L40		4	63	50.11	40	50	300	2	3.2
	1363HR-4S42		4	63	50.11	42	50	150	2	1.9
	1363HR-4M42		4	63	50.11	42	50	250	2	1.6
	1363HR-4L42		4	63	50.11	42	50	300	2	3.5
	1363HR-5S32		5	63	50.11	32	50	150	2	1.5
	1363HR-5M32		5	63	50.11	32	50	250	2	2
	1363HR-5L32		5	63	50.11	32	50	300	2	2.3
	1363HR-5S40		5	63	50.11	40	50	150	2	1.8
	1363HR-5M40		5	63	50.11	40	50	250	2	2.8
	1363HR-5L40		5	63	50.11	40	50	300	2	3.2
	1363HR-5S42		5	63	50.11	42	50	150	2	1.9
	1363HR-5M42		5	63	50.11	42	50	250	2	3
	1363HR-5L42		5	63	50.11	42	50	300	2	3.4

● : Stock item

Available inserts

		WNMX-MF	WNMX-ML	WNMX-MM
				

	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF												●	●				B30
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●		●	●	●	●				

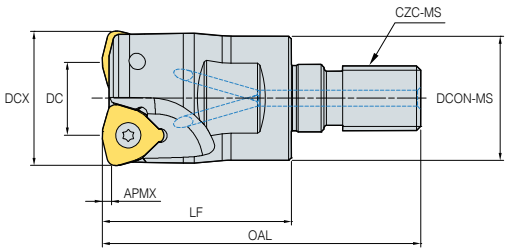
Parts

Specification	Screw	Wrench
Ø50~Ø63	FTKA0412B	TW15S

Available inserts **B30**

HRMDM06





KAPR 14°

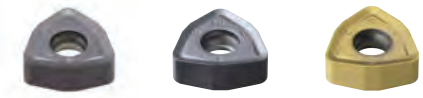
- GAMP : −7°
- GAMF : −18°~−25°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HRMDM	0616HR-M08	●	2	16	9.73	14.5	25	42	M08	1.0	0.1
	0617HR-M08		2	17	10.62	14.5	25	42	M08	1.0	0.1
	0618HR-M08		2	18	11.65	14.5	25	42	M08	1.0	0.1
	0620HR-M10		2	20	13.6	18	30	51	M10	1.0	0.1
	0621HR-M10		2	21	14.59	18	30	51	M10	1.0	0.1
	0625HR-M12	●	3	25	18.5	23	35	59	M12	1.0	0.1
	0626HR-M12		3	26	19.5	23	35	59	M12	1.0	0.1
	0632HR-M16		4	32	25.49	29	40	67	M16	1.0	0.2
	0633HR-M16		4	33	26.49	29	40	67	M16	1.0	0.2

● : Stock item

Available inserts



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	060312ZNN-MF												●	●				B30
	060312ZNN-ML												●	●				
	060312ZNN-MM						●	●	●		●	●	●	●				

Available adaptors

Designation		Available adaptors
HRMDM	0616HR-M08	MAT- M08
	0617HR-M08	
	0618HR-M08	
	0620HR-M10	MAT- M10
	0621HR-M10	

Designation		Available adaptors
HRMDM	0625HR-M12	MAT- M12
	0626HR-M12	
	0632HR-M16	MAT- M16
	0633HR-M16	

Designation : HRMDM0625HR-M12
Modular head threading measure size (M12)

II

Adaptor spec.: MAT-M12-030-S25S
Adaptor threading measure (M12)

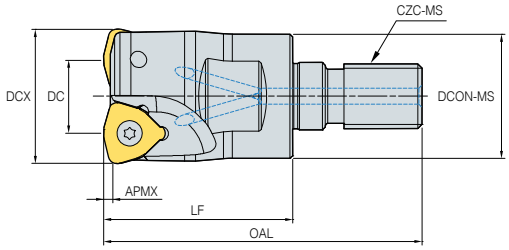
Parts

Specification	Screw	Wrench
Ø16~Ø33	ETNA02506	TW07S

Available inserts **B30** Available adaptors **B400**

HRMDM09











KAPR 14°

- GAMP : −7°
- GAMF : −18°~−25°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HRMDM	0925HR-M12	●	2	25	15.64	23	35	59	M12	1.5	0.1
	0926HR-M12	●	2	26	16.65	23	35	59	M12	1.5	0.1
	0930HR-M16	●	3	30	20.56	29	40	67	M16	1.5	0.2
	0932HR-M16	●	3	32	22.48	29	40	67	M16	1.5	0.2
	0933HR-M16		3	33	23.48	29	40	67	M16	1.5	0.2
	0935HR-M16	●	4	35	25.57	29	40	67	M16	1.5	0.2
	0940HR-M16	●	4	40	30.35	29	40	67	M16	1.5	0.2

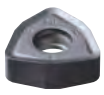
● : Stock item

Available inserts

WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								●				●	●				B30
	09T316ZNN-ML												●	●				
	09T316ZNN-MM						●		●		●		●	●				

Available adaptors

	Designation	Available adaptors
HRMDM	0925HR-M12	MAT- M12
	0926HR-M12	
	0930HR-M16	MAT- M16
	0932HR-M16	
	0933HR-M16	
	0935HR-M16	
	0940HR-M16	

Designation : HRMDM0932HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

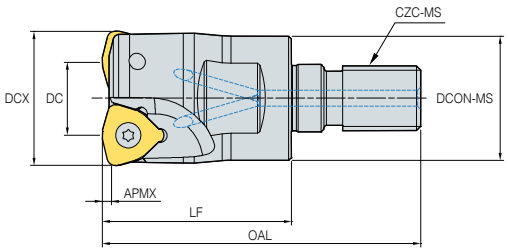
Parts

Specification	Screw	Wrench
Ø25~Ø40	FTKA0307	TW09S

Available inserts **B30** Available adaptors **B400**

HRMDM13





KAPR 14°

- GAMP : −7°
- GAMF : −18°~−25°

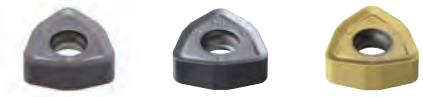
(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HRMDM	1332HR-M16	●	2	32	89.96	29	40	67	M16	2.0	0.2
	1333HR-M16		2	33	89.96	29	40	67	M16	2.0	0.2
	1335HR-M16		2	35	111.95	29	40	67	M16	2.0	0.2
	1340HR-M16		3	40	111.95	29	45	72	M16	2.0	0.2

● : Stock item

Available inserts

WNMX-MF WNMX-ML WNMX-MM



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF												●	●				B30
	130520ZNN-ML												●	●				
	130520ZNN-MM						●	●	●		●	●	●	●				

Available adaptors

	Designation	Available adaptors
HRMDM	1332HR-M16	MAT-M16
	1333HR-M16	
	1335HR-M16	
	1340HR-M16	

Designation : HRMDM1332HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-120-S32T
Adaptor threading measure (M16)

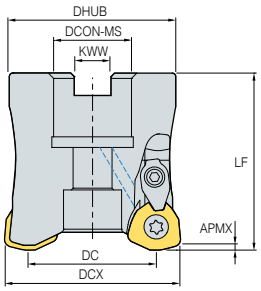
Parts

Specification	Screw	Wrench
Ø32~Ø40	FTKA0412B	TW15S

Available inserts **B30** Available adaptors **B400**

HRMC(M)13





KAPR 15°

- GAMP : 7°
- GAMF : −15°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
HRMC (HRMCM)	13050HR-3	(●)	3	50	36.75	47	22.225(22)	8.0(10.4)	50	2	0.4
	13050HR-4	● (●)	4	50	36.75	47	22.225(22)	8.0(10.4)	50	2	0.3
	13063HR-4	(●)	4	63	49.73	60	22.225(22)	8.0(10.4)	50	2	0.7
	13080HR-5	(●)	5	80	66.72	76	31.75(27)	12.7(12.4)	70	2	1.6

( )Metric size, ● : Stock item

Available inserts

WDKT-MH



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	130520ZDSR-MH						●	●	●	●	●		●	●				B29

Available arbors

Designation		HRMDC	HRMDCM
HRMC (HRMCM)	13050HR-3	BT□□-FMA22.225-□□	BT□□-FMC22-□□ SK□□-FMC22-□□
	13050HR-4		
	13063HR-4		
	13080HR-5	BT□□-FMA31.75-□□ SK□□-FMA31.75-□□	BT□□-FMC27-□□ SK□□-FMC27-□□

Bolt

Fig. 1

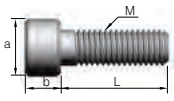
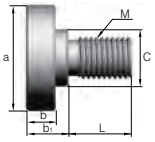


Fig. 2



Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1035	M10	16	10	-	-	35	1.5	1
SB1245	M12	18	12	-	-	45	1.75	1
SB1645	M16	24	16	-	-	45	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2
MBA-M24	M24	65	14	24	37	36	3.0	2

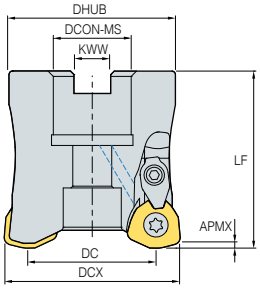
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø50~Ø80	FTGA0513-P	CHH4.5R1	CTX04513H	CR03	TW20-100

Available inserts **B29** Available arbors and bolt **E94 ~ E96**

HRMC(M)15





KAPR 15°

- GAMP : 7°
- GAMF : −15°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
HRMC (HRMCM)	15063HR-3	(●)	3	63	48.16	60	22.225(22)	8(10.4)	50	2.5	0.6
	15080HR-4	● (●)	4	80	65.11	76	31.75(27)	12.7(12.4)	70	2.5	1.5
	15100HR-5		5	100	85.14	96	31.75(32)	12.7(14.4)	70	2.5	2.7
	15100HR-6	●	6	100	85.14	96	31.75(32)	12.7(14.4)	70	2.5	3.1
	15125HR-6		6	125	110.13	98	38.1(40)	15.9(16.4)	63	2.5	0
	15160R-7		7	160	145.12	100	50.8(40)	19(16.4)	63	2.5	4.3

( )Metric size, ● : Stock item

Available inserts

WDKT-MH



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	150625ZDSR-MH								●	●	●		●	●				B29

Available arbors

Designation		HRMDC	HRMDCM
HRMC (HRMCM)	15063HR-3	BT□□-FMA22.225-□□	BT□□-FMC22-□□ SK□□FMC22-□□
	15080HR-4	BT□□-FMA31.75-□□ SK□□-FMA31.75-□□	BT□□-FMC27-□□ SK□□-FMC27-□□
	15100HR-5 15100HR-6		BT□□-FMC32-□□ SK□□-FMC32-□□
	15125HR-6	BT□□-FMA38.1-□□ SK□□-FMA38.1-□□	BT□□-FMB40-□□ BT□□-FMC40-□□ SK□□-FMC40-□□
	15160R-7	BT□□-FMA50.8-□□	

Bolt

Fig. 1

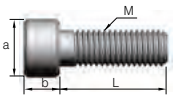
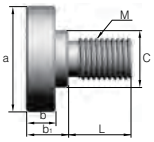


Fig. 2



Designation	Dimensions (mm)							Fig.
	M	a	b	b1	C	L	pitch	
SB1035	M10	16	10	-	-	35	1.5	1
SB1245	M12	18	12	-	-	45	1.75	1
SB1645	M16	24	16	-	-	45	2.0	1
SB2040	M20	30	20	-	-	40	2.5	1
MBA-M20	M20	50	14	20	27	30	2.5	2
MBA-M24	M24	65	14	24	37	36	3.0	2

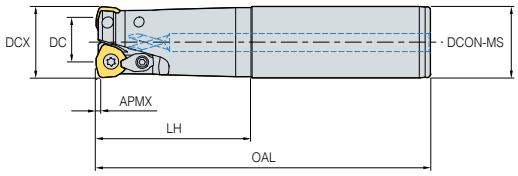
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø63~Ø160	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20-100

Available inserts **B29** Available arbors and bolt **E94 ~ E96**

HRMS08/10





KAPR 15°

- GAMP : 7°
- GAMF : −11°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMS	0820HR-2S20	●	2	20	12.29	20	50	130	1.0	0.3
	0820HR-2M20	●	2	20	12.29	20	100	180	1.0	0.4
	0820HR-2L20	●	2	20	12.29	20	130	250	1.0	0.5
	0821HR-2S20	●	2	21	13.28	20	50	130	1.0	0.3
	0821HR-2M20	●	2	21	13.28	20	50	180	1.0	0.4
	0821HR-2L20		2	21	13.28	20	50	250	1.0	0.5
	1025HR-2S25	●	2	25	15.52	25	60	140	1.5	0.4
	1025HR-2M25	●	2	25	15.52	25	120	200	1.5	0.6
	1025HR-2L25	●	2	25	15.52	25	180	300	1.5	0.9
	1026HR-2S25	●	2	26	16.51	25	60	140	1.5	0.4
	1026HR-2M25	●	2	26	16.51	25	60	200	1.5	0.6
	1026HR-2L25	●	2	26	16.51	25	60	300	1.5	1.0
	1030HR-2S32	●	2	30	20.5	32	70	150	1.5	0.7
	1030HR-2M32		2	30	20.5	32	120	200	1.5	1.0
	1030HR-2L32		2	30	20.5	32	180	300	1.5	1.5

● : Stock item

Available inserts

WDKT-MH



Type	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
08 type	WDKT 080316ZDSR-MH						●	●	●	●	●		●	●				B29
10 type	WDKT 10T320ZDSR-MH							●	●	●	●		●	●				

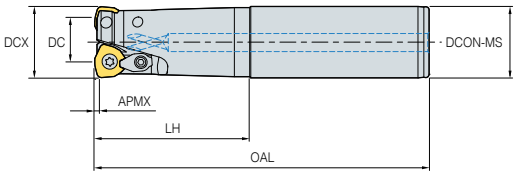
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø20~Ø21(08 type)	FTNA0306	-	-	-	TW09P
Ø25~Ø30(10 type)	FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S

Available inserts **B29**

HRMS13











KAPR 15°

- GAMP : 7°
- GAMF : −11°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMS	1332HR-2S32	●	2	32	18.86	32	70	150	2.0	0.7
	1332HR-2M32	●	2	32	18.86	32	120	200	2.0	1.0
	1332HR-2L32	●	2	32	18.86	32	180	300	2.0	1.6
	1333HR-2S32		2	33	19.85	32	70	150	2.0	0.8
	1333HR-2M32	●	2	33	19.85	32	70	200	2.0	1.1
	1333HR-2L32	●	2	33	19.85	32	70	300	2.0	1.7
	1335HR-2S32	●	2	35	21.84	32	50	150	2.0	0.8
	1335HR-2M32	●	2	35	21.84	32	50	200	2.0	1.1
	1335HR-2L32		2	35	21.84	32	50	300	2.0	1.7
	1340HR-3S32	●	3	40	27.08	32	50	150	2.0	0.8
	1340HR-3M32	●	3	40	27.08	32	50	250	2.0	1.4
	1340HR-3L32		3	40	27.08	32	50	300	2.0	1.7
	1340HR-3S40		3	40	27.08	40	60	150	2.0	0.0
	1340HR-3M40		3	40	27.08	40	130	250	2.0	2.1
	1340HR-3L40		3	40	27.08	40	180	300	2.0	1.2
	1340HR-3S42		3	40	27.08	42	60	150	2.0	1.4
	1340HR-3M42		3	40	27.08	42	130	250	2.0	2.3
	1340HR-3L42		3	40	27.08	42	180	300	2.0	2.7

● : Stock item

Available inserts

WDKT-MH



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	130520ZDSR-MH						●	●		●	●		●	●				B29

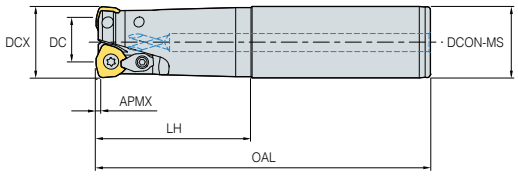
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø32,33,35	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	TW20
Ø40	FTGA0512-P	CHH4.5R1	CTX04513H	CR03	TW20

Available inserts **B29**

HRMS15





KAPR 15°

- GAMP : 7°
- GAMF : −8°~−6°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	kg
HRMS	1550HR-3S32		3	50	35.22	32	50	150	2.5	1
	1550HR-3M32		3	50	35.22	32	50	250	2.5	0.5
	1550HR-3L32		3	50	35.22	32	50	300	2.5	1.9
	1550HR-3S40		3	50	35.22	40	50	150	2.5	1.4
	1550HR-3M40		3	50	35.22	40	50	250	2.5	2.3
	1550HR-3L40		3	50	35.22	40	50	300	2.5	2.8
	1550HR-3S42	●	3	50	35.22	42	50	150	2.5	1.5
	1550HR-3M42		3	50	35.22	42	50	250	2.5	2.5
	1550HR-3L42		3	50	35.22	42	50	300	2.5	3
	1563HR-4S32		4	63	48.26	32	50	150	2.5	1.9
	1563HR-4M32		4	63	48.26	32	50	250	2.5	1.9
	1563HR-4L32		4	63	48.26	32	50	300	2.5	1.7
	1563HR-4S40		4	63	48.26	40	50	150	2.5	1.7
	1563HR-4M40		4	63	48.26	40	50	250	2.5	2.6
	1563HR-4L40		4	63	48.26	40	50	300	2.5	3.1
	1563HR-4S42		4	63	48.26	42	50	150	2.5	1.8
	1563HR-4M42		4	63	48.26	42	50	250	2.5	2.8
	1563HR-4L42		4	63	48.26	42	50	300	2.5	3.3

● : Stock item

Available inserts

WDKT-MH



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	150625ZDSR-MH								●	●	●		●	●				B29

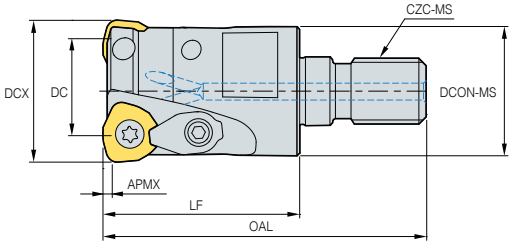
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø50~Ø63	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20

Available inserts **B29**

HRMM08





KAPR 15°

- GAMP : 7°
- GAMF : −11°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HRMM	0820HR-M10	●	2	20	12.29	18	30	51	M10	1	0.1
	0821HR-M10		2	21	13.28	18	30	51	M10	1	0.1
	0825HR-M12	●	3	25	17.28	23	35	59	M12	1	0.1
	0826HR-M12	●	3	26	18.28	23	35	59	M12	1	0.1
	0828HR-M12		3	28	20.28	23	35	59	M12	1	0.1
	0832HR-M16		4	32	24.45	29	40	67	M16	1	0.2
	0833HR-M16	●	4	33	25.45	29	40	67	M16	1	0.2
	0835HR-M16		4	35	27.27	29	40	67	M16	1	0.2
	0840HR-M16		5	40	32.04	29	40	67	M16	1	0.2

● : Stock item

Available inserts

WDKT-MH



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	080316ZDSR-MH						●	●	●	●	●		●	●				B29

Available adaptors

	Designation	Available adaptors
HRMM	0820HR-M10	MAT-M10
	0821HR-M10	
	0825HR-M12	MAT-M12
	0826HR-M12	
	0828HR-M12	
	0832HR-M16	MAT-M16
	0833HR-M16	
	0835HR-M16	
	0840HR-M16	

Designation : HRMM0820HR-M10
Modular head threading measure size (M10)

II

Adaptor spec.: MAT-M10-030-S20S
Adaptor threading measure (M10)

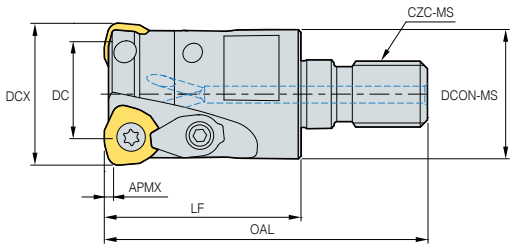
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench	Wrench
Ø20~Ø40	FTNA0306	-	-	-	TW09S	-

Available inserts **B29** Available adaptors **B400**

HRMM10/13





KAPR 15°

- GAMP : 7°
- GAMF : −11°~−5°

(mm)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
HRMM	1025HR-M12		2	25	15.52	22.5	35	59	M12	1.5	0.1
	1026HR-M12		2	26	16.51	23	35	59	M12	1.5	0.1
	1030HR-M16		2	30	20.5	29	40	67	M16	1.5	0.2
	1032HR-M16		3	32	22.76	29	45	72	M16	1.5	0.2
	1035HR-M16		3	35	25.52	29	45	72	M16	1.5	0.2
	1040HR-M16		4	40	30.79	29	45	72	M16	1.5	0.2
	1332HR-M16	●	2	32	18.86	29	40	67	M16	2	0.2
	1333HR-M16		2	33	19.85	29	40	67	M16	2	0.2
	1335HR-M16		2	35	21.84	29	40	67	M16	2	0.2
	1340HR-M16	●	3	40	27.08	29	45	72	M16	2	0.2

● : Stock item

Available inserts

WDKT-MH



Type	Designation		Cermet	Coated										Uncoated			Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
10 type	WDKT	10T320ZDSR-MH							●	●	●	●		●	●				B29
13 type	WDKT	130520ZDSR-MH						●	●	●	●	●		●	●				

Available adaptors

	Designation	Available adaptors
HRMM	1025HR-M12	MAT-M12
	1026HR-M12	
	1030HR-M16	MAT-M16
	1032HR-M16	
	1035HR-M16	
	1040HR-M16	
	1332HR-M16	MAT-M16
	1333HR-M16	
	1335HR-M16	
	1340HR-M16	

Designation : HRMM1030HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

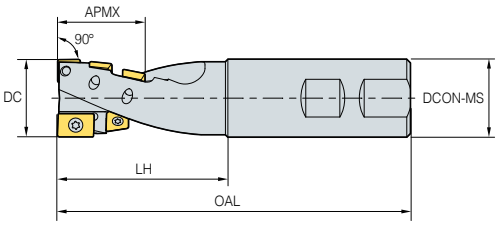
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench	Wrench
Ø25~Ø40(10 type)	FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S	-
Ø32, 33, 35(13 type)	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	-	TW20
Ø40(13 type)	FTGA0512-P	CHH5.5R1	CTX04513H	CR03	-	TW20

Available inserts **B29** Available adaptors **B400**

THE







KAPR 90°

- GAMP : 5°, 10°
- GAMF : −5°

(mm)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	kg	Available inserts	
											Lower cutting-edge	External cutting-edge
THE	25R		5	25	25	55	120	2	25	0.4	APLT070304R 1z	SPMT060304 4z
	32R		6	32	32	70	145	2	40	0.7	ADLT150308R 1z	SDMT090308-MM 5z
	40R	●	6	40	42	88	175	2	54	1.4	ZPMT1504PPSR-MM 1z	SPMT120408-MM 5z
	50R	●	12	50	42	85	175	4	54	1.7	ZPMT1504PPSR-MM 2z	SPMT120408-MM 10z

● : Stock item

Available inserts

ADLT APLT SPMT-MM SPMT SDMT-MM ZPMT-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPMT	060304		●																B4 B5 B20 B27 B33
SDMT	090308-MM									●				●					
SPMT	120408-MM									●				●					
APLT	070304R													●					
ADLT	150308R		●											●					
ZPMT	1504PPSR-MM									●				●					

Recommended cutting conditions

• Grooving

Workpiece	cutting conditions		Grade
	vc(m/min)	fz(mm/t)	
P	90~140	0.05~0.2	PC5300
M	50~90	0.05~0.2	PC5300
K	70~120	0.05~0.25	PC5300

• Side cutting

Workpiece	cutting conditions		Grade
	vc(m/min)	fz(mm/t)	
P	150 ~240	0.05~0.2	PC5300
M	90~150	0.05~0.2	PC5300
K	120~200	0.10~0.25	PC5300

Parts

Specification	Screw	Wrench	Wrench
Ø25	ETNA02506	TW07P	-
Ø32	ETNA0408	-	TW15S
Ø40	ETNA0511	-	TW20S
Ø50	ETNA0511	-	TW20S

Available inserts **B4, B5, B20, B27, B33**

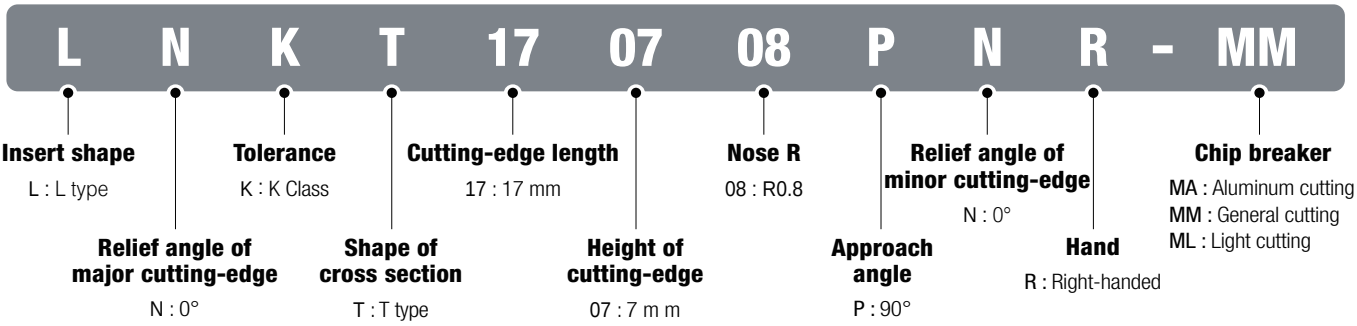
This milling tool series with its tangential clamping system increases stable machining and productivity, while improving perpendicularity

Tangen-Pro TP2P

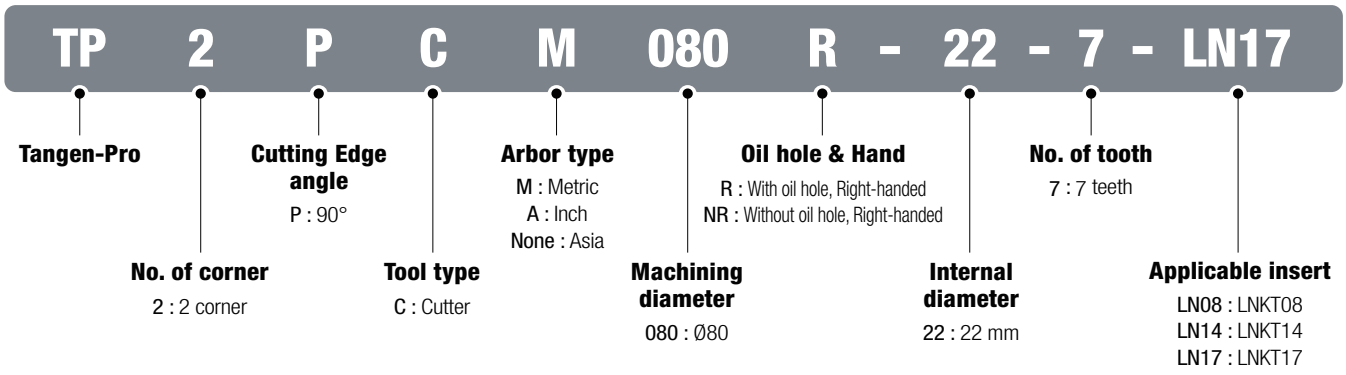
- Clamping stability gained through tangential clamping system and wedge-shaped inserts
- Excellent surface finish nearly perfect perpendicularity, and highly even flank surface compared to competitors' designs
- Improved productivity due to High-rake angles and sharp cutting-edges which lead to lower cutting resistance
  → Ideally suited for high speed and high feed machining

Code system

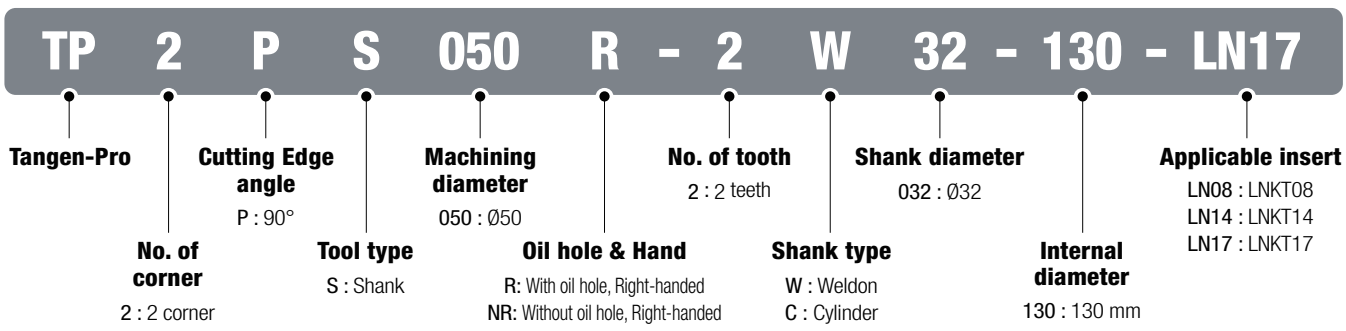
• Insert



• Cutter



• Shank



Features of insert



1 Wedge type clamping area

- Clamping in wedge form on seats
  → Creates strong clamping force

2 High-rake angle chip breaker

- High-rake angle applied
- Produces smooth chip flow
  → Extended insert life

3 Convex projection

- Improved chip evacuation
- Minimized cutting load
  → Decreased cutting resistance

4 Side hole (tangential type)

- Higher clamping stability

5 High-rake angle cutting-edges

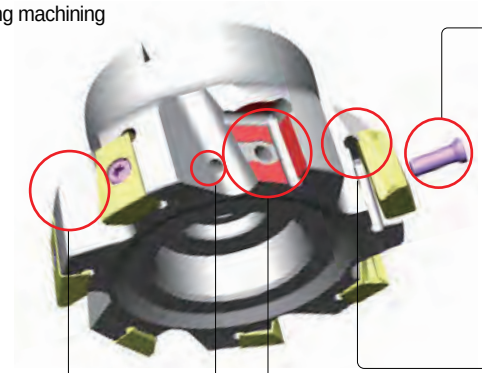
- Improves cutting performance while reducing cutting load

6 2-level flank relief surface

- 1st reverse positive relief surface enhances rigidity
- 2nd negative relief surface enables stable clamping
  → Improved chipping resistance and surface finish

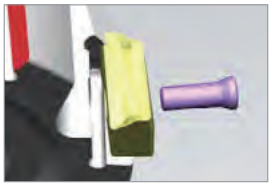
Features of cutter

- **Tangential clamping system, wedge-shaped inserts and wide seat area**
  → Higher clamping stability
  → Lower vibrations and cutting resistance during machining
- **Optimized H/D design with curved surface for smooth chip flow**
  → Excellent chip evacuation in slotting or deep shouldering



Tangential clamping

- Multi-corner use
  → High feed machining availabilit



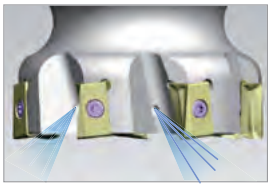
Streamlined holder design

- Smoother chip evacuation in slotting or deep shouldering



Through coolant system

- Improved chip evacuation
- Longer tool life due to insert cooling



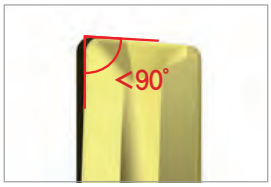
Wide seat area

- Strong clamping force



Wedge type clamping

- Ensures stable insert tool life



Application guideline for grade

Workpiece		P		K	N
		Carbon steel	Alloy steel	Cast iron	Aluminum
Grade	High speed cutting	PC5300	PC5300	PC6100	H01
	General cutting	PC5400	PC5300	PC6100	H01
	Interrupted cutting	PC5400	PC5400	PC5300	H01

Features of chip breaker

Insert		Cutting-edge	Use	Features
MA			Aluminum	Exclusive sharp cutting edge for aluminum machining ensures good chip flow due to surface buffing treatment and high welding resistance.
ML			Light cutting	Chip breaker design for low cutting resistance that provides excellent tool life and quality surface finishes in light cutting and hard-to-cut materials
MM			General cutting	Universal design for general shoulder milling operations, highly suitable in most applications

Recommended cutting conditions

• **LNKT08**

Workpiece		Grade	vc (m/min)	fz (mm/t)	APMX(mm)	Applicable insert
P	Steel	PC5300	150~240	0.25~0.05	8.0	LNKT0804□□PNR-MM
		PC5400	130~210	0.25~0.05	8.0	
K	Cast iron	PC6100	100~250	0.25~0.05	8.0	LNKT0804□□PNR-ML
		PC5300	100~200	0.25~0.05	8.0	
N	Aluminum	H01	500~1000	0.25~0.05	8.0	LNKT0804□□PNR-MA

• **LNKT14**

Workpiece		Grade	vc (m/min)	fz (mm/t)	APMX(mm)	Applicable insert
P	Steel	PC5300	150~240	0.25~0.05	12.7	LNKT1406□□PNR-MM
		PC5400	130~210	0.25~0.05	12.7	
K	Cast iron	PC6100	100~250	0.25~0.05	12.7	LNKT1406□□PNR-ML
		PC5300	100~200	0.25~0.05	12.7	
N	Aluminum	H01	500~1000	0.25~0.05	12.7	LNKT1406□□PNR-MA

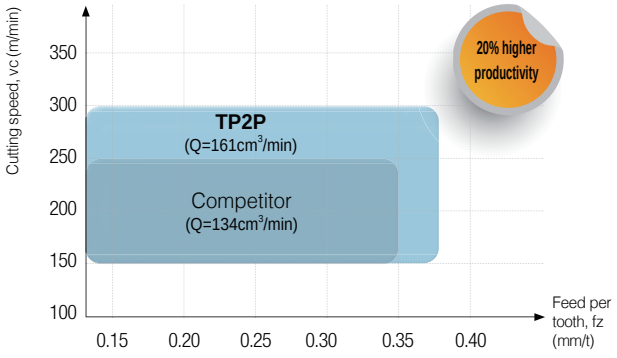
• **LNKT17**

Workpiece		Grade	vc (m/min)	fz (mm/t)	APMX(mm)	Applicable insert
P	Steel	PC5300	150~240	0.25~0.05	16.5	LNKT1707□□PNR-MM
		PC5400	130~210	0.25~0.05	16.5	
K	Cast iron	PC6100	100~250	0.25~0.05	16.5	LNKT1707□□PNR-ML
		PC5300	100~200	0.25~0.05	8.0	
N	Aluminum	H01	500~1000	0.25~0.05	16.5	LNKT1707□□PNR-MA

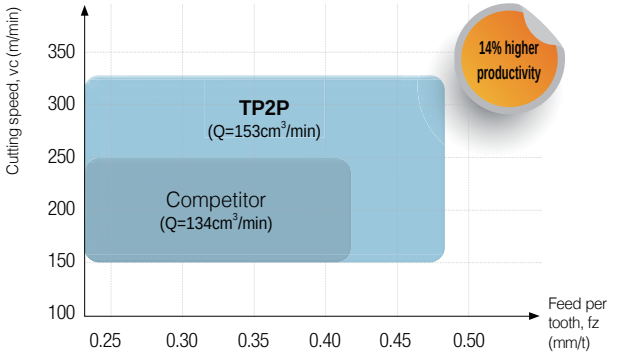
Application area

» **Higher speed and feed machining than competitor's increases machinability.**

• **Application area** : ap(mm) = 14, ae(mm) = 10

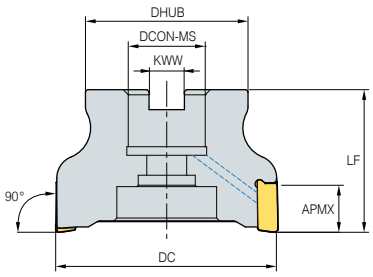


• **Application area** : ap(mm) = 8, ae(mm) = 10



TP2PCM-LN08





KAPR 90°

- GAMP : −6°
- GAMF : −26°~−22°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
TP2PCM	040R-16-6-LN08		6	40	35	16	8.4	40	8	0.2
	040R-16-7-LN08		7	40	35	16	8.4	40	8	0.2
	050R-22-7-LN08		7	50	41	22	10.4	40	8	0.3
	050R-22-10-LN08		10	50	41	22	10.4	40	8	0.3
	063R-22-10-LN08		10	63	49	22	10.4	40	8	0.5
	063R-22-11-LN08		11	63	49	22	10.4	40	8	0.5

● : Stock item

Available inserts

LNKT-MA LNKT-ML LNKT-MM





	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	080404PNR-MA																		
	080408PNR-MA																		
	080412PNR-MA																		
	080416PNR-MA																		
	080404PNR-ML																		
	080408PNR-ML																		B10
	080412PNR-ML																		B11
	080416PNR-ML																		
	080404PNR-MM																		
	080408PNR-MM																		
	080412PNR-MM																		
	080416PNR-MM																		

Available arbors

	Designation	Available arbors
TP2PCM	040R-16-6-LN08	BT□□-FMC16-□□
	040R-16-7-LN08	
	050R-22-7-LN08	BT□□-FMC22-□□
	050R-22-10-LN08	
	063R-22-10-LN08	
	063R-22-11-LN08	

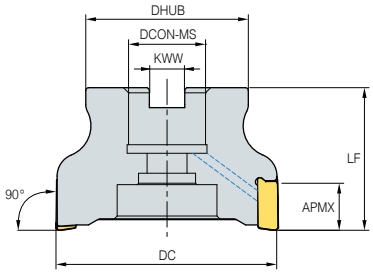
Parts

Specification	Screw	Wrench
Ø40~Ø63	FTKA02565	TW07S

Available inserts **B10, B11** Available arbors and bolt **E96**

TP2PC(M)-LN14







KAPR 90°

- GAMP : −6°
- GAMF : −22°~−12°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
TP2PCM	040R-16-4-LN14		4	40	35	16	8.4	40	12.7	0.2
	040R-16-5-LN14		5	40	35	16	8.4	40	12.7	0.2
	050R-22-5-LN14		5	50	42	22	10.4	40	12.7	0.3
	050R-22-6-LN14		6	50	42	22	10.4	40	12.7	0.3
	063R-22-6-LN14		6	63	49	22	10.4	40	12.7	0.5
	063R-22-8-LN14		8	63	49	22	10.4	40	12.7	0.5
	080R-27-7-LN14		7	80	57	27	12.4	50	12.7	0.9
	080R-27-10-LN14		10	80	57	27	12.4	50	12.7	0.9
	100R-32-8-LN14		8	100	70	32	14.4	63	12.7	1.7
	100R-32-13-LN14		13	100	70	32	14.4	63	12.7	1.7
	125R-40-9-LN14		9	125	90	40	16.4	63	12.7	3.0
	125R-40-17-LN14		17	125	90	40	16.4	63	12.7	3.0
TP2PC	080R-25.4-7-LN14		7	80	57	25.4	9.5	50	12.7	1.0
	080R-25.4-10-LN14		10	80	57	25.4	9.5	50	12.7	1.0
	100R-31.75-8-LN14		8	100	70	31.75	12.7	63	12.7	1.8
	100R-31.75-13-LN14		13	100	70	31.75	12.7	63	12.7	1.8
	125R-38.1-9-LN14		9	125	90	38.1	15.9	63	12.7	3.0
	125R-38.1-17-LN14		17	125	90	38.1	15.9	63	12.7	3.1

● : Stock item

Available inserts

LNKT-MA LNKT-ML LNKT-MM



Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	140604PNR-MA																	B10 B11
	140608PNR-MA																	
	140612PNR-MA																	
	140616PNR-MA																	
	140604PNR-ML																	
	140608PNR-ML																	

Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	140612PNR-ML																	B11
	140616PNR-ML																	
	140604PNR-MM																	
	140608PNR-MM																	
	140612PNR-MM																	
	140616PNR-MM																	

Available arbors

Designation		Available arbors
TP2PCM	040R-16-4-LN14	BT□□-FMC16-□□
	040R-16-5-LN14	
	050R-22-5-LN14	BT□□-FMC22-□□
	050R-22-6-LN14	
	063R-22-6-LN14	
	063R-22-8-LN14	
	080R-27-7-LN14	BT□□-FMC27-□□
	080R-27-10-LN14	

Designation		Available arbors
TP2PCM	100R-32-8-LN14	BT□□-FMC32-□□
	100R-32-13-LN14	
	125R-40-9-LN14	BT□□-FMC40-□□
	125R-40-17-LN14	
TP2PC	080R-25.4-7-LN14	BT□□-FMA25.4-□□
	080R-25.4-10-LN14	
	100R-31.75-8-LN14	BT□□-FMA31.75-□□
	100R-31.75-13-LN14	
	125R-38.1-9-LN14	BT□□-FMA38.1-□□
	125R-38.1-17-LN14	

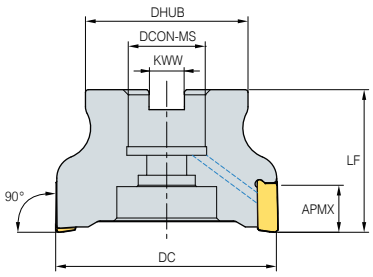
Parts

Specification	Screw	Wrench
Ø40~Ø125	FTKA03510	TW15S

Available inserts **B10, B11** Available arbors and bolt **E94 ~ E96**

TP2PC(M)-LN17







KAPR 90°

- GAMP : −6°
- GAMF : −21°~−15°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
TP2PCM	040R-16-3-LN17	●	3	40	35	16	8.4	40	16.5	0.2
	040R-16-4-LN17		4	40	35	16	8.4	40	16.5	0.2
	050R-22-4-LN17	●	4	50	41	22	10.4	40	16.5	0.3
	050R-22-5-LN17		5	50	41	22	10.4	40	16.5	0.3
	063R-22-6-LN17	●	6	63	49	22	10.4	40	16.5	0.5
	063R-22-7-LN17		7	63	49	22	10.4	40	16.5	0.5
	080R-27-7-LN17	●	7	80	57	27	12.4	50	16.5	0.9
	080R-27-8-LN17		8	80	57	27	12.4	50	16.5	0.9
	100R-32-8-LN17	●	8	100	67	32	14.4	63	16.5	3.1
	100R-32-9-LN17		9	100	67	32	14.4	63	16.5	3.1
	125R-40-10-LN17	●	10	125	90	40	16.4	63	16.5	3.1
	125R-40-11-LN17		11	125	90	40	16.4	63	16.5	3.1
TP2PC	080R-25.4-7-LN17		7	80	57	25.4	9.5	50	16.5	1.0
	080R-25.4-8-LN17		8	80	57	25.4	9.5	50	16.5	1.0
	100R-31.75-8-LN17		8	100	67	31.75	12.7	63	16.5	1.8
	100R-31.75-9-LN17		9	100	67	31.75	12.7	63	16.5	1.8
	125R-38.1-10-LN17		10	125	90	38.1	15.9	63	16.5	3.1
	125R-38.1-11-LN17		11	125	90	38.1	15.9	63	16.5	3.1

● : Stock item

Available inserts

LNKT-MA



LNKT-ML



LNKT-MM



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	170704PNR-MA																	B10 B11
	170708PNR-MA																	
	170712PNR-MA																	
	170716PNR-MA																	
	170720PNR-MA																	
	170704PNR-ML																	
	170708PNR-ML										●		●	●				
	170712PNR-ML																	

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	170716PNR-ML																	B11
	170720PNR-ML																	
	170704PNR-MM																	
	170708PNR-MM													●	●			
	170712PNR-MM																	
	170716PNR-MM																	
	170720PNR-MM																	

Available arbors

	Designation	Available arbors
TP2PCM	040R-16-3-LN17	BT□□-FMC16-□□
	040R-16-4-LN17	
	050R-22-4-LN17	BT□□-FMC22-□□
	050R-22-5-LN17	
	063R-22-6-LN17	
	063R-22-7-LN17	
	080R-27-7-LN17	BT□□-FMC27-□□
	080R-27-8-LN17	

	Designation	Available arbors
TP2PCM	100R-32-8-LN17	BT□□-FMC32-□□
	100R-32-9-LN17	
	125R-40-10-LN17	BT□□-FMC40-□□
	125R-40-11-LN17	
TP2PC	080R-25.4-7-LN17	BT□□-FMA25.4-□□
	080R-25.4-8-LN17	
	100R-31.75-8-LN17	BT□□-FMA31.75-□□
	100R-31.75-9-LN17	
	125R-38.1-10-LN17	BT□□-FMA38.1-□□
	125R-38.1-11-LN17	

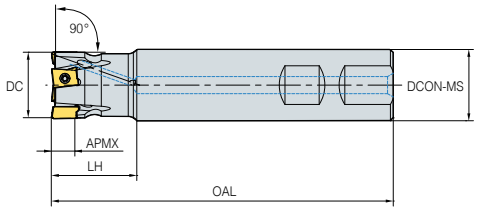
Parts

Specification	Screw	Wrench
Ø40~Ø125	FTKA0412B	TW15S

Available inserts **B10, B11** Available arbors and bolt **E94, E96**

TP2PS-LN08







KAPR 90°

- GAMP : −6°
- GAMF : −35°~−26°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
TP2PS	020R-2W20-120-LN08		2	20	20	30	120	8	0.3
	020R-3W20-120-LN08		3	20	20	30	120	8	0.3
	025R-3W25-120-LN08		3	25	25	30	120	8	0.4
	025R-4W25-120-LN08		4	25	25	30	120	8	0.4

● : Stock item

Available inserts

LNKT-MA LNKT-ML LNKT-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	080404PNR-MA																		B10 B11
	080408PNR-MA																		
	080404PNR-ML																		
	080408PNR-ML																		
	080404PNR-MM																		
	080408PNR-MM																		

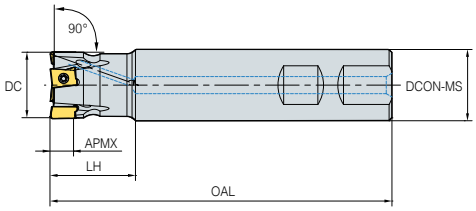
Parts

Specification	Screw	Wrench
Ø16~Ø25	FTKA02565	TW07S

Available inserts **B10, B11**

TP2PS-LN14





KAPR 90°

- GAMP : −6°
- GAMF : −21°~−18°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
TP2PS	025R-2W25-130-LN14		2	25	25	40	130	12.7	0.4
	032R-3W32-130-LN14		3	32	32	40	130	12.7	0.7
	040R-3W32-130-LN14		3	40	32	40	130	12.7	0.8
	040R-4W32-130-LN14		4	40	32	40	130	12.7	0.8
	050R-4W32-130-LN14		4	50	32	40	130	12.7	0.9
	050R-5W32-130-LN14		5	50	32	40	130	12.7	0.8

● : Stock item

Available inserts

LNKT-MA LNKT-ML LNKT-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	140608PNR-MA																		B10 B11
	140608PNR-ML																		
	140608PNR-MM																		

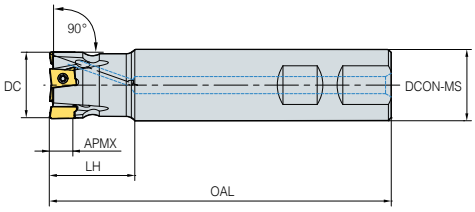
Parts

Specification	Screw	Wrench
Ø25 ~ Ø50	FTKA03510	TW15S

Available inserts **B10, B11**

TP2PS-LN17







KAPR 90°

- GAMP : −6°
- GAMF : −26°~−18°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
TP2PS	032R-2W32-130-LN17	●	2	32	32	42	130	16.5	0.7
	032R-3W32-130-LN17		3	32	32	42	130	16.5	0.7
	040R-3W32-130-LN17	●	3	40	32	42	130	16.5	0.8
	040R-4W32-130-LN17		4	40	32	42	130	16.5	0.8
	050R-4W32-130-LN17	●	4	50	32	42	130	16.5	0.9
	050R-5W32-130-LN17		5	50	32	42	130	16.5	0.9

● : Stock item

Available inserts

LNKT-MA LNKT-ML LNKT-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	170704PNR-MA																		B10 B11
	170708PNR-MA																		
	170712PNR-MA																		
	170716PNR-MA																		
	170720PNR-MA																		
	170704PNR-ML																		
	170708PNR-ML										●			●	●				
	170712PNR-ML																		
	170716PNR-ML																		
	170720PNR-ML																		
	170704PNR-MM																		
	170708PNR-MM													●	●				
	170712PNR-MM																		
	170716PNR-MM																		
	170720PNR-MM																		

Parts

Specification	Screw	Wrench
Ø32~Ø50	FTKA0412B	TW15S

Available inserts **B10, B11**

Right angle Milling tool with tangential double-sided 8 corners

Tangen-Pro TP8P

- Double-sided insert with 8 corners realizes high cost efficiency thanks to right angle milling with high depth of cut.
- Excellent for productivity improvement because tangential type insert ensures rigid clamping and allows more flutes (extra close pitch) in accordance with a cutter diameter

Code system

• Cutter

TP8	P	C	M	063	R	-	22	-	6	-	S014

- **TP8** — Tangen-Pro
- **Approach angle** — P : 90°
- **Tool type** — C : Cutter
- **Arbor** — M : Metric; A : Inch; None : Asia
- **Machining diameter** — 063 : Ø63 mm
- **Oil hole & Hand** — R : With oil hole, Right-handed; NR : Without oil hole, Right-handed
- **Internal diameter** — 22 : Ø22 mm
- **No. of tooth** — 6 : 6 teeth
- **Available inserts** — S014 : SOKX14

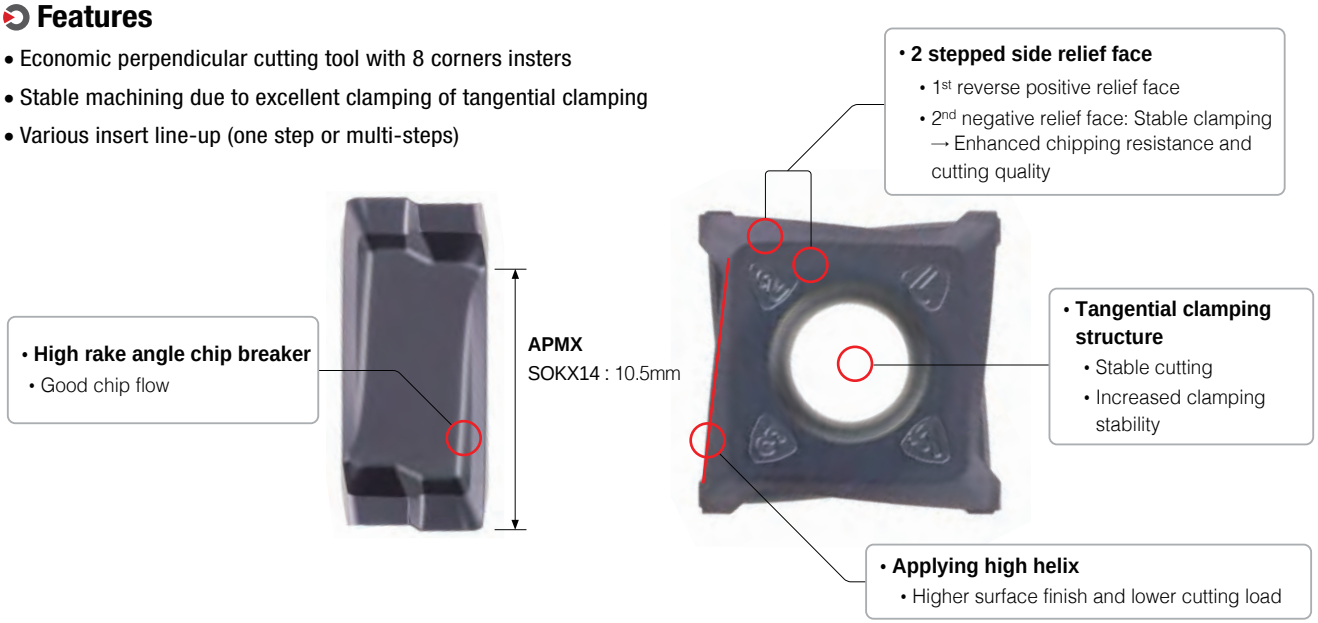
• Shank

TP8	P	S	032	R	-	3	W	32	-	110	-	S014

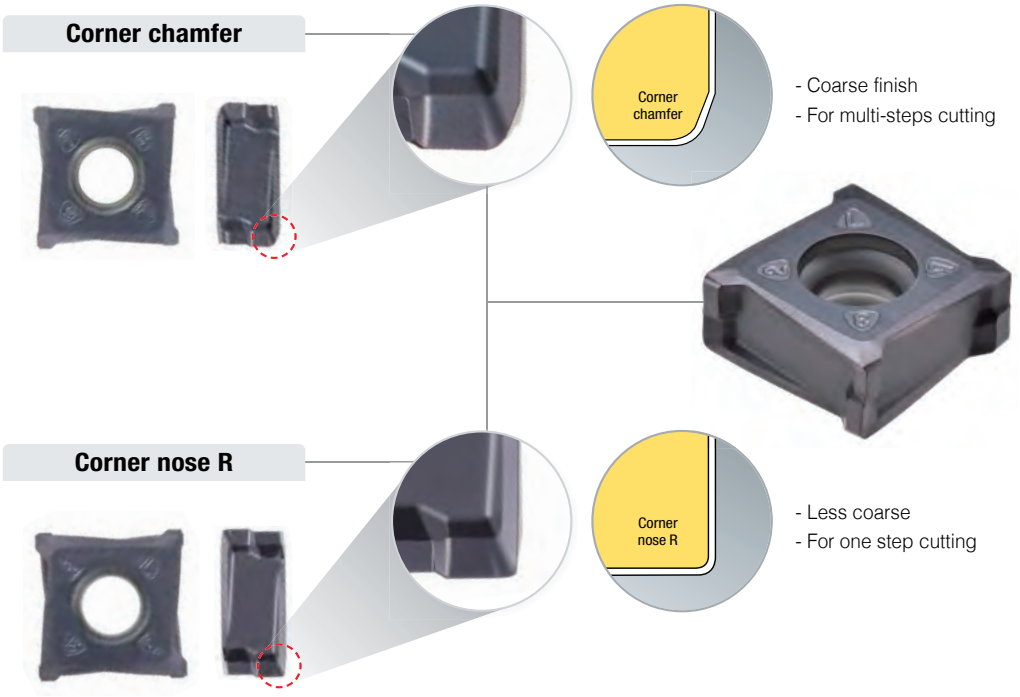
- **TP8** — Tangen-Pro
- **Approach angle** — P : 90°
- **Tool type** — S : Shank
- **Machining diameter** — 32 : Ø32 mm
- **Oil hole & Hand** — R : With oil hole, Right-handed; NR : Without oil hole, Right-handed
- **No. of tooth** — 3 : 3 teeth
- **Shank type** — W : Weldon; C : Cylinder
- **Shank diameter** — 32 : Ø32 mm
- **Overall length** — 110 : 110 mm
- **Available inserts** — S014 : SOKX14

Features

- Economic perpendicular cutting tool with 8 corners insters
- Stable machining due to excellent clamping of tangential clamping
- Various insert line-up (one step or multi-steps)



Features of insert



Recommended grade and cutting edge

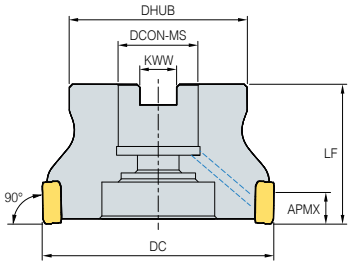
Chip breaker	Cutting edge	Recommended grade and cutting shape by workpiece materials (● : 1st Recommendation)	
		P	K
		Grade	Grade
ML		● PC5300	● PC5300

Recommended cutting conditions

Workpiece				Specific cutting force (N/mm²)	HRC	Grade	Chip breaker	
ISO	Workpiece meterial	KS	ISO			PC5300	ML	
						vc (m/min)	fz (mm/t)	ap (mm)
P	Carbon steel	SM15C SM25C SM35C	C15E4 C15M2 C25	1500	Under 10	150	0.15	2~7
						200	**0.20**	
						250	0.15	
		SM45C SM58C SMn438(H)	C45 C60	1700	10~30	150	0.10	
						200	**0.20**	
						250	0.15	
	Alloy steel	SCM440 SNCM240	42CrMo4 41CrNiMo2	1700	20~40	150	0.20	
						200	**0.20**	
						200	0.15	
	Die steel	KP4M	-	2020	27~30	120	0.10	
						150	0.10	
K	Gray cast iron	GC250 GC350	250 350	900	Under 23	110	0.15	2~7
						160	**0.12**	
						180	0.10	
	Ductile cast iron	GCD400 GCD500 GCD600	400-15 150-10 600-3	870	Under 10	150	0.20	
						200	0.15	

TP8PC(M)-SO14





KAPR 90°

- GAMP : – 6°
- GAMF : – 23° ~ – 18°

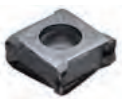
(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
TP8PCM	040R-16-3-SO14	●	3	40	34	16	8.4	40	11	0.2
	040R-16-4-SO14	●	4	40	34	16	8.4	40	11	0.2
	050R-22-4-SO14	●	4	50	45	22	10.4	40	11	0.3
	050R-22-5-SO14	●	5	50	45	22	10.4	40	11	0.3
	050R-22-6-SO14	●	6	50	45	22	10.4	40	11	0.3
	063R-22-6-SO14	●	6	63	49	22	10.4	40	11	0.4
	063R-22-7-SO14	●	7	63	49	22	10.4	40	11	0.5
	063R-22-8-SO14	●	8	63	49	22	10.4	40	11	0.5
	080R-27-6-SO14	●	6	80	60	27	12.4	50	11	0.9
	080R-27-7-SO14	●	7	80	60	27	12.4	50	11	0.9
	080R-27-9-SO14	●	9	80	60	27	12.4	50	11	0.9
	100R-32-8-SO14	●	8	100	70	32	14.4	63	11	1.8
	100R-32-12-SO14	●	12	100	70	32	14.4	63	11	1.8
	125R-40-9-SO14	●	9	125	90	40	16.4	63	11	3
	125R-40-15-SO14	●	15	125	90	40	16.4	63	11	3
TP8PC	080R-25.4-6-SO14	●	6	80	60	25.4	9.5	50	11	0.9
	080R-25.4-7-SO14	●	7	80	60	25.4	9.5	50	11	0.9
	080R-25.4-9-SO14	●	9	80	60	25.4	9.5	50	11	0.9
	100R-31.75-8-SO14	●	8	100	70	31.75	12.7	63	11	1.8
	100R-31.75-12-SO14	●	12	100	70	31.75	12.7	63	11	1.8
	125R-38.1-9-SO14	●	9	125	90	38.1	15.9	63	11	3
	125R-38.1-15-SO14	●	15	125	90	38.1	15.9	63	11	3

● : Stock item

Available inserts

SOKX-ML SOKX-MM

	Designation	Coated PC5300	Page
SOKX	1406XPNR-ML	●	B26
	140608PNR-ML	●	
	1406XPNR-MM	●	
	140608PNR-MM	●	

Available arbors

Designation		DCON-MS	Available arbors
TP8PCM	040R-16-□-SO14	16	BT□□-FMC16-□□
	050R-22-□-SO14	22	BT□□-FMC22-□□
	063R-22-□-SO14		
	080R-27-□-SO14	27	BT□□-FMC27-□□
	100R-32-□-SO14	32	BT□□-FMC32-□□
	125R-40-□-SO14	40	BT□□-FMC40-□□
TP8PC	080R-25.4-□-SO14	25.4	BT□□-FMA25.4-□□
	100R-31.75-□-SO14	31.75	BT□□-FMA31.75-□□
	125R-38.1-□-SA14	38.1	BT□□-FMA38.1-□□

Parts

Specification	Screw	Wrench
Ø40	FTGA0511-P	TW20-100
Ø50~Ø125	FTGA0513-P	TW20-100

Available inserts **B26** Available arbors and bolt **E94, E96**

TP8PS-SO14



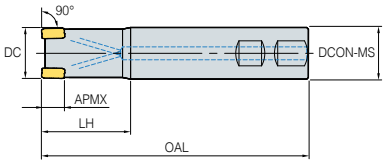


Fig. 1

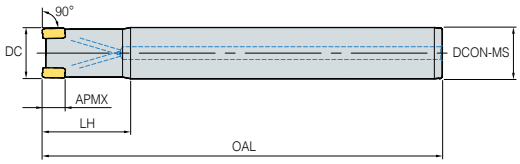


Fig. 2



KAPR 90°

- GAMP : − 6°
- GAMF : − 29° ~ − 23°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
TP8PS	032R-2W32-130-SO14	●	2	32	32	40	130	11	0.7	1
	032R-3W32-130-SO14	●	3	32	32	40	130	11	0.7	1
	032R-2C32-250-SO14	●	2	32	32	50	250	11	0.9	2
	032R-3C32-250-SO14	●	3	32	32	50	250	11	1.4	2
	040R-3W32-130-SO14	●	3	40	32	40	130	11	0.8	1
	040R-4W32-130-SO14	●	4	40	32	40	130	11	0.8	1
	040R-3C32-250-SO14	●	3	40	32	50	250	11	1.5	2
	040R-4C32-250-SO14	●	4	40	32	50	250	11	1.5	2

※W:Weldon, C:Cylinder ● : Stock item

Available inserts

		SOKX-ML	SOKX-MM
			

	Designation	Coated	Page
		PC5300	
SOKX	1406XPNR-ML	●	B26
	140608PNR-ML	●	
	1406XPNR-MM	●	
	140608PNR-MM	●	

Parts

Specification	Screw	Wrench
Ø32	FTGA0511-P	TW20-100
Ø40	FTGA0513-P	TW20-100

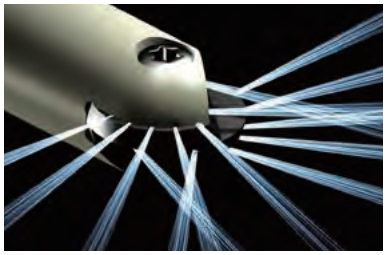
Available inserts **B26**

Longer tool life guaranteed thanks to the excellent cutting performance of our grades

Laser Mill

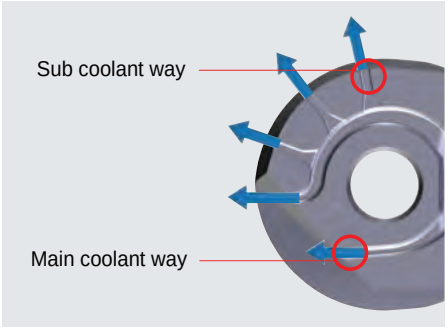
- Long tool life has been achieved due to the excellent cutting performance of the insert grade
- Optimum machining of molds has been achieved with the MQL available system
- Easy clamping with simple screw on system
- Various holder line up: steel shank, carbide shank, modular type
- High accuracy indexable endmills for mold finishing

MQL System

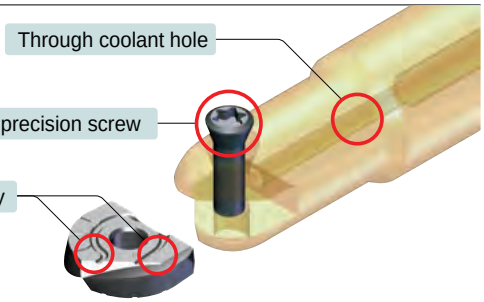


- Environmental friendly system
- Decreased coolant cost
- Lubrication of cutting-edge
- Improved chip control property
- Increased tool life & improved surface quality

Clamping system



- High precision
  (ground internal diameter)
  Run-out: 0.02 mm
  Accuracy of 'R part: below 0.01
- Through coolant system

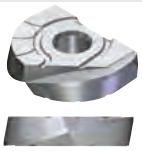
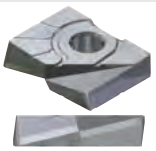
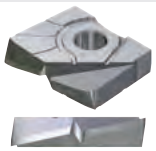
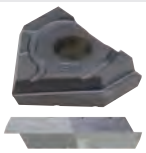
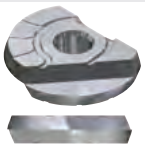
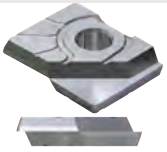


Features of insert

LBE
LBS, LR Order-made items



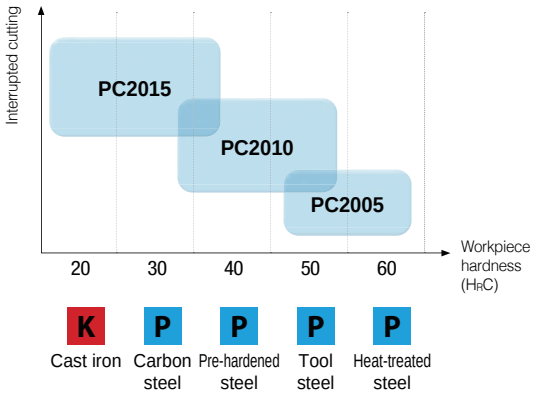
- Six types of inserts are available with one holder
- Single screw for clamping of insert: Easy clamping system
- Various types of holders
  (Steel shank, Carbide shank, Modular type)
- MQL applicable- environmentally responsible with longer tool life & improved surface quality.

LBH-Ball	LRH-Corner radius	LFH-High feed	LCF-Chamfer	LBS-Ball type	LR-Corner R type
					
• Helical cutting-edge • Suitable for harder material with high feed	• Helical cutting-edge • Variety of nose-R	• Helical cutting-edge • Suitable for high feed	• Straight cutting-edge • Center drilling and chamfering	• Straight cutting-edge • Suitable for precise	• Straight cutting-edge • Variety of nose-R

Features of Laser Mill grades

PC2005	• Extremely high hardness grade • The harmony between improved blade design and strong chip breaker • Optimized for machining heat-treated steel and high hardness steel
PC2010	• High wear resistance and excellent toughness • The harmony between excellent thermal shock resistance and strong cutting-edges • Optimized for machining tool steel and pre-hardened steel
PC2015	• High welding resistance and excellent toughness • The harmony between tough grade and excellent cutting-edge design • Optimized for machining carbon steel

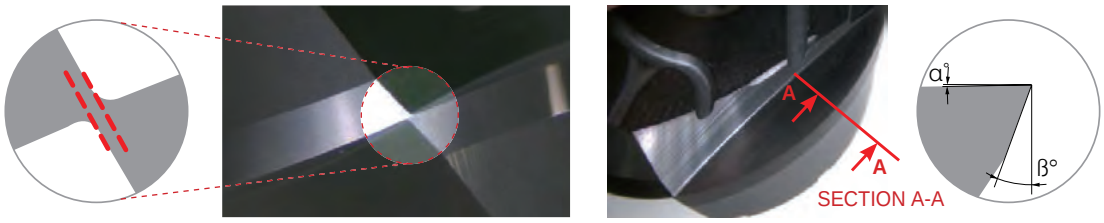
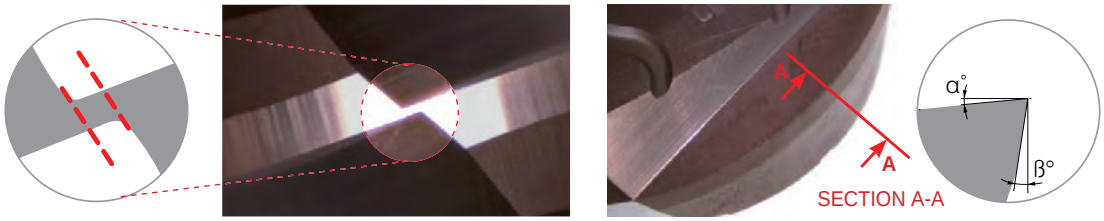
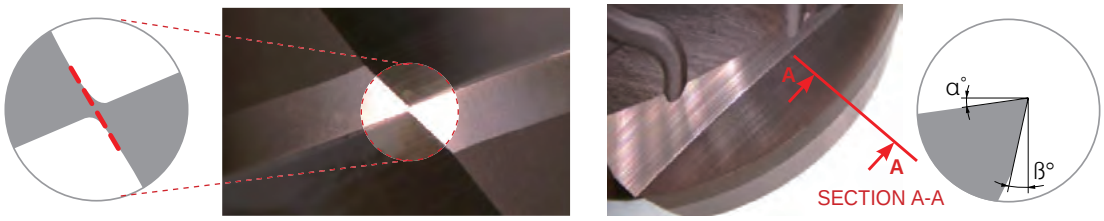
Application guideline per workpiece



Features of KF/KH chip breaker

• KF: Exclusive chip breaker for stable machining of carbon steel with its characteristics of high wear resistance at center part and improved blade design

• KH: Stronger insert with the combination of rake angle and relief angle that are ideal for machining high hardness workpiece

Type	Shape comparison
Standard (For general cutting)	 • Proper to general cutting • Insert shape for uniform performance
KH (For high hardness steel)	 • Center shaper proper for machining high hardness workpiece and uniformed tool life at center part • Improved cutting-edge design by higher rake angle (α°) • Lower relief angle (ß°) increases strength of cutting-edges than universal inserts.
KF (For carbon steel)	 • Smaller chisel improves wear resistance at center for machining carbon steel. • Improved cutting-edge design by higher rake angle (α°) • Longer tool life and better cutting performance with the use of excellent blade design

Recommended cutting conditions

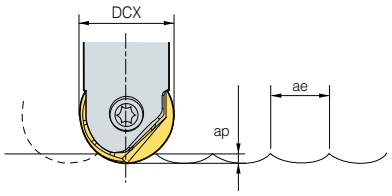
Workpiece				Grade	Chip breaker	Recommended cutting conditions			
ISO		Workpiece material	HB (HRC)			vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
K	Gray cast iron	GC250	180 (8)	PC2015 PC2010 PC2005	KF	130~210	0.2~0.5	0.07D	0.07D
K	Ductile cast iron	GCD600	250 (24)						
P	Carbon steel	S20C~S50C	150			170~250	0.2~0.5	0.07D	0.07D
P	Alloy steel	SCM21~SCM5H	270 (28)	PC2010 PC2015 PC210F	KH	130~210	0.1~0.3	0.7D	0.7D
P	Pre-hardened steel	KP4M	300 (32)			100~160	0.1~0.3	0.5D	0.5D
P		NIMAX	370 (40)						
P		CENA1	370 (40)						
P		NAK80	400 (43)						
P		STAVAX	510 (52)						
P	High speed tool steel	SKH51~SKH59	550 (55)	PC2005 PC2010	KH	80~130	0.1~0.2	0.3D	0.3D
P	Alloy tool steel	STD61 (Hot forging)	630 (60)			70~120	0.1~0.2	0.3D	0.3D
P		STD11 (Cold forging)							

Overhang	vc(m/min)	fz(mm/t)
Under 3D	100%	100%
3D~5D	70%	70%

Overhang	vc(m/min)	fz(mm/t)
5D~8D	60%	60%
8D~10D	50%	50%

Cutting speed calculation formulas

Practical cutting speed	RPM
$VCe = \frac{\pi \times De \times n}{1000}$ (m/min)	$n = \frac{VCe \times 1000}{\pi \times De}$ (min^{-1})
Feed per tooth	**Feed per minute**
$fz = \frac{vf}{Z \times n}$ (mm/t)	$vf = fz \times n \times z$ (mm/min)
Chip removal amount	**Power requirement**
$Q = \frac{ap \times ae \times vf}{1000}$ (cm^3/min)	$Pkw = \frac{Q \times kc}{60 \times 102 \times \eta}$ (kW) $Php = \frac{Pc}{0.75}$ (hp)



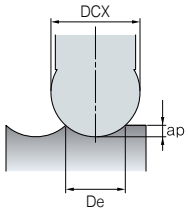
vc = Cutting speed (m/min)	**Pkw** = Power requirement (kW)
vce = Practical cutting speed (m/min)	**Php** = Horsepower requirement (hp)
n = Revolution per minute (min^{-1})	**Q** = Chip removal amount (cm^3/min)
D = Cutting diameter (mm)	**ap** = Depth of cut (mm)
De = Actual diameter (mm)	**ae** = Width of cut (mm)
vf = Feed per minute (mm/min)	**kc** = Specific cutting resistance (kg/mm^2)
fz = Feed per tooth (mm/t)	**η** = Mechanical efficiency (%)
z = Number of tooth	

Practical cutting speed calculation formulas

1 Formula of actual diameter

• **Formula**
: Actual diameter

$De = 2\sqrt{ap\,(D - ap)}$



2 θ° Using: Calculating cutting speed at P point
(Cutting speed according to depth of cut when ramping)

• **Formula**
: Practical cutting speed

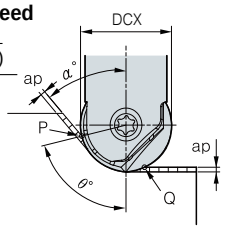
$vce = \frac{\pi\, Dsin\theta \times n}{1000}$ (m/min)

$\theta = \cos^{-1}\left(\frac{D - 2ap}{D}\right) + (90 - \theta°)$

3 In case of using ap: Calculating cutting speed at Q point

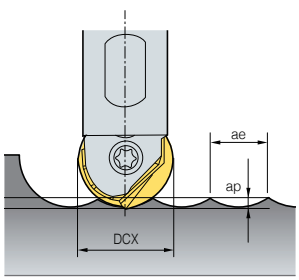
• **Formula**
: Pratical cutting speed

$vce = \frac{2\pi n\sqrt{ap\,(D - ap)}}{1000}$



Theoretical surface roughness

h (surface roughness) (μm)										
ae(mm) / R(mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
5	0.3	1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3	25.0
6	0.2	0.8	1.9	3.3	5.2	7.5	10.2	13.3	16.9	20.8
8	0.2	0.6	1.4	2.5	3.9	5.6	7.7	10.0	12.7	15.6
10	0.1	0.5	1.1	2.0	3.1	4.5	6.1	8.0	10.1	12.5
12.5	0.1	0.4	0.9	1.6	2.5	3.6	4.9	6.4	8.1	10.0
15	0.1	0.3	0.8	1.3	2.1	3.0	4.1	5.3	6.8	8.3
16	0.1	0.3	0.7	1.3	2.0	2.8	3.8	5.0	6.3	7.8

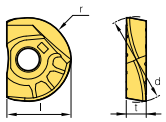
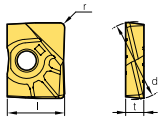
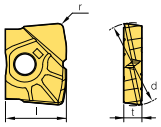
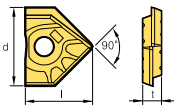
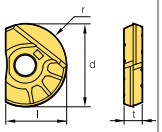
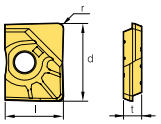


Formula of surface roughness: h (surface finish) = $\frac{(ae)^2}{8R} \times 1000$ (μm)

Actual diameter data

ap \ DCX	Ø08	Ø10	Ø12	Ø16	Ø20	Ø25	Ø30	Ø32
0.1	1.8	2.0	2.2	2.5	2.8	3.2	3.5	3.6
0.2	2.5	2.8	3.1	3.6	4.0	4.5	4.9	5.0
0.3	3.0	3.4	3.7	4.3	4.9	5.4	6.0	6.2
0.5	3.9	4.4	4.8	5.6	6.2	7.0	7.7	7.9
1.0	5.3	6.0	6.6	7.7	8.7	9.8	10.8	11.1
1.5	6.2	7.1	7.9	9.3	10.5	11.9	13.1	13.5
2.0	6.9	8.0	8.9	10.6	12.0	13.6	15.0	15.5
2.5	7.4	8.7	9.7	11.6	13.2	15.0	16.6	17.2
3.0	7.7	9.2	10.4	12.5	14.3	16.2	18.0	18.7
3.5	7.9	9.5	10.9	13.2	15.2	17.3	19.3	20.0
4.0	8.0	9.8	11.3	13.9	16.0	18.3	20.4	21.2
5.0			11.8	14.8	17.3	20.0	22.4	23.2
6.0			12.0	15.5	18.3	21.4	24.0	25.0
7.0				15.9	19.1	22.4	25.4	26.5
8.0				16.0	19.6	23.3	26.5	27.7
10.0					20.0	24.5	28.3	29.7

Available inserts

Holders	LBH (Ball type)	LRH (Corner radius type)	LFH (High feed type)	LCF (Chamfer type)	LBS (Ball type)	LR (Corner radius type)
	 R accuracy ±0.005	 Corner R ±0.015			 R accuracy ±0.005	 Corner R ±0.015
LBE080	LBH080 LBH090 LBH080-KF LBH090-KF LBH080-KH LBH090-KH				LBS080 LBS090	
LBE100 **LRE100**	LBH100 LBH110 LBH100-KF LBH110-KF LBH100-KH LBH110-KH	LRH100-R05 LRH100-R10 LRH110-R05 LRH100-R20	LFH100		LBS100 LBS110	LR100-R05 LR100-R20 LR100-R10 LR110-R05
LBE120 **LRE120**	LBH120 LBH130 LBH120-KF LBH130-KF LBH120-KH LBH130-KH	LRH120-R05 LRH120-R10 LRH130-R05 LRH120-R20	LFH120		LBS120 LBS130	LR120-R05 LR120-R20 LR120-R10 LR130-R05
LBE160 **LRE160**	LBH160 LBH170 LBH160-KF LBH170-KF LBH160-KH LBH170-KH	LRH160-R05 LRH160-R10 LRH160-R20 LRH170-R05 LRH160-R30	LFH160	LCF160-D90	LBS160 LBS170	LR160-R05 LR160-R30 LR160-R10 LR170-R05 LR160-R20
LBE200 **LRE200**	LBH200 LBH210 LBH200-KF LBH210-KF LBH200-KH LBH210-KH	LRH200-R05 LRH200-R10 LRH200-R20 LRH210-R05 LRH200-R30	LFH200	LCF200-D90	LBS200 LBS210	LR200-R05 LR200-R30 LR200-R10 LR210-R05 LR200-R20
LBE250 **LRE250**	LBH250 LBH260 LBH250-KF LBH260-KF LBH250-KH LBH260-KH	LRH250-R05 LRH250-R10 LRH250-R20 LRH260-R05 LRH250-R30	LFH250	LCF250-D90	LBS250 LBS260	LR250-R05 LR250-R30 LR250-R10 LR260-R05 LR250-R20
LBE300 **LRE300**	LBH300 LBH310 LBH300-KF LBH310-KF LBH300-KH LBH310-KH	LRH300-R10 LRH300-R20 LRH310-R05 LRH300-R30	LFH300		LBS300 LBS310	LR300-R10 LR300-R30 LR300-R20 LR310-R05
LBE320 **LRE320**	LBH320 LBH330 LBH320-KF LBH330-KF LBH320-KH LBH330-KH	LRH320-R10 LRH330-R10 LRH320-R20 LRH330-R20 LRH320-R30 LRH330-R30	LFH320		LBS320	LR320-R10 LR320-R30 LR320-R20

* LBH for general cutting, LBH-KF for carbon steel, and LBH-KH for high hardened steel.

LBE08/10/12/16/20/25/30/32

Straight type

Carbide Shank (Ball type)



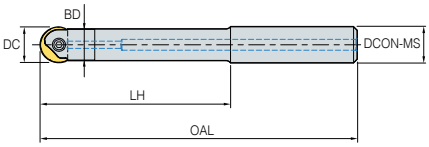


Fig. 1

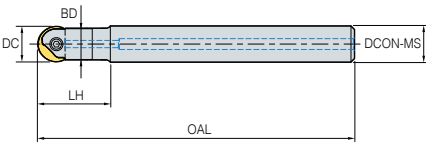


Fig. 2



(mm)

Designation		Stock	Dimension					Part		Available inserts(Ø)	Fig.
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench		
LBE	080080S-S08C	●	8	8	7.5	80	136	ETND02506F	TWP07S	8, 9	1
	080100S-S08C	●	8	8	7.5	100	156				
	080020S-S08C-130	●	8	8	7.5	20	130	ETND02506F	TWP07S	8, 9	2
	080020S-S08C-150	●	8	8	7.5	20	150				
	100080S-S10C	●	10	10	9.5	80	136	ETND0307F	TWP08S	10, 11	1
	100120S-S10C	●	10	10	9.5	120	176				
	100023S-S10C-130	●	10	10	9.5	23	130	ETND0307F	TWP08S	10, 11	2
	100023S-S10C-170	●	10	10	9.5	23	170				
	120100S-S12C	●	12	12	11.5	100	156	ETND03509	TWP10S	12, 13	1
	120150S-S12C	●	12	12	11.5	150	206				
	120025S-S12C-150	●	12	12	11.5	25	150	ETND03509	TWP10S	12, 13	2
	120025S-S12C-200	●	12	12	11.5	25	200				
	160100S-S16C	●	16	16	15.5	100	160	ETND0413	TWP15S	16, 17	1
	160150S-S16C	●	16	16	15.5	150	210				
	160030S-S16C-160	●	16	16	15.5	30	160	ETND0413	TWP15S	16, 17	2
	160030S-S16C-210	●	16	16	15.5	30	210				
	200120S-S20C	●	20	20	19.5	120	190	ETKD0516	TWP20	20, 21	1
	200170S-S20C	●	20	20	19.5	170	240				
	200035S-S20C-190	●	20	20	19.5	35	190	ETKD0516	TWP20	20, 21	2
	200035S-S20C-240	●	20	20	19.5	35	240				
	250140S-S25C		25	25	24.5	140	220	ETKD0620	TWP25	25, 26	1
	250170S-S25C		25	25	24.5	170	250				
	250040S-S25C-220		25	25	24.5	40	220	ETKD0620	TWP25	25, 26	2
	250040S-S25C-250		25	25	24.5	40	250				
	300140S-S32C		30	32	29.5	140	230	ETGD0825	TWP40	30, 31	1
	300170S-S32C		30	32	29.5	170	260				
	300050S-S32C-230		30	32	29.5	50	230	ETGD0825	TWP40	30, 31	2
	300050S-S32C-260		30	32	29.5	50	260				
	320140S-S32C		32	32	31.5	140	230	ETGD0825	TWP40	32, 33	1
	320170S-S32C	●	32	32	31.5	170	260				
	320050S-S32C-230		32	32	31.5	50	230	ETGD0825	TWP40	32, 33	2
	320050S-S32C-260		32	32	31.5	50	260				

Available inserts **B8 ~ B10**

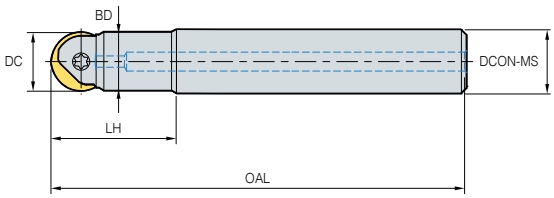
● : Stock item

LBE08/10/12/16/20/25/30/32

Taper type

Steel Shank (Ball type)





(mm)

	Designation	Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench	
LBE	080035T-S12	●	8	12	7.5	35	91	ETND02506F	TWP07S	8, 9
	080055T-S12	●	8	12	7.5	55	111			
	080075T-S12	●	8	12	7.5	75	131			
	100035T-S12	●	10	12	9.5	35	91	ETND0307F	TWP08S	10, 11
	100055T-S12	●	10	12	9.5	55	111			
	100075T-S12	●	10	12	9.5	75	131			
	120055T-S12	●	12	12	10.4	55	111	ETND03509	TWP10S	12, 13
	120085T-S16	●	12	16	11.5	85	145			
	160065T-S16	●	16	16	14	65	125	ETND0413	TWP15S	16, 17
	160100T-S20	●	16	20	15.5	100	170			
	200075T-S20	●	20	20	17.5	75	145	ETKD0516	TWP20	20, 21
	200115T-S25	●	20	25	19.5	115	195			
	250090T-S25	●	25	25	22	90	170	ETKD0620	TWP25	25, 26
	250135T-S32	●	25	32	24.5	135	225			
	300105T-S32	●	30	32	24.5	105	195	ETGD0825	TWP40	30, 31
	300160T-S32	●	30	32	24.5	160	250			
	320105T-S32	●	32	32	29	105	195	ETGD0825	TWP40	32, 33
	320160T-S32	●	32	32	29	160	250			

Available inserts **B8 ~ B10**

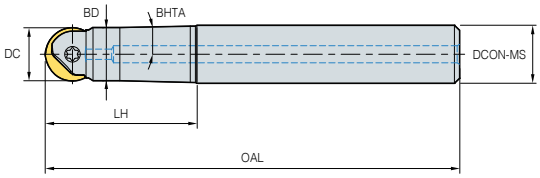
● : Stock item

LBE12/16/20/25/30/32

Straight type

Steel Shank (Ball type)





(mm)

	Designation	Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench	
LBE	120035S-S12	●	12	12	11.5	35	91	ETND03509	TWP10S	12, 13
	160035S-S16	●	16	16	15.5	35	95	ETND0413	TWP15S	16, 17
	200040S-S20	●	20	20	19.5	40	110	ETKD0516	TWP20	20, 21
	250045S-S25	●	25	25	24.5	45	125	ETKD0620	TWP25	25, 26
	300055S-S32	●	30	32	29.5	55	145	ETGD0825	TWP40	30, 31
	320055S-S32	●	32	32	31.5	55	145	ETGD0825	TWP40	32, 33

Available inserts **B8 ~ B10**

● : Stock item

LRE10/12/16/20/25/30/32

Straight type

Carbide Shank (Corner R type)



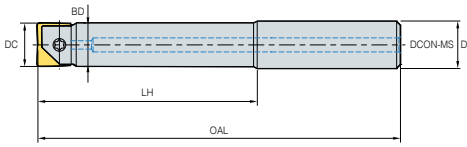


Fig. 1

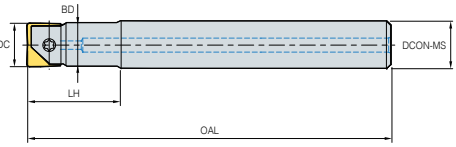


Fig. 2



(mm)

	Designation	Stock	Dimension					Part		Available inserts(Ø)	Fig.
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench		
LRE	100080S-S10C		10	10	9.5	80	136	ETND0307F	TWP08S	10, 11	1
	100120S-S10C		10	10	9.5	120	176				
	100023S-S10C-130		10	10	9.5	23	130	ETND0307F	TWP08S	10, 11	2
	100023S-S10C-170		10	10	9.5	23	170				
	120100S-S12C		12	12	11.5	100	156	ETND03509	TWP10S	12, 13	1
	120150S-S12C		12	12	11.5	150	206				
	120025S-S12C-150		12	12	11.5	25	150	ETND03509	TWP10S	12, 13	2
	120025S-S12C-200		12	12	11.5	25	200				
	160100S-S16C		16	16	15.5	100	160	ETND0413	TWP15S	16, 17	1
	160150S-S16C		16	16	15.5	150	210				
	160030S-S16C-160		16	16	15.5	30	160	ETND0413	TWP15S	16, 17	2
	160030S-S16C-210		16	16	15.5	30	210				
	200120S-S20C		20	20	19.5	120	190	ETKD0516	TWP20	20, 21	1
	200170S-S20C		20	20	19.5	170	240				
	200035S-S20C-190		20	20	19.5	35	190	ETKD0516	TWP20	20, 21	2
	200035S-S20C-240		20	20	19.5	35	240				
	250140S-S25C		25	25	24.5	140	220	ETKD0620	TWP25	25, 26	1
	250170S-S25C		25	25	24.5	170	250				
	250040S-S25C-220		25	25	24.5	40	220	ETKD0620	TWP25	25, 26	2
	250040S-S25C-250		25	25	24.5	40	250				
	300140S-S32C		30	32	29.5	140	230	ETGD0825	TWP40	30, 31	1
	300170S-S32C		30	32	29.5	170	260				
	300050S-S32C-230		30	32	29.5	50	230	ETGD0825	TWP40	30, 31	2
	300050S-S32C-260		30	32	29.5	50	260				
	320140S-S32C		32	32	31.5	140	230	ETGD0825	TWP40	32, 33	1
	320170S-S32C		32	32	31.5	170	260				
	320050S-S32C-230		32	32	31.5	50	230	ETGD0825	TWP40	32, 33	2
	320050S-S32C-260		32	32	31.5	50	260				

Available inserts **B8 ~ B10**

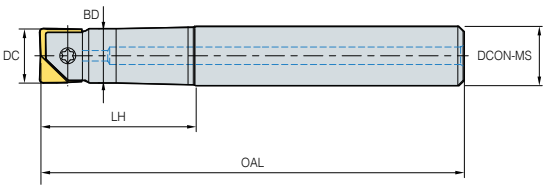
● : Stock item

LRE10/12

Taper type

Steel Shank (Corner R type)







(mm)

	Designation	Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BD	LH	OAL	Clamp screw	Wrench	
LRE	100025T-S12		10	12	9.5	25	111	ETND0307F	TWP08S	10,11
	100050T-S12		10	12	9.5	50	150			
	120060T-S16		12	16	11.5	60	160	ETND03509	TWP10S	12,13

Available inserts **B8 ~ B10**

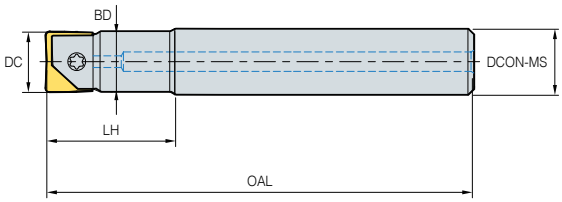
● : Stock item

LRE12/16/25/30/32

Straight type

Steel Shank (Corner R type)







(mm)

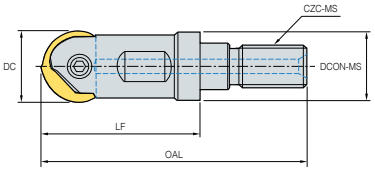
	Designation	Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BD	LH	OAL	Clamp screw	Wrench	
LRE	120030S-S12		12	12	11.5	30	111	ETND03509	TWP10S	12, 13
	160050S-S16		16	16	15.5	50	131	ETND0413	TWP15S	16, 17
	160060S-S16		16	16	15.5	60	160			
	200060S-S20		20	20	19.5	60	145	ETKD0516	TWP20	20, 21
	200080S-S20		20	20	19.5	80	180			
	250070S-S25		25	25	24.5	70	145	ETKD0620	TWP25	25, 26
	250100S-S25		25	25	24.5	100	225			
	300070S-S32		30	32	29.5	70	160	ETGD0825	TWP40	30, 31
	300100S-S32		30	32	29.5	100	225			
	320080S-S32		32	32	31.5	80	160	ETGD0825	TWP40	32, 33
	320100S-S32		32	32	31.5	100	225			

Available inserts **B8 ~ B10**

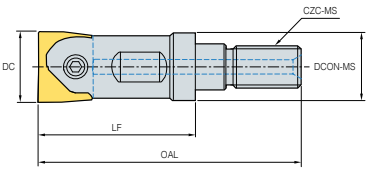
● : Stock item

LBE-MHD





LBH



LRH



(mm)

Designation		Stock	Dimension					Part		Available inserts(Ø)
			CZC-MS	DCX	OAL	LF	DCON-MS	Clamp screw	Wrench	
LBE	100-MHD-M06	●	M06	10, 11	40	9.5	6.5	ETND0307F	TWP08S	10, 11
	120-MHD-M06	●	M06	12, 13	40	11	6.5	ETND03509	TWP10S	12, 13
	160-MHD-M08	●	M08	16, 17	47	14.5	8.5	ETND0413	TWP15S	16, 17
	200-MHD-M10	●	M10	20, 21	56	18	10.5	ETKD0516	TWP20	20, 21
	250-MHD-M12	●	M12	25, 26	69	22.5	12.5	ETKD0620	TWP25	25, 26
	300-MHD-M16	●	M16	30, 31	77	28	17	ETGD0825	TWP40	30, 31
	320-MHD-M16	●	M16	32	77	29	17	ETGD0825	TWP40	32, 33

Available inserts **B8 ~ B10** Available adaptor **B400**

● : Stock item

Designation: LBE320-MHD-M16 Modular head threading measure size (M16)	=	Adaptor spec.: MAT-M16-035-S32S Adaptor threading measure (M16)

BFE



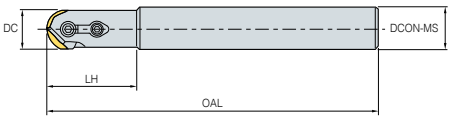


Fig. 1

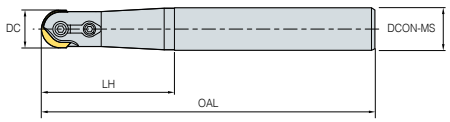
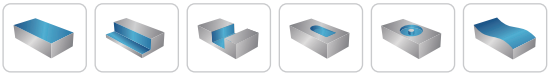


Fig. 2



(mm)

	Designation	Stock	DCX	DCON-MS	LH	OAL	APMX	Fig.
BFE	16-S	●	16	16	36	140	8.0	1
	16-M	●	16	20	65	170	8.0	2
	16-L	●	16	25	65	200	8.0	2
	20-S	●	20	20	45	160	10.0	1
	20-M	●	20	25	80	200	10.0	2
	20-L	●	20	25	80	250	10.0	2
	25-S		25	25	45	160	12.5	1
	25-M	●	25	32	90	210	12.5	2
	25-L		25	32	90	300	12.5	2
	30-S		30	32	65	175	15.0	2
	30-M		30	32	100	250	15.0	2
	30-L		30	32	100	350	15.0	2
	32-S		32	32	56	175	16.0	1
	32-M	●	32	32	100	250	16.0	1
	32-L	●	32	32	100	350	16.0	1

● : Stock item

Available inserts

RC



	Designation	Coated PC210F	page
RC	16	●	B16
	20	●	
	25	●	
	30		
	32	●	

Recommended cutting conditions

Workpiece		Cutting conditions vc(m/min)	fz(mm/t)
P	General steel (SS41, SM25C) Over HB180	150 ~ 250	0.10 ~ 0.30
P	Alloy steel (SM55C, SCM) Under HB300	100 ~ 200	0.10 ~ 0.20
K	Cast iron Under HB300	100 ~ 200	0.10 ~ 0.30

Parts

Specification	Screw	Clamp	Clamp screw	Stopper Ring	Wrench
Ø16	FTGA0513	CBH4.5R1	CTX04513	ER03	TW20
Ø20	FTGA0517	CBH4.5R2	CTX04513	ER03	TW20
Ø25	FTGA0621	CBH5R1	CTX0517	ER04	TW20
Ø30, 32	FTGA0826	CBH6R1	CTX0621	ER05	TW25

Available inserts **B16**

Long tool life due to high hardness grade

GBE

- Indexable ball nose endmill for molds in medium & roughing applications
- Long tool life with high hardness grade
- Helical high accuracy cutting-edge
- Optimized mold machining process with our internal coolant system
- Able to adjust to medium processing in middle & big roughing mold process
- Wide variety of holders in normal & long style holders

Code system

GBE	300	-	S	32
Product Name	**Machining diameter**		**Type**	**Shank diameter**
General Indexable Ball Endmill	Ø16, Ø18, Ø20, Ø22, Ø25, Ø26, Ø28, Ø30, Ø32, Ø40, Ø50		S : Standard shank L : Long shank	32 : Ø32

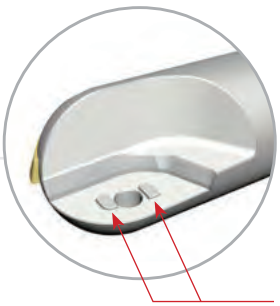
Internal	External
	
	
Flank support	Concave bottom

- High accuracy machining & large depth of cut applications
  - Run-out: within 0.05 mm
  - R accuracy: within 0.05 mm
- Various diameters (Ø16, Ø18, Ø20, Ø22, Ø25, Ø26, Ø28, Ø30, Ø32, Ø40, Ø50)
- Minimal cutting resistance due to Helical cutting-edge
- Anti-rotation of insert due to concave bottom & stable setting by flank support
- Long tool life & better processing due to 2 cutting inserts
- Better tool life with new grade

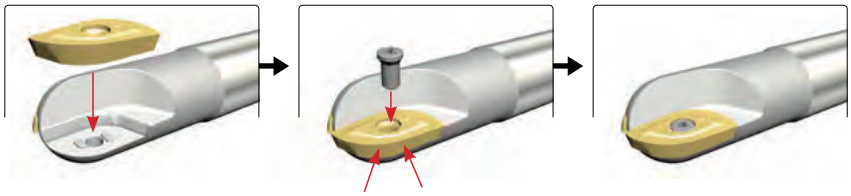


Multi-edge type | Single-edge type | Modular type

- Various diameters (Ø16, Ø18, Ø20, Ø22, Ø25, Ø26, Ø28, Ø30, Ø32, Ø40, Ø50)
- Improved chip treatment with internal coolant (cutting-edge portion)
- Long tool life & better processing
- Easy insert setting with projection part to prevent vibration during processing

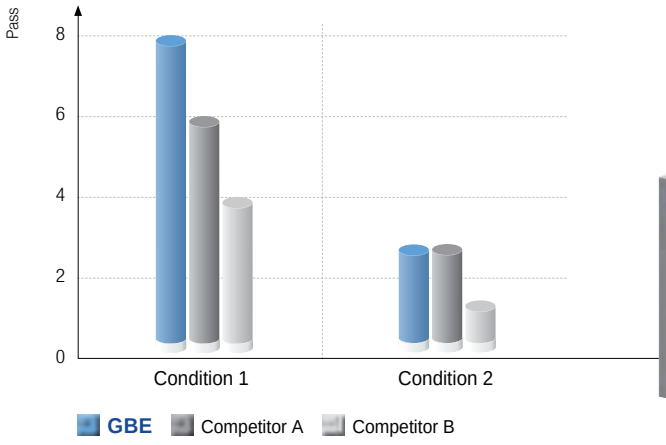


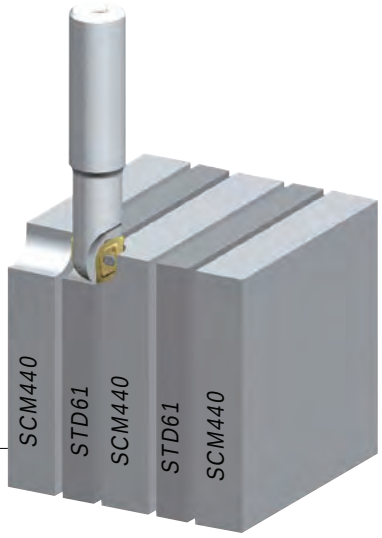
How to set insert



1. Set the insert onto the holder projection seat
2. Push the insert into the pocket as shown by red arrows and screw down with wrench

Performance evaluation





Cutting conditions

Class	Cutting speed (vc)	Feed (fz)	Depth of cut (ap)	Depth of cut (ae)	Workpiece	Etc.
Condition 1	150 m/min	0.15 mm/t	5 mm	8 mm	STD61 (HRC50) + SCM440 (HRC20)	Dry
Condition 2	100 m/min	0.1 mm/t	8 mm	8 mm		

Inserts/Parts

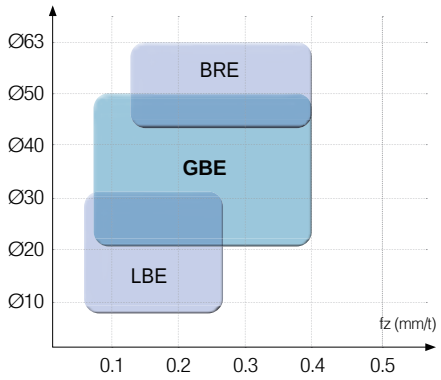
Type	Available inserts			Part	
					

Dia.	Internal	External	Ext. main	Screw		Wrench	
				Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type
Ø16	ZPET080M-MM	ZPET080S-MM	-	FTKA02555S	-	TW08S	-
Ø18	ZPET090M-MM	ZPET090S-MM	-	FTKA0307	-	TW09S	-
Ø20	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P
Ø22	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P
Ø25	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P
Ø26	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S
Ø28	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S
Ø30	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø32	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø40	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S
Ø50	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25S	TW20S

Recommended cutting conditions

Workpiece	Machining type	Hardness (HRC)	vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
Carbon, Alloy steel	Flank Groove Deep flank	Under 25	160~250 120~200 160~250	0.1~0.5 0.1~0.5 0.1~0.5	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Carbon, Alloy steel	Flank Groove Deep flank	Under 45	120~200 120~160 120~200	0.1~0.5 0.1~0.5 0.1~0.5	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Mold Alloy steel	Flank Groove Deep flank	30~40	120~200 120~160 120~200	0.1~0.3 0.1~0.3 0.1~0.3	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Cast iron (GC, GCD)	Flank Groove Deep flank	20~30	150~300 150~300 150~300	0.2~0.7 0.2~0.7 0.2~0.7	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D
Heat-treated steel	Flank Groove Deep flank	50~60	40~100 40~100 40~100	0.1~0.3 0.1~0.3 0.1~0.3	0.3~0.5D 0.3~0.5D 1.0~1.5D	0.2~0.3D - 0.1~0.2D

Line-up for indexable ball endmill



Type	Application				
	Quality	Machining Efficiency	Machining Dia. Equivalence	Economical	Flank Machining with Long Edge
Laser Mill	●	○	◐	○	○
GBE	◐	●	◐	◐	●
BRE	○	●	●	●	●

● : Very Good ◐ : Good ○ : Normal

Test result for wear resistance

Cutting conditions	Wear resistance photos



Workpiece KP4M(HRC33), Dry
Condition vc = 280m/min
fz = 0.25mm/t
ap = 5~10mm
ae = 5~10mm
vf = 1,486mm/min
n = 2,971rpm

Tool
Holder : GBE300-S32
Insert : ZPET150M-MM(PC3700)
ZPET150S-MM(PC3700)

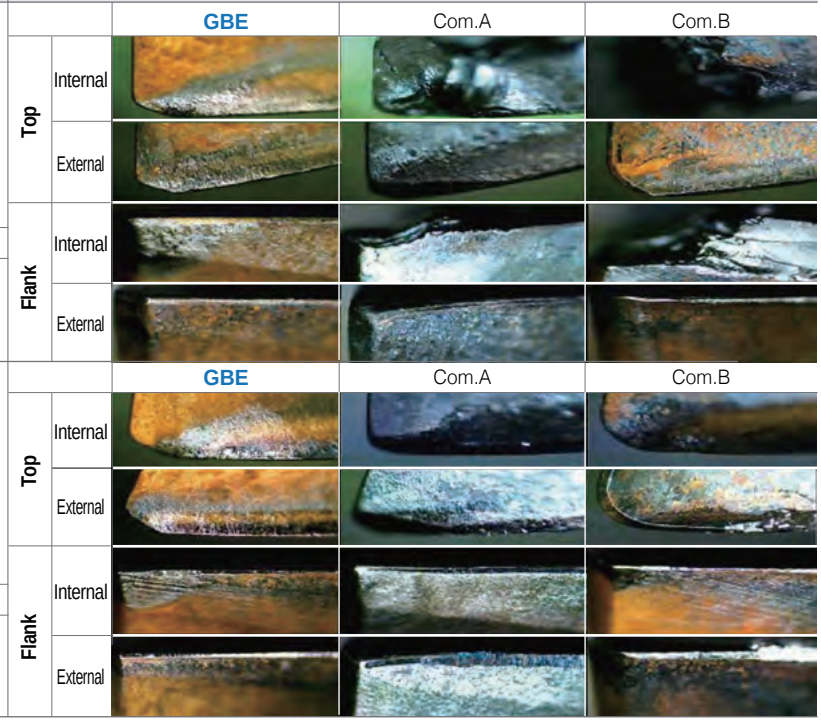
Cutting time : 4 Pass



Workpiece STD11(HRC20), Dry
Condition vc = 250m/min
fz = 0.2mm/t
ap = 5mm
ae = 5mm
vf = 1,062mm/min
n = 2,653rpm

Tool
Holder : GBE300-S32
Insert : ZPET150M-MM(PC3700)
ZPET150S-MM(PC3700)

Cutting time : 4 Pass



GBE(Single-edge)



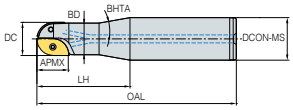


Fig. 1

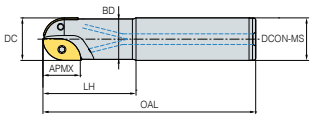


Fig. 2

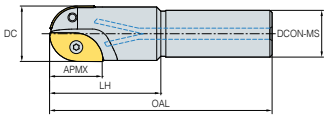


Fig. 3



(mm)

Designation		Stock	Dimension					Available inserts		Part		Fig.
			DCX	DCON-MS	BD	LH	OAL	Internal	External	Screw Int./Ext. type	Wrench Int./Ext. type	
GBE	160-S20		16	20	15	50	130	ZPET080M-MM	ZPET080S-MM	FTKA02555S	TW08S	1
	160-L20		16	20	15	90	200	ZPET080M-MM	ZPET080S-MM	FTKA02555S	TW08S	
	180-S20		18	20	16.2	60	130	ZPET090M-MM	ZPET090S-MM	FTKA0307	TW09S	
	180-L20		18	20	16.2	80	200	ZPET090M-MM	ZPET090S-MM	FTKA0307	TW09S	
	200-S25	●	20	25	18.6	60	140	ZPET100M-MM	ZPET100S-MM	FTKA0307	TW09S	
	200-L25	●	20	25	18.6	80	250	ZPET100M-MM	ZPET100S-MM	FTKA0307	TW09S	
	220-S25		22	25	20.7	70	140	ZPET110M-MM	ZPET110S-MM	FTKA0408	TW15S	
	220-L25		22	25	20.7	100	250	ZPET110M-MM	ZPET110S-MM	FTKA0408	TW15S	
	250-S32	●	25	32	23.2	70	150	ZPET125M-MM	ZPET125S-MM	FTKA0409	TW15S	
	250-L32	●	25	32	23.2	100	300	ZPET125M-MM	ZPET125S-MM	FTKA0409	TW15S	
	260-S32		26	32	24.4	70	150	ZPET130M-MM	ZPET130S-MM	FTKA0409	TW15S	
	260-L32		26	32	24.4	100	300	ZPET130M-MM	ZPET130S-MM	FTKA0409	TW15S	
	280-S32		28	32	26.2	70	150	ZPET140M-MM	ZPET140S-MM	FTGA0511-P	TW20	
	280-L32		28	32	26.2	120	300	ZPET140M-MM	ZPET140S-MM	FTGA0511-P	TW20	
	300-S32		30	32	27.8	70	160	ZPET150M-MM	ZPET150S-MM	FTGA0511-P	TW20-100	2
	300-L32	●	30	32	27.8	120	350	ZPET150M-MM	ZPET150S-MM	FTGA0511-P	TW20-100	
	320-S32	●	32	32	29.8	70	160	ZPET160M-MM	ZPET160S-MM	FTGA0511-P	TW20-100	
	320-L32	●	32	32	29.8	120	350	ZPET160M-MM	ZPET160S-MM	FTGA0511-P	TW20-100	
	400-S42	●	40	42	37.8	100	200	ZPET200M-MM	ZPET200S-MM	FTGA0614	TW20-100	
	400-L42		40	42	37.8	150	350	ZPET200M-MM	ZPET200S-MM	FTGA0614	TW20-100	
	500-S42		50	42	47.4	100	200	ZPET250M-MM	ZPET250S-MM	FTGA0818	TW25-100	3
	500-L42		50	42	47.4	100	350	ZPET250M-MM	ZPET250S-MM	FTGA0818	TW25-100	

Available inserts **B33**

● : Stock item

GBE(Multi-edge)



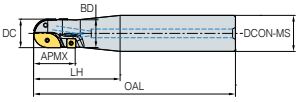


Fig. 1

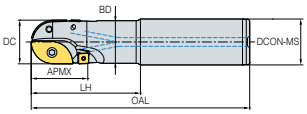


Fig. 2

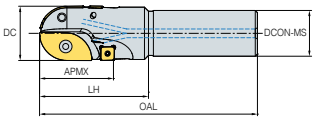


Fig. 3



(mm)

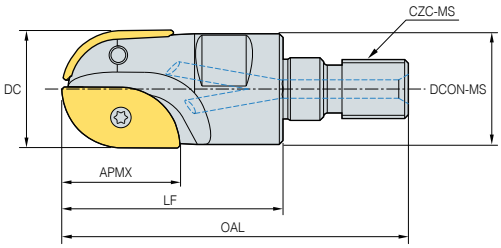
Designation		Stock	Dimension					Available inserts			Part				Fig.
			DCX	DCON-MS	BD	LH	OAL	Internal	External	Ext. main	Screw		Wrench		
											Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type	
GBE	200M-S25	●	20	25	18.6	70	150	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P	1
	200M-L25	●	20	25	18.6	70	250	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P	
	220M-S25		22	25	20.7	80	150	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P	
	220M-L25		22	25	20.7	80	250	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P	
	250M-S32		25	32	23.2	80	180	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P	
	250M-L32	●	25	32	23.2	80	300	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P	
	260M-S32		26	32	24.4	80	180	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S	
	260M-L32		26	32	24.4	80	300	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S	
	280M-S32		28	32	26.2	80	180	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S	
	280M-L32		28	32	26.2	80	300	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S	
	300M-S32	●	30	32	27.8	100	200	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	300M-L32	●	30	32	27.8	100	350	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	320M-S32	●	32	32	29.8	100	200	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	2
	320M-L32	●	32	32	29.8	100	350	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	400M-S42		40	42	37.8	100	200	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S	
	400M-L42		40	42	37.8	100	350	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S	
	500M-S42		50	42	47.4	100	200	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25-100	TW20S	3
	500M-L42		50	42	47.4	100	350	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25-100	TW20S	

Available inserts **B20, B27, B33**

● : Stock item

GBEM





(mm)

Designation		Stock	Dimension					Available inserts	
			CZC-MS	DCX	OAL	LF	DCON-MS	Internal	External
GBEM	160-M08		M08	16	47	30	15	ZPET080M-MM	ZPET080S-MM
	200-M10		M10	20	56	35	18.6	ZPET100M-MM	ZPET100S-MM
	250-M12		M12	25	69	45	23.2	ZPET125M-MM	ZPET125S-MM
	300-M16		M16	30	77	50	27.8	ZPET150M-MM	ZPET150S-MM
	320-M16		M16	32	77	50	29.8	ZPET160M-MM	ZPET160S-MM

● : Stock item

Available inserts

ZPET-MM Internal | ZPET-MM External | SPMT Ext. main | SPMT-MM Ext. main

Designation		Coated				page	Designation		Coated				page
		NCM325	PC2510	PC3700	PC5300				NCM325	PC2510	PC3700	PC5300	
SPMT	060304	●				B27	ZPET	080S-MM					B33
	120408-MM			●	●			090S-MM					
SDMT	090308-MM			●	●	B20		100S-MM		●	●	●	
ZPET	080M-MM					B33		110S-MM					
	090M-MM							125S-MM		●	●	●	
	100M-MM		●	●	●			130S-MM					
	110M-MM							140S-MM					
	125M-MM		●	●	●			150S-MM			●	●	
	130M-MM							160S-MM		●	●	●	
	140M-MM							200S-MM			●		
	150M-MM			●	●			250S-MM					
	160M-MM		●	●	●								
	200M-MM			●									
	250M-MM												

Parts

Specification	Screw		Wrench	
	Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type
Ø16	FTKA02555S	-	TW08S	-
Ø18, Ø20	FTKA0307	ETNA02506	TW09S	TW07P
Ø25	FTKA0409	ETNA02506	TW15S	TW07P
Ø30	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø32	FTGA0511-P	ETNA0408	TW20-100	TW15S

Designation: GBEM320-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MAT-M16-035-S32S
Adaptor threading measure (M16)

Available inserts **B20, B27, B33** Available adaptor **B400**

Better tool life with its anti-breakage special surface treatment

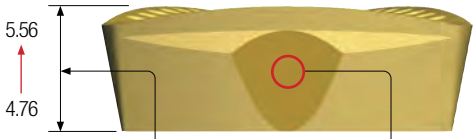
BRE

- **Cutting performance:** Good chip control & Superior cutting performance with optimal cutting-edge line
- **High rigidity body:** Better tool life and special surface treatment to strengthen the holder
  Easy to set and good durability with TCRX screw
  Good chip control with our 3D flute design & improved external quality
- **Insert:** Grade available for high speed & feed applications due to it's high wear and breakage resistance providing a stable cutting performance with high cutting-edge toughness and a chip breaker featuring a high rake angle

Multi-edge holder ISO View



• Good chip flow
• Good heat emission



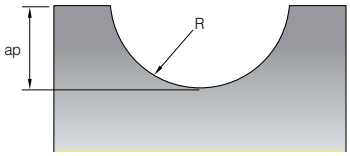
• Wider insert ensures cutting-edge strength

• Better setting force by recess



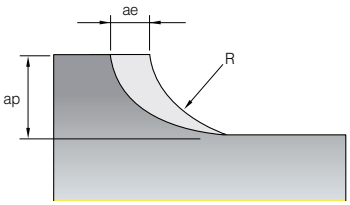
BRE machining type for roughing & Recommended cutting conditions

Machining type 1



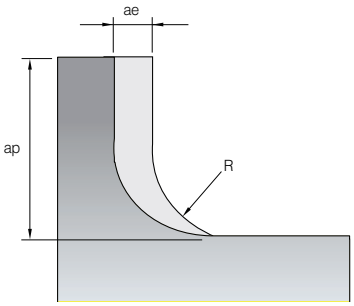
• ap = 0.3D~0.5D

Machining type 2



• ae = 0.2D~0.3D • ap = 0.3D~0.5D

Machining type 3



• ae = 0.1D~0.5D • ap = 1.2D~1.5D

Workpiece	Machining type	Cutting speed (m/min)	Feed (mm/t)	Grade
Carbon/alloy steel	1 2 3	120~220 120~220 100~180	0.1~0.4 0.2~0.4 0.1~0.3	NCM325 NCM325 NCM325
Alloy steel	1 2 3	100~200 100~200 80~160	0.1~0.4 0.2~0.4 0.1~0.3	NCM325 NCM325 NCM325
Tool steel	1 2 3	80~150 80~150 60~120	0.1~0.3 0.15~0.35 0.1~0.3	NCM325 NCM325 NCM325
High hardness material (HRC35~45)	1 2 3	60~120 60~120 50~80	0.1~0.3 0.1~0.3 0.1~0.2	NCM325 NCM325 NCM325
Cast iron	1 2 3	100~180 100~180 80~160	0.2~0.5 0.2~0.5 0.15~0.4	NCM325 NCM325 NCM325

BRE





• GAMP : 0°~10°
• GAMF : −3°~0°

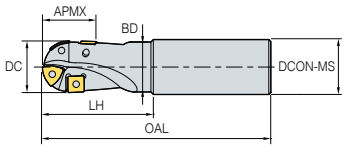


Fig. 1

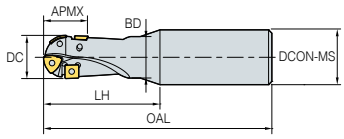


Fig. 2

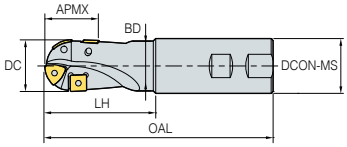


Fig. 3

(mm)

Designation		Stock	Dimension					Available inserts		Part		kg	Fig.
			DCX	DCON-MS	BD	LH	OAL	Internal	Ext. main	Screw	Wrench		
BRE	20R-S	●	20	20	18.9	50	125	ZDMT080310R-MM	SPMT060304	ETNA02506	TW07P	0.25	1
	20R-M	●	20	20	18.9	75	150					0.31	
	20R-L		20	25	18.9	100	200					0.57	2
	20R-SL	●	20	25	18.9	65	125					0.33	3
	25R-S	●	25	25	23.9	70	150	ZDMT110312.5R-MM	SPMT060304	ETNA02506	TW07P	0.47	1
	25R-M	●	25	25	23.9	95	175					0.56	
	25R-L	●	25	32	23.9	100	200					0.92	2
	25R-SL		25	25	23.9	75	135					0.41	3
	32R-S	●	32	32	30.3	85	175	ZDMT130416R-MM	SDMT090308-MM	ETNA0408	TW15S	0.87	1
	32R-M	●	32	32	30.3	100	200					1.02	
	32R-L	●	32	32	30.3	150	250					1.3	
	32R-SL		32	32	30.3	75	150					0.71	3

● : Stock item

Available inserts

	SPMT	ZDMT-R-MM
		

Designation		Coated					page
		NCM325	PC3700	PC5300	PC5400	PC6100	
SPMT	060304	●					B27
ZDMT	080310R-MM		●	●			B33
	110312.5R-MM			●			
	130416R-MM		●	●			

Parts

Specification	 Screw	 Wrench	 Wrench
Ø20~Ø25	ETNA02506	-	TW07P
Ø32	ETNA0408	TW15S	-

Available inserts **B27, B33**

BRE






• GAMP : 0°~10°
• GAMF : −3°~0°

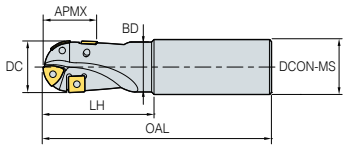


Fig. 1

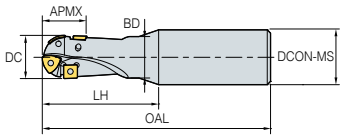


Fig. 2

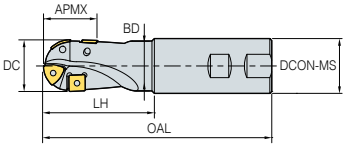


Fig. 3

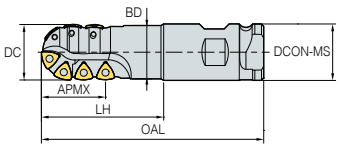


Fig. 4

(mm)

Designation		Stock	Dimension					Available inserts		Part		kg	Fig.
			DCX	DCON-MS	BD	LH	OAL	Internal	Ext. main	Screw	Wrench		
BRE	40R-S	●	40	42	38.3	85	175	ZPMT160520R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	1.37	1
	40R-S-40		40	40	38.3	85	175					1.35	
	40R-M	●	40	42	38.3	100	200					1.62	
	40R-M-40		40	40	38.3	100	200					1.6	
	40R-L	●	40	42	38.3	150	250					2.1	
	40R-L-40		40	40	38.3	150	250					2	
	40R-SL		40	42	38.3	80	160					1.21	3
	40R-SL-40		40	40	38.3	80	160					1.2	
	50R-S	●	50	42	48	100	200	ZPMT160525R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	2.02	1
	50R-S-40		50	40	48	100	200					1.93	
	50R-L		50	42	48	100	300					3.1	
	50R-L-40		50	40	48	100	300					2.92	
	50R-SL	●	50	42	48	100	250					2.56	3
	50R-SL-40		50	40	48	100	250					2.5	
	63R-S		63	42	61	100	200	ZPMT160531.5R-MM	SPMT120408-MM SPMT120508-MMN	ETNA0511	TW20-100	2.41	1
	63R-S-40		63	40	61	100	200					2.4	
	63R-L		63	42	61	100	300					3.5	
	63R-L-40		63	40	61	100	300					3.3	
	63R-SL	●	63	42	61	100	250					2.95	3
	63R-SL-40		63	40	61	100	250					2.9	
	40XR-SC40		40	40	38.3	110	200	ZPMT160520R-MM		ETNA0511	TW20-100	1.43	4
	40XR-LC40	●	40	40	38.3	150	250					1.89	
	50XR-SC50.8	●	50	50.8	48	110	200	ZPMT160525R-MM ZPMT160525R-MR		ETNA0511	TW20-100	2.34	4
	50XR-LC50.8		50	50.8	48	150	250					3.06	

● : Stock item

Available inserts

SDMT-MM	SPMT-MM	ZPMT-R-MM	ZPMT-R-MR
			

Designation		Coated					page
		NCM325	PC3700	PC5300	PC5400	PC6100	
SDMT	090308-MM		●	●			B20
SPMT	120408-MM		●	●			B27
	120508-MMN						
ZPMT	160520R-MM		●	●			B33
	160525R-MM		●	●			
	160525R-MR						
	160531.5R-MM			●			

Parts

Specification	 Screw	 Wrench
Ø40~Ø63	ETNA0511	TW20-100

Available inserts **B20, B27, B33**

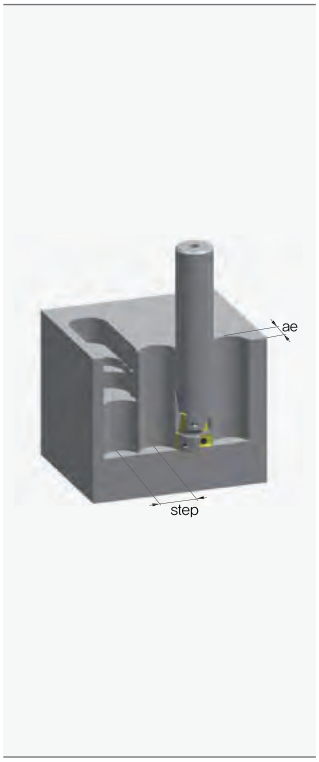
Multifunctional milling tool for mold making

HAVE

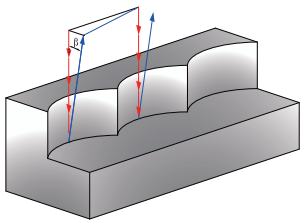
- Tools for Z-axis feed plunge machining to cut faster and more effectively in vertical machining
- Able to utilize the full diameter of the tools, thanks to the position and design of the inserts

Maximum step in vertical machining

ae	Diameter(mm)										
	16	17	20	21	25	26	32	33	35	40	50
	max step(mm)										
1	7.7	8	8.7	8.9	9.7	10	11.1	11.3	11.6	12.4	14
2	10.5	10.9	12	12.3	13.5	13.8	15.4	15.7	16.2	17.4	19.5
3	12.4	12.9	14.2	14.6	16.2	16.6	18.6	18.9	19.5	21	23.7
4	13.8	14.4	16	16.4	18.3	18.7	21.1	21.5	22.2	24	27.1
5	14.8	15.4	17.3	17.8	20	20.4	23.2	23.6	24.4	26.4	30
6	15.4	16.2	18.3	18.9	21.3	21.9	24.9	25.4	26.3	28.5	32.4
7	15.8	16.7	19	19.7	22.4	23	26.4	26.9	28	30.3	34.6
8	16	16.9	19.5	20.3	23.3	24	27.7	28.2	29.3	32	36.6
9	15.8	16.9	19.9	20.7	24	24.7	28.7	29.3	30.5	33.4	38.4
10	15.4	16.7	20	20.9	24.4	25.2	29.6	30.3	31.6	34.6	40
11	14.8	16.2	19.9	20.9	24.8	25.6	30.3	31.1	32.4	35.7	41.4
12	13.8	15.4	19.5	20.7	24.9	25.9	30.9	31.7	33.2	36.6	42.7
13	12.4	14.4	19	20.3	24.9	26	31.4	32.2	33.8	37.4	43.8
14	10.5	12.9	18.3	19.7	24.8	25.9	31.7	32.6	34.2	38.1	44.9
15	7.7	10.9	17.3	18.9	24.4	25.6	31.9	32.8	34.6	38.7	45.8
16	-	8	16	17.8	24	25.2	32	32.9	34.8	39.1	46.6
17	-	-	14.2	16.4	23.3	24.7	31.9	32.9	34.9	39.5	47.3
18	-	-	12	14.6	22.4	24	31.7	32.8	34.9	39.7	48
19	-	-	8.7	12.3	21.3	23	31.4	32.6	34.8	39.9	48.5
20	-	-	-	8.9	20	21.9	30.9	32.2	34.6	40	48.9
21	-	-	-	-	18.3	20.4	30.3	31.7	34.2	39.9	49.3
22	-	-	-	-	16.2	18.7	29.6	31.1	33.8	39.7	49.6
23	-	-	-	-	13.5	16.6	28.7	30.3	33.2	39.5	49.8
24	-	-	-	-	9.7	13.8	27.7	29.3	32.4	39.1	49.9
25	-	-	-	-	-	10	26.4	28.2	31.6	38.7	50



Programming in vertical cutting



Vertical machining route
Rapid feed
β Angle between tool and workpiece (β ≥ 1°)

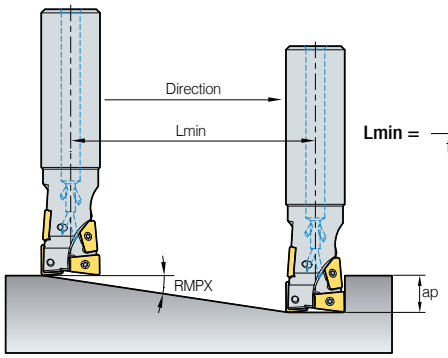
- Reduce 30% of feed till 3 mm machining
- Have the tool be away from the workpiece more than 1° (b) after finishing the machining or when moving the tool to the next step.

Cutting conditions

Designation		Hardness	Grade	Cutting conditions	Ø16, 17		Ø20, 21		Ø25, 26		Ø32, 33		Ø35		Ø40		Ø50	
				vc (m/min)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)	Feed (mm/rev)	Step (mm)
P	Mild steel, Low Carbon steel (SS400)	Under 200HB	PC3700	200 (150~250)	0.03	0.20	0.04	0.30	0.05	0.30	0.05	0.30	0.06	0.30	0.06	0.30	0.07	0.30
P	Carbon steel, Alloy steel (SM50C, SCM440)	Under 100HRC	PC3700	180 (120~220)	0.03	0.20	0.04	0.30	0.05	0.30	0.05	0.30	0.05	0.30	0.06	0.30	0.06	0.30
M	Stainless steel (STS)	Under 270HB	PC5300	160 (120~200)	0.03	0.15	0.04	0.25	0.05	0.25	0.05	0.25	0.05	0.25	0.06	0.25	0.06	0.25
K	Cast iron (GC, GCD)	350N/mm²	PC5300	200 (150~250)	0.04	0.40	0.05	0.50	0.06	0.50	0.06	0.50	0.06	0.50	0.07	0.50	0.07	0.50
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	0.03	0.15	0.03	0.25	0.04	0.25	0.04	0.25	0.04	0.25	0.04	0.25	0.05	0.25

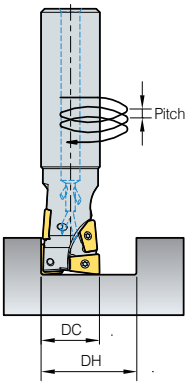
※ Please note - Step machining is required for aspect ratio under 0.5D or initial drilling

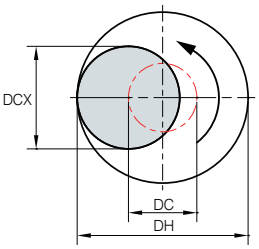
1. Ramping



$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (mm)}$$

2. Helical cutting





DC = DH-DCX

DC = Tool pass of tool center
DH = Desirable hole diameter on workpiece
DCX = Tool diameter

Cutting conditions for ramping and helical operation

Designation		Hardness	Grade	Cutting Speed	Ø16, 17				Ø20, 21				Ø25, 26				Ø32, 33				Ø35				Ø40				Ø50			
				vc (m/min)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)	ØDh (mm)	ap (mm/t)	fz (mm/t)	max pitch (mm)
P	Mild steel, Low Carbon steel (SS400)	≤ 200HB	PC3700	200 (150~250)	19 ~30	0.5D ~1D	0.15 ~0.12	0.35 ~1.61	23 ~28	0.5D ~1D	0.18 ~0.12	0.35 ~2.07	29 ~47	0.5D ~1D	0.2 ~0.15	0.46 ~2.53	37 ~60	0.5D ~1D	0.25 ~0.2	0.58 ~3.23	41 ~65	0.5D ~1D	0.28 ~0.2	0.69 ~3.46	47 ~75	0.5D ~1D	0.3 ~0.2	0.81 ~4.03	58 ~95	0.5D ~1D	0.35 ~0.25	0.92 ~5.18
P	Carbon steel, Alloy Steel (SM50C,SCM440)	≤ 100HB	PC3700	180 (120~220)	19 ~30	0.5D ~1D	0.15 ~0.1	0.26 ~1.23	23 ~28	0.5D ~1D	0.16 ~0.12	0.26 ~1.58	29 ~47	0.5D ~1D	0.18 ~0.12	0.35 ~1.93	37 ~60	0.5D ~1D	0.2 ~0.15	0.44 ~2.46	41 ~65	0.5D ~1D	0.22 ~0.17	0.53 ~2.63	47 ~75	0.5D ~1D	0.25 ~0.2	0.61 ~3.07	58 ~95	0.5D ~1D	0.28 ~0.25	0.70 ~3.95
M	Stainless steel (STS)	≤ 270HB	PC5300	160 (120~200)	19 ~30	0.2D ~0.5D	0.13 ~0.1	0.18 ~0.84	23 ~28	0.2D ~0.5D	0.15 ~0.12	0.18 ~1.09	29 ~47	0.2D ~0.5D	0.18 ~0.12	0.24 ~1.33	37 ~60	0.2D ~0.5D	0.2 ~0.15	0.24 ~1.33	41 ~65	0.2D ~0.5D	0.22 ~0.17	0.36 ~1.81	47 ~75	0.2D ~0.5D	0.25 ~0.2	0.42 ~2.11	58 ~95	0.2D ~0.5D	58 ~95	0.48 ~2.71
K	Cast iron (GC, GCD)	≤ 350N/mm²	PC5300	200 (150~250)	19 ~30	0.7D ~1D	0.17 ~0.12	0.43 ~2.0	23 ~28	0.7D ~1D	0.2 ~0.12	0.42 ~2.57	29 ~47	0.7D ~1D	0.2 ~0.15	0.57 ~3.14	37 ~60	0.7D ~1D	0.25 ~0.2	0.71 ~3.99	41 ~65	0.7D ~1D	0.28 ~0.2	0.86 ~4.28	47 ~75	0.7D ~1D	0.3 ~0.2	1.0 ~4.99	58 ~95	0.7D ~1D	0.35 ~0.25	1.14 ~6.42
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	19 ~30	0.2D ~0.5D	0.1 ~0.05	0.18 ~0.84	23 ~28	0.2D ~0.5D	0.12 ~0.07	0.18 ~1.09	29 ~47	0.2D ~0.5D	0.13 ~0.1	0.24 ~1.33	37 ~60	0.2D ~0.5D	0.15 ~0.12	0.30 ~1.69	41 ~65	0.2D ~0.5D	0.17 ~0.13	0.36 ~1.81	47 ~75	0.2D ~0.5D	0.18 ~0.15	0.42 ~2.11	58 ~95	0.2D ~0.5D	0.2 ~0.15	0.48 ~2.71

Recommended cutting conditions for shouldering operation

Designation		Hardness	Grade	Cutting Speed	Ø16, 17			Ø20, 21			Ø25, 26			Ø32, 33			Ø35			Ø40			Ø50		
				vc (m/min)	APMX (mm)	APMXEFW (mm)	max fz (mm/t)	APMX (mm)	APMXEFW (mm)	max fz (mm/t)	APMX (mm)	APMXEFW (mm)	max fz (mm/t)	APMX (mm)	APMXEFW (mm)	max fz (mm/t)	APMX (mm)	APMXEFW (mm)	max fz (mm/t)	APMX (mm)	APMXEFW (mm)	max fz (mm/t)	APMX (mm)	APMXEFW (mm)	max fz (mm/t)
P	Mild steel, Low Carbon steel (SS400)	≤ 200HB	PC3700	200 (150~250)	17	8	0.25	22	10	0.3	27	13	0.35	35	16	0.4	40	18	0.45	44	20	0.5	55	25	0.6
P	Carbon steel, Alloy Steel (SM50C,SCM440)	≤ 100HB	PC3700	180 (120~220)	17	8	0.2	22	10	0.25	27	13	0.3	35	16	0.35	40	18	0.4	44	20	0.4	55	25	0.5
M	Stainless steel (STS)	≤ 270HB	PC5300	160 (120~200)	17	8	0.2	22	10	0.25	27	13	0.3	35	16	0.35	40	18	0.4	44	20	0.4	55	25	0.5
K	Cast iron (GC, GCD)	≤ 350N/mm²	PC5300	200 (150~250)	17	8	0.25	22	10	0.3	27	13	0.35	35	16	0.4	40	18	0.45	44	20	0.5	55	25	0.6
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	17	5	0.15	22	6	0.2	27	7	0.22	35	8	0.25	40	9	0.3	44	10	0.3	55	14	0.35

Recommended cutting conditions for grooving operation

Designation		Hardness	Grade	Cutting Speed	Ø16, 17		Ø20, 21		Ø25, 26		Ø32, 33		Ø35		Ø40		Ø50	
				vc (m/min)	APMX (mm)	max fz (mm/t)	APMX (mm)	max fz (mm/t)	APMX (mm)	max fz (mm/t)	APMX (mm)	max fz (mm/t)	APMX (mm)	max fz (mm/t)	APMX (mm)	max fz (mm/t)	APMX (mm)	max fz (mm/t)
P	Mild steel, Low Carbon steel (SS400)	≤ 200HB	PC3700	200 (150~250)	17	0.15	22	0.18	27	0.2	35	0.25	40	0.27	44	0.3	55	0.35
P	Carbon steel, Alloy Steel (SM50C,SCM440)	≤ 100HB	PC3700	180 (120~220)	17	0.15	22	0.15	27	0.18	35	0.2	40	0.22	44	0.25	55	0.3
M	Stainless steel (STS)	≤ 270HB	PC5300	160 (120~200)	17	0.15	22	0.15	27	0.18	35	0.2	40	0.22	44	0.25	55	0.3
K	Cast iron (GC, GCD)	≤ 350N/mm²	PC5300	200 (150~250)	17	0.15	22	0.18	27	0.2	35	0.25	40	0.27	44	0.3	55	0.35
H	Hardened steel	40~55HRC	PC5300	80 (50~120)	12	0.1	14	0.12	17	0.15	22	0.15	25	0.18	28	0.18	35	0.22

HAVE(Single-edge)



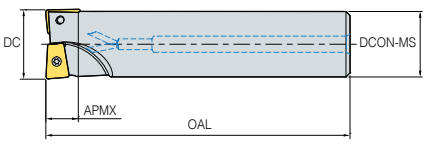


Fig. 1

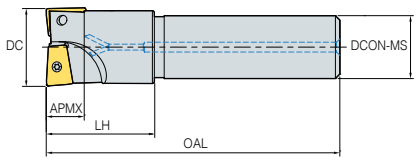


Fig. 2



KAPR 90°

• GAMP : 7°~12°
• GAMF : −12°~−4°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	WT	kg	Fig.
HAVE	0816HR-S16		2	16	16	30	120	7.5	0.2	0.16	1
	0816HR-L16		2	16	16	30	200	7.5		0.3	
	0817HR-S16		2	17	16	30	120	7.5		0.2	2
	0817HR-L16		2	17	16	30	200	7.5		0.3	
	1020HR-S20		2	20	20	35	130	9.5	0.3	0.28	1
	1020HR-L20		2	20	20	35	210	9.5		0.5	
	1021HR-S20		2	21	20	35	130	9.5		0.3	2
	1021HR-L20		2	21	20	35	210	9.5		0.5	
	1325HR-S25		2	25	25	45	140	12	0.4	0.44	1
	1325HR-L25		2	25	25	45	220	12		0.7	
	1326HR-S25		2	26	25	45	140	12		0.5	2
	1326HR-L25		2	26	25	45	220	12		0.8	
	1632HR-S32		2	32	32	50	150	15.4	0.8	0.77	1
	1632HR-L32		2	32	32	50	250	15.4		1.4	
	1633HR-S32		2	33	32	50	150	15.4		0.8	2
	1633HR-L32		2	33	32	50	250	15.4		1.4	
	1835HR-S32		2	35	32	50	150	16.7	0.8	0.81	1
	1835HR-L32		2	35	32	50	230	16.7		1.3	
	2040HR-S32		2	40	32	55	160	19.3	0.9	0.95	2
	2040HR-L32		2	40	32	55	240	19.3		1.4	
	2550HR-S42		2	50	42	70	170	24	1.7	1.68	2
	2550HR-L42		2	50	42	70	250	24		2.5	

● : Stock item

Available inserts

XPMT-MM



	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XPMT	0802ER-MM													●					B32
	1003ER-MM									●				●					
	13T3ER-MM													●					
	1604ER-MM													●					
	1805ER-MM													●					
	2006ER-MM													●					
	2507ER-MM													●					

Parts

Specification	Screw	Wrench
Ø16~Ø17	FTNA0204	TW06S
Ø20~Ø21	FTNA02205	
Ø25~Ø26	FTKA0307	TW09S
Ø32~Ø33	FTKA0408	TW15S
Ø35		
Ø40	FTGA0511-P	TW20S
Ø50	FTNA0615	

Available inserts **B32**

HAVE(Multi-edge)



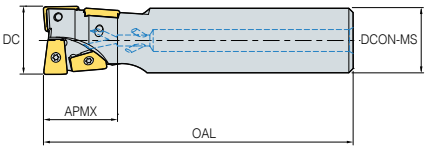


Fig. 1

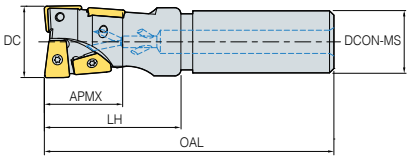


Fig. 2



• GAMP : 7°~12°
• GAMF : −12°~−4°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	WT	kg	Fig.
HAVE	0816HR-S16M		4	16	16	30	120	17.6	0.1	0.15	1
	0816HR-L16M		4	16	16	30	200	17.6		0.3	
	0817HR-S16M		4	17	16	30	120	17.6		0.2	2
	0817HR-L16M		4	17	16	30	200	17.6		0.3	
	1020HR-S20M		4	20	20	35	130	22	0.3	0.26	1
	1020HR-L20M		4	20	20	35	210	22		0.4	
	1021HR-S20M		4	21	20	35	130	22		0.3	2
	1021HR-L20M		4	21	20	35	210	22		0.5	
	1325HR-S25M		4	25	25	45	140	27	0.4	0.41	1
	1325HR-L25M		4	25	25	45	220	27		0.7	
	1326HR-S25M		4	26	25	45	140	27		0.5	2
	1326HR-L25M		4	26	25	45	220	27		0.7	
	1632HR-S32M		4	32	32	50	150	35.2	0.7	0.72	1
	1632HR-L32M		4	32	32	50	250	35.2		1.3	
	1633HR-S32M		4	33	32	50	150	35.2		0.8	2
	1633HR-L32M		4	33	32	50	250	35.2		1.3	
	1835HR-S32M		4	35	32	50	150	40	0.8	0.75	1
	1835HR-L32M		4	35	32	50	230	40		1.2	
	2040HR-S32M		4	40	32	55	160	44	0.9	0.74	2
	2040HR-L32M		4	40	32	55	240	44		1.4	
	2550HR-S42M		4	50	42	70	170	55	1.5	1.53	2
	2550HR-L42M		4	50	42	70	250	55		2.4	

● : Stock item

Available inserts

XPMT-MM



	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XPMT	0802ER-MM													●					B32
	1003ER-MM									●				●					
	13T3ER-MM													●					
	1604ER-MM													●					
	1805ER-MM													●					
	2006ER-MM													●					
	2507ER-MM													●					

Parts

Specification	Screw	Wrench
Ø16~Ø17	FTNA0204	TW06S
Ø20~Ø21	FTNA02205	
Ø25~Ø26	FTKA0307	TW09S
Ø32~Ø33	FTKA0408	TW15S
Ø35		
Ø40	FTGA0511-P	TW20S
Ø50	FTNA0615	

Available inserts **B32**

Guarantee strong constrain force by 2-side constraint

BT/HSK Tooling System

Code system

• Single · Multi-edge

BT50	HAT	4	063	114	-	4	F
Arbor type	**Item Name**	**Type**	**Diameter**	**Length (ap)**		**No. of flute**	**Front piece or total length**
BT30/40/50 HSK40/50/63/100	AM HAT RM	1000 type 1500 type 2000 type 3000 type 4000 type	063 : Ø63	Length : 114 HS : Coolant + Single		No. of flute : 4 No. of tooth : 4	Front Piece (Y/N) Y : F No code : No L : Long type

• Modular

BT50	HAT	M16	092
Arbor type	**Item category**	**M Dimension**	**Total length (L)**
BT30/40/50 HSK40/50/63/100	MAT	M16	092 : 92

DBT System

Feature of (D)BT arbor

- Guaranteed strong force by 2-side constraint
- Guarantee strengthen cutting at high speed
- Guaranteed superior surface roughness

DBT (Constrain, increased surface roughness)



2-side constraint (Taper, 1-side)

BT



1-side constraint (Taper)

HSK System

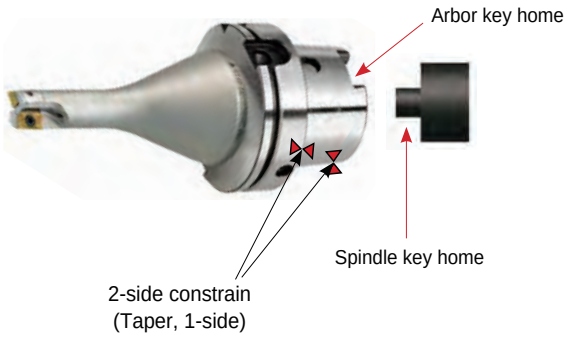
Feature of HSK arbor

- Guaranteed strong constrain force by 2-side constraint
- Guaranteed strengthened cutting at high speeds
- Guaranteed superior surface roughness
- Guaranteed repeatability at axle direction and repeated direction

HSK tolerance comparison

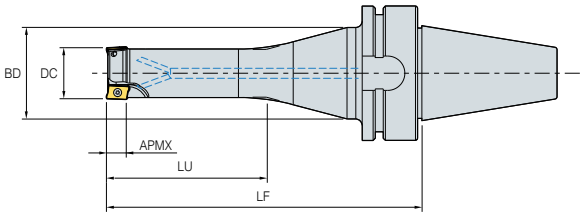
Arbor type	Max. tolerance	Min. tolerance	Available facility
HSK-T	0.075	0.035	Multi-tasking machine
HSK-A	0.33	0.08 (General)	MCT

HSK A: HSK T key tolerance comparison



BT30 AM1000HS





KAPR 90°

- GAMP : 7.5°~13°
- GAMF : −28°~−7°

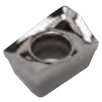
(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT30	AM1010HS-2		2	10	41	35	112	5.6
	AM1012HS-2		2	12	41	35	112	5.6
	AM1012HS-3		3	12	41	35	112	5.6
	AM1016HS-3		3	16	41	35	112	5.6
	AM1016HS-4		4	16	41	35	112	5.6
	AM1020HS-4		4	20	41	45	112	5.6
	AM1020HS-5		5	20	41	45	112	5.6

● : Stock item

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																●	B5 B6
	060208PDFR-MA																	
	060202PDSR-MM		●							●				●	●			
	0602PDSR-MM		●					●	●	●	●	●		●	●			
	060208PDSR-MM		●							●				●	●			
	060212R-MM		●											●	●			
	060216R-MM													●	●			

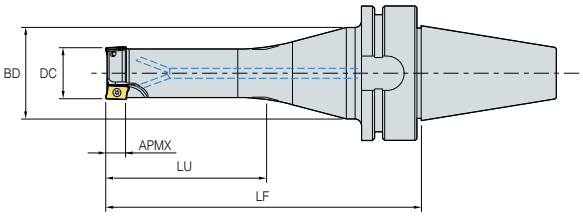
Parts

Specification	Screw	Wrench	Wrench
Ø10~Ø20	FTKA01842	-	TW06S-A

Available inserts **B5, B6**

BT40 AM1500HS





KAPR 90°

- GAMP : 7.5°~13°
- GAMF : −28°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT40	AM15016HS-2		2	16	50	45	117	9
	AM15016HS-2L		2	16	50	35	152	9
	AM15020HS-2		2	20	50	60	132	9
	AM15020HS-3		3	20	50	60	132	9
	AM15020HS-2L		2	20	50	50	152	9
	AM15025HS-3		3	25	50	75	147	9
	AM15025HS-4		4	25	50	75	147	9
	AM15025HS-3L		3	25	50	65	167	9
	AM15032HS-4		4	32	50	80	147	9
	AM15032HS-5		5	32	50	80	147	9
	AM15032HS-4L		4	32	50	70	167	9
	AM15040HS-5		5	40	50	60	132	9
	AM15040HS-6		6	40	50	60	132	9
	AM15040HS-5L		5	40	50	50	132	9

● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			B4
	0903PDSR-MM		●					●	●	●	●			●	●			B5
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

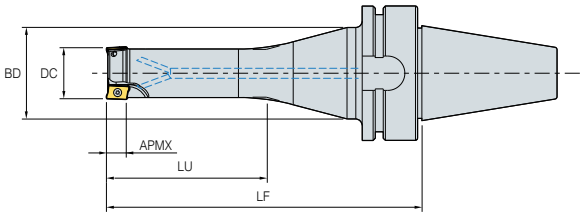
Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø40	FTKA02565S	TW08S	-

Available inserts **B5, B6**

BT40 AM2000HS





KAPR 90°

• GAMP : 7°~10°
• GAMF : −20°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT40	AM2016HS-2		2	49	50	45	117	11
	AM2016HS-2L		2	16	50	35	152	11
	AM2020HS-2		2	20	50	60	132	11
	AM2020HS-2L		2	20	50	50	152	11
	AM2025HS-3		3	25	50	75	147	11
	AM2025HS-3L		3	25	50	65	167	11
	AM2032HS-4		4	32	50	80	147	11
	AM2032HS-4L		4	32	50	70	167	11
	AM2040HS-5		5	40	50	60	132	11
	AM2040HS-5L		5	40	50	50	152	11
	AM2050HS-6		6	50	50	60	132	11
	AM2050HS-6L		6	50	50	50	152	11

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.※ Please use the cutters with even teeth.

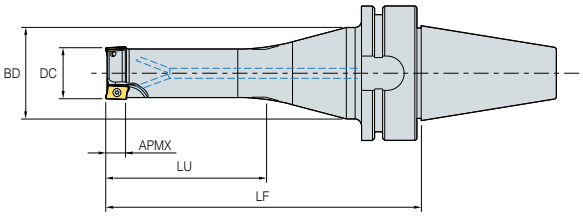
Parts

Specification	Screw	Wrench
Ø16~Ø50	FTKA02565S	TW08S

Available inserts **B5, B6**

BT50 AM3000HS





KAPR 90°

- GAMP : 7°~10°
- GAMF : −20°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT50	AM3025HS-2		2	25	80	65	158	16
	AM3025HS-2L		2	25	80	55	168	16
	AM3032HS-3		3	32	80	70	158	16
	AM3032HS-3L		3	32	80	60	168	16
	AM3040HS-4		4	40	80	50	143	16
	AM3040HS-4L		4	40	80	40	153	16
	AM3050HS-5		5	50	80	50	143	16
	AM3050HS-5L		5	50	80	40	153	16

● : Stock item

Available inserts

	APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
					

	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM									●				●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

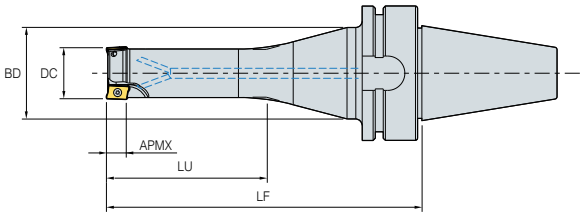
Parts

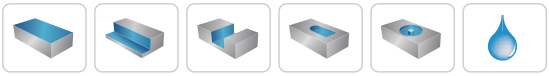
Specification	Screw	Wrench
Ø25	FTKA0408	TW15S
Ø32~Ø50	FTKA0410	TW15S

Available inserts **B5, B6**

BT50 AM4000HS







KAPR 90°

• GAMP : 7°~10°
• GAMF : −20°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT50	AM4020HS-1		1	20	80	50	143	17
	AM4025HS-2		2	25	80	65	158	17
	AM4032HS-3		3	32	80	70	158	17
	AM4032HS-3L		3	32	80	60	168	17
	AM4040HS-4		4	40	80	50	143	17
	AM4040HS-4L		4	40	80	40	153	17
	AM4050HS-5		5	50	80	50	143	17
	AM4050HS-5L		5	50	80	40	153	17

● : Stock item

Available inserts



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●	
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	
	180630R-MA																●	
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●				
	180620PDER-ML													●	●			B5
	180624PDER-ML													●	●			B6
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			
	180620PDSR-MM																	
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.※ Please use the cutters with even teeth.

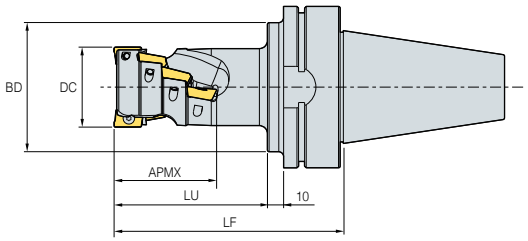
Parts

Specification	Screw	Wrench
Ø20~Ø25	FTKA0408	TW15S
Ø32~Ø50	FTKA0410	TW15S

Available inserts **B5, B6**

BT30/40 AM1000









KAPR 90°

- GAMP : −12.5°~13°
- GAMF : −17°~−6°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT30	AM1016015-2		6	16	41	30	62	15.5
	AM1020020-3		12	20	41	32	64	20.5
	AM1025025-4		20	25	41	39	71	25.5
BT40	AM1016015-2		6	16	50	30	67	15.5
	AM1020020-3		12	20	50	32	69	20.5
	AM1025025-4		20	25	50	39	76	25.5

● : Stock item

Available inserts

APMT-MA

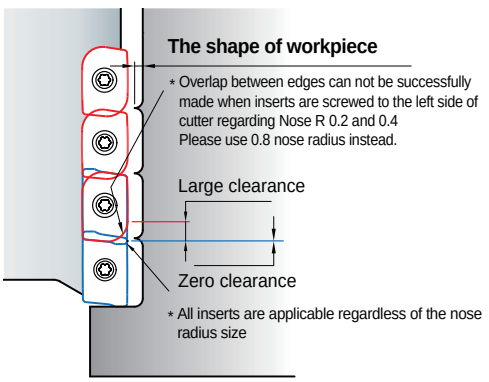


APMT-MM



	Designation	Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																●	B5 B6
	060208PDFR-MA																	
	060202PDSR-MM		●							●				●	●			
	0602PDSR-MM		●					●	●	●	●	●		●	●			
	060208PDSR-MM		●							●				●	●			
	060212R-MM		●											●	●			
	060216R-MM													●	●			

Caution when clamping the inserts



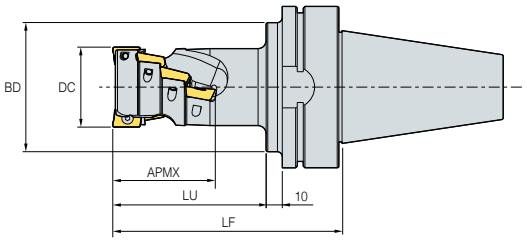
Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø25	FTKA01842	-	TW06S-A

Available inserts **B5, B6**

BT30/40 AM1500









KAPR 90°

- GAMP : −12.5°~13°
- GAMF : −17°~−6°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT30	AM15020026-1		3	20	41	42	74	26.5
	AM15025035-2		8	25	41	50	62	35
	AM15032044-2		10	32	41	60	92	44
BT40	AM15020026-1		3	20	50	42	79	26.5
	AM15025035-2		8	25	50	50	87	35
	AM15032044-2		10	32	50	60	97	44

● : Stock item

Available inserts

APMT-MA



APMT-ML

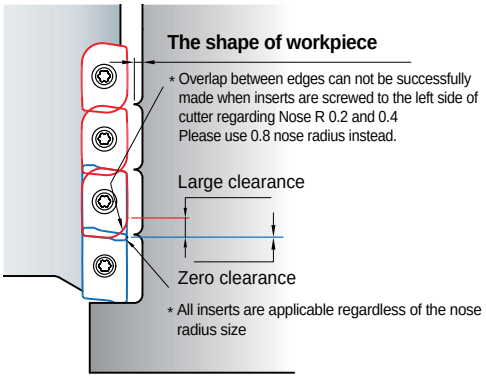


APMT-MM



	Designation	Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	B5 B6
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM		●					●	●	●	●			●	●			
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

Caution when clamping the inserts



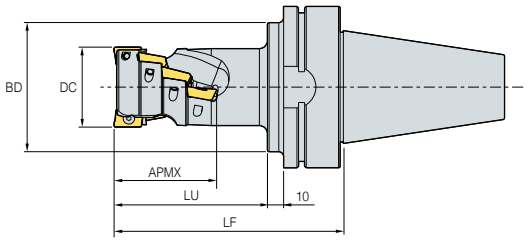
Parts

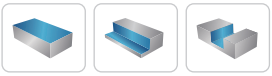
Specification	Screw	Wrench	Wrench
Ø20~Ø32	FTKA02565S	TW08S	-

Available inserts **B5, B6**

BT30/40 AM2000







KAPR 90°

- GAMP : –9°
- GAMF : –13°~–8°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT30	AM2020029-1		3	20	41	45	77	29.4
	AM2025038-2		8	25	45	55	87	38.9
	AM2032048-2		10	32	45	65	97	48.5
	AM2040058-2		14	40	45	75	107	58
	AM2050039-4		16	50	45	58	90	39
	AM2063039-4		16	63	45	58	90	39
	AM2080039-5		20	80	45	63	95	39
	AM2100039-6		24	100	45	63	95	39
BT40	AM2020029-1		3	20	50	45	82	29.4
	AM2025038-2		8	25	50	55	92	38.9
	AM2032048-2		10	32	50	65	102	48.5
	AM2040058-2		14	40	50	75	112	58
	AM2050039-4		16	50	50	58	95	39
	AM2063039-4		16	63	50	58	95	39
	AM2080039-5		20	80	50	63	100	39
	AM2100039-6		24	100	50	63	100	39

● : Stock item

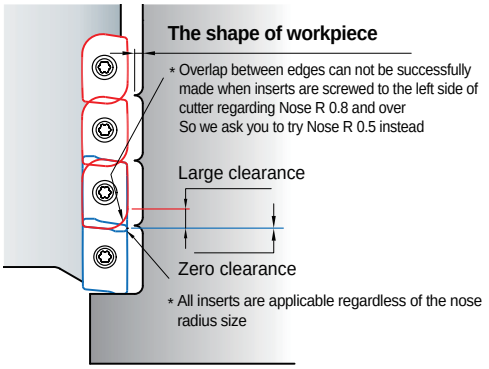
Available inserts

	APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
					

	Designation	Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN3													●				
	11T3PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts



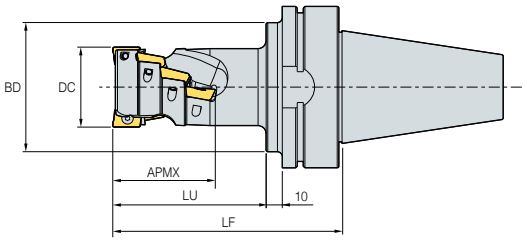
Parts

Specification	Screw	Wrench
Ø20~Ø100	FTKA02565S	TW08S

Available inserts **B5, B6**

BT50 AM3000









KAPR 90°

- GAMP : 13°~15°
- GAMF : −11°~−4°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT50	AM3050043-2		6	50	80	72	120	43
	AM3063057-4		16	63	80	86	134	57
	AM3080071-4		20	80	80	100	148	71
	AM3100071-6		30	100	80	100	148	71

● : Stock item

Available inserts









	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM													●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

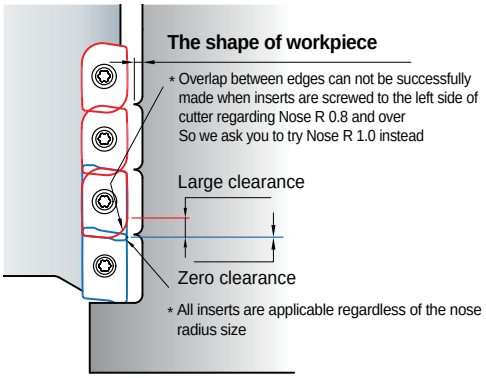
※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA0410	TW15S

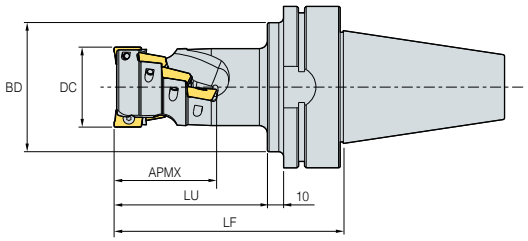
Available inserts **B5, B6**

Caution when clamping the inserts



BT50 AM4000





KAPR 90°

- GAMP : 13°~15°
- GAMF : −11°~−4°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
BT50	AM4040046-2		6	40	80	75	123	46
	AM4050061-2		8	50	80	95	143	61
	AM4063061-4		16	63	80	90	138	61
	AM4080076-4		20	80	90	105	153	76
	AM4100076-6		30	100	80	105	153	76

● : Stock item

Available inserts

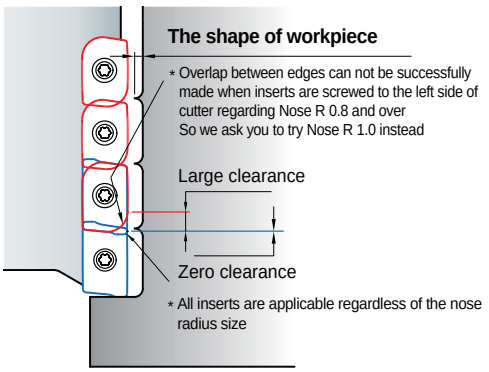
APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



	Designation	Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●	B5 B6
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	
	180630R-MA																●	
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			
	180620PDER-ML													●	●			
	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			
	180620PDSR-MM																	
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3																	
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts



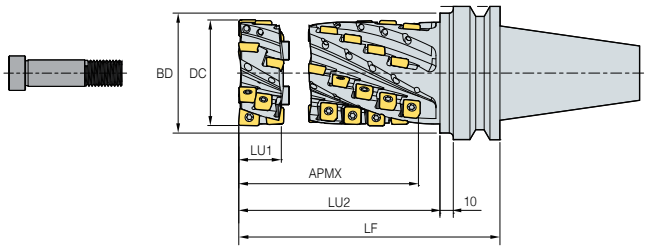
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts **B5, B6**

BT50 HAT4000





(mm)

	Designation	Stock	CICT		DC	LU	LF	APMX	Application
			SPMT	ZPMT					
BT50-(Set)	HAT4050094-2F		10	1	50	119	160	94	HAT4050032-2F
	HAT4050104-2F		11	1	50	129	170	104	
	HAT4050114-2F		12	1	50	139	180	114	
	HAT4063094-4F		20	2	63	119	160	94	HAT4063032-4F
	HAT4063104-4F		22	2	63	129	170	104	
	HAT4063114-4F		24	2	63	139	180	114	
	HAT4080094-4F		20	2	80	119	160	94	HAT4080033-4F
	HAT4080104-4F		22	2	80	129	170	104	
	HAT4080114-4F		24	2	80	139	180	114	
(Front Piece)	HAT4050032-2F		3	1	50	32	-	32	-
	HAT4063032-4F		6	2	63	32	-	32	
	HAT4080033-4F		6	2	80	33	-	33	

● : Stock item

Available inserts

SPMT-MMN



ZPMT-MMN



Designation		Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
SPMT	120508-MMN																	B27
ZPMT	1505PPSR-MMN																	B33

Set specification

Set Designation	Designation	Front Piece	Clamping Bolt
HAT4050094-2F HAT4050104-2F HAT4050114-2F	HAT4050062-2F HAT4050072-2F HAT4050082-2F	HAT4050032-2F	HSB1255
HAT4063094-4F HAT4063104-4F HAT4063114-4F	HAT4063062-4F HAT4063072-4F HAT4063082-4F	HAT4063032-4F	HSB1670
HAT4080094-4F HAT4080104-4F HAT4080114-4F	HAT4080061-4F HAT4080071-4F HAT4080081-4F	HAT4080033-4F	HSB1682

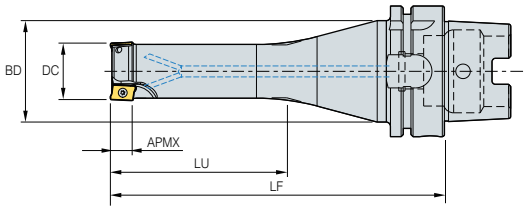
Parts

Specification	Screw	Wrench
Ø50~Ø80	ETNA0511	TW20

Available inserts **B27, B33**

HSK63A AM1000HS





KAPR 90°

- GAMP : 7.5°~13°
- GAMF : −28°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM1010HS-2		2	10	53	83	116	5.6
	AM1012HS-2		2	12	53	83	116	5.6
	AM1012HS-3		3	12	53	83	116	5.6
	AM1016HS-3		3	16	53	83	116	5.6
	AM1016HS-4		4	16	53	83	116	5.6
	AM1020HS-4		4	20	53	98	131	5.6
	AM1020HS-5		5	20	53	98	131	5.6

● : Stock item

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																●	B5 B6
	060208PDFR-MA																	
	060202PDSR-MM		●							●				●	●			
	0602PDSR-MM		●					●	●	●	●	●		●	●			
	060208PDSR-MM		●							●				●	●			
	060212R-MM		●											●	●			
	060216R-MM													●	●			

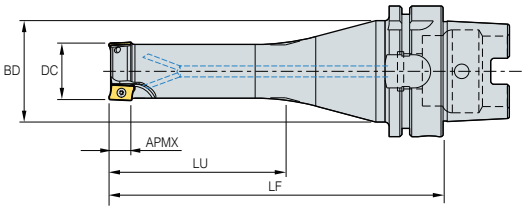
Parts

Specification	Screw	Wrench	Wrench
Ø10~Ø20	FTKA01842	-	TW06S-A

Available inserts **B5, B6**

HSK63A AM1500HS





KAPR 90°

- GAMP : 7.5°~13°
- GAMF : −28°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM15016HS-2		2	16	53	83	116	9
	AM15016HS-2L		2	16	53	118	151	9
	AM15020HS-2		2	20	53	98	131	9
	AM15020HS-3		3	20	53	98	131	9
	AM15020HS-2L		2	20	53	118	151	9
	AM15025HS-3		3	25	53	113	146	9
	AM15025HS-4		4	25	53	113	146	9
	AM15025HS-3L		3	25	53	133	166	9
	AM15032HS-4		4	32	53	113	146	9
	AM15032HS-5		5	32	53	113	146	9
	AM15032HS-4L		4	32	53	133	166	9
	AM15040HS-5		5	40	53	98	131	9
	AM15040HS-6		6	40	53	98	131	9
	AM15040HS-5L		5	40	53	118	151	9

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	B5 B6
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM		●					●	●	●	●			●	●			
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

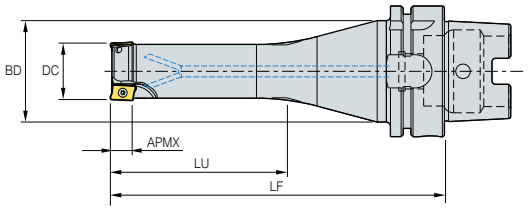
Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø40	FTKA02565S	TW08S	-

Available inserts **B5, B6**

HSK63A AM2000HS





KAPR 90°

- GAMP : 7°~10°
- GAMF : −20°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM2016HS-2		2	16	53	83	116	11
	AM2016HS-2L		2	16	53	118	151	11
	AM2020HS-2		2	20	53	98	131	11
	AM2020HS-2L		2	20	53	118	151	11
	AM2025HS-3		3	25	53	113	146	11
	AM2025HS-3L		3	25	53	133	166	11
	AM2032HS-4		4	32	53	113	146	11
	AM2032HS-4L		4	32	53	133	166	11
	AM2040HS-5		5	40	53	98	131	11
	AM2040HS-5L		5	40	53	118	151	11
	AM2050HS-6		6	50	53	98	131	11
	AM2050HS-6L		6	50	53	118	151	11

● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※Please use the cutters with even teeth.

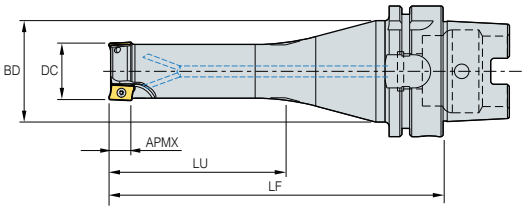
Parts

Specification	Screw	Wrench
Ø16~Ø50	FTKA02565S	TW08S

Available inserts **B5, B6**

HSK63A AM3000HS





KAPR 90°

- GAMP : 7°~10°
- GAMF : −20°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM3025HS-2		2	25	53	113	146	16
	AM3025HS-2L		2	25	53	123	156	16
	AM3032HS-3		3	32	53	113	146	16
	AM3032HS-3L		3	32	53	123	156	16
	AM3040HS-4		4	40	53	98	131	16
	AM3040HS-4L		4	40	53	108	141	16
	AM3050HS-5		5	50	53	98	131	16
	AM3050HS-5L		5	50	53	108	141	16

● : Stock item

Available inserts


APMT-MA


APMT-ML


APMT-MM


APMT-MF


APMT-MN

	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM													●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※Please use the cutters with even teeth.

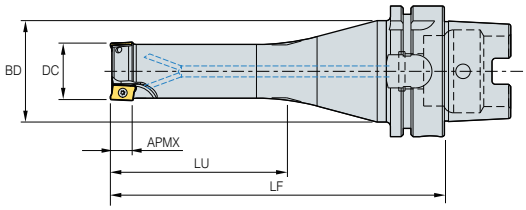
Parts

Specification	Screw	Wrench
Ø25	FTKA0408	TW15S
Ø32~Ø50	FTKA0410	TW15S

Available inserts **B5, B6**

HSK63A AM4000HS





KAPR 90°

- GAMP : 7°~10°
- GAMF : −20°~−7°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM4020HS-1		1	20	53	98	131	17
	AM4025HS-2		2	25	53	113	146	17
	AM4032HS-3		3	32	53	113	146	17
	AM4032HS-3L		3	32	53	123	156	17
	AM4040HS-4		4	40	53	98	131	17
	AM4040HS-4L		4	40	53	108	141	17
	AM4050HS-5		5	50	53	98	131	17
	AM4050HS-5L		5	50	53	108	141	17

● : Stock item

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●	B5 B6
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	
	180630R-MA																●	
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●	●			
	180620PDER-ML													●	●			
	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			
	180620PDSR-MM																	
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※Please use the cutters with even teeth.

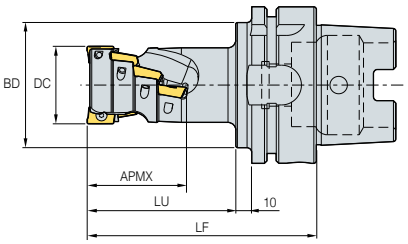
Parts

Specification	Screw	Wrench
Ø20~Ø25	FTKA0408	TW15S
Ø32~Ø50	FTKA0410	TW15S

Available inserts **B5, B6**

HSK63A AM1000









KAPR 90°

- GAMP : −12.5°~13°
- GAMF : −17°~−6°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM1016015-2		6	16	53	30	66	15.5
	AM1020020-3		12	20	53	32	68	20.5
	AM1025025-4		20	25	53	39	75	25.5

● : Stock item

Available inserts

APMT-MA

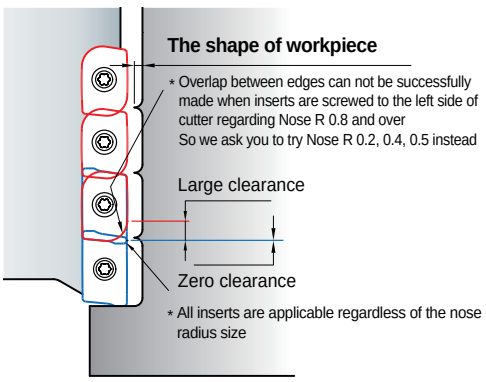


APMT-MM



	Designation	Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																●	B5 B6
	060208PDFR-MA																	
	060202PDSR-MM		●							●				●	●			
	0602PDSR-MM		●					●	●	●	●	●		●	●			
	060208PDSR-MM		●							●				●	●			
	060212R-MM		●											●	●			
	060216R-MM													●	●			

Caution when clamping the inserts



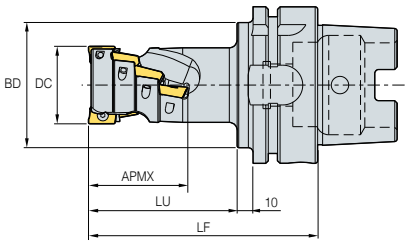
Parts

Specification	Screw	Wrench	Wrench
Ø16~Ø25	FTKA01842	-	TW06S-A

Available inserts **B5, B6**

HSK63A AM1500









KAPR 90°

- GAMP : −12.5°~13°
- GAMF : −17°~−6°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM15020026-1		3	20	53	42	78	26.5
	AM15025035-2		8	25	53	50	86	35
	AM15032044-2		10	32	53	60	96	44

● : Stock item

Available inserts

APMT-MA



APMT-ML

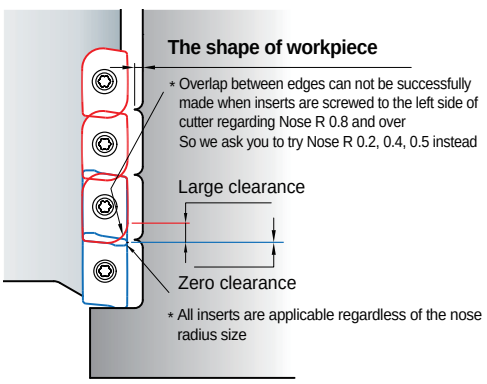


APMT-MM



	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																●	B5 B6
	090308PDFR-MA																	
	0903PDER-ML													●	●			
	090308PDER-ML													●	●			
	0903PDSR-MM		●					●	●	●	●			●	●			
	090308PDSR-MM		●							●				●	●			
	090312R-MM									●				●	●			
	090316R-MM		●							●				●	●			
	090320R-MM									●				●	●			

Caution when clamping the inserts



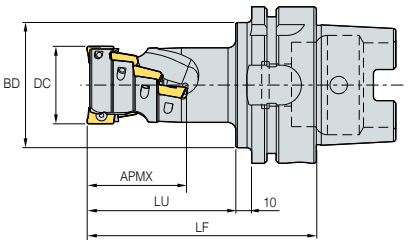
Parts

Specification	Screw	Wrench	Wrench
Ø20~Ø32	FTKA02565S	TW08S	-

Available inserts **B5, B6**

HSK63A AM2000









KAPR 90°

- GAMP : −12.5°~13°
- GAMF : −17°~−6°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK63A	AM2020029-1		3	20	53	45	81	29.4
	AM2025038-2		8	25	53	55	91	38.9
	AM2032048-2		10	32	53	65	101	48.5
	AM2040058-2		14	40	53	75	111	58
	AM2050039-4		16	50	53	58	94	39
	AM2063039-4		16	63	53	58	94	39
	AM2080039-5		20	80	53	63	99	39
	AM2100039-6		24	100	53	63	99	39

● : Stock item

Available inserts

APMT-MA | APMT-ML | APMT-MM | APMT-MF | APMT-MN



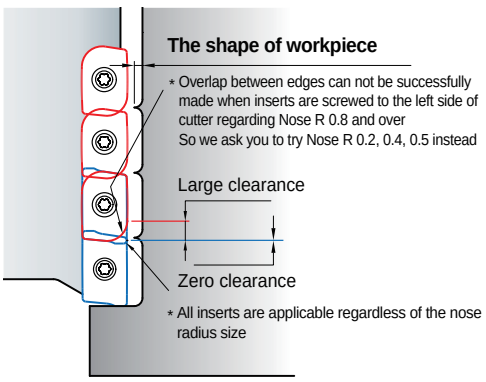




	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																●	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●			●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●							●	●			●	●			
	11T308PDSR-MM		●							●		●	●	●	●			
	11T312PDSR-MM		●							●		●		●	●			
	11T316R-MM		●							●				●	●			
	11T318R-MM																	
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN3													●				
	11T3PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts



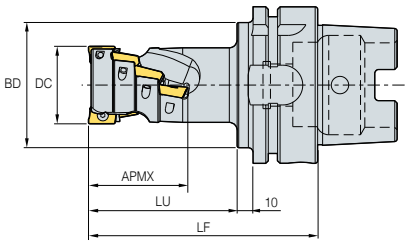
Parts

Specification	Screw	Wrench
Ø20~Ø100	FTKA02565S	TW08S

Available inserts **B5, B6**

HSK100A AM3000





KAPR 90°

• GAMP : −13°~15°
• GAMF : −11°~−4°

(mm)

	Designation	Stock	CICT	DC	BD	LU	LF	APMX
HSK100A	AM3050043-2		6	50	88	72	111	43
	AM3063057-4		16	63	88	86	125	57
	AM3080071-4		20	80	88	100	139	71
	AM3100071-6		30	100	88	100	139	71

● : Stock item

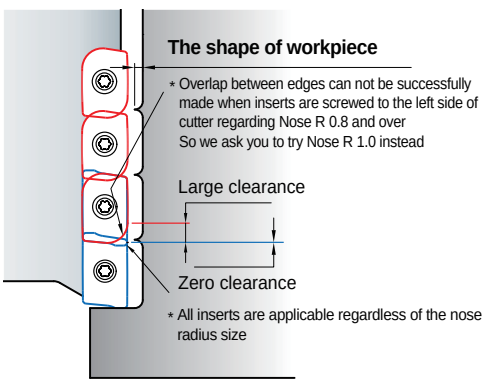
Available inserts

	APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
					

	Designation	Cermet	Coated												Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●		●		●	●	●	●	●	●	●	●			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM													●	●			
	160416PDSR-MM		●							●				●	●			
	160424R-MM		●							●				●	●			
	160430R-MM									●				●	●			
	160432R-MM		●							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts



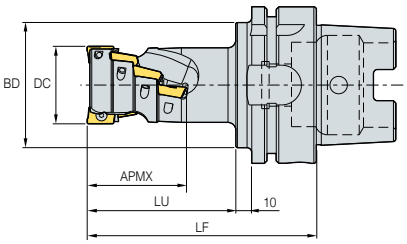
Parts

Specification	Screw	Wrench
Ø50~Ø100	FTKA0410	TW15S

Available inserts **B5, B6**

HSK100A AM4000









KAPR 90°

- GAMP : −13°~15°
- GAMF : −11°~−4°

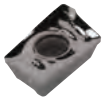
(mm)

Designation		Stock	CICT	DC	BD	LU	LF	APMX
HSK100A	AM4040046-2		6	40	88	75	114	46
	AM4050061-2		8	50	88	95	134	61
	AM4063061-4		16	63	88	90	129	61
	AM4080076-4		20	80	88	105	144	76
	AM4100076-6		30	100	88	105	144	76

● : Stock item

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN

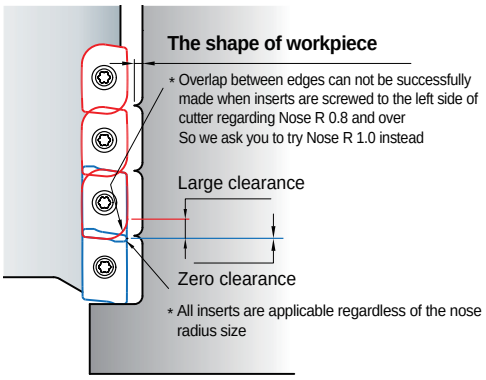


Designation	Cermet	Coated											Uncoated		page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT 1806PDFR-MA															●		B5
180604PDFR-MA															●		
180612PDFR-MA															●		
180616PDFR-MA															●		
180620PDFR-MA															●		
180624PDFR-MA															●		
180630R-MA															●		
1806PDER-ML													●	●			
180604PDER-ML													●	●			
180612PDER-ML													●	●			
180616PDER-ML													●	●			
180620PDER-ML													●	●			

Designation	Cermet	Coated											Uncoated		page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT 180624PDER-ML													●	●			B6
180630R-ML													●	●			
1806PDSR-MM		●					●	●	●	●	●	●	●	●			
1806PDSR-MF		●								●			●	●			
180612PDSR-MM		●							●				●	●			
180616PDSR-MM		●											●	●			
180620PDSR-MM																	
180624PDSR-MM		●											●	●			
180630R-MM													●	●			
180632R-MM		●											●	●			
1806PDSR-MN3													●				
1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

Caution when clamping the inserts



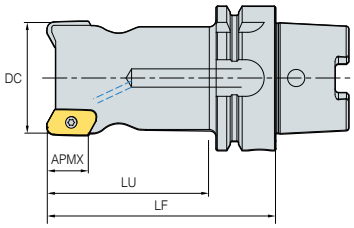
Parts

Specification	Screw	Wrench
Ø40~Ø100	FTKA0410	TW15S

Available inserts **B5, B6**

HSK63A PAV-XD19







KAPR 90°

- GAMP : 9°~13°
- GAMF : -11°~-13°

(mm)

	Designation	Stock A	Stock B	CICT	DC	BD	LU	LF	APMX
HSK63A-	PAV032R-3-100-XD19-A			3	32	63	60	100	17
	PAV050R-3-100-XD19-A			3	50	63	72	100	17
	PAV032R-3-100-XD19-B			3	32	63	60	100	17
	PAV050R-3-100-XD19-B			3	50	63	72	100	17

※ Type A Use Insert Nose R 0.4~3.2, and Type B Use Nose R 4.0~5.0
※ When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

● : Stock item

Available inserts

XDET-MA



Designation	Cermet	Coated											Uncoated		page	Designation	Cermet	Coated											Uncoated		page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET 190504PEFR-MA															●	●		XDET 190524PEFR-MA															●	●	
190508PEFR-MA															●	●		190530PEFR-MA															●	●	
190512PEFR-MA															●	●	B31	190532PEFR-MA															●	●	B31
190516PEFR-MA															●	●		190540PEFR-MA															●	●	
190520PEFR-MA															●	●		190550PEFR-MA															●	●	

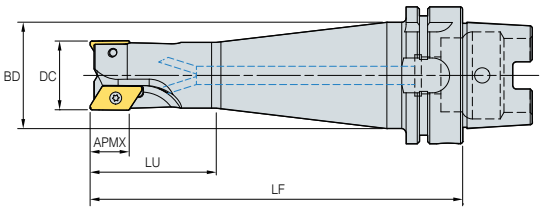
Parts

Specification	Screw	Wrench
Ø32~Ø50	PTKA0408-A	TW15S

Available inserts **B31**

HSK63A/100A PAX5000













KAPR 90°

- GAMP : 5°~17.5°
- GAMF : −14°~−5°

(mm)

Designation		Stock A	Stock B	CICT	DC	BD	LU	LF	APMX
HSK63A	PAX5032HR-A, B			2	32	53	58	163	17
HSK100A	PAXCM5080HR-A, B			5	80	-	66	95	17
	PAXCM5100HR-A, B			6	100	-	66	95	17

※ Type A Use Insert Nose R 0.4~3.2, and Type B Use Nose R 4.0~5.0
※ When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

● : Stock item

Available inserts

XEKT-MA



XEKT-ML



Designation	Cermet	Coated												Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504FR-MA												●	●				●	●	B31
19M508FR-MA												●	●				●	●	
19M512FR-MA												●	●				●	●	
19M516FR-MA													●				●	●	
19M518FR-MA																			
19M520FR-MA												●	●				●	●	
19M530FR-MA													●				●	●	
19M532FR-MA												●	●				●	●	
19M540FR-MA												●	●				●	●	
19M550FR-MA												●	●				●	●	

Designation	Cermet	Coated												Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504ER-ML																			B31
19M508ER-ML																			
19M512ER-ML																			
19M516ER-ML																			
19M518ER-ML																			
19M520ER-ML																			
19M530ER-ML																			
19M532ER-ML																			
19M540ER-ML																			
19M550ER-ML																			

Parts

Specification	Screw	Wrench
Ø32~Ø100	PTKA0407 / PTKA0408	TW15S

Available inserts **B31**

High productivity with optimized grade for high speed machining

O-ring Cutters

- Optimized for grooving the seat of an O-ring in a plastic mold
- Guarantees superior surface roughness compared to HSS and brazed tool
- High productivity with optimized grade for high speed machining
- Reduced time for regrinding and tool alignment
- Special types are available for quotation

Code system

• Insert

ORG - 325

O-ring Groove
Grooving insert

Width of groove
325 : 3.25

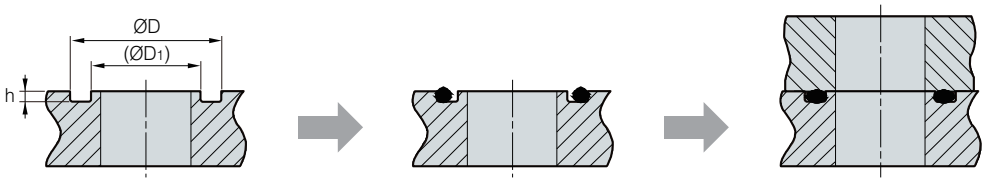
• Holder

ORC - P30

O-ring Cutter

O-ring size

Grooving and assembly of O-ring



Grooving seat for O-ring (O-ring cutter)

O-ring on the seat

Engaging the upper punch and lower punch of a plastic mold

(mm)

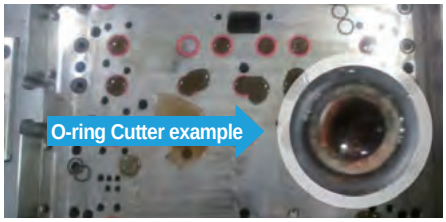
O-ring size	ØD	(ØD1)	h ± 0.05
P08	11.0	5.8	1.40
P09	12.0	6.8	
P10	13.0	7.8	
P11	15.0	8.5	1.80
P12	16.0	9.5	
P14	18.0	11.5	
P15	19.0	12.5	
P16	20.0	13.5	
P18	22.0	15.5	
P20	24.0	17.5	
P21	25.0	18.5	
P22	26.0	19.5	
P24	30.0	20.6	2.70
P25	31.0	21.6	

O-ring size	ØD	(ØD1)	h ± 0.05
P26	32.0	22.6	2.70
P28	34.0	24.6	
P29	35.0	25.6	
P30	36.0	26.6	
P31	37.0	27.6	
P32	38.0	28.6	
P34	40.0	30.6	
P35	41.0	31.6	
P38	44.0	34.6	
P40	46.0	36.6	
G25	30.0	21.8	2.40
G30	35.0	26.8	
G35	40.0	31.8	
G40	45.0	36.8	

Recommended cutting conditions

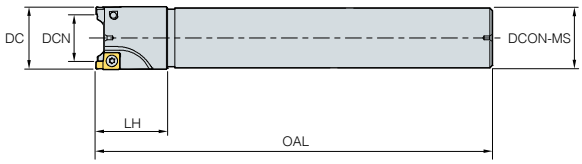
Workpiece	fz (mm/t)	vc (m/min)
		Coating
		PC3700
Stainless Steel (STS304)	0.03~0.12	60~130
Carbon Steel (SM□□C)	0.05~0.15	80~150
Alloy Steel (SCM)	0.05~0.15	80~150
Hardened Steel (STD, NAK)	0.03~0.12	60~130

Machining Example



ORC





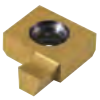
(mm)

Designation		Stock	CICT	DC	DCN	DCON-MS	LH	OAL	Available inserts	O-ring size
ORC -	P08		1	11	5.7	16	30	150	ORG265	P08
	P09		1	12	6.7	16	30	150	ORG265	P09
	P10		1	13	7.7	16	30	150	ORG265	P10
	P11		1	15	8.5	16	30	150	ORG325	P11
	P12		2	16	9.5	16	30	200	ORG325	P12
	P14		2	18	11.5	20	30	200	ORG325	P14
	P15		2	19	12.5	20	30	200	ORG325	P15
	P16		2	20	13.5	20	30	200	ORG325	P16
	P18		2	22	15.5	20	30	200	ORG325	P18
	P20		2	24	17.5	25	30	200	ORG325	P20
	P21		2	25	18.5	25	30	200	ORG325	P21
	P22		2	26	19.5	25	30	200	ORG325	P22
	P24		2	30	20.6	32	40	250	ORG470	P24
	P25		2	31	21.6	32	40	250	ORG470	P25
	P26		2	32	22.6	32	40	250	ORG470	P26
	P28		2	34	24.6	32	40	250	ORG470	P28
	P29		2	35	25.6	32	40	250	ORG470	P29
	P30		2	36	26.6	32	40	250	ORG470	P30
	P31		2	37	27.6	32	40	250	ORG470	P31
	P32		2	38	28.6	32	40	250	ORG470	P32
	P34		2	40	30.6	42	40	250	ORG470	P34
	P35		2	41	31.6	42	40	250	ORG470	P35
	P38		2	44	34.6	42	40	250	ORG470	P38
	P40		2	46	36.6	42	40	250	ORG470	P40
ORC -	G25		2	30	21.9	32	40	250	ORG405	G25
	G30		2	35	26.9	32	40	250	ORG405	G30
	G35		2	40	31.9	42	40	250	ORG405	G35
	G40		2	45	36.9	42	40	250	ORG405	G40

● : Stock item

Available inserts

ORG



Cutter Designation	Designation		Cermet	Coated												Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ORC-P08~P10	ORG	265																	B15
ORC-P11~P22		325									●								
ORC-P24~P40		470									●								
ORC-G25~G40		405																	

Parts

Specification	Screw	Wrench
Ø11~Ø26	FTKA0307	TW09S
Ø30~Ø46	FTGA03508	TW15S
Ø30~Ø45	FTGA03508	TW15S

Available inserts **B15**

All applications for chamfers

Chamfer Tool

- Chamfer angles 15°, 30°, 45°, 60° for a variety of customer's needs
- The long cutting-edge provides a wide chamfering range

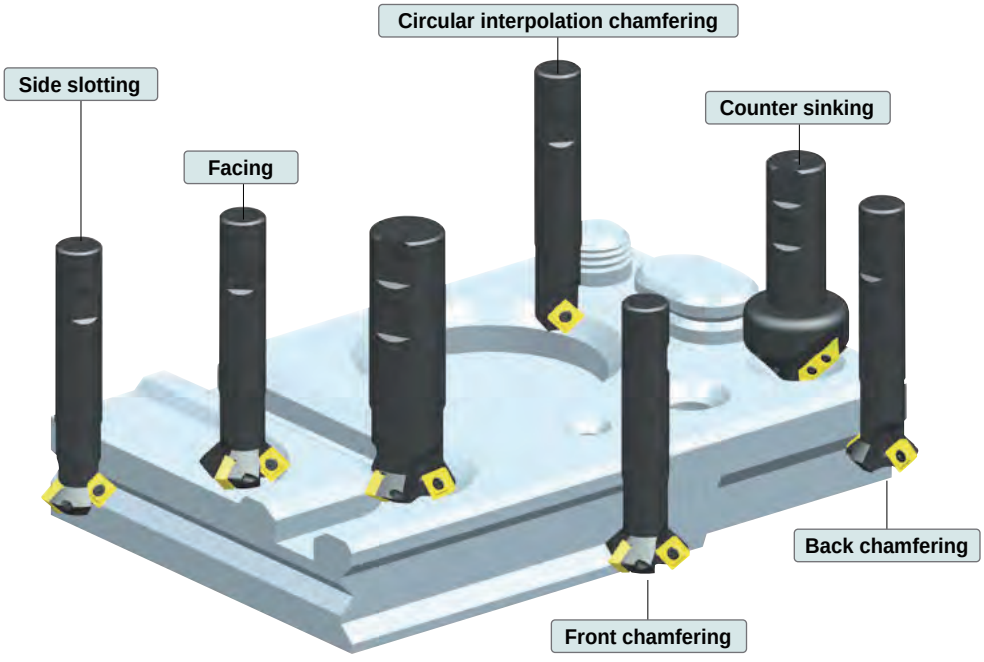
Code system

CE	45	-	11	25	R	-	S	20
Chamfer Endmill	**Chamfer angle** 45°		**Inscribed circle of insert** 11 : SPMT110408-KC 12 : SPMN120308 31 : XCET310404ER-KC	**Min. Cutting diameter** Ø25	**Hand** R : Right-handed L : Left-handed		**Overall length** S : Standard M : Middle L : Long	**Shank diameter** Ø20

Recommended cutting conditions

Workpiece	Grade	DCX (Ø5~Ø20)		DCX (Ø25~Ø35)	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
P	PC3700	160~270	0.05~0.25	160~270	0.05~0.25
	PC5300	190~310		190~310	
	ST30A	60~100		60~100	
M	PC5300	100~160	0.05~0.20	100~160	0.10~0.30
	PC5400	70~120		70~120	
K	PC5300	110~180	0.10~0.30	110~180	0.30~0.50
	G10	50~90		50~90	

Application example



Back & Front Chamfer Tools



Long Chamfer Tools



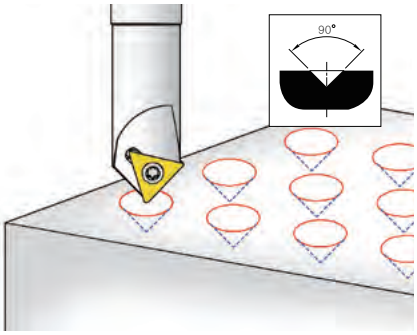
Multi-Functional Chamfer Tool

Code system

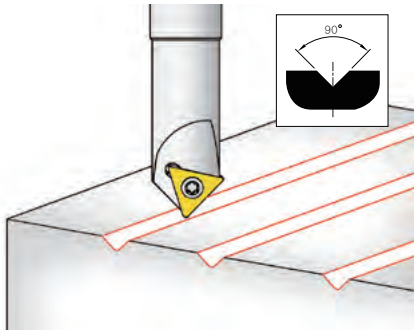
CE	45	-	16	00	R	-	S	20
Chamfer Endmill	**Chamfer angle** 45°		**Inscribed circle of insert** 16 : TWX16R-KC 22 : TWX22R-KC	**Min. Cutting diameter** Ø0	**Hand** R : Right-handed L : Left-handed		**Overall length** S = 90, 110 L = 200	**Shank diameter** Ø12 Ø20 Ø25

Application area and recommended cutting conditions

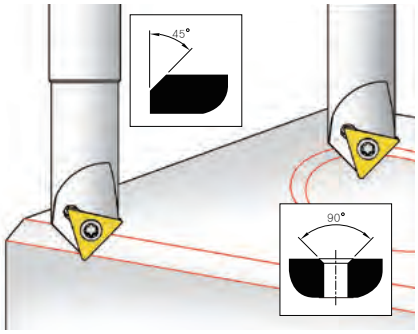
Centering



Grooving



Chamfering



Workpiece	Hardness (HRC)	Centering, Grooving		Chamfering	
		vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)
Carbon Steel, Alloy Steel	Under HRC 30	80~200	0.01~0.04	100~250	0.04~0.06
Carbon Steel, Alloy Steel	HRC 30~40	150~250	0.02~0.06	150~300	0.05~0.10
Aluminum, Copper(Al, Copper)	–	150~300	0.04~0.08	150~350	0.05~0.10
Cast iron(GC, GCD)	–	80~150	0.02~0.06	100~250	0.05~0.10
Stainless Steel	–	60~120	0.01~0.03	60~150	0.03~0.06
Ti, Ti-alloy		60~80	0.01~0.03	60~100	0.03~0.06

Note) Please keep fz. backtouch & chipping one caused by wrong fz

Machining example

Chamfering



Grooving

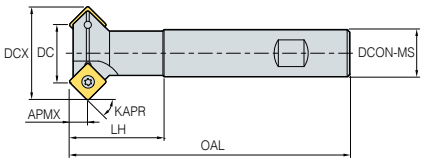


Centering



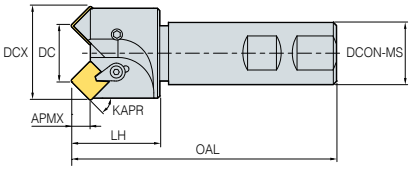
CE(Back & front)





• GAMP : 0°
• GAMF : 0°

Fig. 1



• GAMP : 0°
• GAMF : −12°~0°

Fig. 2



(mm)

Designation		Stock	CICT	DC	DCX	DCON-MS	APMX	Fig.	Available inserts	KAPR(°) Front	KAPR(°) Back	Machining range (Min-Max)	Use
CE	15-1125R-S20	●	2	25	30.5	20	9.5	1	SPMT110408-KC	15°	-	Ø25~Ø30	Front chamfering
	30-1125R-S20	●	2	25	35.5	20	8.5	1		30°	60°	Ø25~Ø35	Front, Back chamfering
	45-1107R-S20	●	1	7	21.9	20	7	1		45°	-	Ø7~Ø21	Front chamfering
	45-1119R-S20	●	2	19	33.9	20	7	1		45°	45°	Ø19~Ø33	Front, Back chamfering
	45-1125R-S20	●	3	25	39.9	20	7	1		45°	45°	Ø25~Ø39	Front, Back chamfering
	60-1125R-S32	●	3	25	43.3	32	5	1		60°	30°	Ø25~Ø42	Front, Back chamfering
	45-1207R-S32	●	1	7	23.3	32	7.8	2	SPMN120308	45°	-	Ø7~Ø22	Front chamfering
	45-1220R-S32	●	2	20	37.3	32	7.8	2		45°	-	Ø21~Ø36	Front chamfering
	45-1225R-S32	●	2	25	42.3	32	7.8	2		45°	-	Ø26~Ø41	Front chamfering
	45-1235R-S32	●	2	35	52.3	32	7.8	2		45°	-	Ø36~Ø51	Front chamfering

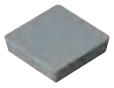
● : Stock item

Available inserts

SPMT-KC



SPMN



Designation		Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPMT	110408-KC									●						●	●		B27
SPMN	120308															●			

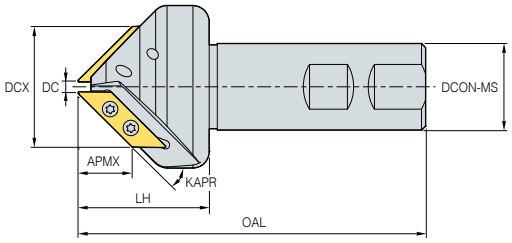
Parts

Specification	Screw	Clamp	C-Ring	Wrench	Wrench
Ø7~Ø25(1100 type)	FTKA0408	-	-	TW15S	-
Ø7~Ø35(1200 type)	CHX0617L	CH6R2N	CR05	-	HW30L

Available inserts **B27**

CE(Long chamfer)







• GAMP : –5°~1°
• GAMF : 0°

(mm)

	Designation	Stock	CICT	DC	DCX	DCON-MS	APMX	KAPR	Machining range (Min-Max)	Use
CE	30-3105R-S32	●	1	5	35	32	26	30	Ø5~Ø35	Front chamfering
	45-3105R-S32	●	2	5	48	32	21	45	Ø5~Ø48	Front chamfering
	60-3105R-S32	●	2	5	57	32	15	60	Ø5~Ø57	Front chamfering

● : Stock item

Available inserts

XCET-KC



	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XCET	310404ER-KC									●						●	●		B31

Parts

Specification	Screw	Wrench
Ø5	FTKA03510	TW15S

Available inserts **B31**

CE(Multi-functional)



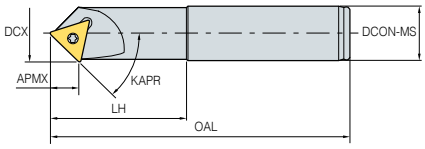


Fig. 1

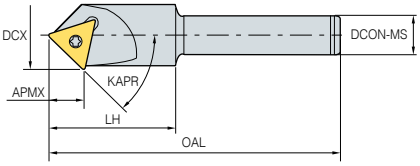


Fig. 2



• GAMP : −12°~15°
• GAMF : 0°

(mm)

	Designation	Stock	DCX	DCON-MS	LF	OAL	APMX	Fig.	Available inserts	Machining range (Min-Max)	Use
CE	45-1600R-S12	●	21.2	12	40	90	10	2	TWX16R-KC	Ø0 ~ Ø20	Centering Grooving Chamfering
	45-1600R-S20	●	21.2	20	50	110	10	1	TWX16R-KC	Ø0 ~ Ø20	
	45-1600R-L20	●	21.2	20	60	200	10	1	TWX16R-KC	Ø0 ~ Ø20	
	45-2200R-S12	●	28.8	12	40	90	14	2	TWX22R-KC	Ø0 ~ Ø27	
	45-2200R-S25	●	28.8	25	50	10	14	1	TWX22R-KC	Ø0 ~ Ø27	
	45-2200R-L25	●	28.8	25	60	200	14	1	TWX22R-KC	Ø0 ~ Ø27	

● : Stock item

Available inserts

TWX-KC



	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TWX	16R-KC									●				●					B29
	22R-KC									●									

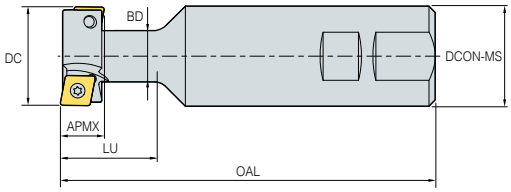
Parts

Specification	Screw	Wrench
Ø22~Ø29	FTNA0408	TW15L

Available inserts **B29**

TFE







KAPR 90°

- GAMP : 5°
- GAMF : −5°

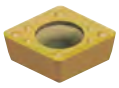
(mm)

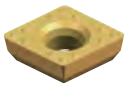
	Designation	Stock R	Stock L	CICT	DC	DCON-MS	DN	LH	OAL	APMX	Available inserts
TFE	2125R/L	●		2	21	25	10.5	40	109	9	CPMT06
	2525R/L	●		2	25	25	12.5	41	112	11	CPMT08
	3232R/L	●		2	32	32	16.5	48	120	14	CPMT09
	4032R/L	●		2	40	32	20.5	50	130	18	CPMH12
	5032R/L	●		4	50	32	26.5	63	140	22	CPMH12

● : Stock item

Available inserts

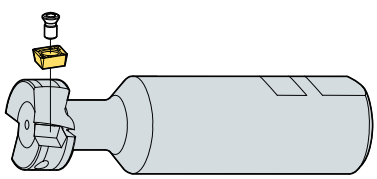
CPMT CPMH





	Designation	Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
CPMT	060204-MM									●									
	080308-MM									●									B7
	09T308-MM									●									B8
CPMH	120408-MM									●									

Assembling



Parts

Specification	Screw	Wrench
Ø21	FTNA02555	TW08S
Ø25	FTNA0306	TW09S
Ø32	FTNA0407	TW15S
Ø40	PTMA0511A	TW15S
Ø50	PTMA0511A	TW15S

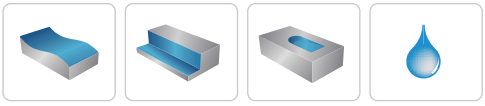
Available inserts **B7, B8**

Inserts feature a buffed top surface ensuring better chip control and reducing built-up edge

Pro-A Mill

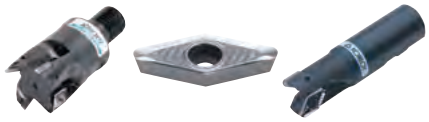
- Buffed top face of insert ensures good chip control and reduces built-up edge
- Small size modular type for aluminum machining
- Various line up of modular system for aluminum machining
- For shouldering, curved surface and ramping
- High rake angle chip breaker ensures excellent surface roughness, improved cooling effects, and chip control by through coolant system, even in deep pocket machining

Use



Copying | Shouldering | Ramping | Through coolant system

Pro-A Mill series

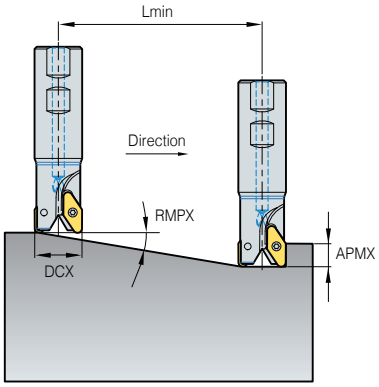
Type		Available inserts and tool holders	Through coolant system
Application of small-sized Aluminum machining	**Pro-A 2000**	 • Modular: Ø12~Ø42 • Shank: Ø12~Ø42 • Insert: VDKT11T210N-MA VDKT11T220N-MA	O
General application of Aluminum machining	**Pro-A 4000**	 • cutter: Ø40~Ø100 • Shank: Ø32~Ø40 • Insert: VCKT220530N-MA	O

Recommended cutting conditions

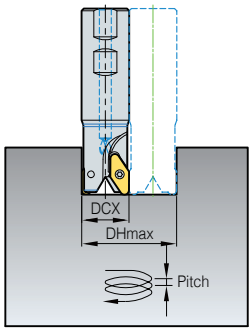
Workpiece		Cutting speed vc (m/min)
Aluminum alloy	Rm < 280 MPa	1000
	Rm > 280 MPa	800
Copper alloy	Long chip	250
Thermo plastic	-	300
Aluminum alloy	Si < 12%	800
Copper alloy	Short chip	400
Magnesium alloy	-	400
Duroplastics	-	150

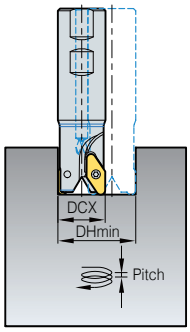
Pro-A Mill ramping & helical cutting technical data

Ramping



Helical cutting





(mm)

Designation	DCX	Ramping		Blind hole helical cutting				Thru hole helical cutting	
		RMPX	Lmin	DHmin	Max pitch	DHmax	Max pitch	DHmin	Max pitch
PAS2012HR	12	11.9	38	21	4.4	23	4.8	19	4.0
PAS2016HR	16	12.5	36	29	6.4	31	6.9	27	6.0
PAS2020HR	20	9.7	47	37	6.3	39	6.7	35	6.0
PAS2025HR	25	7.6	60	47	6.3	49	6.5	45	6.0
PAS2032HR	32	5.8	79	61	6.2	63	6.4	59	6.0
PAS2042HR	42	4.3	105	81	6.2	83	6.3	79	6.0
PAS4032HR	32	24.4	22	54	15.0	59	26.8	40	15.0
PAS4040HR	40	18.4	30	70	15.0	75	25.0	56	15.0
PAS4050HR	50	14.0	40	90	15.0	95	23.8	76	15.0
PAS4063HR	63	10.7	53	116	15.0	121	22.8	102	15.0
PAC(M)4080HR	80	8.1	70	150	15.0	155	22.1	136	15.0
PAC(M)4100HR	100	6.3	90	190	15.0	195	21.7	176	15.0

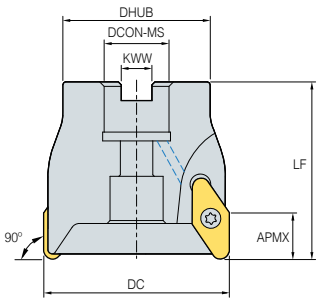
- Lmin: When ap = 8 mm
- Lmin: Minimum inclination cutting length

$$\text{Lmin} = \frac{\text{APMX}}{\tan(\text{RMPX})} \text{ (mm)}$$

- RPMX: Max. ramping angle
- ap: Depth of cut

PAC(M)2000/4000





KAPR 90°

- GAMP : 0°
- GAMF : −3°

(mm)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
PACM	2040HR		3	40	34	16	8.4	40	8	0.2
	2050HR		4	50	42	22	10.4	50	8	0.4
	2063HR		5	63	49	22	10.4	50	8	0.6
	2080HR		5	80	57	27	12.4	50	8	0.9
	2100HR		6	100	67	32	14.4	63	8	1.9
	4040HR	●	3	40	34	16	8.4	55	15	0.2
	4050HR	●	3	50	42	22	10.4	55	15	0.3
	4063HR	●	4	63	49	22	10.4	60	15	0.6
	4080HR		4	80	57	27	12.4	60	15	1
	4100HR	●	5	100	67	32	14.4	60	15	1.6
PAC	2080HR		5	80	57	25.4	9.5	50	8	0.9
	2100HR		6	100	67	31.75	12.7	63	8	1.9
	4080HR		4	80	60	25.4	9.5	60	15	1
	4100HR		5	100	80	31.75	12.7	60	15	1.6

● : Stock item

Available inserts

VCKT-MA



Type	Designation		Cermet	Coated											Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
2000type	VDKT	11T210N-MA																	●	B29
4000type	VCKT	220530N-MA																	●	

Available arbors

Cutter Designation		DCON-MS	NC arbors
PAC (PACM)	2040HR	16	BT□□-FMC16-□□
	2050HR	22	BT□□-FMC22-□□
	2063HR	22	BT□□-FMC22-□□
	2080HR	25.4	BT□□-FMC25.4-□□
		27	BT□□-FMC27-□□
	2100HR	31.75	BT□□-FMC31.75-□□
		32	BT□□-FMC32-□□

Cutter Designation		DCON-MS	NC arbors
PAC (PACM)	4040HR	16	BT□□-FMC16-□□
	4050HR	22	BT□□-FMC22-□□
	4063HR	22	BT□□-FMC22-□□
	4080HR	25.4	BT□□-FMC25.4-□□
		27	BT□□-FMC27-□□
	4100HR	31.75	BT□□-FMC31.75-□□
		32	BT□□-FMC32-□□

Parts

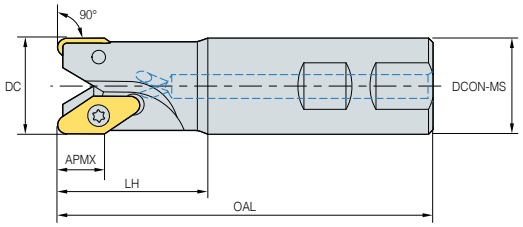
Specification	Screw	Wrench	Arbor Bolt
Ø40~Ø100(2000 type)	ETNA02506	TW07S	
Ø40~Ø100(4000 type)	FTNC04509(Ø40) FTNC04511	TW20S	PHMA0834(Ø40)

Available inserts **B29** Available arbors and bolt **E96**

* For PAS2012·2016

PAS2000/4000





KAPR 90°

- GAMP : 0°~7°
- GAMF : −21°~−3°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
PAS	2012HR	●	1	12	16	25	85	8	0.1
	2016HR	●	2	16	16	25	90	8	0.1
	*2016HR-R2.0		2	16	16	25	90	6	0.1
	2020HR	●	2	20	20	30	100	8	0.2
	*2020HR-R2.0		2	20	20	30	100	6	0.2
	2025HR	●	3	25	25	35	115	8	0.4
	2032HR		4	32	32	40	125	8	0.7
	2042HR		5	42	32	42	130	8	0.8
	4032HR	●	2	32	32	50	125	15	0.6
	4040HR	●	3	40	32	50	140	15	0.8
	4040HR-S40		3	40	40	60	150	15	1.2
	4040HR-S42		3	40	42	60	150	15	1.2

* Holders marked with an asterisk (*) are only for VDKT11T220N-MA.

● : Stock item

Available inserts

VDKT-MA VCKT-MA




Type	Designation		Cermet	Coated												Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
2000type	VDKT	11T210N-MA																	●	B29
		11T220N-MA																		
4000type	VCKT	220530N-MA																	●	

Parts

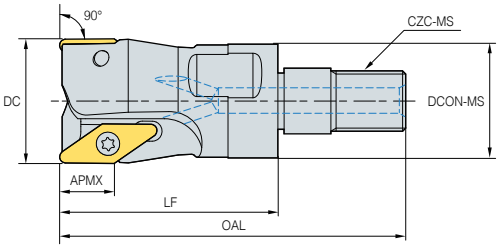
Specification	Screw	Wrench
Ø12~Ø42(2000 type)	ETNA02505* / ETNA02506	TW07S
Ø32~Ø40(4000 type)	FTNC04509	TW20S

Available inserts **B29**

* For PAS2012·2016

PAM2000





KAPR 90°

- GAMP : 7°~10°
- GAMF : –21°~–9°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
PAM	2012HR-M06		1	12	11	33	48	M06	8	0.1
	2016HR-M08	●	2	16	14.5	36	53	M08	8	0.1
	2020HR-M10	●	2	20	18	36	57	M10	8	0.1
	2025HR-M12	●	3	25	22.5	41	65	M12	8	0.1
	2032HR-M16		4	32	29	45	72	M16	8	0.2
	2042HR-M16		5	42	29	45	72	M16	8	0.3

● : Stock item

Available inserts

VDKT-MA



	Designation	Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
VDKT	11T210N-MA																	●	B29

Available adaptors

	Designation	Available adaptors
PAM	2012HR-M06	MAT-M06
	2016HR-M08	MAT-M08
	2020HR-M10	MAT-M10
	2025HR-M12	MAT-M12
	2032HR-M16	MAT-M16
	2042HR-M16	MAT-M16

Designation: PAM2012HR-M06
Modular head threading measure size (M06)

II

Adaptor spec.: MAT-M06-030-S20S
Adaptor threading measure (M06)

Parts

Specification	Screw	Wrench
Ø12~Ø42	ETNA02505* / ETNA02506	TW07S

Available inserts **B29** Available adaptor **E400**

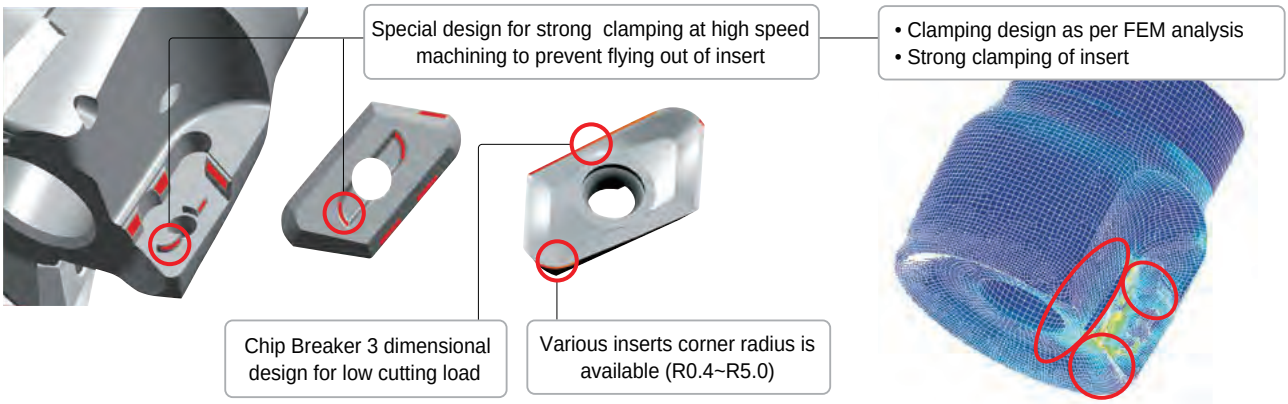
* For PAS2012·2016

Features a strong clamping provided by the concave grooves on the back surface of the inserts

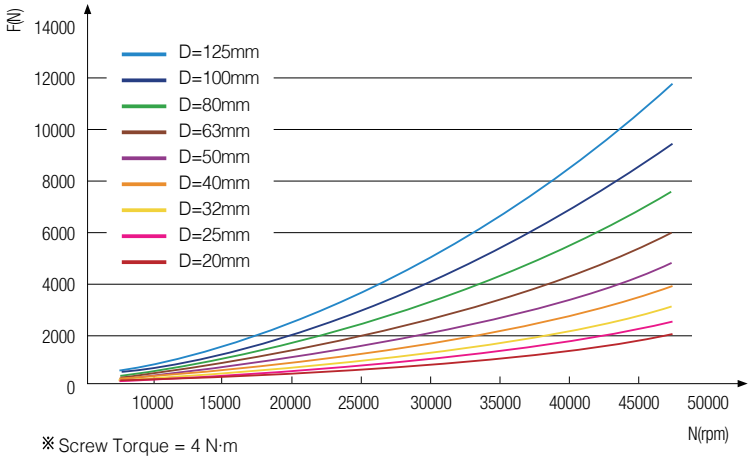
Pro-X Mill

- Inserts feature a buffed top surface ensuring a smoother chip evacuation and reducing built-up edge
- High rake angle of insert provides good surface finish and low cutting load
- Specially designed for high speed machining of aluminum
- Suitable for square shouldering and curved surface machining

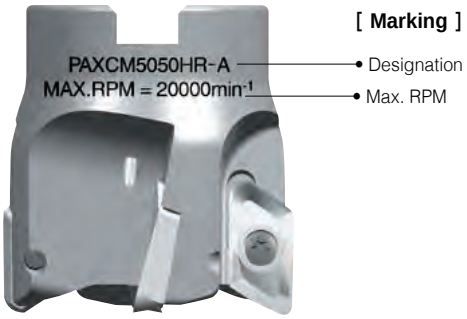
Clamping system for high speed



Centrifugal force as per RPM



※ Screw Torque = 4 N·m
※ Indexable insert: 6.8g



Max. RPM as per cutting diameter

Cutting diameter DC	5000 type		6000 type	
	n(min^{-1})	vc(m/min)	n(min^{-1})	vc(m/min)
20	14,000	879	-	-
25	28,000	2,199	15,000	1,178
32	25,000	2,513	23,000	2,312
40	22,000	2,764	20,000	2,513
50	20,000	3,141	18,000	2,827
63	18,000	3,562	16,000	3,166
80	16,000	4,021	14,000	3,518
100	14,000	4,398	13,000	4,084
125	13,000	5,105	11,000	4,319

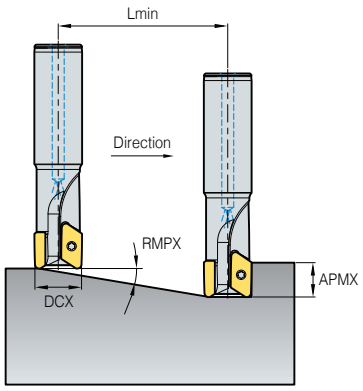
※ In case of actual machining accidental breakage of insert or tool could happen even under the written RPM special cover or door is necessary to prevent damage from broken insert or broken tool

Recommended cutting conditions

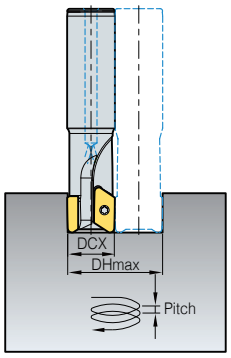
Workpiece		Cutting Speed vc(m/min)	Feed fz(mm/t)
Aluminum alloy	Rm280 < MPa Rm280 > MPa	1200 1000	0.30 0.25
Copper alloy **Thermo plastic**	Long chipping -	400 350	0.20 0.15
Aluminum alloy	Si <12% Si ≥12%	1000 300	0.25 0.23
Copper alloy	Short chipping	500	0.20
Magnesium alloy	-	450	0.20
Duroplastics	-	200	0.15

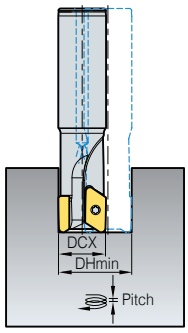
Pro-X Mill ramping & helical cutting technical data

Ramping



Helical cutting





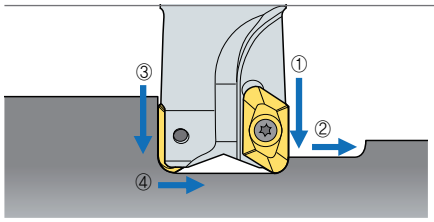
(mm)

Designation	DCX	Ramping		Blind hole Helical cutting				Thru hole Helical cutting	
		RMPX	Lmin	DHmin	Max pitch	DHmax	Max pitch	DHmin	Max pitch
PAXS5020HR	20	8.4	68	32	4.7	34	5.0	27	4.0
PAXS5025HR	25	13.2	43	42	9.9	44	10.4	34	8.0
PAXS5032HR	32	9.5	60	56	9.3	58	9.7	48	8.0
PAXS5040HR	40	7.1	80	72	9.0	74	9.3	64	8.0
PAXCM5050HR	50	5.4	105	92	8.8	94	9.0	84	8.0
PAXCM5063HR	63	4.2	138	118	8.6	120	8.7	110	8.0
PAXC(M)5080HR	80	3.2	180	152	8.4	154	8.6	144	8.0
PAXC(M)5100HR	100	2.5	230	192	8.3	194	8.4	184	8.0
PAXC(M)5125HR	125	2.0	293	242	8.3	244	8.3	234	8.0
PAXS6025HR	25	9.0	63	42	6.6	44	6.9	38	6.0
PAXS6032HR	32	6.6	87	56	6.5	58	6.7	52	6.0
PAXS6040HR	40	12.1	47	72	15.4	74	15.9	56	12.0
PAXCM6050HR	50	9.0	63	92	14.5	94	14.8	76	12.0
PAXCM6063HR	63	6.7	85	118	13.9	120	14.1	102	12.0
PAXC(M)6080HR	80	5.0	113	152	13.4	154	13.6	136	12.0
PAXC(M)6100HR	100	3.9	147	192	13.1	194	13.2	176	12.0
PAXC(M)6125HR	125	3.0	188	242	12.8	244	13.0	226	12.0

$$\text{Lmin} = \frac{\text{APMX}}{\tan(\text{RMPX})} \text{ (mm)}$$

- **Lmin** = Minimum inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

Plunging, slotting, drilling technical data



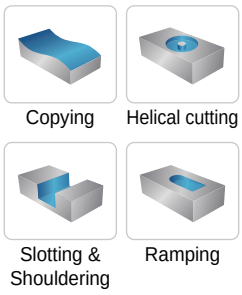
1. When drilling, grooving machining sequence is ① → ② → ③ → ④
2. When drilling, grooving, decrease the feed and cutting speed 30%~50% from the recommended data

• Cutting conditions for drilling

Holder	ap(mm)	
	5000 type	6000 type
Ø20	8	-
Ø25	4	11
Ø32	4	6
Ø40~125	4	6

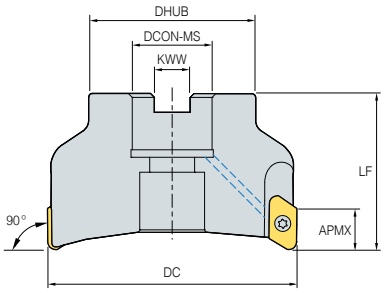
Insert	ap(mm)
XEKT19	4
XEKT25	6

Use



PAXC(M)5000





KAPR 90°

- GAMP : 8°~17.5°
- GAMF : −9.5°~−5°

(mm)

Designation		Stock A	Stock B	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
PAXCM	5040HR-A,B	●	●	3	40	34	16	8.4	40	17	0.15
	5050HR-A,B	●	●	4	50	42	22	10.4	50	17	0.3
	5063HR-A,B	●	●	5(4)	63	49	22	10.4	50	17	0.56
PAXC (PAXCM)	5080HR-A,B	● (●)	● (●)	5	80	57	25.4(27)	9.5(12.4)	50	17	1.0
	5100HR-A,B	● (●)	● (●)	6	100	67	31.75(32)	12.7(14.4)	63	17	2.3
	5125HR-A,B	●	(●)	7	125	87	38.1(40)	15.9(16.4)	63	17	3.2

• A type: Insert Nose R 0.4~3.2, B type: Insert Nose R 4.0~5.0

( )Metric size, ● : Stock item

Available inserts

XEKT-MA



XEKT-ML



Designation	Cermet	Coated												Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504FR-MA												●	●			●	●	B31
19M508FR-MA												●	●			●	●	
19M512FR-MA												●	●			●	●	
19M516FR-MA													●			●	●	
19M518FR-MA																		
19M520FR-MA												●	●			●	●	
19M530FR-MA													●			●	●	
19M532FR-MA												●	●			●	●	
19M540FR-MA												●	●			●	●	
19M550FR-MA												●	●			●	●	

Designation	Cermet	Coated												Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504ER-ML																		B31
19M508ER-ML																		
19M512ER-ML																		
19M516ER-ML																		
19M518ER-ML																		
19M520ER-ML																		
19M530ER-ML																		
19M532ER-ML																		
19M540ER-ML																		
19M550ER-ML																		

Available arbors

Cutter Designation		DCON-MS	Available arbors
PAXCM	5040HR-A,B	16	BT□□-FMC16-□□
	5050HR-A,B	22	BT□□-FMC22-□□
	5063HR-A,B		
PAXC (PAXCM)	5080HR-A,B	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	5100HR-A,B	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	5125HR-A,B	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

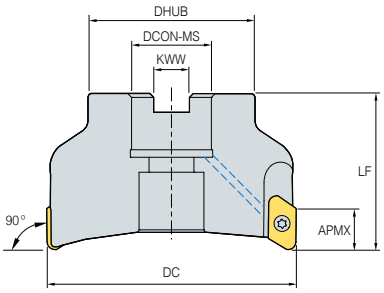
Parts

Specification	Screw	Wrench
Ø40~Ø125	PTKA0408	TW15S

Available inserts **B31** Available arbors and bolt **E94 ~ E96**

PAXC(M)6000





KAPR 90°

- GAMP : 8°~17.5°
- GAMF : −9.5°~−5°

(mm)

Designation		Stock A	Stock B	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
PAXCM	6050HR-A,B			2	50	42	16	8.4	50	23	0.4
	6063HR-A,B	●		3	63	49	22	10.4	50	23	0.5
PAXC (PAXCM)	6080HR-A,B	●	(●)	4	80	57	25.4(27)	9.5(12.4)	50	23	0.8
	6100HR-A,B	●		5	100	67	31.75(32)	12.7(14.4)	63	23	1.6
	6125HR-A,B			6	125	87	38.1(40)	15.9(16.4)	63	23	2.6

• A type: Insert Nose R 0.4~3.2, B type: Insert Nose R 4.0~5.0

( )Metric size, ● : Stock item

Available inserts

XEKT-MA



XEKT-ML



Designation	Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	H05	page
XEKT 250604FR-MA																	●	●	B31
250608FR-MA																	●	●	
250612FR-MA																	●	●	
250616FR-MA																			
250620FR-MA																	●	●	
250630FR-MA																			
250632FR-MA																	●	●	
250640FR-MA																			
250650FR-MA																	●	●	

Designation	Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	H05	page
XEKT 250604ER-ML																			B31
250608ER-ML																			
250612ER-ML																			
250616ER-ML																			
250620ER-ML																			
250630ER-ML																			
250632ER-ML																			
250640ER-ML																			
250650ER-ML																			

Available arbors

Cutter Designation		DCON-MS	Available arbors
PAXCM	6050HR-A,B	16	BT□□-FMC16-□□
	6063HR-A,B	22	BT□□-FMC22-□□
PAXC (PAXCM)	6080HR-A,B	25.4	BT□□-FMA25.4-□□
		27	BT□□-FMC27-□□
	6100HR-A,B	31.75	BT□□-FMA31.75-□□
		32	BT□□-FMC32-□□
	6125HR-A,B	38.1	BT□□-FMA38.1-□□
		40	BT□□-FMC40-□□

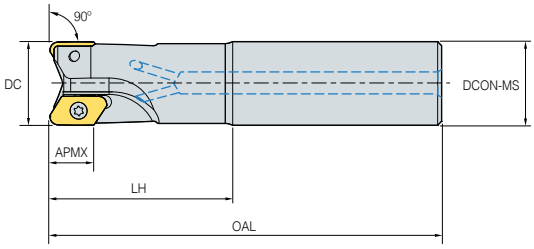
Parts

Specification	Screw	Wrench
Ø50~Ø125	FTGA0513-P	TW20-100

Available inserts **B31**

PAXS5000





KAPR 90°

- GAMP : 5°~10°
- GAMF : −14°~−5°

(mm)

	Designation	Stock A	Stock B	CICT	DC	DCON-MS	LH	OAL	APMX	kg
PAXS	5020HR-A,B	●	●	1	20	20	60	130	17	0.2
	5025HR-A,B	●	●	2	25	25	60	140	17	0.4
	5025HR-A,B-L200	●		2	25	25	60	200	17	0.6
	5032HR-A,B	●	●	2	32	32	70	150	17	0.7
	5032HR-A,B-L220			2	32	32	70	220	17	1.2
	5040HR-A,B-S32			3	40	32	70	160	17	1
	5040HR-A,B-L220			3	40	32	70	220	17	1.3
	5040HR-A,B-S40			3	40	40	70	160	17	1.3
	5040HR-A,B-S42			3	40	42	70	160	17	1.4

• A type: Insert Nose R 0.4~3.2, B type: Insert Nose R 4.0~5.0

● : Stock item

Available inserts

XEKT-MA



XEKT-ML



Designation	Cermet	Coated												Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504FR-MA												●	●		●	●			B31
19M508FR-MA												●	●		●	●			
19M512FR-MA												●	●		●	●			
19M516FR-MA													●		●	●			
19M518FR-MA																			
19M520FR-MA												●	●		●	●			
19M530FR-MA													●		●	●			
19M532FR-MA												●	●		●	●			
19M540FR-MA												●	●		●	●			
19M550FR-MA												●	●		●	●			

Designation	Cermet	Coated												Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504ER-ML																			B31
19M508ER-ML																			
19M512ER-ML																			
19M516ER-ML																			
19M518ER-ML																			
19M520ER-ML																			
19M530ER-ML																			
19M532ER-ML																			
19M540ER-ML																			
19M550ER-ML																			

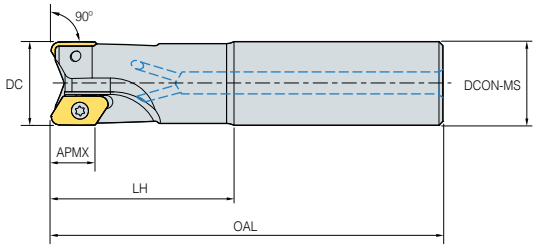
Parts

Specification	Screw	Wrench
Ø20	PTKA0407	TW15S
Ø25~Ø40	PTKA0408	TW15S

Available inserts **B31**

PAXS6000







KAPR 90°

- GAMP : 5°~10°
- GAMF : −14°~−5°

(mm)

	Designation	Stock A	Stock B	CICT	DC	DCON-MS	LH	OAL	APMX	kg
PAXS	6025HR-A,B	●		1	25	25	60	140	23	0.4
	6025HR-A,B-L200	●		1	25	25	60	200	23	0.6
	6032HR-A,B	●		1	32	32	70	150	23	0.8
	6032HR-A,B-L220			1	32	32	70	220	23	1.1
	6040HR-A,B-S32	●		2	40	32	70	160	23	0.9
	6040HR-A,B-L220			2	40	32	70	220	23	1.2
	6040HR-A,B-S40			2	40	40	70	160	23	1.2
	6040HR-A,B-S42			2	40	42	70	160	23	1.3

• A type: Insert Nose R 0.4~3.2, B type: Insert Nose R 4.0~5.0

● : Stock item

Available inserts

XEKT-MA



XEKT-ML



Designation	Cermet	Coated											Uncoated				page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT 250604FR-MA															●		●	●	B31
250608FR-MA															●		●	●	
250612FR-MA															●		●	●	
250616FR-MA																			
250620FR-MA															●		●	●	
250630FR-MA																			
250632FR-MA															●		●	●	
250640FR-MA																			
250650FR-MA															●		●	●	

Designation	Cermet	Coated											Uncoated				page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT 250604ER-ML																			B31
250608ER-ML																			
250612ER-ML																			
250616ER-ML																			
250620ER-ML																			
250630ER-ML																			
250632ER-ML																			
250640ER-ML																			
250650ER-ML																			

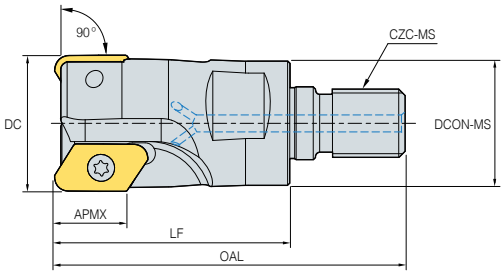
Parts

Specification	Screw	Wrench
Ø25~Ø32	FTGA0510-P	TW20-100
Ø40	FTGA0513-P	TW20-100

Available inserts **B31**

PAXM5000





KAPR 90°

- GAMP : 6°~8°
- GAMF : −7°~−5°

(mm)

	Designation	Stock A	Stock B	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	kg
PAXM	5025HR-A,B-M12	●		2	25	23	55	79	M12	17	0.1
	5032HR-A,B-M16	●		2	32	29	55	82	M16	17	0.2
	5040HR-A,B-M16	●		3	40	29	55	82	M16	17	0.3

• A type: Insert Nose R 0.4~3.2, B type: Insert Nose R 4.0~5.0

● : Stock item

Available inserts

XEKT-MA



XEKT-ML



Designation	Cermet	Coated											Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504FR-MA													●	●			●	●	B31
19M508FR-MA													●	●			●	●	
19M512FR-MA													●	●			●	●	
19M516FR-MA													●				●	●	
19M518FR-MA																			
19M520FR-MA													●	●			●	●	
19M530FR-MA													●				●	●	
19M532FR-MA													●	●			●	●	
19M540FR-MA													●	●			●	●	
19M550FR-MA													●	●			●	●	

Designation	Cermet	Coated											Uncoated				page
	CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT 19M504ER-ML																			B31
19M508ER-ML																			
19M512ER-ML																			
19M516ER-ML																			
19M518ER-ML																			
19M520ER-ML																			
19M530ER-ML																			
19M532ER-ML																			
19M540ER-ML																			
19M550ER-ML																			

Available adaptors

Cutter Designation		Available adaptors
PAXM	5025HR-A,B-M12	MAT-M12
	5032HR-A,B-M16	MAT-M16
	5040HR-A,B-M16	

Designation: PAXM5025HR-M12
Modular head threading measure size (M12)

II

Adaptor spec.: MAT-M12-030-S25S
Adaptor threading measure (M12)

Parts

Specification	Screw	Wrench
Ø25~Ø40	PTKA0408	TW15S

Available inserts **B31** Available adaptor **B400**

New indexable milling tool for the machining of high quality workpieces

Pro-L Mill

- Improved perpendicularity and lower cutting resistance due to the combined design of the clearance face and high helix edge of these inserts
- Strong clamping design by adaption of double screw on system
- Improved chip flow due to helical type design of chip pocket and application of coolant system

Use



Facing | Shouldering | Slotting | Ramping | Helical cutting

Code system

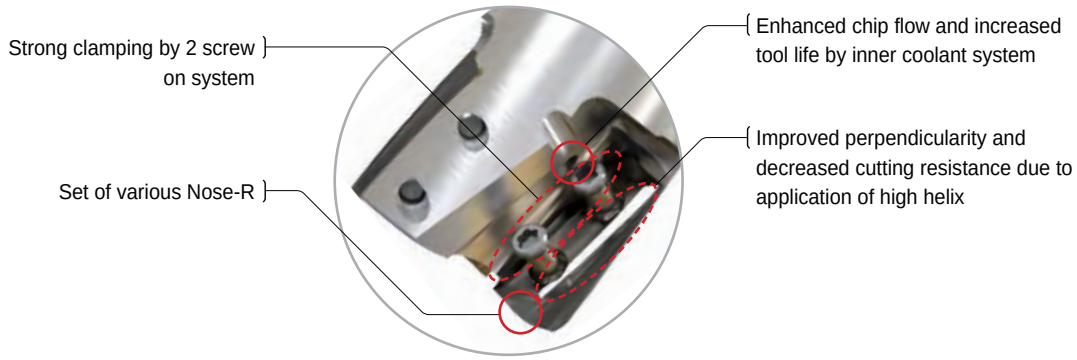
• **Cutter**

PAL	C	M	063	H	R
Pro-L Mill	**Cutter type** C : Cutter	**Unit** M : Metric	**Tool diameter** 063 : Ø63	**Coolant type** H : Thru-hole Unmarked : None	**Hand** R : Right-handed M : Multi-edge

• **Shank**

PAL	S	050	H	R	-	3	S	40
Pro-L Mill	**Shank type** S : Shank	**Tool diameter** 050 : Ø50	**Coolant type** H : Thru-hole Unmarked : None	**Hand** R : Right-handed M : Multi-edge		**No. of tooth** 3 : 3 teeth	**Tool length** S : Standard type M : Middle type L : Long type	**Shank diameter** 40 : Ø40

Features



Features of chip breakers

Insert		Cutting-edge	Use	Features
MA			Al	Edge optimized for aluminum machining and buffed finish ensuring an excellent machining quality
ML			Hard-to-cut material	Design of low cutting resistance chip breaker ensures excellent machining quality for light cutting and hard-to-cut material

Selection of grades and chip breaker

Category	M (Stainless steel)	N (Aluminum alloy)	S (HRSA)
Grade	PC5300/PC5400	H01	PC5300/PC5400
MA	-	○	-
ML	○	-	○

Application examples

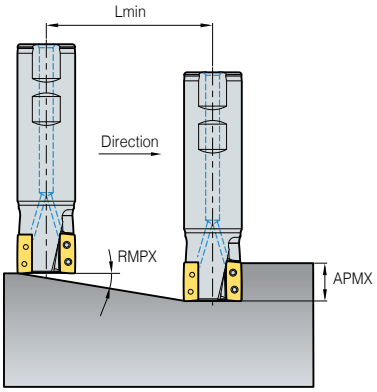
Al6061(HRC30)

Cutting condition vc = 500 m/min, fz = 0.2 mm/t, ap = 30~60 mm,
ae = 1~5 mm (finishing: 1 mm, roughing: 5 mm), z = 3

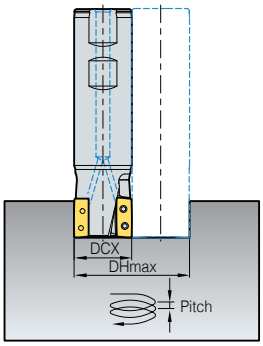


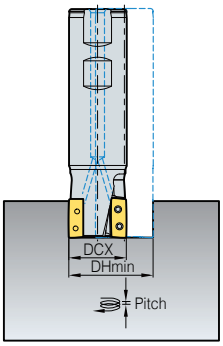
Pro-L Mill ramping & helical cutting technical data

Ramping



Helical cutting





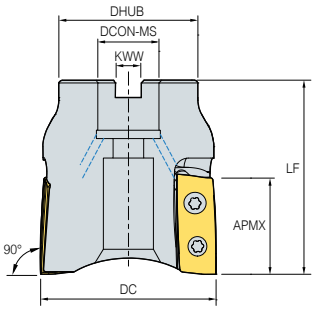
Designation	DCX	Ramping		Blind hole helical cutting				Thru hole helical cutting	
		RMPX	Lmin	DHmin	Max pitch	DHmax	Max pitch	DHmin	Max pitch
PALS032HR-2S20	32	3.37	170	60	3.5	62	3.6	55	3.2
PALS032HR-2S25	32	3.37	170	60	3.5	62	3.6	55	3.2
PALS032HR-2S32	32	3.37	170	60	3.5	62	3.6	55	3.2
PALS040HR-2S32	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-2S40	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-2S42	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-3S32	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-3S40	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS040HR-3S42	40	2.12	270	76	2.8	78	2.9	71	2.6
PALS050HR-3S32	50	2.08	275	96	3.5	98	3.6	91	3.3
PALS050HR-3S40	50	2.08	275	96	3.5	98	3.6	91	3.3
PALS050HR-3S42	50	2.08	275	96	3.5	98	3.6	91	3.3
PALS063HR-4S32	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HR-4S40	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HR-4S42	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HM-4S32	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HM-4S40	63	1.76	325	122	3.8	124	3.8	117	3.6
PALS063HM-4S42	63	1.76	325	122	3.8	124	3.8	117	3.6
PALCM063HR	63	1.76	325	122	3.8	124	3.8	117	3.6

$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (mm)}$$

- **Lmin** = Minimum inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

PALCM







KAPR 90°

- GAMP : 16°
- GAMF : −8°

(mm)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
PALCM	063HR	●	4	63	50	22	10.4	70	34	0.8

● : Stock item

Available inserts



Designation		Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LXET	340504PEFR-63-MA																		B13
	3405PEFR-63-MA																	●	
	340512PEFR-63-MA																		
	340516PEFR-63-MA																		
	340504PEER-63-ML																		
	3405PEER-63-ML																		
	340512PEER-63-ML																		
	340516PEER-63-ML																		

Available arbors

Cutter Designation		DCON-MS	Available arbors
PALCM	063HR	22	BT□□-FMC22-□□

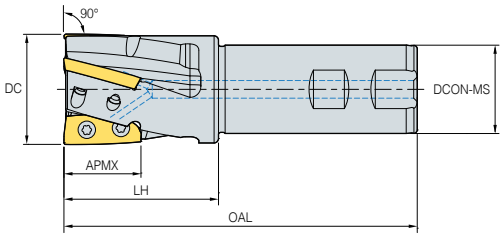
Parts

Specification	Screw	Wrench
Ø63	FTGA0511-P	TW20-100

Available inserts **B13** Available arbors and bolt **E96**

PALS(Single-edge)







KAPR 90°

• GAMP : 12°~16°
• GAMF : –5°~–9°

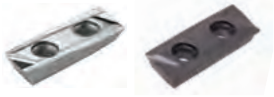
(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
PALS	032HR-2S20	●	2	32	20	50	140	25	0.4
	032HR-2S25	●	2	32	25	50	140	25	0.5
	032HR-2S32	●	2	32	32	50	140	25	0.7
	040HR-2S32		2	40	32	50	140	25	0.8
	040HR-2S40		2	40	40	50	140	25	1.2
	040HR-2S42		2	40	42	50	140	25	1.3
	040HR-3S32	●	3	40	32	50	140	25	0.7
	040HR-3S40		3	40	40	50	140	25	1.2
	040HR-3S42		3	40	42	50	140	25	1.2

● : Stock item

Available inserts

LXET-MA LXET-ML



Type	Designation		Cermet	Coated												Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
Ø32	LXET	250404PEFR-32-MA																		B13
		2504PEFR-32-MA																	●	
		250412PEFR-32-MA																		
		250416PEFR-32-MA																		
		250404PEER-32-ML																		
		2504PEER-32-ML																		
		250412PEER-32-ML																		
		250416PEER-32-ML																		
Ø40	LXET	250404PEFR-40-MA																		
		2504PEFR-40-MA																		
		250412PEFR-40-MA																		
		250416PEFR-40-MA																		
		250404PEER-40-ML																		
		2504PEER-40-ML																		
		250412PEER-40-ML																		
		250416PEER-40-ML																		

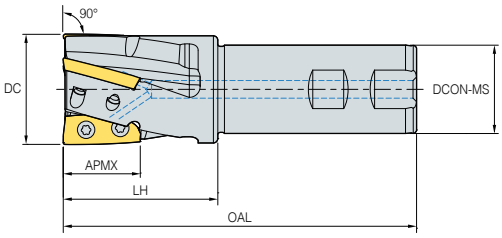
Parts

Specification	Screw	Wrench
Ø32	FTKA0408	TW15S
Ø40	FTKA0410	TW15S

Available inserts **B13**

PALS(Single-edge)







KAPR 90°

- GAMP : 12°~16°
- GAMF : –5°~–9°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
PALS	050HR-3S32	●	3	50	32	70	160	34	1.1
	050HR-3S40	●	3	50	40	70	160	34	1.5
	050HR-3S42		3	50	42	70	160	34	1.5
	063HR-4S32		4	63	32	70	160	34	1.5
	063HR-4S40		4	63	40	70	160	34	2.0
	063HR-4S42		4	63	42	70	160	34	2.0

● : Stock item

Available inserts

LXET-MA LXET-ML



Type	Designation		Cermet	Coated												Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
Ø50	LXET	340504PEFR-50-MA																	●	B13
		3405PEFR-50-MA																	●	
		340512PEFR-50-MA																		
		340516PEFR-50-MA																		
		340504PEER-50-ML																		
		3405PEER-50-ML													●					
		340512PEER-50-ML																		
		340516PEER-50-ML																		
Ø63	LXET	340504PEFR-63-MA																		
		3405PEFR-63-MA																	●	
		340512PEFR-63-MA																		
		340516PEFR-63-MA																		
		340504PEER-63-ML																		
		3405PEER-63-ML																		
		340512PEER-63-ML																		
		340516PEER-63-ML																		

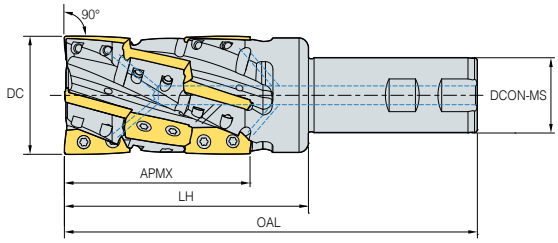
Parts

Specification	Screw	Wrench
Ø50	FTGA0510-P	TW20-100
Ø63	FTGA0511-P	TW20-100

Available inserts **B13**

PALS(Multi-edge)







KAPR 90°

• GAMP : 16°
• GAMF : –8°

(mm)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	kg
PALS	063HM-4S32	●	12	63	32	130	220	96	2.2
	063HM-4S40		12	63	40	130	220	96	2.5
	063HM-4S42		12	63	42	130	220	96	2.0

● : Stock item

Available inserts

LXET-MA LXET-ML



	Designation	Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LXET	340504PEFR-63-MA																		B13
	3405PEFR-63-MA																	●	
	340512PEFR-63-MA																		
	340516PEFR-63-MA																		
	340504PEER-63-ML																		
	3405PEER-63-ML																		
	340512PEER-63-ML																		
	340516PEER-63-ML																		

Parts

Specification	Screw	Wrench
Ø63	FTGA0511-P	TW20-100

Available inserts **B13**

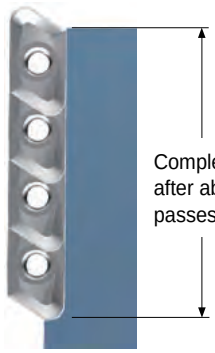
Deep cutting milling tools to maximize productivity in aluminum machining

Pro-XL Mill

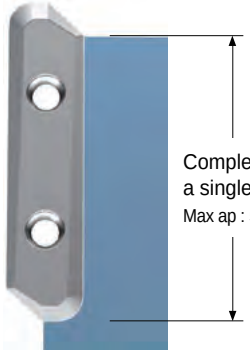
- **Productivity** - Cutting time is shortened by finishing the process with a single pass of deep shouldering in aluminum machining
- **High quality** - Shouldering within a single pass enables walls with perfect perpendicularity
- **Clamping stability** - Two-Screw On system secures clamping stability

Features

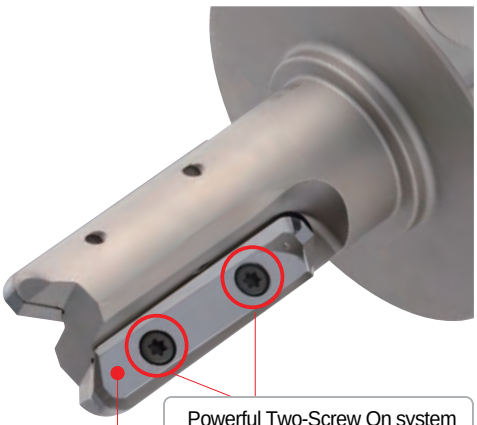
Existing cutters



Pro-XL Mill



- 4 times shorter cutting time
- Satisfactory surface finish of side faces with no need for further processing



Application examples

Al7075

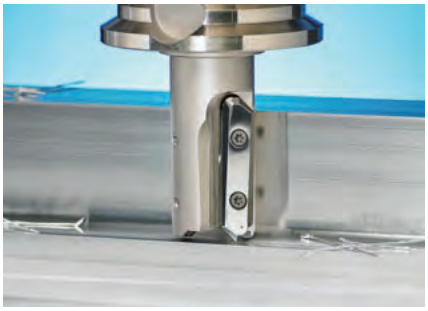
Cutting condition

vc = 500m/min, fz = 0.25mm/t
ap = 56mm, ae = 1mm, z = 2

Tools

Insert LDET650550PPFR-MA (H01)
Holder BT50-PXL04090HR-2F (ØD = 40mm)





PXL



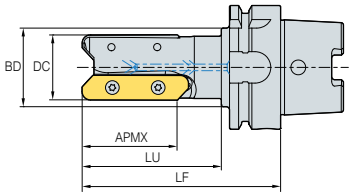


Fig. 1

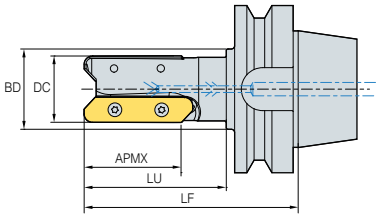


Fig. 2

KAPR 90°

• GAMP : 5°~17.5°
• GAMF : −14°~−5°

(mm)

	Designation	Stock R	Stock L	CICT	DC	BD	LU	LF	APMX	Fig.
HSK63A	PXL04090HR-2F			2	40	48	85	116	57	1
HSK100A	PXL04090HR-3F			3	40	70	90	129	57	1
	PXL08090HR-5F			5	80	77	90	119	57	1
BT50	PXL04090HR-2F			2	40	48	85	129	57	2

● : Stock item

Available inserts

LDET-MA



	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LDET	650540PPFR-MA																		B10
	650550PPFR-MA																		

Parts

Specification	Screw	Wrench
Ø40~80	FTGA0511-P	TW20-100

Available inserts **B10**

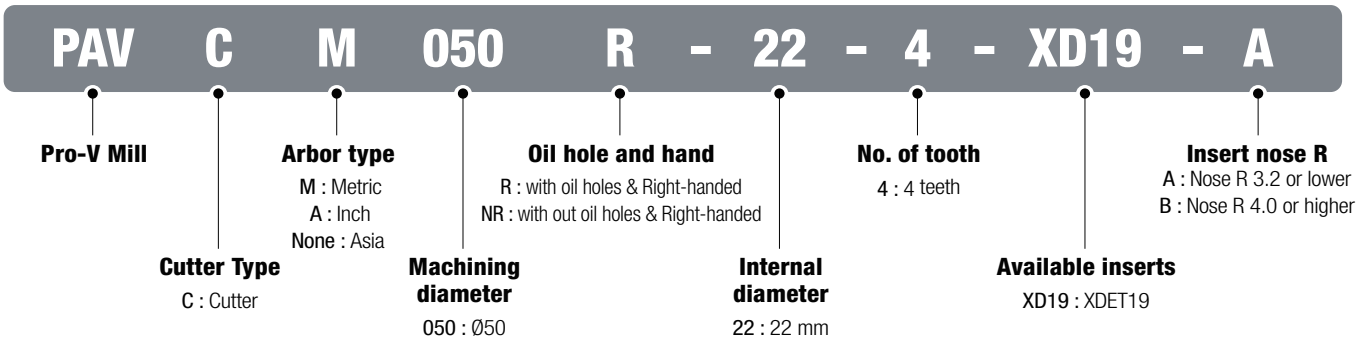
The Premium High-Speed Milling Tool for Aluminum

Pro-V Mill

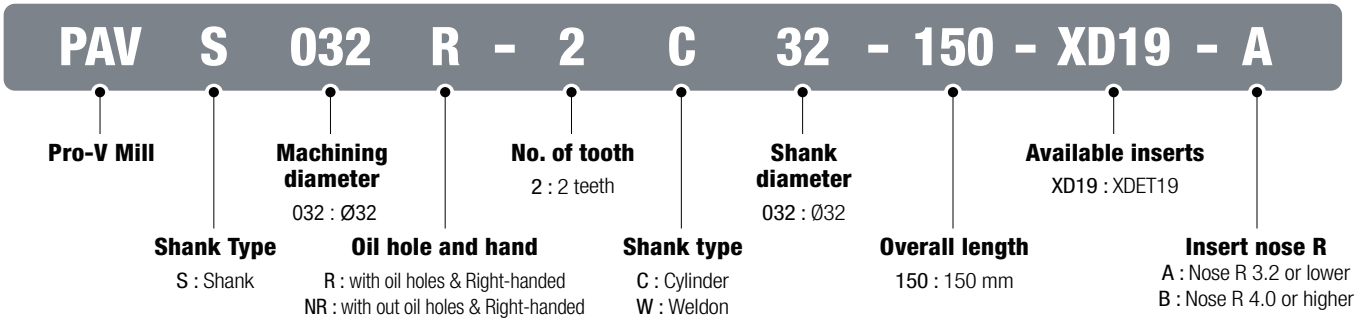
- **Enhanced productivity**- Increased productivity due to high speed capability
- **Improved surface finish**- Excellent surface finish and perpendicularity with high-precision products
- **Excellent clamping stability**- Satisfactory clamping force of inserts by the use of the key shape

Code system

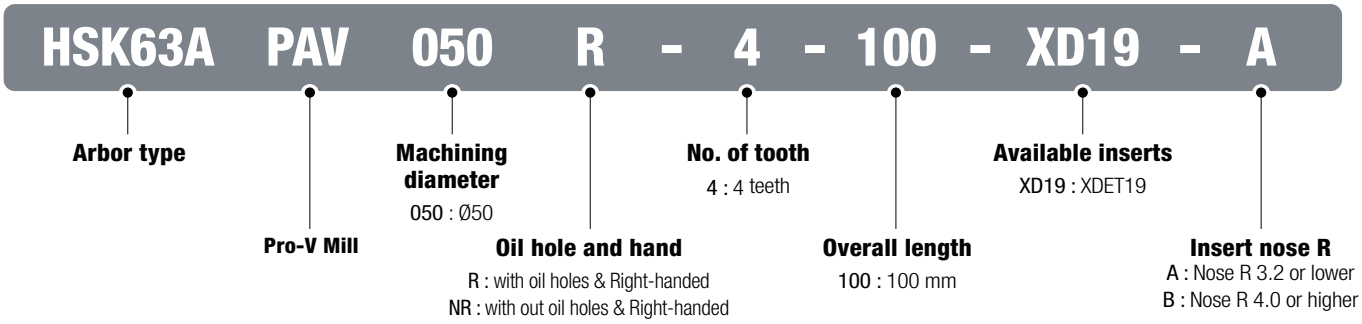
• **Cutter**



• **Shank**

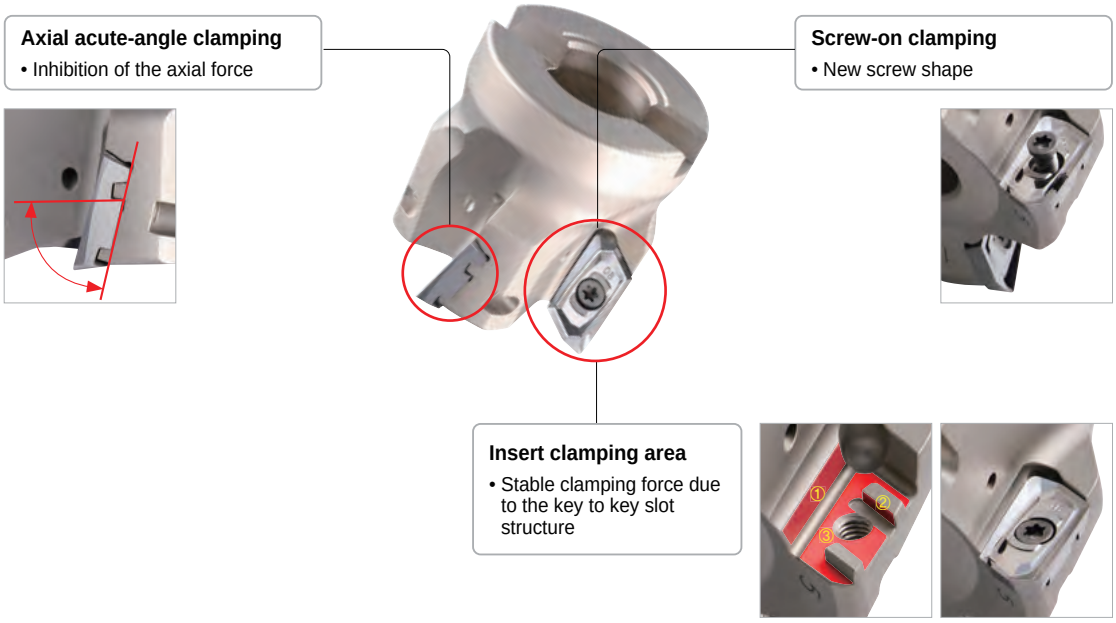


• **Tooling System**

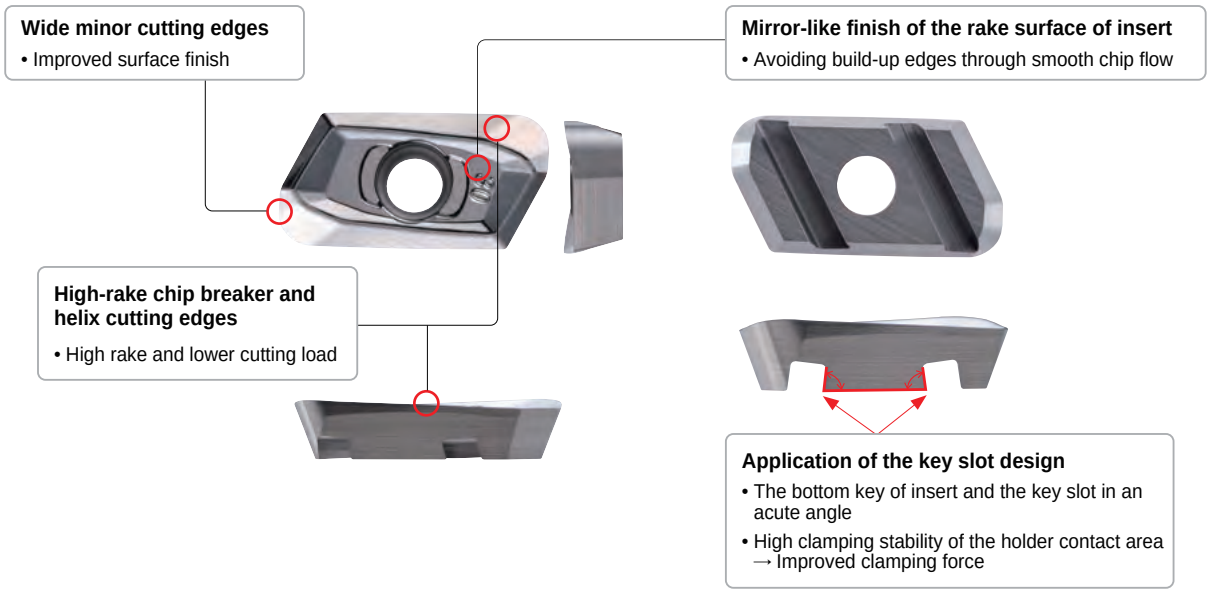


Features of cutter

- The combined clamping system of the key to key slot structure and simple screw-on type ensures strong clamping force
  - Stable machining / prevention of insert breakage
- Avoiding uplifting problems of insert due to axial acute-angle clamping of cutters
  - Reduced vibrations and excellent surface finish



Features of insert



Features of chip breaker

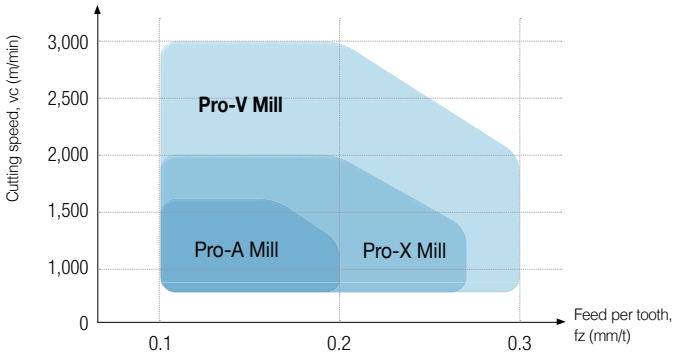
Insert		Cutting-edge	Use	Features
MA			For non-ferrous metals	Ensuring satisfactory machining quality with the application of mirror-like cutting edges optimized for aluminum machining

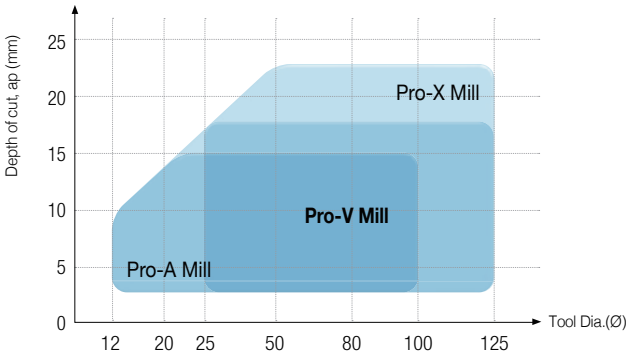
Recommended cutting conditions

Workpiece			Grade	vc (m/min)	APMX (mm)
N	Aluminum	Si ≤ 5%	H01	1,300 (500 - 2,200)	17
			H05	1,000 (300 - 1,700)	
			PD1005	1,500 (500 - 3,000)	
		Si ≤ 10%	PD1010	1,200 (300 - 2,200)	

※ The recommended cutting conditions above are a general guideline. Their details may vary depending on the machining method of users and other conditions.

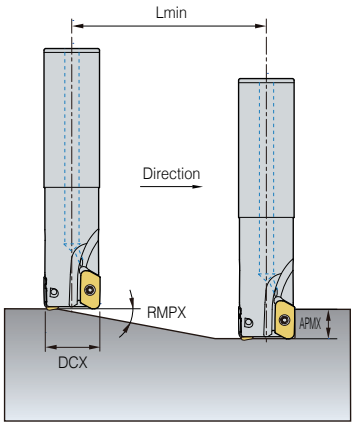
Application area



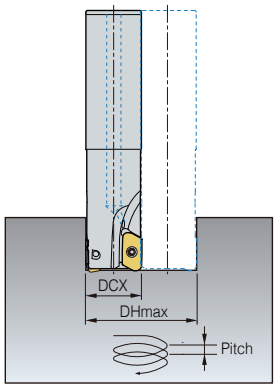


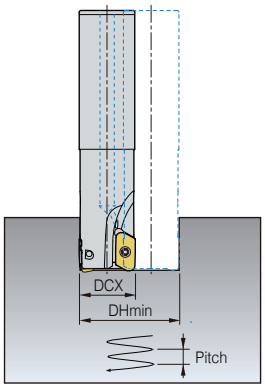
Pro-V Mill ramping & helical cutting technical data

Ramping



Helical cutting





(mm)

DCX	Ramping		Blind hole helical cutting				Thru hole helical cutting	
	RMPX	Lmin	DHmin	Max pitch	DHmax	Max pitch	DHmin	Max pitch
25	15.0	59	41	13.0	44	15.5	27	2.0
32	10.0	99	55	11.0	58	12.5	41	4.5
40	7.0	142.5	71	10.5	74	11.5	57	6.0
50	5.0	200	91	10.0	94	10.5	77	6.5
63	3.5	286	117	9.2	120	9.5	103	7.0
80	2.6	385	151	9.0	154	9.5	137	7.3
100	2.0	501	191	9.0	194	9.0	177	7.6
125	1.5	668	241	8.5	244	8.5	227	7.5

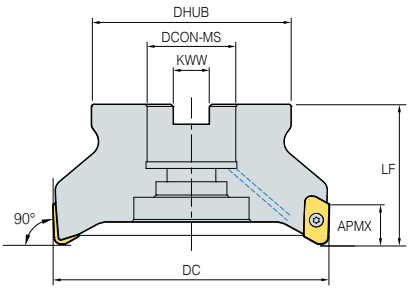
- When ramping and helical milling, table feed, vf (mm/min) should be lower than 70% of the recommended cutting conditions.
- When helical milling, Max. pitch, DHmax should be lower than APMX.
- When ramping, the depth of cut should be lower than APMX.

$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (mm)}$$

- **Lmin** = Minimum inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

PAVCM-XD19





KAPR 90°

- GAMP : 11°~14°
- GAMF : -11°~-9°

(mm)

	Designation	Stock A	Stock B	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	kg
PAVCM	040R-16-3-XD19-A,B	●		3	40	34	16	8.4	45	17	0.2
	050R-22-4-XD19-A,B	●		4	50	47	22	10.4	50	17	0.3
	063R-22-5-XD19-A,B	●		5	63	48	22	10.4	50	17	0.5
	080R-27-5-XD19-A,B	●		5	80	60	27	12.4	50	17	0.8
	100R-32-6-XD19-A,B	●		6	100	70	32	14.4	50	17	1.7
	125R-40-7-XD19-A,B	●		7	125	90	40	16.4	63	17	2.8

- Type A Use Insert Nose R 0.4~3.2, and Type B Use Nose R 4.0~5.0
- When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

● : Stock item

Available inserts

XDET-MA



Designation		Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190504PEFR-MA															●	●	B31
	190508PEFR-MA															●	●	
	190512PEFR-MA															●	●	
	190516PEFR-MA															●	●	
	190520PEFR-MA															●	●	

Designation		Cermet	Coated											Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190524PEFR-MA															●	●	B31
	190530PEFR-MA															●	●	
	190532PEFR-MA															●	●	
	190540PEFR-MA															●	●	
	190550PEFR-MA															●	●	

Available arbors

Cutter Designation		Available arbors
PAVCM	040R-16-3-XD19	BT□□-FMC16-□□
	050R-22-4-XD19	BT□□-FMC22-□□
	063R-22-5-XD19	BT□□-FMC22-□□
	080R-27-5-XD19	BT□□-FMC27-□□
	100R-32-6-XD19	BT□□-FMC32-□□
	125R-40-7-XD19	BT□□-FMC40-□□

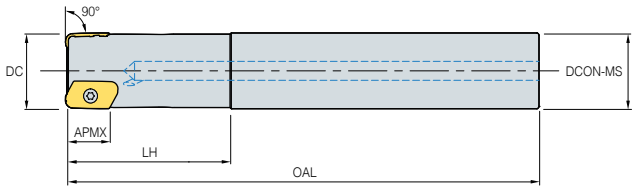
Parts

Specification	Screw	Wrench
Ø40~Ø125	PTKA0408-A	TW15S

Available inserts **B31** Available arbors and bolt **E96**

PAVS-XD19













KAPR 90°

- GAMP : 8°~11°
- GAMF : -14°~-11°

(mm)

Designation		Stock A	Stock B	CICT	DC	DCON-MS	LH	OAL	APMX	kg
PAVS	025R-2C25-140-XD19-A,B	●		2	25	25	60	140	17	0.4
	032R-2C32-150-XD19-A,B	●		2	32	32	70	150	17	0.8
	032R-2C32-200-XD19-A,B	●		2	32	32	70	200	17	0.8
	040R-3C40-200-XD19-A,B	●		3	40	40	70	200	17	1.7

- Type A Use Insert Nose R 0.4~3.2, and Type B Use Nose R 4.0~5.0
- When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

● : Stock item

Available inserts

XDET-MA



Designation	Cermet	Coated											Uncoated		page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET 190504PEFR-MA															●	●	
190508PEFR-MA															●	●	
190512PEFR-MA															●	●	B31
190516PEFR-MA															●	●	
190520PEFR-MA															●	●	

Designation	Cermet	Coated											Uncoated		page
	CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET 190524PEFR-MA															●	●	
190530PEFR-MA															●	●	
190532PEFR-MA															●	●	B31
190540PEFR-MA															●	●	
190550PEFR-MA															●	●	

Parts

Specification	Screw	Wrench
Ø25~Ø40	PTKA0408-A	TW15S

Available inserts **B31**

MAT(Steel shank type)



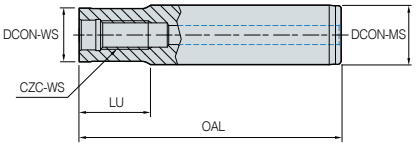


Fig. 1

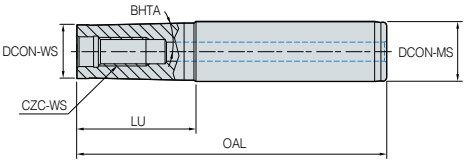


Fig. 2

(mm)

	Designation	Stock	DCON-WS	DCON-MS	LU	OAL	CZC-WS	Fig.
MAT-	M06-020-S10S	●	9	5	6.5	20	M06	1
	M6B-020-S12S	●	11	12	20	76	M06	1
	M6B-040-S12S	●	11	12	40	96	M06	1
	M08-020-S16S	●	14.5	16	20	80	M08	1
	M10-030-S20S	●	18	20	30	10	M10	1
	M12-030-S25S	●	22.5	25	29	11	M12	1
	M16-035-S32S	●	28.5	32	35	12	M16	1
	M06-040-S12T	●	9.5	12	40	96	M06	2
	M06-065-S16T	●	9.5	16	65	125	M06	2
	M6B-065-S16T	●	11	16	65	125	M06	2
	M6B-080-S16T	●	11	16	80	140	M06	2
	M08-040-S16T	●	14.5	16	40	100	M08	2
	M08-065-S16T	●	14.5	16	65	125	M08	2
	M08-080-S20T	●	14.5	20	80	150	M08	2
	M08-110-S25T	●	14.5	25	110	190	M08	2
	M10-050-S20T	●	18	20	50	120	M10	2
	M10-070-S20T	●	18	20	70	140	M10	2
	M10-090-S25T	●	18	25	90	170	M10	2
	M10-110-S25T	●	18	25	110	190	M10	2
	M10-130-S32T	●	18	32	130	220	M10	2
	M12-050-S25T	●	22.5	25	50	130	M12	2
	M12-070-S25T	●	22.5	25	70	150	M12	2
	M12-090-S25T	●	22.5	25	90	170	M12	2
	M12-110-S32T	●	22.5	32	110	200	M12	2
	M12-175-S40T	●	22.5	40	175	300	M12	2
	M16-055-S32T	●	28.5	32	55	145	M16	2
	M16-080-S32T	●	28.5	32	80	170	M16	2
	M16-120-S32T	●	28.5	32	120	210	M16	2
	M16-175-S40T	●	28.5	40	175	300	M16	2

• S: straight neck adaptor • T: taper neck adaptor

● : Stock item

FMRM type



B235 ~ B238

LBE-MHD type



B328

PAM/PAXM type



B379, B386

AMM type



B200 ~ B202

RM3PM type



B85

RM4PM/RM4ZM type



B98

RM6PM type



B114, B115

HFMDM type



B274 ~ B276

HFMM type



B282

HRMM type



B304, B305

HRMDM type



B296 ~ B298

GBEM type



B335

MAT-C(Carbide shank type)



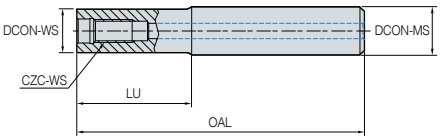


Fig. 1

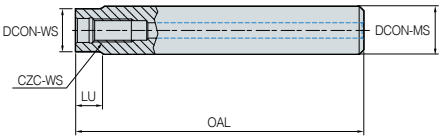


Fig. 2

(mm)

	Designation	Stock	DCON-WS	DCON-MS	LU	OAL	CZC-WS	Fig.
MAT-	M06-030-S10S-C-80		9.5	10	30	80	M06	1
	M06-050-S10S-C-100		9.5	10	50	100	M06	1
	M06-080-S10S-C-130		9.5	10	80	130	M06	1
	M6B-030-S12S-C-80		11	12	30	80	M06	1
	M6B-050-S12S-C-100		11	12	50	100	M06	1
	M6B-080-S12S-C-130		11	12	80	130	M06	1
	M08-080-S16S-C	●	14.5	16	80	150	M08	1
	M08-110-S16S-C	●	14.5	16	110	180	M08	1
	M08-150-S16S-C		14.5	16	150	250	M08	2
	M08-010-S16S-C-150		14.5	16	10	150	M08	2
	M08-010-S16S-C-180		14.5	16	10	180	M08	2
	M08-010-S16S-C-250		14.5	16	10	250	M08	1
	M10-090-S20S-C	●	18	20	90	170	M10	1
	M10-110-S20S-C	●	18	20	110	200	M10	1
	M10-175-S20S-C		18	20	175	300	M10	2
	M10-010-S20S-C-170	●	18	20	10	170	M10	2
	M10-010-S20S-C-200	●	18	20	10	200	M10	2
	M10-010-S20S-C-300		18	20	10	300	M10	1
	M12-090-S25S-C	●	22.5	25	90	170	M12	1
	M12-110-S25S-C		22.5	25	110	200	M12	1
	M12-175-S25S-C		22.5	25	175	300	M12	2
	M12-015-S25S-C-170		22.5	25	15	170	M12	2
	M12-015-S25S-C-200		22.5	25	15	200	M12	2
	M12-015-S25S-C-300		22.5	25	15	300	M12	1
	M16-090-S32S-C	●	28.5	32	90	180	M16	1
	M16-120-S32S-C		28.5	32	120	210	M16	1
	M16-175-S32S-C		28.5	32	175	300	M16	2
	M16-020-S32S-C-180		28.5	32	20	180	M16	2
	M16-020-S32S-C-210		28.5	32	20	210	M16	2
	M16-020-S32S-C-300	●	28.5	32	20	300	M16	2

FMRM type

B235 ~ B238

LBE-MHD type

B328

PAM/PAXM type

B379, B386

AMM type

B200 ~ B202

RM3PM type

B85

RM4PM/RM4ZM type

B98

RM6PM type

B114, B115

HFMDM type

B274 ~ B276

HFMM type

B282

HRMM type

B304, B305

HRMDM type

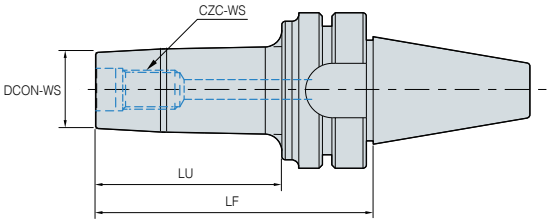
B296 ~ B298

GBEM type

B335

BT30/BT40/BT50





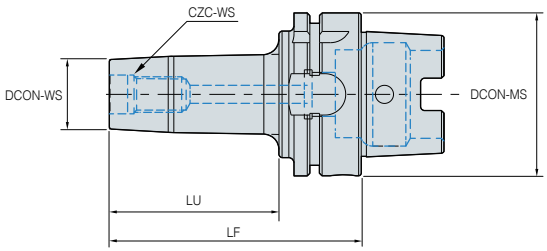
(mm)

	Designation	Stock	DCON-WS	BD	BDX	LU	LF	CZC-WS
BT30-	MAT-M06-053		11	11.7	30	21	53	M06*1.0
	MAT-M08-057		14.5	15.7	35	25	57	M08*1.25
	MAT-M10-062		18	19.7	38	30	62	M10*1.5
	MAT-M12-067		23	24.7	41	35	67	M12*1.75
	MAT-M16-067		29	31.7	41	35	67	M16*2.0
BT40-	MAT-M06-062		11	14	5	25	62	M06*1.0
	MAT-M06-077		11	11.7	40	40	77	M06*1.0
	MAT-M06-092		11	11.7	40	55	92	M06*1.0
	MAT-M08-067		14.5	15.7	44	30	67	M08*1.25
	MAT-M08-082		14.5	15.7	44	45	82	M08*1.25
	MAT-M08-097		14.5	15.7	44	60	97	M08*1.25
	MAT-M10-072		18	19.7	50	35	72	M10*1.5
	MAT-M10-087		18	19.7	50	50	87	M10*1.5
	MAT-M10-102		18	19.7	50	65	102	M10*1.5
	MAT-M12-077		23	24.7	55	40	77	M12*1.75
	MAT-M12-092		23	24.7	55	55	92	M12*1.75
	MAT-M12-107		23	24.7	55	70	107	M12*1.75
	MAT-M16-077		29	31.7	55	40	77	M16*2.0
	MAT-M16-092		29	31.7	55	55	92	M16*2.0
	MAT-M16-107		29	31.7	55	70	107	M16*2.0
BT50-	MAT-M06-083		11	15	5	35	83	M06*1.0
	MAT-M06-098		11	11.7	40	65	113	M06*1.0
	MAT-M06-113		14.5	15.7	45	40	88	M08*1.25
	MAT-M08-088		14.5	15.7	45	55	103	M08*1.25
	MAT-M08-103		14.5	15.7	45	70	118	M08*1.25
	MAT-M08-118		18	19.7	55	45	93	M10*1.5
	MAT-M10-093		18	19.7	55	65	113	M10*1.5
	MAT-M10-113		18	19.7	55	80	128	M10*1.5
	MAT-M10-128		23	24.7	65	55	103	M12*1.75
	MAT-M12-103		23	24.7	65	70	118	M12*1.75
	MAT-M12-118		23	24.7	65	85	133	M12*1.75
	MAT-M12-133		29	31.7	85	55	103	M16*2.0
	MAT-M16-103		29	31.7	85	70	118	M16*2.0
	MAT-M16-118		29	31.7	85	85	133	M16*2.0
	MAT-M16-133		29.0	31.7	41.0	85	133	M16*2.0

● : Stock item

HSK63A/HSK100A





(mm)

	Designation	Stock	DCON-WS	BD	BDX	LU	LF	CZC-WS
HSK63A-	MAT-M06-061		11	11.7	40	25	61	M06*1.0
	MAT-M06-076		11	11.7	40	40	76	M06*1.0
	MAT-M06-091		11	11.7	40	55	91	M06*1.0
	MAT-M08-066		14.5	15.7	44	30	66	M08*1.25
	MAT-M08-081		14.5	15.7	44	45	81	M08*1.25
	MAT-M08-096		14.5	15.7	44	60	96	M08*1.25
	MAT-M10-071		18	19.7	50	35	71	M10*1.5
	MAT-M10-086		18	19.7	50	50	86	M10*1.5
	MAT-M10-101		18	19.7	50	65	101	M10*1.5
	MAT-M12-076		23	24.7	55	40	76	M12*1.75
	MAT-M12-091		23	24.7	55	55	91	M12*1.75
	MAT-M12-106		23	24.7	55	70	106	M12*1.75
	MAT-M16-076		29	31.7	55	40	76	M16*2.0
	MAT-M16-091		29	31.7	55	55	91	M16*2.0
	MAT-M16-106		29	31.7	55	70	106	M16*2.0
HSK100A-	MAT-M06-074		11	11.7	40	35	74	M06*1.0
	MAT-M06-089		11	11.7	40	50	89	M06*1.0
	MAT-M06-104		11	11.7	40	65	104	M06*1.0
	MAT-M08-079		14.5	15.7	45	40	79	M08*1.25
	MAT-M08-094		14.5	15.7	45	55	94	M08*1.25
	MAT-M08-109		14.5	15.7	45	70	109	M08*1.25
	MAT-M10-084		18	19.7	55	45	84	M10*1.5
	MAT-M10-104		18	19.7	55	65	104	M10*1.5
	MAT-M10-119		18	19.7	55	80	119	M10*1.5
	MAT-M12-094		23	24.7	65	55	94	M12*1.75
	MAT-M12-109		23	24.7	65	70	109	M12*1.75
	MAT-M12-124		23	24.7	65	85	124	M12*1.75
	MAT-M16-094		29	31.7	85	55	94	M16*2.0
	MAT-M16-109		29	31.7	85	70	109	M16*2.0
	MAT-M16-124		29	31.7	85	85	124	M16*2.0

● : Stock item

Adjusting Side Cutter

Code system

R A FC B 125 14 18 - R

Insert clamping way



R: Radial type (Using SDXT)

T: Tangential type (Using CNHQ)

Insert configuration



FC Full side cutter



HC Half side cutter

Cutter diameter

Min. width of cutter

Hand

Unmarked	R	L
Neutral	Right	Left
Full side cutter (Plane)	Half side cutter Boss type	

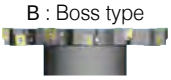
Adjusting

A : Adjusting side cutter

Cutter type

P : Plane type

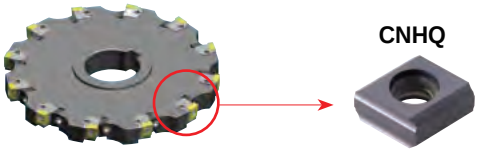
B : Boss type



Max. width of cutter

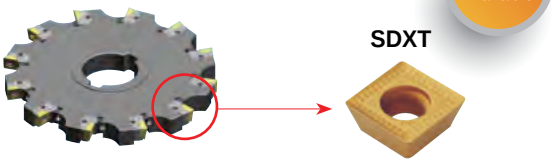
For half side cutter, minimum width of the cutter will be written only

Tangential type (High rigidity)



- Medium/Roughing
- Excellent performance at medium to roughing range (14~30 mm)
- Table operation due to the strong rigidity of the cutter
- Good performance in heavy interruption and deep depth of cut application

Radial type (Low cutting load)

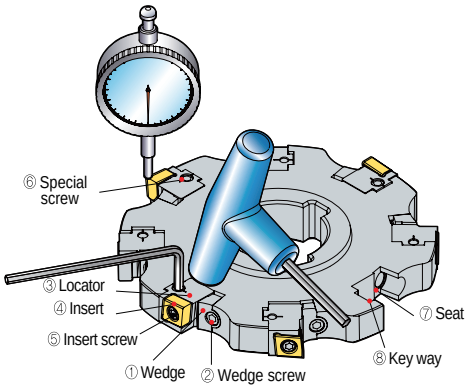


- Medium/Finishing
- Suitable for small width cutting operation (12~24 mm)
- 3 dimensional chip breaker provides smooth cutting operation
- Different chip breakers available depending on the application (MF, MM, FA)
- Economical insert using 4 cutting-edges per insert

Features of insert

- Precise adjustable side cutter can control the width of the cutter by 5 ㎛ unit
- Since the width of the cutter is adjustable up to ±1.5 mm, single cutter can cover various cutting width
- Specially designed clamping system of the locator provides excellent rigidity by using elastic deformation of the locator
- Tangential type cliamping system of insert provides enough strength so that it can withstand large width cutting operations
- 3-dimensional chip breaker of insert provides smooth cutting with low cutting load at medium to finishing range

Operating manual



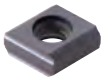
» How to assemble the adjusting side cutter

1. Clamp ❶ wedge slightly on ❼ locator-wedge pocket by using ❷ wedge screw
2. Put ❸ locator on ❼ locator-wedge pocket along with the ❽ key-way
3. Tighten the ❻ taper screw little bit to set proper position of locator
4. Tighten the ❷ wedge screw tightly by using 70~80N.m torque
5. Lastly, put the ❹ insert on insert pocket of ❸ locator, clamp it with ❺ insert screw.

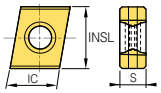
» How to adjust Run-out & cutting width

1. Settle the adjusting side cutter after cleaning the jig for measurement
2. Un-screw the ❷ Wedge screw first, then tighten ❶ wedge slightly again by using 8N.m torque
3. Adjust the heigh of cutting-edge by using a dial gauge to set the width of the cutter
4. Tighten the ❷ wedge screw tightly by using 70~80N.m torque
5. To finish the setting, tighten the ❻ taper screw for strong clamp

Tangential Type



CNHQ



(mm)

Cutting width per insert & type of cutter

Designation		Coated		Cutting width for half side cutter (ap)	Cutting width for full side cutter (ap)	INSL	IC	S
		NCM535	PC6100					
CNHQ1005	- C0.5			9.0	14~18	10	10	5.4
	- R0.5							
	- C1.0			8.5	14~17			
	- R1.0							
CNHQ1305	- C0.5			12	18~21/21~24	12.7	10	5.4
	- R0.5							
	- C1.0			11.5	18~21/21~23			
	- R1.0							
	- C1.5			11	18~21/21~22			
	- R1.5							
CNHQ1606	- C0.5			15	24~27/27~30	16	12	6.4
	- R0.5							
	- C1.0			14.5	24~27/27~29			
	- R1.0							
	- C1.5			14	24~27/27~28			
	- R1.5							
	- C2.0			13.5	24~27			
	- R2.0							

Applicable cutter **B7**

● : Stock item

Recommended cutting conditions

ISO	Grade	vc(m/min)	fz(mm/t)
P	NCM535	190~310	0.10~0.30
	PC3700	160~270	
M	PC5300	90~150	0.10~0.30
	NCM335	180~290	
K	PC6100	140~230	0.10~0.30

Radial type



MA



MF



MM





(mm)

Cutting width per insert & type of cutter

Designation		Coated												Uncoated		Cutting width for half side cutter (ap)	Cutting width for full side cutter (ap)	IC	S
		NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	H01	H05			
SDXT	09M405R-MA														●	●	8	12~14 14~16	9.525	4
	09M405L-MA																			
	09M405R-MF		●							●	●		●	●						
	09M405L-MF																			
	09M405R-MM		●							●	●		●	●						
	09M405L-MM									●										
	130508R-MA														●	●	10.5	16~18 18~20 20~22 22~24	13.5	5.56
	130508L-MA																			
	130508R-MF		●							●	●		●	●						
	130508L-MF																			
	130508R-MM		●							●	●		●	●						
	130508L-MM																			

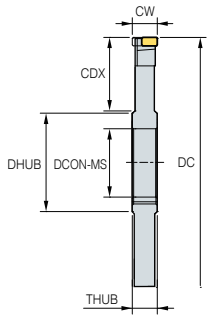
Applicable insert **B20**

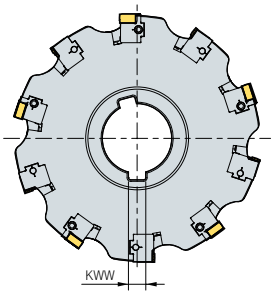
● : Stock item

Recommended cutting conditions

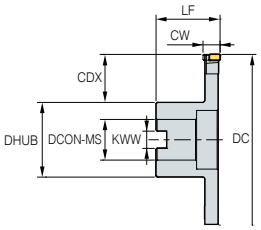
ISO	Grade	vc(m/min)	fz(mm/t)
P	NCM325	190~310	0.08~0.30
	NCM335	180~290	0.08~0.25
	PC3700	160~270	0.10~0.25
M	PC9530	90~150	0.10~0.25
	PC5300	90~150	
K	PC8110	140~230	0.10~0.25
	PC6100	140~230	

Tangential Type (Full side cutter)

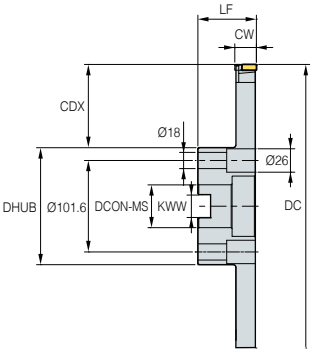




• TAFCP(M)



DC : Ø100~Ø200



DC : Ø250~Ø315

• TAFCB(M)

(mm)

Designation		DCON-MS	THUB	DHUB	KWW	CDX	Designation		DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension CWN	Dimension CWX	Dimension CICT
TAFCP (M)	1001418	31.75(32)	14	48	7.92(8)	35.2	TAFCB (M)	1001418R/L	31.75(32)	50	54	12.7(14.4)	8	28	14	18	6
	1251418	38.1(40)	14	56	9.52(10)	42.3		1251418R/L	38.1(40)	60	70	15.9(16.4)	10	30	14	18	8
	1601418	38.1(40)	14	56	9.52(10)	42.3		1601418R/L	38.1(40)	60	70	15.9(16.4)	10	30	14	18	10
	2001418	50.8(50)	14	72	12.7(12)	55.8		2001418R/L	50.8(40)	65	90	19.0(16.4)	11	30	14	18	12
	2501418	50.8(50)	14	72	12.7(12)	55.8		2501418R/L	47.625(60)	65	130	25.4(25.7)	14	38	14	18	16
	3151418	50.8(50)	14	72	12.7(12)	55.8		3151418R/L	47.625(60)	65	130	25.4(25.7)	14	38	14	18	20
TAFCP (M)	1001821	31.75(32)	18	48	7.92(8)	35.2	TAFCB (M)	1001821R/L	31.75(32)	50	50	12.7(14.4)	8	28	18	21	6
	1251821	38.1(40)	18	56	9.52(10)	42.3		1251821R/L	38.1(40)	60	70	15.9(16.4)	10	30	18	21	8
	1601821	38.1(40)	18	56	9.52(10)	42.3		1601821R/L	38.1(40)	60	70	15.9(16.4)	10	30	18	21	10
	2001821	50.8(50)	18	72	12.7(12)	55.8		2001821R/L	50.8(40)	65	90	19.0(16.4)	11	30	18	21	12
	2501821	50.8(50)	18	72	12.7(12)	55.8		2501821R/L	47.625(60)	65	130	25.4(25.7)	14	38	18	21	16
	3151821	50.8(50)	18	72	12.7(12)	55.8		3151821R/L	47.625(60)	65	130	25.4(25.7)	14	38	18	21	20
TAFCP (M)	1002124	31.75(32)	21	48	7.92(8)	35.2	TAFCB (M)	1002124R/L	31.75(32)	50	54	12.7(14.4)	8	28	21	24	6
	1252124	38.1(40)	21	56	9.52(10)	42.3		1252124R/L	38.1(40)	60	70	15.9(16.4)	10	30	21	24	8
	1602124	38.1(40)	21	56	9.52(10)	42.3		1602124R/L	38.1(40)	60	70	15.9(16.4)	10	30	21	24	10
	2002124	50.8(50)	21	72	12.7(12)	55.8		2002124R/L	50.8(40)	65	90	19.0(16.4)	11	30	21	24	12
	2502124	50.8(50)	21	72	12.7(12)	55.8		2502124R/L	47.625(60)	65	130	25.4(25.7)	14	38	21	24	16
	3152124	50.8(50)	21	72	12.7(12)	55.8		3152124R/L	47.625(60)	65	130	25.4(25.7)	14	38	21	24	20
TAFCP (M)	1252427	38.1(40)	24	56	9.52(10)	42.3	TAFCB (M)	1252427R/L	38.1(40)	60	70	15.9(16.4)	10	30	24	27	8
	1602427	38.1(40)	24	56	9.52(10)	42.3		1602427R/L	38.1(40)	60	70	15.9(16.4)	10	30	24	27	10
	2002427	50.8(50)	24	72	12.7(12)	55.8		2002427R/L	50.8(40)	65	90	19.0(16.4)	11	30	24	27	12
	2502427	50.8(50)	24	72	12.7(12)	55.8		2502427R/L	47.625(60)	65	130	25.4(25.7)	14	38	24	27	16
	3152427	50.8(50)	24	72	12.7(12)	55.8		3152427R/L	47.625(60)	65	130	25.4(25.7)	14	38	24	27	20
TAFCP (M)	1252730	38.1(40)	27	56	9.52(10)	42.3	TAFCB (M)	1252730R/L	38.1(40)	60	70	15.9(16.4)	10	30	27	30	8
	1602730	38.1(40)	27	56	9.52(10)	42.3		1602730R/L	38.1(40)	60	70	15.9(16.4)	10	30	27	30	10
	2002730	50.8(50)	27	72	12.7(12)	55.8		2002730R/L	50.8(40)	65	90	19.0(16.4)	11	30	27	30	12
	2502730	50.8(50)	27	72	12.7(12)	55.8		2502730R/L	47.625(60)	65	130	25.4(25.7)	14	38	27	30	16
	3152730	50.8(50)	27	72	12.7(12)	55.8		3152730R/L	47.625(60)	65	130	25.4(25.7)	14	38	27	30	20

Available inserts and Recommended Cutting conditions **B405**

• The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.5 or R0.5

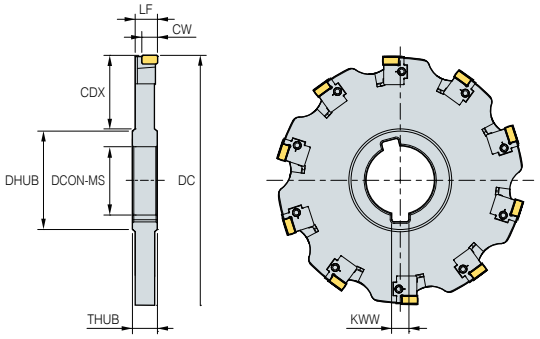
( )Metric size, ● : Stock item

Parts

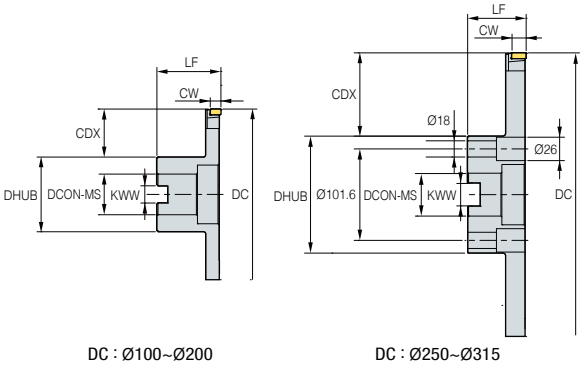
Specification / Edge width TAFCP(B)	Insert	Locator	Wedge	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge Wrench	Locator Wrench
□□□1418R/L	CNHQ1005-□□□	LSA-CH10R/L	WSA10N	FTKA0410	DHA0617	SHGA0411	TW15S	HW30	-
□□□1821R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2124R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2427R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L
□□□2730R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L

Note) The Wedge screw for 1001821, 1002124 cutter is DHA0818F

Tangential Type (Half side cutter)



• TAHCP(M)



DC : Ø100~Ø200 DC : Ø250~Ø315

• TAHCB(M)

(mm)

Designation		DCON-MS	THUB	DHUB	KWW	CDX	Designation		DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension CW	Dimension CICT
TAHCP (M)	10014R/L	31.75(32)	14	48	7.92(8)	24	TAHCB (M)	10014R/L	31.75(32)	50	54	12.7(14.4)	21	100	9	6
	12514R/L	38.1(40)	14	56	9.52(10)	32		12514R/L	38.1(40)	60	70	15.9(16.4)	25	125	9	8
	16014R/L	38.1(40)	14	56	9.52(10)	50		16014R/L	38.1(40)	60	70	15.9(16.4)	43	160	9	10
	20014R/L	50.8(50)	14	72	12.7(12)	61		20014R/L	50.8(40)	65	90	19.1(16.4)	53	200	9	12
	25014R/L	50.8(50)	14	72	12.7(12)	86		25014R/L	47.625(60)	65	130	25.4(25.7)	58	250	9	16
	31514R/L	50.8(50)	14	72	12.7(12)	118		31514R/L	47.625(60)	65	130	25.4(25.7)	90	315	9	20
TAHCP (M)	10018R/L	31.75(32)	18	48	7.92(8)	24	TAHCB (M)	10018R/L	31.75(32)	50	54	12.7(14.4)	21	100	12	6
	12518R/L	38.1(40)	18	56	9.52(10)	32		12518R/L	38.1(40)	60	70	15.9(16.4)	25	125	12	8
	16018R/L	38.1(40)	18	56	9.52(10)	50		16018R/L	38.1(40)	60	70	15.9(16.4)	43	160	12	10
	20018R/L	50.8(50)	18	72	12.7(12)	61		20018R/L	50.8(40)	65	90	19.1(16.4)	53	200	12	12
	25018R/L	50.8(50)	18	72	12.7(12)	86		25018R/L	47.625(60)	65	130	25.4(25.7)	58	250	12	16
	31518R/L	50.8(50)	18	72	12.7(12)	118		31518R/L	47.625(60)	65	130	25.4(25.7)	90	315	12	20
TAHCP (M)	10021R/L	31.75(32)	21	48	7.92(8)	24	TAHCB (M)	10021R/L	31.75(32)	50	54	12.7(14.4)	21	100	12	6
	12521R/L	38.1(40)	21	56	9.52(10)	32		12521R/L	38.1(40)	60	70	15.9(16.4)	25	125	12	8
	16021R/L	38.1(40)	21	56	9.52(10)	50		16021R/L	38.1(40)	60	70	15.9(16.4)	43	160	12	10
	20021R/L	50.8(50)	21	72	12.7(12)	61		20021R/L	50.8(40)	65	90	19.1(16.4)	53	200	12	12
	25021R/L	50.8(50)	21	72	12.7(12)	86		25021R/L	47.625(60)	65	130	25.4(25.7)	58	250	12	16
	31521R/L	50.8(50)	21	72	12.7(12)	118		31521R/L	47.625(60)	65	130	25.4(25.7)	90	315	12	20
TAHCP (M)	12524R/L	38.1(40)	24	56	9.52(10)	32	TAHCB (M)	12524R/L	38.1(40)	60	70	15.9(16.4)	25	125	15	8
	16024R/L	38.1(40)	24	56	9.52(10)	50		16024R/L	38.1(40)	60	70	15.9(16.4)	43	160	15	10
	20024R/L	50.8(50)	24	72	12.7(12)	61		20024R/L	50.8(40)	65	90	19.1(16.4)	53	200	15	12
	25024R/L	50.8(50)	24	72	12.7(12)	86		25024R/L	47.625(60)	65	130	25.4(25.7)	58	250	15	16
	31524R/L	50.8(50)	24	72	12.7(12)	118		31524R/L	47.625(60)	65	130	25.4(25.7)	90	315	15	20
TAHCP (M)	12527R/L	38.1(40)	27	56	9.52(10)	32	TAHCB (M)	12527R/L	38.1(40)	60	70	15.9(16.4)	25	125	15	8
	16027R/L	38.1(40)	27	56	9.52(10)	50		16027R/L	38.1(40)	60	70	15.9(16.4)	43	160	15	10
	20027R/L	50.8(50)	27	72	12.7(12)	61		20027R/L	50.8(40)	65	90	19.1(16.4)	53	200	15	12
	25027R/L	50.8(50)	27	72	12.7(12)	86		25027R/L	47.625(60)	65	130	25.4(25.7)	58	250	15	16
	31527R/L	50.8(50)	27	72	12.7(12)	118		31527R/L	47.625(60)	65	130	25.4(25.7)	90	315	15	20

Available inserts and Recommended Cutting conditions **B405**

• The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.5 or R0.5

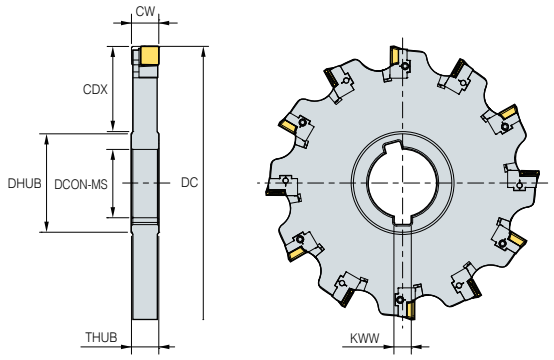
( )Metric size, ● : Stock item

Parts

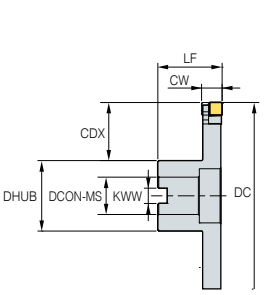
Specification / Edge width TAFCP(B)	Insert	Locator	Wedge	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge Wrench	Locator Wrench
□□□1418R/L	CNHQ1005-□□□	LSA-CH10R/L	WSA10N	FTKA0410	DHA0617	SHGA0411	TW15S	HW30	-
□□□1821R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2124R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□2427R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L
□□□2730R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L

Note) The Wedge screw for 1001821, 1002124 cutter is DHA0818F

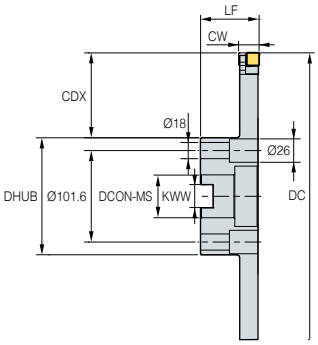
Radial Type (Full side cutter)



• RAFCP(M)



DC : Ø100~Ø200



DC : Ø250~Ø315

• RAFCB(M)

(mm)

Designation		DCON-MS	THUB	DHUB	KWW	CDX	Designation		DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension CWN	Dimension CWX	Dimension CICT
RAFCP (M)	1001214	31.75(32)	12	48	7.92(8)	24	RAFCB (M)	1001214R/L	31.75(32)	50	54	12.7(14.4)	21	100	12	14	6
	1251214	38.1(40)	12	56	9.52(10)	32		1251214R/L	38.1(40)	60	70	15.9(16.4)	25	125	12	14	8
	1601214	38.1(40)	12	56	9.52(10)	50		1601214R/L	38.1(40)	60	70	15.9(16.4)	43	160	12	14	10
	2001214	50.8(50)	12	72	12.7(12)	61		2001214R/L	50.8(40)	65	90	19.1(16.4)	53	200	12	14	12
	2501214	50.8(50)	12	72	12.7(12)	86		2501214R/L	47.625(60)	65	130	25.4(25.7)	58	250	12	14	16
	3151214	50.8(50)	12	72	12.7(12)	118		3151214R/L	47.625(60)	65	130	25.4(25.7)	90	315	12	14	20
RAFCP (M)	1001416	31.75(32)	14	48	7.92(8)	24	RAFCB (M)	1001416R/L	31.75(32)	50	54	12.7(14.4)	21	100	14	16	6
	1251416	38.1(40)	14	56	9.52(10)	32		1251416R/L	38.1(40)	60	70	15.9(16.4)	25	125	14	16	8
	1601416	38.1(40)	14	56	9.52(10)	50		1601416R/L	38.1(40)	60	70	15.9(16.4)	43	160	14	16	10
	2001416	50.8(50)	14	72	12.7(12)	61		2001416R/L	50.8(40)	65	90	19.1(16.4)	53	200	14	16	12
	2501416	50.8(50)	14	72	12.7(12)	86		2501416R/L	47.625(60)	65	130	25.4(25.7)	58	250	14	16	16
	3151416	50.8(50)	14	72	12.7(12)	118		3151416R/L	47.625(60)	65	130	25.4(25.7)	90	315	14	16	20
RAFCP (M)	1251618	38.1(40)	16	56	9.52(10)	32	RAFCB (M)	1251618R/L	38.1(40)	60	70	15.9(16.4)	25	125	16	18	8
	1601618	38.1(40)	16	56	9.52(10)	50		1601618R/L	38.1(40)	60	70	15.9(16.4)	43	160	16	18	10
	2001618	50.8(50)	16	72	12.7(12)	61		2001618R/L	50.8(40)	65	90	19.1(16.4)	53	200	16	18	12
	2501618	50.8(50)	16	72	12.7(12)	86		2501618R/L	47.625(60)	65	130	25.4(25.7)	58	250	16	18	16
	3151618	50.8(50)	16	72	12.7(12)	118		3151618R/L	47.625(60)	65	130	25.4(25.7)	90	315	16	18	20
RAFCP (M)	1251820	38.1(40)	18	56	9.52(10)	32	RAFCB (M)	1251820R/L	38.1(40)	60	70	15.9(16.4)	25	125	18	20	8
	1601820	38.1(40)	18	56	9.52(10)	50		1601820R/L	38.1(40)	60	70	15.9(16.4)	43	160	18	20	10
	2001820	50.8(50)	18	72	12.7(12)	61		2001820R/L	50.8(40)	65	90	19.1(16.4)	53	200	18	20	12
	2501820	50.8(50)	18	72	12.7(12)	86		2501820R/L	47.625(60)	65	130	25.4(25.7)	58	250	18	20	16
	3151820	50.8(50)	18	72	12.7(12)	118		3151820R/L	47.625(60)	65	130	25.4(25.7)	90	315	18	20	20
RAFCP (M)	1252022	38.1(40)	20	56	9.52(10)	32	RAFCB (M)	1252022R/L	38.1(40)	60	70	15.9(16.4)	25	125	20	22	8
	1602022	38.1(40)	20	56	9.52(10)	50		1602022R/L	38.1(40)	60	70	15.9(16.4)	43	160	20	22	10
	2002022	50.8(50)	20	72	12.7(12)	61		2002022R/L	50.8(40)	65	90	19.1(16.4)	53	200	20	22	12
	2502022	50.8(50)	20	72	12.7(12)	86		2502022R/L	47.625(60)	65	130	25.4(25.7)	58	250	20	22	16
	3152022	50.8(50)	20	72	12.7(12)	118		3152022R/L	47.625(60)	65	130	25.4(25.7)	90	315	20	22	20
RAFCP (M)	1252224	38.1(40)	22	56	9.52(10)	32	RAFCB (M)	1252224R/L	38.1(40)	60	70	15.9(16.4)	25	125	22	24	8
	1602224	38.1(40)	22	56	9.52(10)	50		1602224R/L	38.1(40)	60	70	15.9(16.4)	43	160	22	24	10
	2002224	50.8(50)	22	72	12.7(12)	61		2002224R/L	50.8(40)	65	90	19.1(16.4)	53	200	22	24	12
	2502224	50.8(50)	22	72	12.7(12)	86		2502224R/L	47.625(60)	65	130	25.4(25.7)	58	250	22	24	16
	3152224	50.8(50)	22	72	12.7(12)	118		3152224R/L	47.625(60)	65	130	25.4(25.7)	90	315	22	24	20

Available inserts and Recommended Cutting conditions **B405**

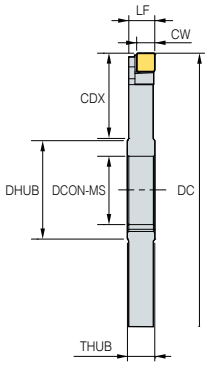
• The ap (Maximum width of cutter) size written above is the number when using insert having corner size R0.5. The ap is subject to change as per insert corner size
• The ap (Maximum width of cutter) size written above is the number when using SDXT09M405R-MM. The ap is subject to change as per insert corner size

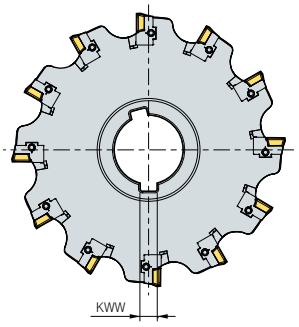
( )Metric size
● : Stock item

Parts

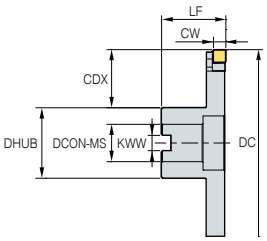
Specification / Edge width TAFCP(B)	Insert	Locator	Wedge (WSD09N / WSA10N)	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge, locator wrench
□□□1214R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1416R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1618R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□1820R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2022R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2224R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30

Radial Type (Half side cutter)

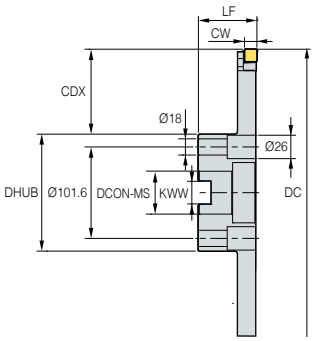




• RAHCP(M)



DC : Ø100~Ø200



DC : Ø250~Ø315

• RAHCB(M)

(mm)

Designation		DCON-MS	THUB	DHUB	KWW	CDX	Designation		DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension CW	Dimension CICT
RAHCP (M)	10012R	31.75(32)	12	48	7.92(8)	24	RAHCB (M)	10012R/L	31.75(32)	50	54	12.7(14.4)	21	100	8	6
	12512R	38.1(40)	12	56	9.52(10)	32		12512R/L	38.1(40)	60	70	15.9(16.4)	25	125	8	8
	16012R	38.1(40)	12	56	9.52(10)	50		16012R/L	38.1(40)	60	70	15.9(16.4)	43	160	8	10
	20012R	50.8(50)	12	72	12.7(12)	61		20012R/L	50.8(40)	65	90	19(16.4)	53	200	8	12
	25012R	50.8(50)	12	72	12.7(12)	86		25012R/L	47.625(60)	65	130	25.4(25.7)	58	250	8	16
	31512R	50.8(50)	12	72	12.7(12)	118		31512R/L	47.625(60)	65	130	25.4(25.7)	90	315	8	20
RAHCP (M)	10014R	31.75(32)	14	48	7.92(8)	24	RAHCB (M)	10014R/L	31.75(32)	50	50	12.7(14.4)	21	100	8	6
	12514R	38.1(40)	14	56	9.52(10)	32		12514R/L	38.1(40)	60	70	15.9(16.4)	25	125	8	8
	16014R	38.1(40)	14	56	9.52(10)	50		16014R/L	38.1(40)	60	70	15.9(16.4)	43	160	8	10
	20014R	50.8(50)	14	72	12.7(12)	61		20014R/L	50.8(40)	65	90	19(16.4)	53	200	8	12
	25014R	50.8(50)	14	72	12.7(12)	86		25014R/L	47.625(60)	65	130	25.4(25.7)	58	250	8	16
	31514R	50.8(50)	14	72	12.7(12)	118		31514R/L	47.625(60)	65	130	25.4(25.7)	90	315	8	20
RAHCP (M)	12516R	38.1(40)	16	56	9.52(10)	32	RAHCB (M)	12516R/L	38.1(40)	60	70	15.9(16.4)	25	125	10.5	8
	16016R	38.1(40)	16	56	9.52(10)	50		16016R/L	38.1(40)	60	70	15.9(16.4)	43	160	10.5	10
	20016R	50.8(50)	16	72	12.7(12)	61		20016R/L	50.8(40)	65	90	19(16.4)	53	200	10.5	12
	25016R	50.8(50)	16	72	12.7(12)	86		25016R/L	47.625(60)	65	130	25.4(25.7)	58	250	10.5	16
	31516R	50.8(50)	16	72	12.7(12)	118		31516R/L	47.625(60)	65	130	25.4(25.7)	90	315	10.5	20
RAHCP (M)	12518R	38.1(40)	18	56	9.52(10)	32	RAHCB (M)	12518R/L	38.1(40)	60	70	15.9(16.4)	25	125	10.5	8
	16018R	38.1(40)	18	56	9.52(10)	50		16018R/L	38.1(40)	60	70	15.9(16.4)	43	160	10.5	10
	20018R	50.8(50)	18	72	12.7(12)	61		20018R/L	50.8(40)	65	90	19(16.4)	53	200	10.5	12
	25018R	50.8(50)	18	72	12.7(12)	86		25018R/L	47.625(60)	65	130	25.4(25.7)	58	250	10.5	16
	31518R	50.8(50)	18	72	12.7(12)	118		31518R/L	47.625(60)	65	130	25.4(25.7)	90	315	10.5	20
RAHCP (M)	12520R	38.1(40)	20	56	9.52(10)	32	RAHCB (M)	12520R/L	38.1(40)	60	70	15.9(16.4)	25	125	10.5	8
	16020R	38.1(40)	20	56	9.52(10)	50		16020R/L	38.1(40)	60	70	15.9(16.4)	43	160	10.5	10
	20020R	50.8(50)	20	72	12.7(12)	61		20020R/L	50.8(40)	65	90	19(16.4)	53	200	10.5	12
	25020R	50.8(50)	20	72	12.7(12)	86		25020R/L	47.625(60)	65	130	25.4(25.7)	58	250	10.5	16
	31520R	50.8(50)	20	72	12.7(12)	118		31520R/L	47.625(60)	65	130	25.4(25.7)	90	315	10.5	20
RAHCP (M)	12522R	38.1(40)	22	56	9.52(10)	32	RAHCB (M)	12522R/L	38.1(40)	60	70	15.9(16.4)	25	125	10.5	8
	16022R	38.1(40)	22	56	9.52(10)	50		16022R/L	38.1(40)	60	70	15.9(16.4)	43	160	10.5	10
	20022R	50.8(50)	22	72	12.7(12)	61		20022R/L	50.8(40)	65	90	19(16.4)	53	200	10.5	12
	25022R	50.8(50)	22	72	12.7(12)	86		25022R/L	47.625(60)	65	130	25.4(25.7)	58	250	10.5	16
	31522R	50.8(50)	22	72	12.7(12)	118		31522R/L	47.625(60)	65	130	25.4(25.7)	90	315	10.5	20

Available inserts and Recommended Cutting conditions **B405**

• The ap (Maximum width of cutter) size written above is the number when using insert having corner size R0.5. The ap is subject to change as per insert corner size
• The ap (Maximum width of cutter) size written above is the number when using SDXT09M405R-MM. The ap is subject to change as per insert corner size

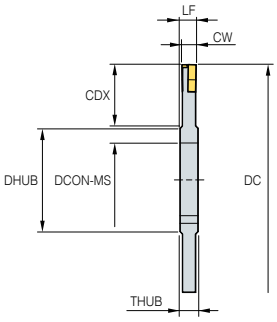
( )Metric size
● : Stock item

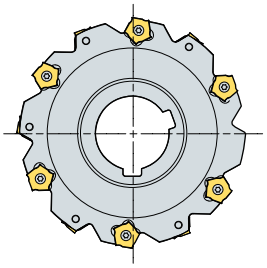
Parts

Specification / Edge width TAFCP(B)	Insert	Locator	Wedge (WSD09N / WSA10N)	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge, locator wrench
□□□1214R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1416R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□1618R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□1820R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2022R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□2224R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30

SPP(M)









• GAMP : −2°
• GAMF : −28°

(mm)

Designation		Stock	CICT	DC	CW	CDX	DCON-MS	KWW	THUB	DHUB	Insert	Screw	Wrench
SPP (SPPM)	080-04	(●)	8	80	4	20	25.4(27)	6.35(7)	28.04(29.8)	8	PNEJ1223N	PTMA0403F	TW15S
	080-05	(●)	8	80	5	20	25.4(27)	6.35(7)	28.04(29.8)	8	PNEJ1230N	PTMA0404F	TW15S
	080-06		8	80	6	20	25.4(27)	6.35(7)	28.04(29.8)	8	PNEJ1235N	PTMA0405F	TW15S
	100-04		10	100	4	24	31.75(32)	7.94(8)	35.18(34.8)	8	PNEJ1223N	PTMA0403F	TW15S
	100-05	(●)	10	100	5	24	31.75(32)	7.94(8)	35.18(34.8)	8	PNEJ1230N	PTMA0404F	TW15S
	100-06	(●)	10	100	6	25	31.75(32)	7.94(8)	35.18(34.8)	8	PNEJ1235N	PTMA0405F	TW15S
	100-07		10	100	7	25	31.75(32)	7.94(8)	35.18(34.8)	10	PNEJ1240N	PTMA0406F	TW15S
	100-08		10	100	8	25	31.75(32)	7.94(8)	35.18(34.8)	10	PNEJ1245N	PTKA0407F	TW15S
	100-09		10	100	9	25	31.75(32)	7.94(8)	35.18(34.8)	12	PNEJ1250N	PTKA0408F	TW15S
	100-10		10	100	10	25	31.75(32)	7.94(8)	35.18(34.8)	12	PNEJ1255N	PTKA0409F	TW15S
	125-04		12	125	4	30	38.1(40)	9.53(10)	42.32(43.5)	8	PNEJ1223N	PTMA0403F	TW15S
	125-05		12	125	5	32	38.1(40)	9.53(10)	42.32(43.5)	8	PNEJ1230N	PTMA0404F	TW15S
	125-06	(●)	12	125	6	32	38.1(40)	9.53(10)	42.32(43.5)	8	PNEJ1235N	PTMA0405F	TW15S
	125-07	(●)	12	125	7	32	38.1(40)	9.53(10)	42.32(43.5)	10	PNEJ1240N	PTMA0406F	TW15S
	125-08	(●)	12	125	8	32	38.1(40)	9.53(10)	42.32(43.5)	10	PNEJ1245N	PTKA0407F	TW15S
	125-09		12	125	9	32	38.1(40)	9.53(10)	42.32(43.5)	12	PNEJ1250N	PTKA0408F	TW15S
	125-10		12	125	10	32	38.1(40)	9.53(10)	42.32(43.5)	12	PNEJ1255N	PTKA0409F	TW15S
	160-04		16	160	4	45	38.1(40)	9.53(10)	42.32(43.5)	8	PNEJ1223N	PTMA0403F	TW15S
	160-05		16	160	5	45	38.1(40)	9.53(10)	42.32(43.5)	8	PNEJ1230N	PTMA0404F	TW15S
	160-06		16	160	6	45	38.1(40)	9.53(10)	42.32(43.5)	8	PNEJ1235N	PTMA0405F	TW15S
	160-07		16	160	7	45	38.1(40)	9.53(10)	42.32(43.5)	10	PNEJ1240N	PTMA0406F	TW15S
	160-08	(●)	16	160	8	45	38.1(40)	9.53(10)	42.32(43.5)	10	PNEJ1245N	PTKA0407F	TW15S
	160-09		16	160	9	45	38.1(40)	9.53(10)	42.32(43.5)	12	PNEJ1250N	PTKA0408F	TW15S
	160-10	(●)	16	160	10	45	38.1(40)	9.53(10)	42.32(43.5)	12	PNEJ1255N	PTKA0409F	TW15S
	160-11		16	160	11	45	38.1(40)	9.53(10)	42.32(43.5)	14	PNEJ1260N	PTKA0410F	TW15S
	160-12		16	160	12	45	38.1(40)	9.53(10)	42.32(43.5)	14	PNEJ1265N	PTKA0411F	TW15S
	160-13		16	160	13	45	38.1(40)	9.53(10)	42.32(43.5)	16	PNEJ1270N	PTKA0412F	TW15S
	160-14		16	160	14	45	38.1(40)	9.53(10)	42.32(43.5)	16	PNEJ1275N	PTKA0413F	TW15S
	200-06		18	200	6	60	50.8(50)	12.7(12)	55.83(53.5)	8	PNEJ1235N	PTMA0405F	TW15S
	200-07		18	200	7	60	50.8(50)	12.7(12)	55.83(53.5)	10	PNEJ1240N	PTMA0406F	TW15S
	200-08	(●)	18	200	8	60	50.8(50)	12.7(12)	55.83(53.5)	10	PNEJ1245N	PTKA0407F	TW15S
	200-09		18	200	9	60	50.8(50)	12.7(12)	55.83(53.5)	12	PNEJ1250N	PTKA0408F	TW15S
	200-10	(●)	18	200	10	60	50.8(50)	12.7(12)	55.83(53.5)	12	PNEJ1255N	PTKA0409F	TW15S
	200-11		18	200	11	60	50.8(50)	12.7(12)	55.83(53.5)	14	PNEJ1260N	PTKA0410F	TW15S
	200-12		18	200	12	60	50.8(50)	12.7(12)	55.83(53.5)	14	PNEJ1265N	PTKA0411F	TW15S
	200-13		18	200	13	60	50.8(50)	12.7(12)	55.83(53.5)	16	PNEJ1270N	PTKA0412F	TW15S
	200-14		18	200	14	60	50.8(50)	12.7(12)	55.83(53.5)	16	PNEJ1275N	PTKA0413F	TW15S

Available inserts **B16**

( )Metric size, ● : Stock item

Available arbors

Cutter Designation		NC arbors		
		BT30	BT40	BT50
SPP	080-04~06	BT30-SCA25.4-60	BT40-SCA25.4-75/120	BT50-SCA25.4-90/135
	100-04~10	-	BT40-SCA31.75-105	BT50-SCA31.75-90/135
	125-04~09	-	-	BT50-SCA38.1-90/135
	160-04~14	-	-	BT50-SCA38.1-90/135
	200-06~14	-	-	-
SPPM	080-04~06	-	BT40-SCA27-75/120	BT50-SCA27-90/135
	100-04~10	-	BT40-SCA32-105	BT50-SCA32-90/135
	125-04~09	-	-	BT50-SCA40-90/135
	160-04~14	-	-	BT50-SCA40-90/135
	200-06~14	-	-	-

Recommended cutting conditions

Workpiece	Cutting conditions		Grade
	vc(m/min)	fz(mm/t)	
P	190~310	0.10~0.25	NCM325
	160~270	0.10~0.30	PC3700
	60~100	0.10~0.25	ST30A
M	90~150	0.10~0.25	PC9530
K	140~230	0.10~0.35	PC6100
	50~90	0.10~0.40	G10

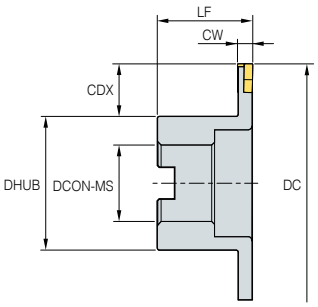
Code system

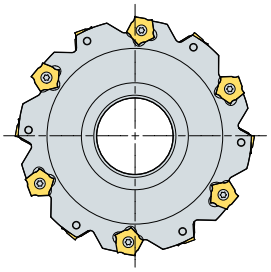
S P P 160 - 06 R

- S — Cutter use (S ⇒ Side cutter)
- P — Insert Shape (P - Pentagonal Insert)
- P — Cutter type (P - Plane type, B - Boss type)
- 160 — Cutter diameter(DC)
- 06 — Width of cut (W)
- R — Hand of tool (R/L)

SPB(M)









• GAMP : –2°
• GAMF : 28°

(mm)

Designation		Stock R	Stock L	CICT	DC	CW	CDX	DHUB	DCON-MS	KWW	LF	Insert	Screw	Wrench
SPB (SPBM)	080-04R/L			8	80	4	18	40	25.4(27)	9.5(12.4)	6(7)	PNEJ1223N	PTMA0403F	TW15S
	080-05R/L			8	80	5	18	40	25.4(27)	9.5(12.4)	6(7)	PNEJ1230N	PTMA0404F	TW15S
	080-06R/L			8	80	6	18	40	25.4(27)	9.5(12.4)	6(7)	PNEJ1235N	PTMA0405F	TW15S
	100-04R/L			10	100	4	21	54	31.75(32)	12.7(14.4)	8(8)	PNEJ1223N	PTMA0403F	TW15S
	100-05R/L			10	100	5	21	54	31.75(32)	12.7(14.4)	8(8)	PNEJ1230N	PTMA0404F	TW15S
	100-06R/L			10	100	6	21	54	31.75(32)	12.7(14.4)	8(8)	PNEJ1235N	PTMA0405F	TW15S
	100-07R/L			10	100	7	21	54	31.75(32)	12.7(14.4)	8(8)	PNEJ1240N	PTMA0406F	TW15S
	100-08R/L			10	100	8	21	54	31.75(32)	12.7(14.4)	8(8)	PNEJ1245N	PTMA0407F	TW15S
	100-09R/L			10	100	9	21	54	31.75(32)	12.7(14.4)	8(8)	PNEJ1250N	PTMA0408F	TW15S
	100-10R/L			10	100	10	21	54	31.75(32)	12.7(14.4)	8(8)	PNEJ1255N	PTMA0409F	TW15S
	125-04R/L			12	125	4	25	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1223N	PTMA0403F	TW15S
	125-05R/L			12	125	5	25	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1230N	PTMA0404F	TW15S
	125-06R/L			12	125	6	25	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1235N	PTMA0405F	TW15S
	125-07R/L			12	125	7	25	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1240N	PTMA0406F	TW15S
	125-08R/L			12	125	8	25	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1245N	PTKA0407F	TW15S
	125-09R/L			12	125	9	25	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1250N	PTKA0408F	TW15S
	125-10R/L			12	125	10	25	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1255N	PTKA0409F	TW15S
	160-04R/L			16	160	4	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1223N	PTMA0403F	TW15S
	160-05R/L			16	160	5	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1230N	PTMA0404F	TW15S
	160-06R/L			16	160	6	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1235N	PTMA0405F	TW15S
	160-07R/L			16	160	7	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1240N	PTMA0406F	TW15S
	160-08R/L			16	160	8	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1245N	PTKA0407F	TW15S
	160-09R/L			16	160	9	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1250N	PTKA0408F	TW15S
	160-10R/L			16	160	10	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1255N	PTKA0409F	TW15S
	160-11R/L			16	160	11	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1260N	PTKA0410F	TW15S
	160-12R/L			16	160	12	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1265N	PTKA0411F	TW15S
	160-13R/L			16	160	13	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1270N	PTKA0412F	TW15S
	160-14R/L			16	160	14	43	70	38.1(40)	15.9(16.4)	10(9)	PNEJ1275N	PTKA0413F	TW15S
	200-06R/L			18	200	6	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1235N	PTMA0405F	TW15S
	200-07R/L			18	200	7	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1240N	PTMA0406F	TW15S
	200-08R/L			18	200	8	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1245N	PTKA0407F	TW15S
	200-09R/L			18	200	9	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1250N	PTKA0408F	TW15S
	200-10R/L			18	200	10	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1255N	PTKA0409F	TW15S
	200-11R/L			18	200	11	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1260N	PTKA0410F	TW15S
	200-12R/L			18	200	12	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1265N	PTKA0411F	TW15S
	200-13R/L			18	200	13	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1270N	PTKA0412F	TW15S
	200-14R/L			18	200	14	53	90	50.8(40)	19(16.4)	11(9)	PNEJ1275N	PTKA0413F	TW15S

Available inserts **B16**

( )Metric size, ● : Stock item

Notice (When mounting inserts)

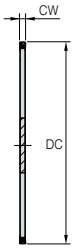
- ▶ Insert chip breaker should face chip pocket of the cutter
- ▶ Fasten screw after insert contacts securely on its seat
- ▶ If there is a gap between insert and its seat after mounting it may cause tool troubles

Recommended cutting conditions

Workpiece	Cutting conditions vc(m/min)	Cutting conditions fz(mm/t)	Grade
P	190~310 160~270 60~100	0.10~0.25 0.10~0.30 0.10~0.25	**NCM325** **PC3700** **ST30A**
M	90~150	0.10~0.25	**PC9530**
K	140~230	0.10~0.35 0.10~0.40	**PC6100** **G10**

SPS





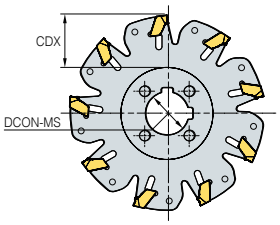


Fig. 1

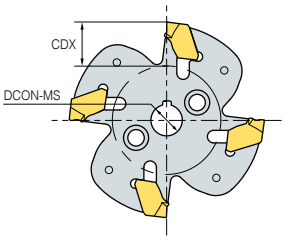


Fig. 2

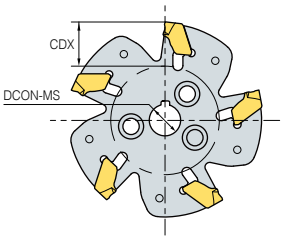


Fig. 3





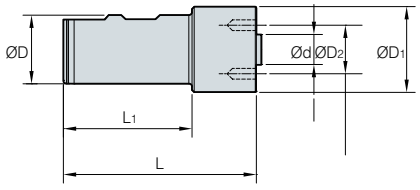
(mm)

Designation		Stock	CICT	DC	CW	CDX	DCON-MS	KWW	OAL	Fig.	Insert	Adaptor		Wrench
												WS	DF	
SPS	050-0204-08R		4	50	2.2	11	8	2	1.8	2	SPFN 200 - ( )	WS2528-M4	-	SW17P (separately ordered)
	063-0205-10R		5	63	2.2	15.5	10	3	1.8	3		WS2532-M5	-	
	080-0207-22R/F		7	80	2.2	17	22	6	1.8	1		WS3240-M5	DF22-46	
	100-0209-22R/F		9	100	2.2	27	22	6	1.8	1		WS3240-M5	DF22-46	
	125-0211-32F		11	125	2.2	35	32	8	1.8	1		-	DF32-55	
	160-0214-32F		14	160	2.2	52.5	32	8	1.8	3		-	DF32-55	
	063-0305-10R		5	63	3	15.5	10	3	2.55	1	SPFN 300 - ( )	WS2532-M5	-	
	080-0307-22R/F		7	80	3	17	22	6	2.55	1		WS3240-M5	DF22-46	
	100-0309-22R/F		9	100	3	27	22	6	2.55	1		WS3240-M5	DF22-46	
	125-0311-32F		11	125	3	35	32	8	2.55	1		-	DF32-55	
	160-0314-32F		14	160	3	52.5	32	8	2.55	1		-	DF32-55	
	200-0318-40F		18	200	3	60	40	10	2.55	1		-	DF40-80	
	080-0406-22R/F		6	80	4	17	22	6	3.4	1	SPFN 400 - ( )	WS3240-M5	DF22-46	
	100-0408-22R/F		8	100	4	27	22	6	3.4	1		WS3240-M5	DF22-46	
	125-0410-32F		10	125	4	35	32	8	3.4	1		-	DF32-55	
	160-0413-32F		13	160	4	52.5	32	8	3.4	1		-	DF32-55	
	200-0417-40F		17	200	4	60	40	10	3.4	1		-	DF40-80	

Available inserts **B26**

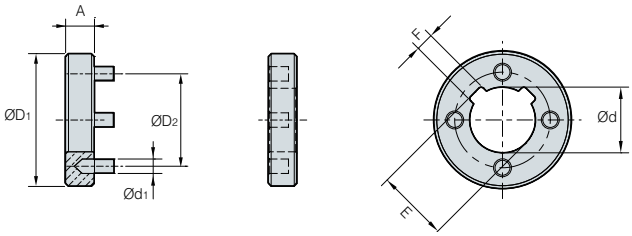
( )Metric size, ● : Stock item

WS( )-( ) (Weldon Shank)



Designation	L	L1	D	D1	D2	d	Screw
WS2528-M4	110	85	25	28	18	8	PTKA0408
WS2532-M5	110	85	25	32	22	10	PTKA0515
WS3240-M5	120	90	32	40	32	22	PTKA0515

DF( )-( ) (Drive Flange set)



Designation	D1	D2	d	d1	A	E	F
DF22-46	46	32	22	5	10	24.1	6
DF32-55	55	45	32	6	10	34.8	8
DF40-80	80	63	40	11	12	43.5	10
DF50-110	110	80	50	14	14	53.6	12

Recommended cutting conditions

Workpiece	Cutting conditions		Grade
	vc(m/min)	fz(mm/t)	
P	160~270	0.13~0.25	PC3700
M	90~150	0.10~0.22	PC5300
K	110~180	0.10~0.25	PC6100

For slotting workpieces with corner radii of varying sizes and widths

Wind Mill

- Optimal machining for slotting applications
- A unique recess design on the minor cutting-edge reduces cutting load and improves tool life
- Special clamping system prevents incorrect clamping and fracture

Item description

Insert



Cutter



WFSP(M) - Plane type



WFSB(M) - Boss type

Code system

• **Insert**

S	N	H	T	12	045	08	R/L	-	WX
Insert shape	Relief angle of major cutting-edge	tolerance	Shape of cross section	DC	Height of cutting-edge	Nose R	Hand		Chip breaker

• **Cutter**

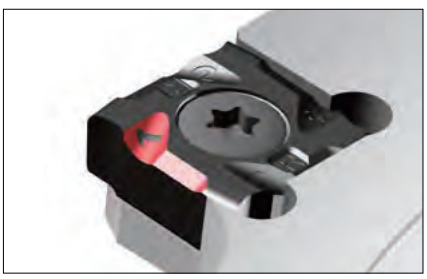
W	FS	P(B)	100	-	T 04
Wind Mill	Insert arrangement	Cutter type	DC		W

FS : Full side
HS : Half side

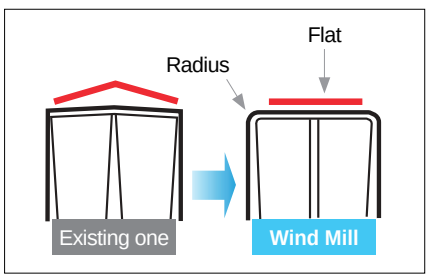
P : Plane type
B : Boss type

Features

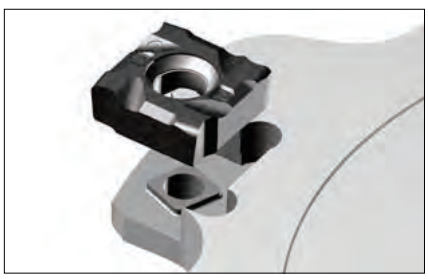
• Ideal geometry for superior surface roughness and extended tool life



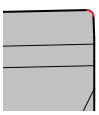
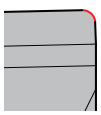
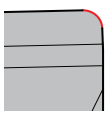
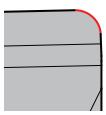
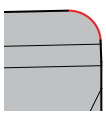
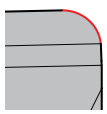
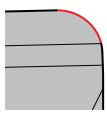
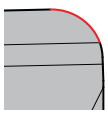
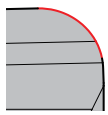
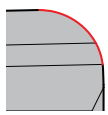
• Perpendicular slot



• Protruded part on tip seat prevents wrong clamping and fracture



• Workpieces with corner radii of varying size and width (R0.2~R2.0)

R0.2	R0.4	R0.6	R0.8	R1.0	R1.2	R1.4	R1.6	R1.8	R2.0
									

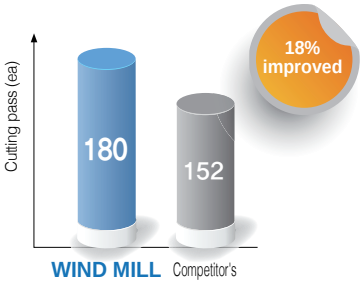
Application example

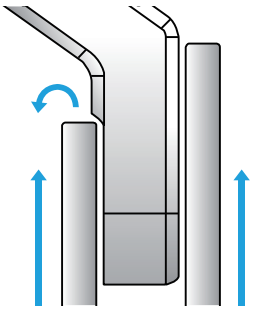
Workpiece FCD500K
(Carriers for Motor Vehicles)

Cutting condition vc(m/min) = 200
fz(mm/t) = 0.2
vf(mm/min) = 600
ap(mm) = 2~3

Tools KSF140R-T14-HM-2
SNHT1205408R/L-WX(PC5300)

■ **Test result**





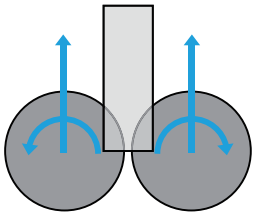
Workpiece Mild steel(Lug for Vessel)

Cutting condition vc(m/min) = 560
fz(mm/t) = 0.09
vf(mm/min) = 750
ap(mm) = 6

Tools WFSP178R/L-T06
SNHT1203508R/L-WX(PC5300)

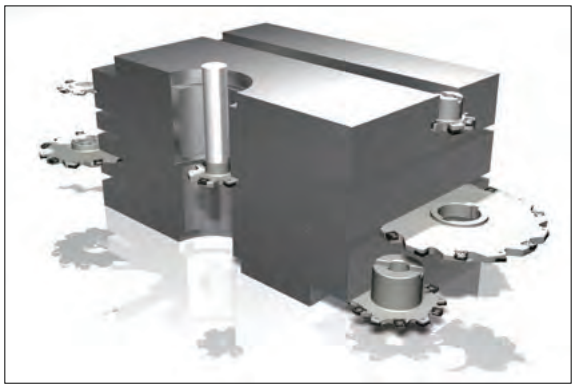
■ **Test result**





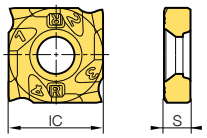
Recommended cutting conditions

Workpiece	Cutting conditions		Grade
	vc(m/min)	fz(mm/t)	
P	150~250	0.10~0.25	PC5300
M	120~200	0.10~0.30	PC5300
K	100~150	0.10~0.30	PC5300



Available inserts

Designation		Coated PC5300	Dimension(mm)			RE	Configuration
			IC	S	CW		
SNHT	1102308R/L-WX	●	11.0	2.30	4.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6	
	110308R/L-WX	●	11.0	3.00	5.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6	
	1203508R/L-WX	●	12.7	3.54	6.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120408R/L-WX		12.7	4.00	7.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1204508R/L-WX	●	12.7	4.54	8.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120508R/L-WX	●	12.7	5.00	9.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1205408R/L-WX	●	12.7	5.47	10.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120608R/L-WX		12.7	6.00	11.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1206508R/L-WX		12.7	6.50	12.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	120708R/L-WX		12.7	7.00	13.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	
	1207508R/L-WX		12.7	7.50	14.0	0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 2.0	



• Available cutter stock requires to be asked separately

WFSB(M) (Boss type)





• GAMP : –2°
• GAMF : –12°

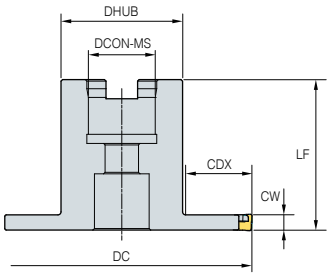


Fig. 1

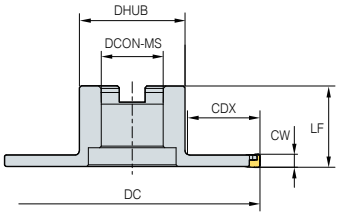


Fig. 2

(mm)

Designation		Stock R	Stock L	CICT	DC	CW	CDX	DHUB	DCON-MS	KWW	LF	Insert	Screw	Wrench
WFSBM	080R/L-T04			8	80	4	19	40	22	10.4	50	SNHT11023R/L-WX	PTMA03503	TW09S
	080R/L-T05			8	80	5	19	40	22	10.4	50	SNHT1103R/L-WX	PTMA03504	TW09S
	080R/L-T06			8	80	6	19	40	22	10.4	50	SNHT12035R/L-WX	PTMA04045F	TW15S
WFSB (WFSBM)	100R/L-T04			10	100	4	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT11023R/L-WX	PTMA03503	TW09S
	100R/L-T05			10	100	4	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT1103R/L-WX	PTMA03504	TW09S
	100R/L-T06			10	100	5	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT12035R/L-WX	PTMA04045F	TW15S
	100R/L-T07			10	100	6	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT1204R/L-WX	PTMA0405F	TW15S
	100R/L-T08			10	100	7	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT12045R/L-WX	PTMA0406F	TW15S
	100R/L-T09			10	100	8	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT1205R/L-WX	PTMA0407F	TW15S
	100R/L-T10			10	100	9	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT12054R/L-WX	PTMA0408F	TW15S
	125R/L-T04			10	100	10	24	50(48)	25.4(27)	9.5(12.4)	50	SNHT11023R/L-WX	PTMA03503	TW09S
	125R/L-T05			12	125	4	31	60(58)	31.75(32)	12.7(14.4)	50	SNHT1103R/L-WX	PTMA03504	TW09S
	125R/L-T06			12	125	5	31	60(58)	31.75(32)	12.7(14.4)	50	SNHT12035R/L-WX	PTMA04045F	TW15S
	125R/L-T07			12	125	6	31	60(58)	31.75(32)	12.7(14.4)	50	SNHT1204R/L-WX	PTMA0405F	TW15S
	125R/L-T08			12	125	7	31	60(58)	31.75(32)	12.7(14.4)	50	SNHT12045R/L-WX	PTMA0406F	TW15S
	125R/L-T09			12	125	8	31	60(58)	31.75(32)	12.7(14.4)	50	SNHT1205R/L-WX	PTM A0407F	TW15S
	125R/L-T10			12	125	9	31	60(58)	31.75(32)	12.7(14.4)	50	SNHT12054R/L-WX	PTMA0408F	TW15S
	160R/L-T04			12	125	10	31	60(58)	31.75(32)	12.7(14.4)	50	SNHT11023R/L-WX	PTMA03503	TW09S
	160R/L-T05			16	160	4	44	70	38.1(40)	15.9(16.4)	60	SNHT1103R/L-WX	PTMA03504	TW09S
	160R/L-T06			16	160	5	44	70	38.1(40)	15.9(16.4)	60	SNHT12035R/L-WX	PTMA04045F	TW15S
	160R/L-T07			16	160	6	44	70	38.1(40)	15.9(16.4)	60	SNHT1204R/L-WX	PTMA0405F	TW15S
	160R/L-T08			16	160	7	44	70	38.1(40)	15.9(16.4)	60	SNHT12045R/L-WX	PTMA0406F	TW15S
	160R/L-T09			16	160	8	44	70	38.1(40)	15.9(16.4)	60	SNHT1205R/L-WX	PTMA0407F	TW15S
	160R/L-T10			16	160	9	44	70	38.1(40)	15.9(16.4)	60	SNHT12054R/L-WX	PTMA0408F	TW15S
	160R/L-T11			16	160	10	44	70	38.1(40)	15.9(16.4)	60	SNHT1206R/L-WX	PTKA0409F	TW15S
	160R/L-T12			16	160	11	44	70	38.1(40)	15.9(16.4)	60	SNHT12065R/L-WX	PTKA0410F	TW15S
	160R/L-T13			16	160	12	44	70	38.1(40)	15.9(16.4)	60	SNHT1207R/L-WX	PTKA0411F	TW15S
	160R/L-T14			16	160	13	44	70	38.1(40)	15.9(16.4)	60	SNHT12075R/L-WX	PTKA0412F	TW15S
	200R/L-T06			16	160	14	44	70	38.1(40)	15.9(16.4)	60	SNHT12035R/L-WX	PTMA04045F	TW15S
	200R/L-T07			18	200	6	54	90	50.8(40)	19.1(16.4)	65	SNHT1204R/L-WX	PTMA0405F	TW15S
	200R/L-T08			18	200	7	54	90	50.8(40)	19.1(16.4)	65	SNHT12045R/L-WX	PTMA0406F	TW15S
	200R/L-T09			18	200	8	54	90	50.8(40)	19.1(16.4)	65	SNHT1205R/L-WX	PTMA0407F	TW15S
	200R/L-T10			18	200	9	54	90	50.8(40)	19.1(16.4)	65	SNHT12054R/L-WX	PTMA0408F	TW15S
	200R/L-T11			18	200	10	54	90	50.8(40)	19.1(16.4)	65	SNHT1206R/L-WX	PTKA0409F	TW15S
	200R/L-T12			18	200	11	54	90	50.8(40)	19.1(16.4)	65	SNHT12065R/L-WX	PTKA0410F	TW15S
	200R/L-T13			18	200	12	54	90	50.8(40)	19.1(16.4)	65	SNHT1207R/L-WX	PTKA0411F	TW15S
	200R/L-T14			18	200	13	54	90	50.8(40)	19.1(16.4)	65	SNHT12075R/L-WX	PTKA0412F	TW15S
	250R/L-T06			18	200	14	54	90	50.8(40)	19.1(16.4)	65	SNHT12035R/L-WX	PTMA04045F	TW15S
	250R/L-T07			20	250	6	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT1204R/L-WX	PTMA0405F	TW15S
	250R/L-T08			20	250	7	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT12045R/L-WX	PTMA0406F	TW15S
	250R/L-T09			20	250	8	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT1205R/L-WX	PTMA0407F	TW15S
	250R/L-T10			20	250	9	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT12054R/L-WX	PTMA0408F	TW15S
	250R/L-T11			20	250	10	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT1206R/L-WX	PTKA0409F	TW15S
	250R/L-T12			20	250	11	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT12065R/L-WX	PTKA0410F	TW15S
	250R/L-T13			20	250	12	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT1207R/L-WX	PTKA0411F	TW15S
	250R/L-T14			20	250	13	74	100(90)	50.8(40)	19.1(16.4)	65	SNHT12075R/L-WX	PTKA0412F	TW15S

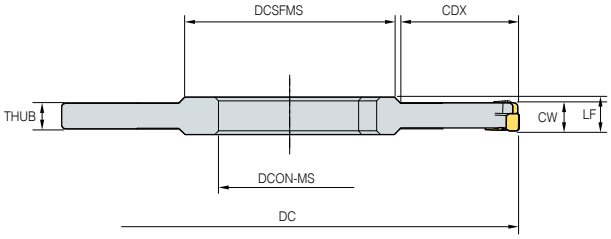
Available inserts **B25**

• Ø80: Fig.1 , Ø100~Ø250: Fig.2

( )Metric size, ● : Stock item

WFSP(M) (Plane type)







• GAMP : −2°
• GAMF : −12°

(mm)

Designation		Stock	CICT	DC	CW	CDX	DHUB	DCON-MS	KWW	THUB	Insert	Screw	Wrench
WFSP (WFSPM)	080-T04	●	8	80	4	17	45.4	25.4(27)	6.35(7)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	080-T05	●	8	80	5	17	45.4	25.4(27)	6.35(7)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	080-T06	●	8	80	6	17	45.4	25.4(27)	6.35(7)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	100-T04	●	10	100	4	24	52	31.75(32)	7.92(8)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	100-T05	●	10	100	5	24	52	31.75(32)	7.92(8)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	100-T06	●	10	100	6	24	52	31.75(32)	7.92(8)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	100-T07		10	100	7	24	51.4	31.75(32)	7.92(8)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	100-T08		10	100	8	24	50.4	31.75(32)	7.92(8)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	100-T09		10	100	9	24	50.4	31.75(32)	7.92(8)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	100-T10		10	100	10	24	50.4	31.75(32)	7.92(8)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	125-T04		12	125	4	32	59.4	38.1(40)	9.52(10)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	125-T05		12	125	5	32	59.4	38.1(40)	9.52(10)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	125-T06	●	12	125	6	32	59.4	38.1(40)	9.52(10)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	125-T07		12	125	7	32	59.4	38.1(40)	9.52(10)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	125-T08	●	12	125	8	32	59.4	38.1(40)	9.52(10)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	125-T09		12	125	9	32	59.4	38.1(40)	9.52(10)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	125-T10	●	12	125	10	32	59.4	38.1(40)	9.52(10)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	160-T04		16	160	4	44	71.4	38.1(50)	9.52(10)	8	SNHT11023R/L-WX	PTMA03503	TW09S
	160-T05		16	160	5	44	70.4	38.1(50)	9.52(10)	8	SNHT1103R/L-WX	PTMA03504	TW09S
	160-T06		16	160	6	44	69.4	38.1(50)	9.52(10)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	160-T07		16	160	7	44	69.4	38.1(50)	9.52(10)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	160-T08	●	16	160	8	44	69.4	38.1(50)	9.52(10)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	160-T09		16	160	9	44	70.4	38.1(50)	9.52(10)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	160-T10	●	16	160	10	44	69.4	38.1(50)	9.52(10)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	160-T11		16	160	11	44	69.4	38.1(50)	9.52(10)	14	SNHT1206R/L-WX	PTKA0409F	TW15S
	160-T12		16	160	12	44	69.4	38.1(50)	9.52(10)	14	SNHT12065R/L-WX	PTKA0410F	TW15S
	160-T13		16	160	13	44	69.4	38.1(50)	9.52(10)	16	SNHT1207R/L-WX	PTKA0411F	TW15S
	160-T14		16	160	14	44	69.4	38.1(50)	9.52(10)	16	SNHT12075R/L-WX	PTKA0412F	TW15S
	200-T06		18	200	6	63	73.4	50.8(50)	12.7(12)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	200-T07		18	200	7	63	72.5	50.8(50)	12.7(12)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	200-T08	●	18	200	8	63	73.4	50.8(50)	12.7(12)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	200-T09		18	200	9	63	73.4	50.8(50)	12.7(12)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	200-T10	●	18	200	10	63	73.4	50.8(50)	12.7(12)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	200-T11		18	200	11	63	73.4	50.8(50)	12.7(12)	14	SNHT1206R/L-WX	PTKA0409F	TW15S
	200-T12		18	200	12	63	73.4	50.8(50)	12.7(12)	14	SNHT12065R/L-WX	PTKA0410F	TW15S
	200-T13		18	200	13	63	73.4	50.8(50)	12.7(12)	16	SNHT1207R/L-WX	PTKA0411F	TW15S
	200-T14		18	200	14	63	73.4	50.8(50)	12.7(12)	16	SNHT12075R/L-WX	PTKA0412F	TW15S
	250-T06		20	250	6	88	73.4	50.8(50)	12.7(12)	8	SNHT12035R/L-WX	PTMA04045F	TW15S
	250-T07		20	250	7	88	73.4	50.8(50)	12.7(12)	10	SNHT1204R/L-WX	PTMA0405F	TW15S
	250-T08		20	250	8	88	73.4	50.8(50)	12.7(12)	10	SNHT12045R/L-WX	PTMA0406F	TW15S
	250-T09		20	250	9	88	73.4	50.8(50)	12.7(12)	12	SNHT1205R/L-WX	PTMA0407F	TW15S
	250-T10		20	250	10	88	73.4	50.8(50)	12.7(12)	12	SNHT12054R/L-WX	PTMA0408F	TW15S
	250-T11		20	250	11	88	73.4	50.8(50)	12.7(12)	14	SNHT1206R/L-WX	PTKA0409F	TW15S
	250-T12		20	250	12	88	73.4	50.8(50)	12.7(12)	14	SNHT12065R/L-WX	PTKA0410F	TW15S
	250-T13		20	250	13	88	73.4	50.8(50)	12.7(12)	16	SNHT1207R/L-WX	PTKA0411F	TW15S
	250-T14		20	250	14	88	73.4	50.8(50)	12.7(12)	16	SNHT12075R/L-WX	PTKA0412F	TW15S

Available inserts **B25**

( )Metric size, ● : Stock item

High feed cutter with extra pitch for cast iron and light alloy steels

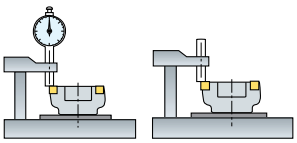
High feed Cutter

- High feed cutter employs extra pitch for cast iron and light alloy steels
- Quick change type for reduction of cutter change time
- Cutting-edge chatter is controlled
- Quick change type for cutter size under ø160, 2 piece types for cutter size over ø200

Guide of insert setting

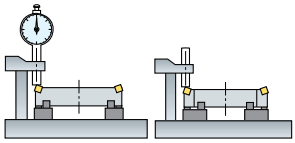
• Special equipment has to be used to get precise run out with high feed cutter.

Adaptor type



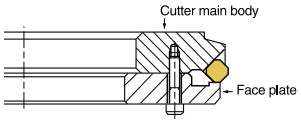
- Mainly under ø160 diameter is used in 1 piece type
- Available for fixed size of cutter and assembling & checking can be done at the same time

Roller type



- Mainly over ø200 diameter is used in 2 piece type
- Due to 3 adjustable guide rollers, variety size of cutter can be assembled

Plate type

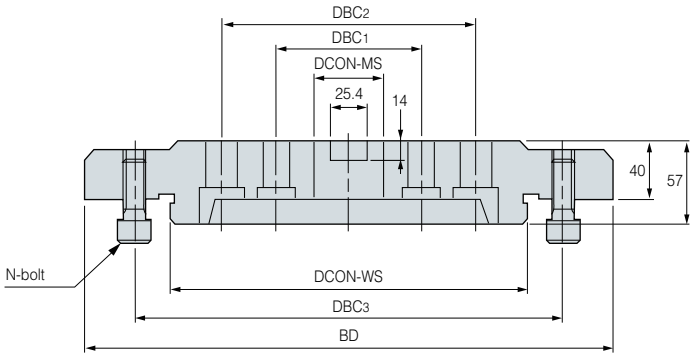


- Suitable for small size cutter due to the simple structure
- It is unnecessary to unclamp the cutter from the machine, it's possible to reassemble the cutter as it mounted on the machine
- You should make plate by yourself

Guide of insert setting in adaptor/roller type

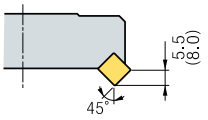
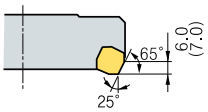
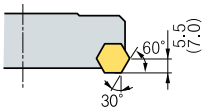
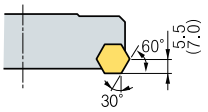
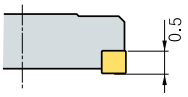
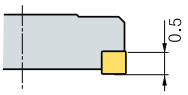
1. Clean the cutter and equipment
2. Pointer should be assembled with same height with cutter
3. Move to each insert on tip seat to end of pointer and tighten (torque 2 N.m) wedge
4. Exchange pointer to dial gauge
5. Measure the run-out totally
6. When an insert loosen wedge and adjust run-out. (for roughing 10~20 μ, for finishing 5~10 μ)
7. Tighten (torque 7-8 N.m) wedge
8. Measure the final run-out by dial gauge

Adaptor (Ø200~Ø450)



Designation		BD	DCON-MS	DCON-WS	DBC3	DBC1	DBC2	N	Cutter
APR	200	180	47.625	80	120	101.6	-	4	Ø200
	250	230	47.625	120	170	101.6	-	4	Ø250
	315	295	47.625	180	230	101.6	177.8	6	Ø315
	355	335	63.5	220	270	101.6	177.8	6	Ø355
	400	370	63.5	250	300	101.6	177.8	8	Ø400
	450	420	63.5	300	350	101.6	177.8	8	Ø450

High feed cutters type and features

Designation	Cutter diameter	Workpiece, Application range	Min. surface roughness	Approach angle and Max. cutting depth is for 5000 type	Axial rake angle	Radial rake angle	Available insert
ANH4000 ANH5000	Ø100~Ø450	Cast iron Roughing	25Z		-5°	-6°	**SNCN1204ENN SNCN1504ENN**
CDH4000 CDH5000	Ø100~Ø450	Cast iron Roughing Finishing	18Z		+10°	+5°	**SDCN42R SDCN53R**
DEH5000	Ø100~Ø450	Al alloy Roughing	20Z		+14°	+6°	**HECN090408FN**
DPH5000	Ø100~Ø450	Cast iron Roughing Finishing	12Z		+5°	-3°	**HPEN090408 HPEN090408-WC**
PNH4000 PNH5000	Ø125~Ø450	Cast iron Finishing	12Z		-5°	-6°	**SNEF435 SNEF535**
PPH4000	Ø125~Ø450	Cast iron Finishing	12Z		+5°	-5°	**SPEN120416-WC**

Recommended cutting conditions

Workpiece	Cutting conditions		Grade	Remark
	vc (m/min)	fz (mm/t)		
Cast iron	100~230	0.05~0.20	**PC6100**	PVD Coated
	80~150	0.05~0.20	**H01, G10**	Uncoated
Al alloy	400	0.10~0.30	**PC6100**	PVD Coated
	400	0.05~0.20	**H01, G10**	Uncoated

Special Korloy cutter for cast iron roughing

Cube Mill

- 8-corner using insert (maximum 16-corner available with 2 cutter, R/L cutter)
- Excellent cutting performance with positive rake angle made by 3-dimensional chip breaker
- Excellent tool life by a wide combination of grade varieties and chip breakers to match most working conditions
- 2 different type of inserts (chamfer/nose R) are available with 1 type cutter



Roughing for cast iron

Code system

CBM	E	3	250	R	(2)	-	28Z
Cutter	**KAPR**	**Inscribe circle of Insert**	**Cutter diameter**	**Hand**	**Cutter shape**		**No. of tooth (Z)**
CBM : CUBE MILL	Q : 88° C : 65° F : 85° A : 45° E : 75°	3 : 9.525 4 : 12.7	Ø250	R : Right-handed L : Left-handed	Unmarked : Normal type 2 : Quick change type (2 pieces type)		

※ Cube Mill and Cube Mill Couple are available by order made.

Insert (R/L type)

Chamfer type	Nose R type



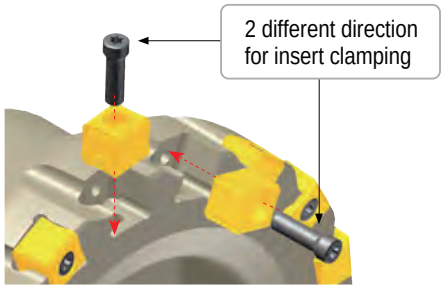


Cutter body

Cutter diameter (Ø)	Normal	Quick change
	Ø80~315mm	Ø200~450mm
	3 1/4~12 1/2 Inch	8~18 Inch
KAPR : 88°, 85°, 75°, 65°, 45°		

Cutter





Parts



Cube Mill 3000 type



Screw



Wrench

Screw	Wrench
FTGA0417CBM	TW15-100
ETGA0520CBM	TW20-100

Ideal combination of aluminum body with cast iron high feed cutter

Couple Mill

- Since the weight of the cutter has been reduced 50% vs. a steel cutter, it is very easy to handle and very effective in preventing loading accidents
- Applicable for Cube Mill, Storm Mill

Code system

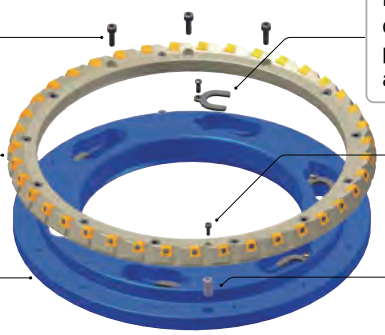
• Cube-couple

CBM	E	3	355	R	28Z	-	CP
Cutter	**KAPR**	**Inscribed circle of Insert**	**Cutter diameter**	**Hand**	**No. of tooth (Z)**		**Couple Mill**
CBM : CUBE MILL	Q : 88° C : 65° F : 85° A : 45° E : 75°	3 : 9.525 4 : 12.7	Ø355	R : Right-handed L : Left-handed	28Z : 28		

• Storm-couple

S	Q	N	3	355	R	28Z	-	CP
Cutter	**KAPR**	**Relief angle of insert**	**Inscribed circle of Insert**	**Cutter diameter**	**Hand**	**No. of tooth (Z)**		**Couple Mill**
S : Storm Mill	Q : 88° C : 65° F : 85° A : 45° E : 75°	N : Negative (0°)	3 : 9.525 4 : 12.7	Ø355	R : Right-handed L : Left-handed	28		

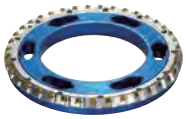
Assembling structure



Cutter body

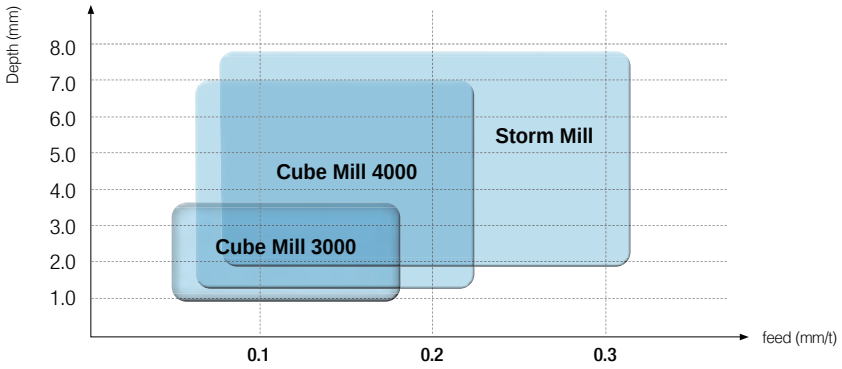
Cutter diameter (Ø)	Quick change	
	Metric	Ø355~450mm
	Inch	14 1/4~18 Inch

Parts



		Screw	Wrench	Wrench	Bolt for body	Bolt for key	Key for body
Cube–Couple	3000 type	FTGA0417CBM	TW15-100	-	BHA0616	MHBO410	PN1019-DRV
	4000 type	ETGA0520CBM	TW20-100		BHA0620		
Storm–Couple	3000 type	FTNA0513	-	TW15S	-	-	-

Application range of high feed cutters for cast iron



Recommended cutting conditions

Cube Mill		Gray cast iron		Ductile cast iron	
		vc(m/min)	fz(mm/t)	vc(m/min)	fz(mm/t)
PVD	PC6100	150~300	0.08~0.18	100~200	0.08~0.18
Uncoated	G10	90~120	0.05~0.18	60~130	0.05~0.18

Available arbors and adaptors

Cutter Designation		Available arbors and adaptors		
		NC arbors	General arbor	Adaptor
CBMQ	3080R/L-00Z	BT□□-FMA25.4-□□	NT*□□(M/U)-FMA25.4-25	
(CBMF)	3100R/L-00Z	BT□□-FMA31.75-□□	NT*□□(M/U)-FMA31.75-□□	
(CBME)	3125R/L-00Z	BT□□-FMA38.1-□□	NT*□□(M/U)-FMA38.1-□□	
(CBMC)	3160R/L-00Z	BT□□-FMA50.8-□□	NT*□□(M/U)-FMA50.8-□□	
(CBMA)	3200R/L-00Z	BT□□-FMA47.625-□□	NT*□□(M/U)-FMA47.625-25, KCP-8***	
	3250R/L-00Z	BT□□-FMA47.625-□□	KNT*□□(M/U)-FMA47.625-25, KCP-8***	
	3315R/L-00Z		KCP-8***(Centering Plug)	
	3200R/L2-00Z			APR200
	3250R/L2-00Z			APR250
	3315R/L2-00Z			APR315
	3355R/L2-00Z			APR355
	3400R/L2-00Z			APR400
	3450R/L2-00Z			APR450
SQN	3080R/L-00Z	BT□□-FMA25.4-□□	NT*□□(M/U)-FMA25.4-25	
(SFN)	3100R/L-00Z	BT□□-FMA31.75-□□	NT*□□(M/U)-FMA31.75-□□	
(SEN)	3125R/L-00Z	BT□□-FMA38.1-□□	NT*□□(M/U)-FMA38.1-□□	
(SAN)	3160R/L-00Z	BT□□-FMA50.8-□□	NT*□□(M/U)-FMA50.8-□□	
	3200R/L-00Z	BT□□-FMA47.625-□□	NT*□□(M/U)-FMA47.625-25, KCP-8***	
	3250R/L-00Z	BT□□-FMA47.625-□□	NT*□□(M/U)-FMA47.625-25, KCP-8***	
	3315R/L-00Z		KCP-8***(Centering Plug)	
	3200R/L2-00Z			APR200
	3250R/L2-00Z			APR250
	3315R/L2-00Z			APR315
	3355R/L2-00Z			APR355
	3400R/L2-00Z			APR400
	3450R/L2-00Z			APR450

• *□□-NT number / **□□-BT number / ***Milling over 5
<Arbors **add>
ex) BT**□□

Optimal cutter for steel and cast iron machining with easily adjustable run-out

Shave Mill

- Adjustable Range (Adjustable range: 0.1 mm, Adjustable allowance: within 2 ㎛)
- Wiper crown type 8-cornered insert reduces machining cost and realizes excellent surface roughness
- Grades with high toughness and wear resistance ensures long tool life
- The cBN grade achieves superior surface finish

Code system

• Insert

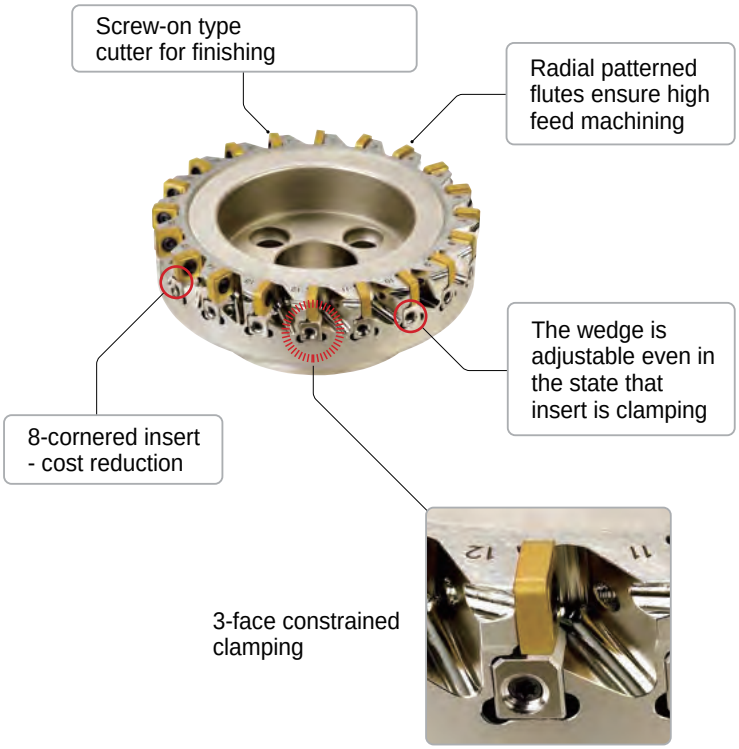
Uncoated	
• Nose R type	SNEU120420-MF
• Chamfer type	SNEU1204ANN-MF
• Low cutting type	SNEU1204-WMF

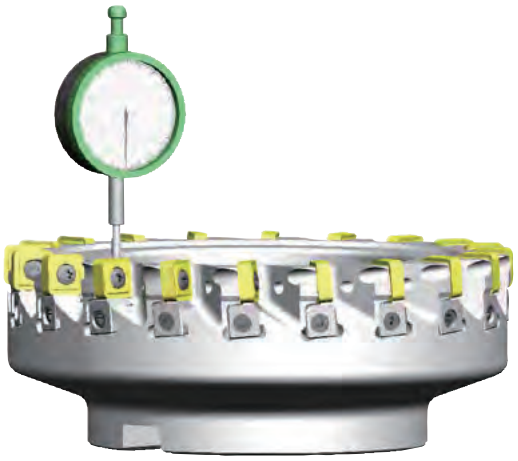
cBN
S N E U 1 2 0 4 - T B W

• Cutter

SVM	M	4	250	R	Z6
Shave Mill	**Metric type** M : Metric A : Inch	**Inscribed Circle** 4 : 12.7 mm	**Cutter diameter (Ø)** Ø250	**Hand of tool** R : Right-handed L : Left-handed	**No. of tooth (Z)**

Features

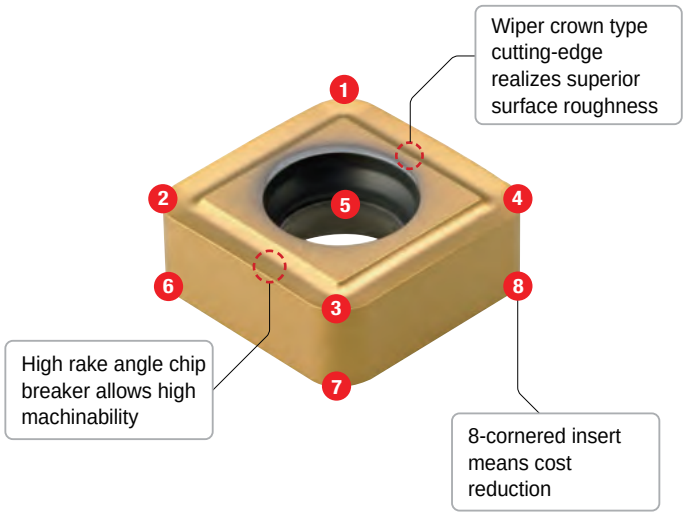




Adjustment

- Adjustable range: 0.1 mm
- Adjustability: below 2 μ
- Operation: easy and simple

Features of insert



SNEU120420-MF



Nose R type

SNEU1204ANN-MF



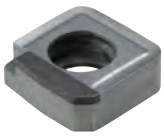
Chamfer type

SNEU1204-WMF



For low cutting load

SNEU1204-TBW



Wiper for high speed machining

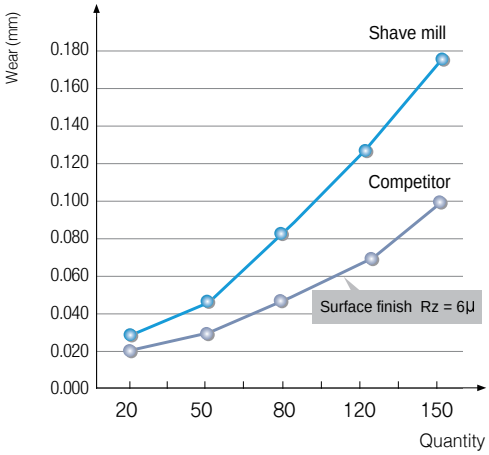
Recommended cutting conditions

Workpiece	Cutting conditions			Grade
	vc(m/min)	fz(mm/t)	ap(mm)	
P	160~270	0.05~0.2	~0.5	PC3700
K	140~230 600~1000	0.05~0.3 0.05~0.2	~0.5 ~0.5	PC6100 DBN920

Application example

Workpiece Cylinder head (facing)
Cutting condition vc = 200, fz = 0.15, ap = 0.5, dry
Tools Cutter : SVMM4250R,
Insert : PC6100 SNEU120420-MF

Workpiece FC25 (HB250) Cylinder head (facing)
Cutting condition vc = 700, fz = 0.1, ap = 0.5, dry
Tools Cutter : SVMM4160R
Insert : DBN920 SNEU1204-CBN



• Results

Type	Tool life	Surface finish	Machinability
Shave Mill	250 pcs	Rz=3μ	High
Competitor	180 pcs	Rz=3.5μ	Normal

• KORLOY's Shave Mills ensure twice the machinability, adjustability, and surface roughness than competitor's, along with twice the tool life.

Better tool life with special grade which has both toughness and wear resistance

Shave Mill Ultra

- Superior surface roughness for this Finishing cutter when applied to heavy work pieces
- Easy to handle and good rigidity with simple screw on system
- Superior surface finishes due to the wiper crown cutting-edge
- Better tool life with special grade which has both toughness and wear resistance

Code system

• Insert

L	N	C	S	1	9	0	7	-	R3.0	-	WC
			Shave Mill-Ultra						Corner type C : Chamfer R : Round		Wiper Crown

• Cutter

SVU	M	6	250	R	Z6	-	B
Shave Mill-Ultra	Metric type M : Metric A : Inch	Inscribed Circle 6 : 19.05 mm	Cutter diameter (Ø) Ø250	Hand of tool R : Right-handed L : Left-handed	No. of tooth (Z)		Cutter type None : Normal B : Adjustable

Features



[Normal type]

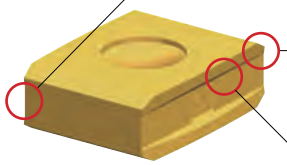
Good rigidity and economical due to simple screw on type

Better surface roughness when you use only 1 insert but adjust the 'ap' under 0.03 mm



[Adjustable cutting-edge (Type B)]

Easy to handle the run-out due to Korloy exclusive high toughness cutting-edge special Part



Good cutting performance & chip flow due to positive rake angle chip breaker

Economical 4 corner insert

Good surface roughness by wiper crown cutting-edge design

Adjustable Range

· Range: 1.0 mm
· Allowance: Within 2 μ

Recommended cutting conditions

Workpiece	Cutting conditions			Tooth	Grade
	vc(m/min)	fz(mm/t)	ap(mm)		
P	160~270	0.05~0.20	~0.50	Full use	PC3700
	160~270	2~5	~0.03	1 use	
K	140~230	0.05~0.20	~0.50	Full use	PC6100
	140~230	2~5	~0.03	1 use	

Gear Cutter Applicable Example

Applicable example-external tooth gear

Finishing: M20



- **Cutter Dia**: Ø400
- **Tooth No**: 20 tooth
- **External tooth gear**: Formal cutter for gear processing which can be expected to KS 4 level accuracy
- Cutter can simultaneously chamfer while milling



M20XZ130-EX

Semi-finishing



- **Cutter Dia**: Ø280
- **Tooth No**: 48 tooth
- Designed for processing of external gear involute curve line shape
- Possible to work for gear root portion R with optimal insert R design



M20-M22-ROU

Roughing



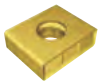
- **Cutter Dia**: Ø560
- **Tooth No**: 140 tooth
- High feed rate with low cutting resistance due to V shape insert setting design



LNE333-02-1



LNE434-02-1



KEL1906-C0.6-MF

Applicable example-internal tooth gear

Finishing: M16



- **Cutter Dia**: Ø400
- **Tooth No**: 20 tooth
- **Internal tooth gear**: Formal cutter for gear processing which can be expected to KS 4 level accuracy
- Cutter can simultaneously chamfer while milling



M16XZ130

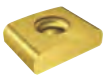
Semi-finishing



- **Cutter Dia**: Ø280
- **Tooth No**: 48 tooth
- The semi-finishing cutter was designed for processing of external gear involute curb line shape



M16-M18-ROU

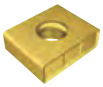


LNE433-R60

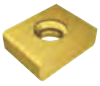
Roughing



- **Cutter Dia**: Ø560
- **Tooth No**: 40 tooth
- Possible to use for gear processing of all module due to step type of insert setting design



KEL1906-C0.6-MF



LNE434-02-1

Gear cutter machining example



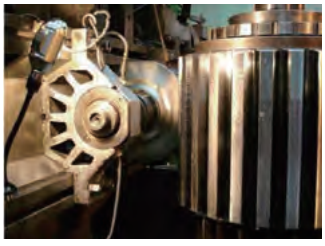
Machine
Gleason-PFAUTER CNC Hobbing Machine (Power : 52kW)

Cutting condition
vc = 119.98m/min(n=86.8rpm)
fz = 0.518mm/t(vf = 450mm/min)
ae = 36mm
Dry

Tools
M16-PT-RACK-KOR03(Ø440xW90)

Semi-finishing cutter (low cut, low resistance)

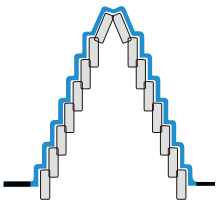
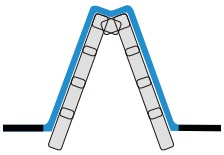
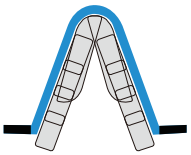
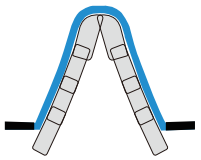
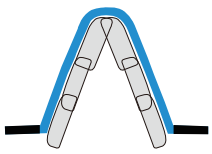
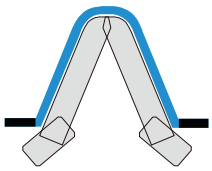
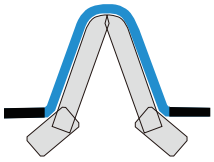
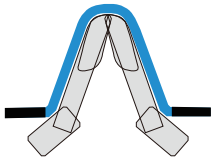




Machine
KARATS(30kw)

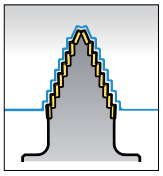
Cutting condition
vc = 150m/min, n=119rpm
fz = 0.09mm/t, vf = 81.6mm/min
ae = 45mm
Dry

Tools
M24 Semi-finishing External type Applicable Insert
M40-ROU (Main),
KEL150708-MX (Flank)

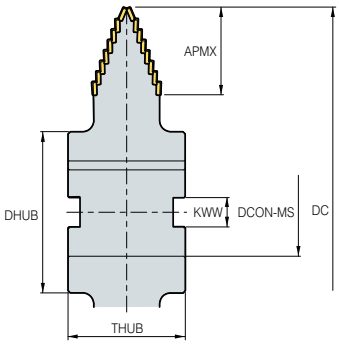
Type	Cutter shape	Cutting-edge shape	Type	Feature
Roughing			Step type	• Working for big sized gear tooth • Low cutting resistance with step type insert setting
			V shape type	• Low cutting resistance with V shape cutting insert setting • Optimal cutting-edge line setting according to Rach type & cutting-edge shape
Semi-finishing			Low cutting resistance type	• 4-Corner insert on Root portion • 3D chip breaker shape on flank • Optimal cutting-edge line setting for low cutting resistance
			External gear high rigidity type	• Optimal R type insert setting on Root portion • Superior Semi-finishing cutting with high rigidity shape of cutter & insert
			Internal gear high rigidity type	• Exclusive semi-finishing Internal Gear insert • Optimal cutting-edge line setting with Internal tooth shape
Finishing			External gear	• Concave shape of cutting-edge line according to external gear type • Optimal cutting insert setting design according to a customer conditions
			Internal gear	• 2-corner insert setting on right & left side and chamfering insert setting • Adjustable chamfering cartridge use for chamfering control
			2 STEP type	• Exclusive insert for machining the root part • 4-cornered insert

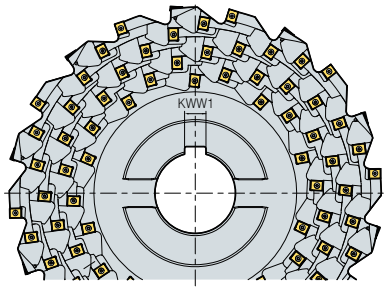
• Optimal cutting insert setting design according to customer condition

Gear Cutter for Roughing (Step type)





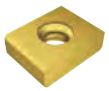
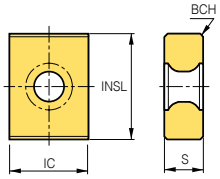




(mm)

Gear Module	CICT	DC	APMX	DCON-MS	DHUB	KWW	KWW1	THUB
30	96	450	90	100	180	25	14	140
	108	500	90	100	180	25	14	140
	120	560	90	120	220	40	32	160
40	112	450	105	100	180	25	14	140
	126	500	105	100	180	25	14	140
	140	560	105	120	220	40	32	160
50	160	560	119	120	220	40	32	160

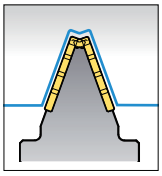
Available inserts

Picture	Designation		Coated				Uncoated		Dimension				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	BCH	
 Reinforced cutting-edge	LNE	434-02-1			○	◎			19.05	14.29	6.35	0.6	
 Low cutting resistance	KEL	1906-C0.6-MF			○	◎			19.05	14.29	6.35	0.6	
		190610-MR			○	◎			19.05	14.29	6.35	-	

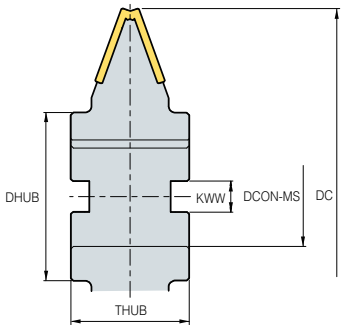
※The above specification is subject to change according to customer related condition & Korloy technical condition

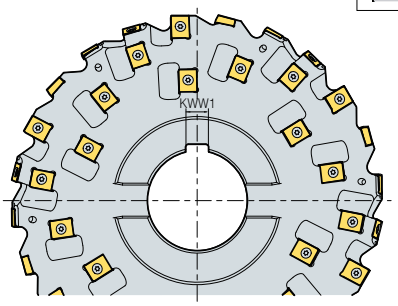
◎: 1st Rec ○: 2 nd Rec

Gear Cutter for Roughing (V shape type)





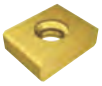
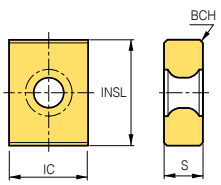
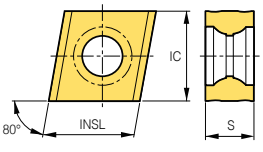




(mm)

Gear Module	TYPE	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
20	rack	48	280	80	135	25	18	95
22	rack	48	280	80	135	25	18	95
24	rack	48	320	80	145	25	18	105
26	rack	60	320	80	145	25	18	105
28	rack	96	400	100	180	25	24	130
30	rack	96	400	100	180	25	24	130
32	rack	96	400	100	180	25	24	130
34	rack	112	400	100	180	25	24	130
36	rack	112	450	100	180	25	24	130
38	rack	112	450	100	180	25	24	130
40	rack	128	450	100	180	25	24	160
42	rack	128	450	100	180	25	24	160
44	rack	128	560	120	220	32	32	160
46	rack	144	560	120	220	32	32	160
48	rack	144	560	120	220	32	32	160
50	rack	144	560	120	220	32	32	160

Available inserts

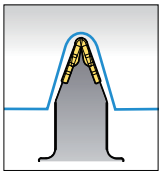
Picture	Designation		Coated				Uncoated		Dimension				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	BCH	
 Reinforced cutting-edge	LNE	434-02-1			○	◎			19.05	14.29	6.35	0.6	
 Low cutting resistance	KEL	1906-C0.6-MF			○	◎			19.05	14.29	6.35	0.6	
		190610-MR							19.05	14.29	6.35	-	
 Reinforced cutting-edge	LNE	333-02-1			○	◎			14.3	12.7	6.35	0.8	
	CNHQ	1005-C0.5							10	10	5.4	-	

※The above specification is subject to change according to customer related condition & Korloy technical condition

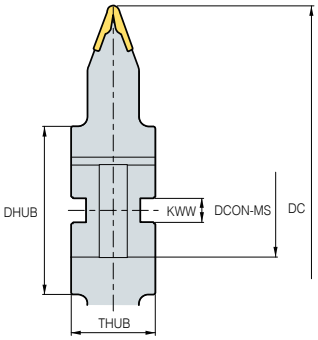
◎: 1st Rec ○: 2 nd Rec

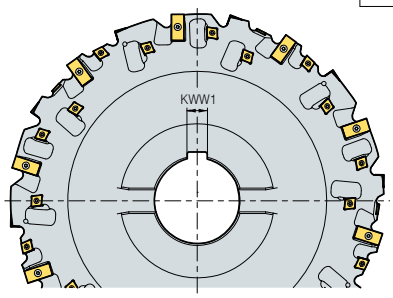
Gear Cutter for Semi-finishing

(High rigid edge type, External gear)





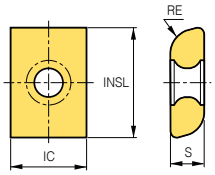
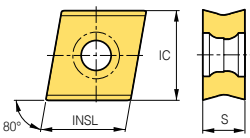
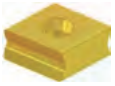




(mm)

Gear Module	No.of teeth	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
6	30,60,120	18	250	60	100	25	18	70
8	30,60,120	18	250	60	100	25	18	80
10	30,60,120	24	250	60	100	25	18	80
12	30,60,120	24	250	60	100	25	18	90
14	30,60,120	24	280	80	135	25	24	95
16	30,60,120	32	280	80	135	25	24	100
18	30,60,120	32	320	80	145	25	24	105
20	30,60,120	64	400	100	180	25	24	110
22	30,60,120	64	400	100	180	25	24	110
24	30,60,120	64	400	100	180	25	24	120

Available inserts

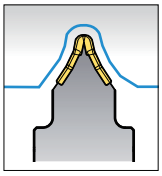
Picture	Designation		Coated				Uncoated		Dimension				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	BCH	
		M6-2ST			○	◎			19.05	11.6	3.8	2.25	
		M8-2ST			○	◎			19.05	11.6	4	3	
		M10-2ST			○	◎			19.05	11.6	4.76	3.75	
		M12-2ST			○	◎			19.05	14.3	6.35	4.5	
		M14-2ST			○	◎			25.4	14.3	6.35	5.25	
		M16-2ST			○	◎			31.8	14.3	7.14	6	
		M18-2ST			○	◎			31.8	14.3	7.14	6.75	
		M20-2ST			○	◎			31.8	14.3	9.52	7.5	
		M22-2ST			○	◎			31.8	14.3	9.52	8.25	
		M24-2ST			○	◎			31.8	14.3	9.52	9	
	KEC	120606-MX			○	◎			12	12.7	6.35	-	
		150708-MX			○	◎			15.15	15	7.6	-	

※The above specification is subject to change according to customer related condition & Korloy technical condition

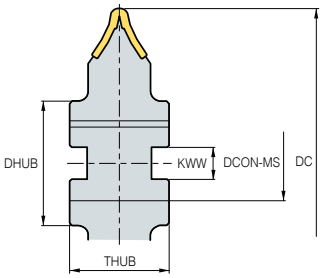
◎: 1st Rec ○: 2 nd Rec

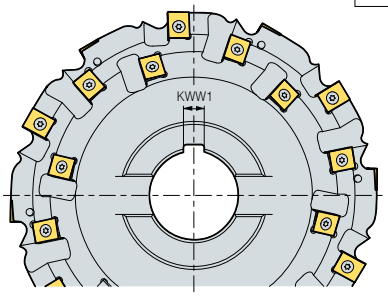
Gear Cutter for Semi-finishing

(High rigid edge type, External gear)





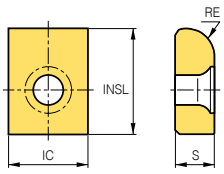
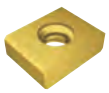
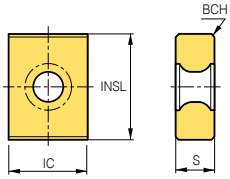




(mm)

Gear Module	No.of teeth	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
12	30, 60, 120	24	250	60	100	25	14	70
14	30, 60, 120	36	250	60	100	25	14	80
16	30, 60, 120	36	250	60	100	25	14	80
18	30, 60, 120	36	250	60	100	25	14	90
20	30, 60, 120	48	280	80	135	25	18	95
22	30, 60, 120	48	280	80	135	25	18	100
24	30, 60, 120	48	320	80	145	25	18	105
26	30, 60, 120	72	400	100	180	25	24	110
28	30, 60, 120	72	400	100	180	25	24	110
30	30, 60, 120	72	400	100	180	25	24	120
32	30, 60, 120	84	400	100	180	25	24	130
34	30, 60, 120	84	400	100	180	25	24	130

Available inserts

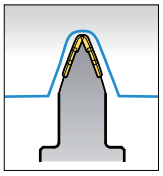
Picture	Designation		Coated				Uncoated		Dimension					Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	BCH	
		**M8-ROU**			○	◎			15.875	11	4.76	4.6	-	
		M12-M14-ROU			○	◎			19.05	14.29	6.35	5.4	-	
		M16-M18-ROU			○	◎			19.05	14.29	7	5.4	-	
		M20-M22-ROU			○	◎			19.05	14.29	7.94	5.4	-	
		M40-ROU			○	◎			25.4	14.29	9.52	5.4	-	
	**LNE**	**434-02-1**			○	◎			19.05	14.29	6.35	-	0.6	
	**KEL**	**1906-C0.6-MF**			○	◎			19.05	14.29	6.35	-	0.6	
		190610-MR			○	◎			19.05	14.29	6.35	-	-	

※The above specification is subject to change according to customer related condition & Korloy technical condition

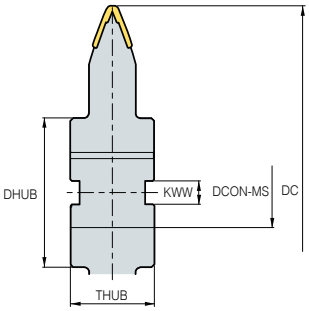
◎: 1st Rec ○: 2nd Rec

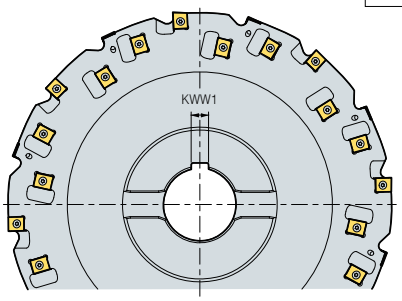
Gear Cutter for Semi-finishing

(High rigid edge type, Internal gear)





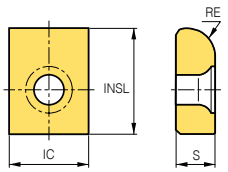
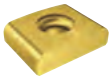
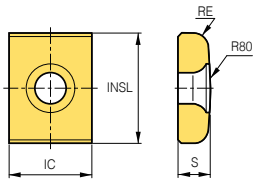




(mm)

Gear Module	No.of teeth	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
12	30, 60, 120	24	250	60	100	25	14	70
14	30, 60, 120	36	250	60	100	25	14	80
16	30, 60, 120	36	250	60	100	25	14	80
18	30, 60, 120	36	250	60	100	25	14	90
20	30, 60, 120	48	280	80	135	25	18	95
22	30, 60, 120	48	280	80	135	25	18	100
24	30, 60, 120	48	320	80	145	25	18	105
26	30, 60, 120	72	400	100	180	25	24	110
28	30, 60, 120	72	400	100	180	25	24	110
30	30, 60, 120	72	400	100	180	25	24	120
32	30, 60, 120	84	400	100	180	25	24	130
34	30, 60, 120	84	400	100	180	25	24	130

Available inserts

Picture	Designation		Coated				Uncoated		Dimension				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	
		**M8-ROU**			○	◎			15.875	11	4.76	2	
		M12-M14-ROU			○	◎			19.05	14.29	6.35	3	
		M16-M18-ROU			○	◎			19.05	14.29	7	5	
		M20-M22-ROU			○	◎			19.05	14.29	7.94	7	
		M40-ROU			○	◎			25.4	14.29	9.52	10	
	**LNE**	**433-R80**			○	◎			19.05	14.29	5.56	2.5	

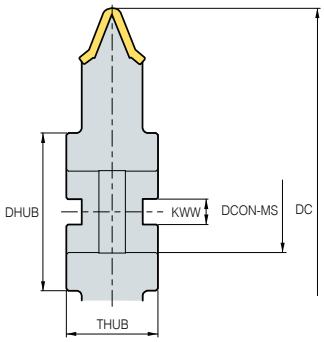
※The above specification is subject to change according to customer related condition & Korloy technical condition

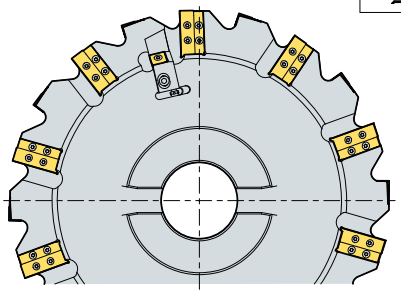
◎: 1st Rec ○: 2 nd Rec

Gear Cutter for Finishing

(1 Step type, External gear)



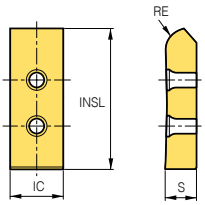
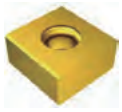
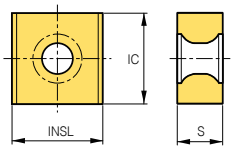




(mm)

Gear Module	CICT	DC	DCON-MS	DHUB	KWW	THUB
6	20	400	80	155	25	90
8	20	400	80	155	25	90
10	20	400	80	155	25	90
12	20	400	80	155	25	90
14	20	400	80	155	25	90
16	20	400	80	155	25	90
18	20	400	80	155	25	90
20	20	400	80	155	25	90
22	20	400	80	155	25	90
24	20	400	80	155	25	90

Available inserts

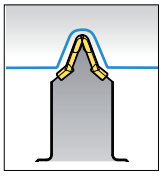
Picture	Designation		Coated				Uncoated		Dimension				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	
		M6			○	◎			19	14.3	5	2.25	
		M8			○	◎			27	14.3	5.4	3	
		M10			○	◎			29	14.3	6.35	3.75	
		M12			○	◎			33	14.3	6.35	4.5	
		M14			○	◎			39	14.3	6.35	5.25	
		M16			○	◎			43	14.3	7.94	6	
		M18			○	◎			50	14.3	7.94	6.75	
		M20			○	◎			54	14.3	9.53	7.5	
		M22			○	◎			57	14.3	9.53	8.25	
		M24			○	◎			64	14.3	9.53	9	
	SNEQ	1507-C0.8			○	◎			15.875	15.875	7.94	-	

※The above specification is subject to change according to customer related condition & Korloy technical condition

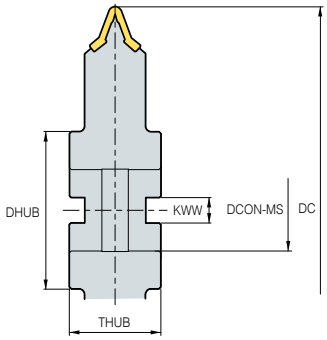
◎: 1st Rec ○: 2nd Rec

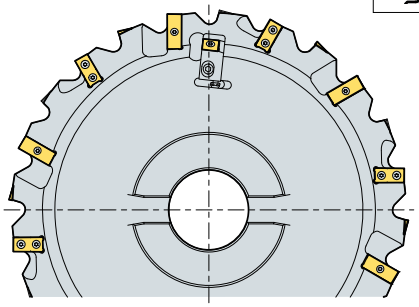
Gear Cutter for Finishing

(1 Step type, Internal / External gear)





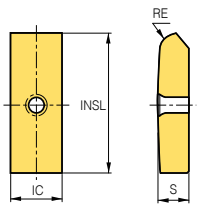
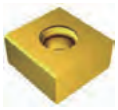
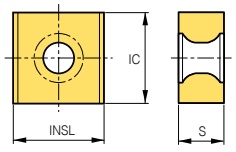
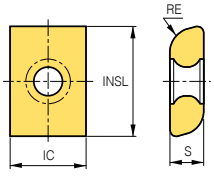




(mm)

Gear Module	CICT	DC	DCON-MS	DHUB	KWW	THUB
6	24	400	80	155	25	90
8	24	400	80	155	25	90
10	24	400	80	155	25	90
12	24	400	80	155	25	90
14	24	400	80	155	25	90
16	24	400	80	155	25	90
18	24	400	80	155	25	90
20	24	400	80	155	25	90
22	24	400	80	155	25	90
24	24	400	80	155	25	90

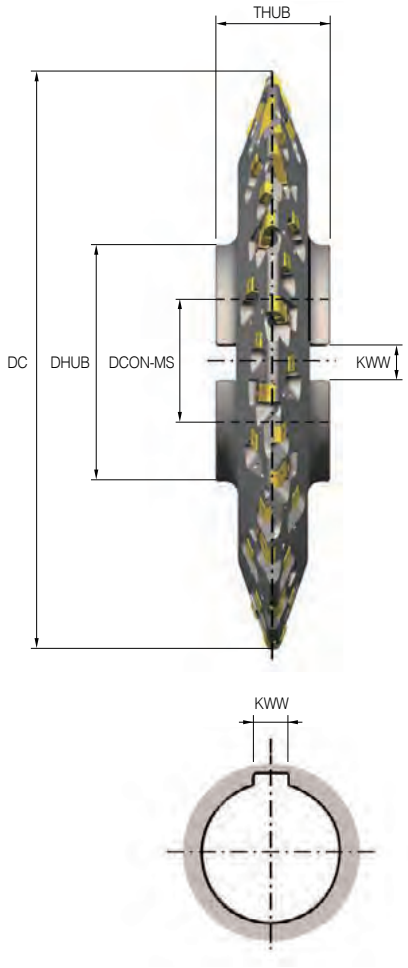
Available inserts

Picture	Designation		Coated				Uncoated		Dimension				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	
		**M6**		○		◎			19	14.3	5	2.25	
		M8		○		◎			27	14.3	5.4	3	
		M10		○		◎			29	14.3	6.35	3.75	
		M12		○		◎			33	14.3	6.35	4.5	
		M14		○		◎			39	14.3	6.35	5.25	
		M16		○		◎			43	14.3	7.94	6	
		M18		○		◎			50	14.3	7.94	6.75	
		M20		○		◎			54	14.3	9.53	7.5	
		M22		○		◎			57	14.3	9.53	8.25	
		M24		○		◎			64	14.3	9.53	9	
	**SNEQ**	**1507-C0.8**		○		◎			15.875	15.875	7.94	-	
		**M6-2ST**							19.05	11.6	3.8	2.25	
		M8-2ST							19.05	11.6	4	3	
		M10-2ST							19.05	11.6	4.76	3.75	
		M12-2ST							19.05	14.3	6.35	4.5	
		M14-2ST							25.4	14.3	6.35	5.25	
		M16-2ST							31.8	14.3	7.14	6	
		M18-2ST							31.8	14.3	7.14	6.75	
		M20-2ST							31.8	14.3	9.52	7.5	
		M22-2ST							31.8	14.3	9.52	8.25	
		M24-2ST							31.8	14.3	9.52	9	

※The above specification is subject to change according to customer related condition & Korloy technical condition

◎: 1st Rec ○: 2 nd Rec

Gear cutter order form



Cutter Type

☐ Roughing	☐ Semi-finishing	☐ Finishing
☐ Step	☐ Low cutting resistance	☐ 1 Step
☐ V shape	☐ High rigid edge	☐ 2 Step

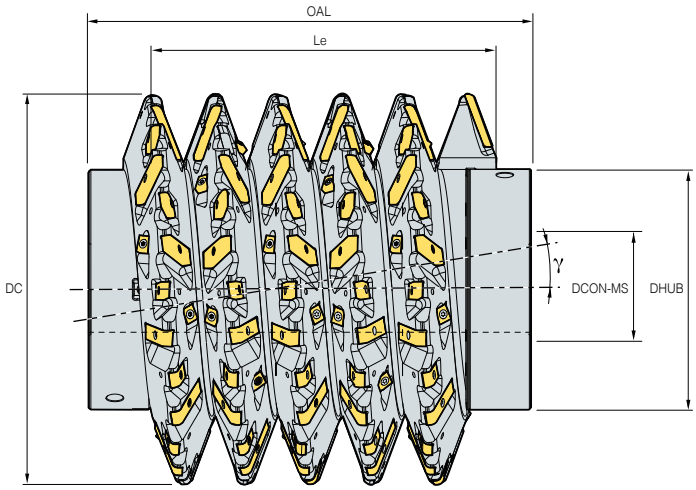
- Stock for finishing(one side) (mm) :
- Outside diameter DC(mm) :
- Bore diameter DCON-MS(mm) :
- Hub diameter DHUB(mm) :
- Cutter width THUB(mm) :
- Radial keyway width KWW(mm) :
- Radial keyway depth(mm) :
- Axial keyway width KWW (mm) :
- Axial keyway depth(mm) :

Involute gear data

☐ External Gear ☐ Internal Gear ☐ Rack Gear

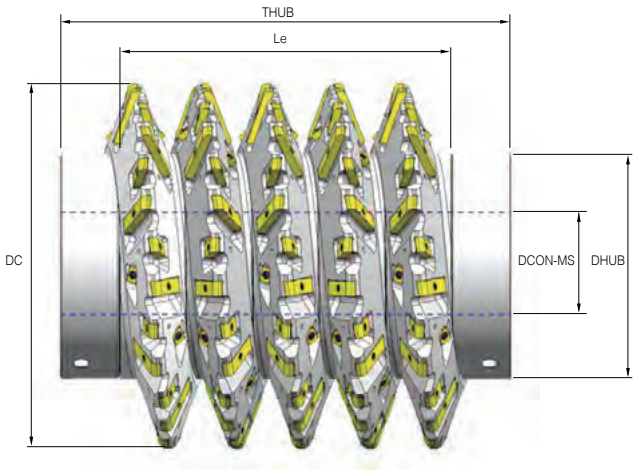
- Module m_n :
- No.of teeth Z(mm) :
- Pressure angle α(°) :
- Helix angle β(°) :
- Addendum modification coefficient x :
- Tip diameter da(mm) :
- Root diameter df(mm) :
- Root radius ρfp(mm)
- Base tangent length Wk(mm)
- No. of measuring teeth K :
- Dimension over balls Md(mm) :
- Ball diameter DM(mm) :
- Gear quality (DIN, JIS) :

Indexable HOB



Gear Module	DC	DHUB	DCON-MS	No.Segm. (Pitch)	Le	Segment insert	Total insert	γ (Lead Ang.)
6	180	125	40	6	(113)	15	90	2.084
	210	125	50	6	(113)	17	102	1.763
	240	160	60	6	(113)	19	114	1.528
7	180	125	40	6	(132)	15	90	2.469
	210	125	50	6	(132)	17	102	2.084
	240	160	60	6	(132)	19	114	1.803
8	210	125	50	6	(151)	17	102	2.413
	240	160	60	6	(151)	19	114	2.084
	270	180	80	6	(151)	21	126	1.834
9	210	125	50	6	(169)	17	102	2.751
	240	160	60	6	(169)	19	114	2.372
	270	180	80	6	(169)	21	126	2.084
10	210	125	50	6	(189)	17	102	3.099
	240	160	60	6	(189)	19	114	2.666
	270	180	80	6	(189)	21	126	2.339
12	240	140	60	6	(226)	18	108	3.276
	270	180	80	6	(226)	22	132	2.866
	350	215	80	6	(226)	26	156	2.149
14	270	180	80	6	(264)	22	132	3.415
	350	215	80	6	(264)	26	156	2.547
16	270	160	80	6	(302)	22	132	3.989
	350	215	80	6	(302)	26	156	2.959
18	270	145	80	5	(283)	22	110	4.589
	350	215	80	5	(283)	26	130	3.383
20	350	215	80	5	(314)	26	130	3.823
	450	265	100	5	(314)	34	170	2.866

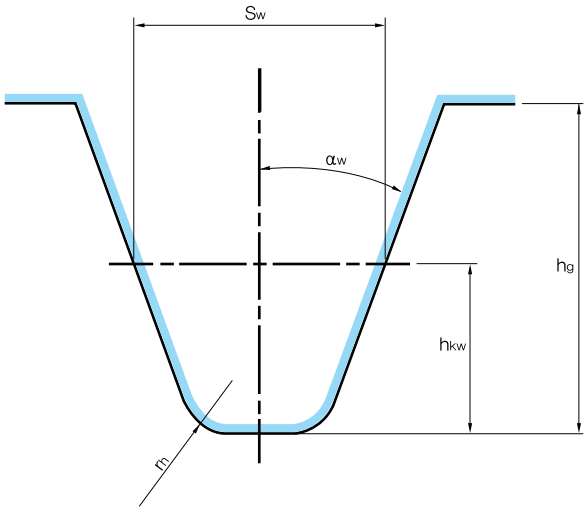
Indexable HOB Cutter Order Form



Tool SPEC.

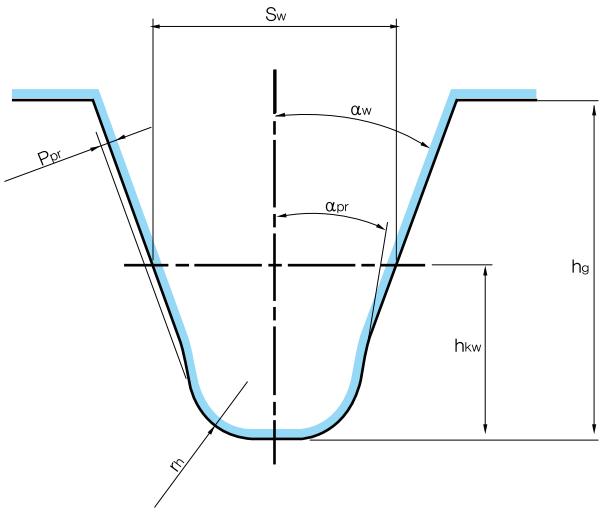
- Outside diameter DC(mm) :
- Bore diameter DCON-MS(mm) :
- Hub diameter DHUB(mm) :
- Hob length THUB(mm) :
- Cutting length Le(mm) :
- Spiral direction RH/LH :
- Quality class acc. to DIN 3968 :

Profile of Hob [Module m6 ~]



- Module m_n :
- Addendum hkw(mm) :
- Tooth thickness Sw(mm) :
- Tooth depth hg(mm) :

Profile of Roughing hob [Module m8 ~]



- Pressure a ngle αw(mm) :
- Protuberance amount Ppr(mm) :
- Protuberance angle αpr(mm) :
- Tip radius rh(mm) :

BROTECH

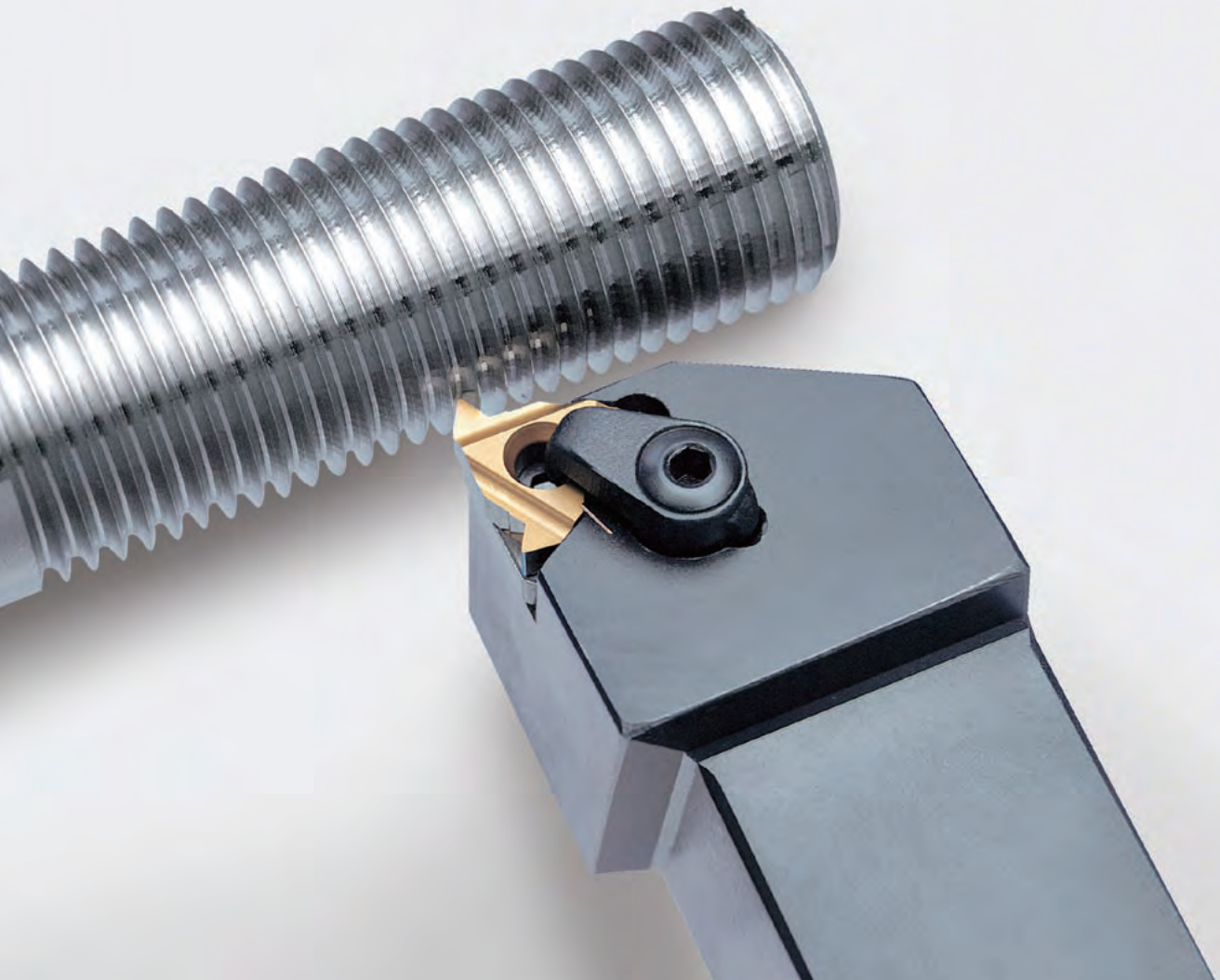


BROTECH

PART

THREADING

Korloy threading tools are available for machining various shapes of thread at various pitches while ensuring high quality performances



Technical information for THREADING

Technical Information for Threading

C2 Thread Milling Holders Code System
C2 Thread Milling Inserts Code System
C3 Technical Information for Thread Milling

Thread Milling Inserts

C12 ISO Metric
C13 American UNC
C14 UNJ(Unified Constant Thread)
C15 Whitworth(BSW, BSF, BSP, BSB)
C16 NPT
C16 NPTF
C16 BSPT

Thread Milling Holders

C17 Standard Type
C17 Long Type
C17 Tapered Type

Thread Milling Holders Code System

TM S R L 25 - 11

1 Product name | 2 Holder style | 3 Hand | 4 Shank type | 5 Shank diameter | 6 Cutting edge length

1 Product name
TM S R L 25 - 11

Thread Milling Holder

2 Holder style
TM S R L 25 - 11

S : Shank Type

3 Hand
TM S R L 25 - 11

R : Right-handed L : Left-handed

4 Shank type
TM S R L 25 - 11

None : Standard
L : Long Type
T : Taper Type

5 Shank diameter
TM S R L 25 - 11

25 : 25.0

6 Cutting edge length(mm)
TM S R L 25 - 11

10 : 10.4
11 : 11
16 : 16
22 : 22
27 : 27
38 : 38.5

Thread Milling Inserts Code System

TM 2 I 16 - 1.5 ISO

1 Insert style | 2 Cutting edge | 3 Type of insert | 4 Cutting edge length | 5 Pitch | 6 Type

1 Insert style
TM 2 I 16 - 1.5 ISO

Thread Milling Insert

2 Cutting edge
TM 2 I 16 - 1.5 ISO

None : 1 cutting edge
2 : 2 cutting edge

3 Type of insert
TM 2 I 16 - 1.5 ISO

I : Internal
E : External
EI : External & Internal

4 Cutting edge length(mm)
TM 2 I 16 - 1.5 ISO

10 : 10.4
11 : 11
16 : 16
22 : 22
27 : 27
38 : 38.5

5 Pitch
TM 2 I 16 - 1.5 ISO

mm : 0.5 ~ 6 tpi : 48 ~ 6

6 Type
TM 2 I 16 - 1.5 ISO

ISO Metric

American UN (UNC, UNF, UNEF)

UNJ

Whitworth (BSW, BSF, BSP, BSB)

National Pipe Thread (NPT)

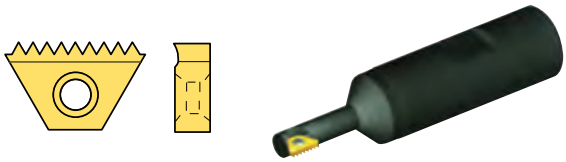
National Pipe Thread (NPTF)

British Standard Pipe Thread (BSPT)

Thread Milling

The right tool for the job

Small diameter type



- **Tool holder**: TMSR • **Insert**: TM
- For small bore diameters down to 9.5 mm / L = 10.4 mm

Standard type



- **Tool holder**: TMSR • **Insert**: TM2
- For standard length threads

Long type



- **Tool holder**: TMSR • **Insert**: TM2
- For long or remote threads

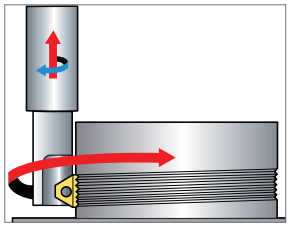
Tapered type



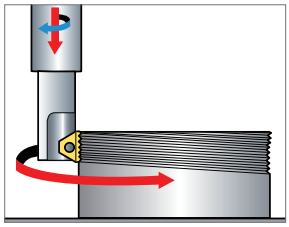
- **Tool holder**: TMSR • **Insert**: TM2 (BSPT, NPT, NPTF)
- For taper thread

Thread milling methods

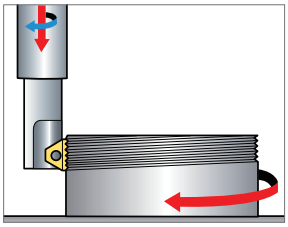
External threading



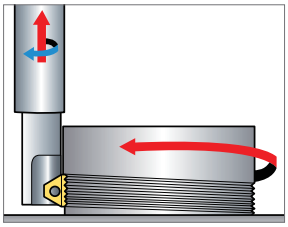
Right handed thread
conventional milling



Left handed thread
down milling

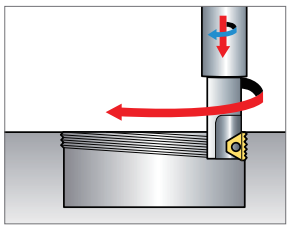


Right handed thread
down milling

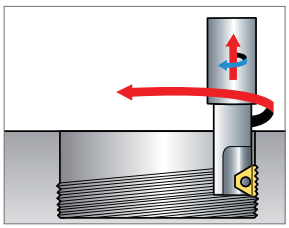


Left handed thread
conventional milling

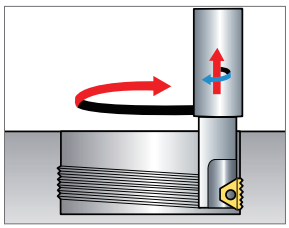
Internal threading



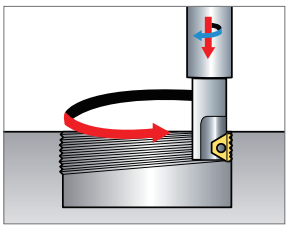
Right handed thread
down milling



Left handed thread
conventional milling

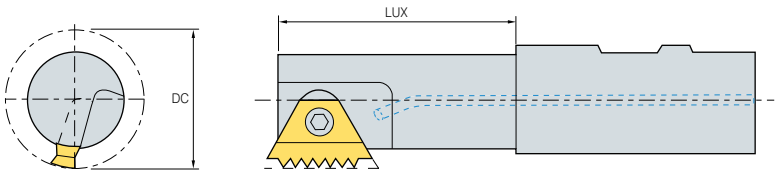


Right handed thread
conventional milling



Left handed thread
down milling

Tooling recommendation for given internal thread specification

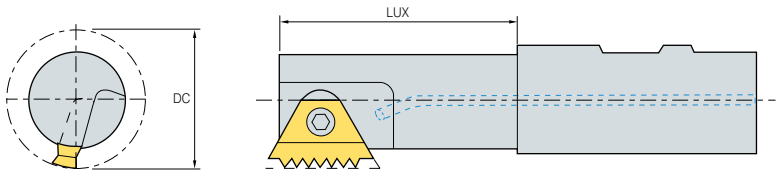


• ISO

TP	TDZ (mm)	Holder	Insert	LUX	DC	TDN
0.75	11	TMSR 12-10	TM2I 10-0.75ISO	12	9	0.43
1	12-14	TMSR 12-10	TM2I 10-1.0ISO	12	9	0.58
	15-18	TMSR 12-11	TM2I 11-1.0ISO	12	11.5	
	20	TMSR 16-16	TM2I 16-1.0ISO	22	17	
	22	TMSR 20-22	TM2I 22-1.0ISO	29	19	
	24	TMSR 20-16	TM2I 16-1.0ISO	43	20	
	25-28	TMSRL 25-16	TM2I 16-1.0ISO	25	22	
1.25	14	TMSR 12-10	TM2I 10-1.25ISO	12	9	0.72
1.5	14-15	TMSR 12-10	TM2I 10-1.5ISO	12	9	0.87
	16-20	TMSR 12-11	TM2I 11-1.5ISO	12	11.5	
	22	TMSR 16-16	TM2I 16-1.5ISO	22	17	
	24	TMSR 20-22	TM2I 22-1.5ISO	29	19	
	25-26	TMSR 20-16	TM2I 16-1.5ISO	43	20	
	27-30	TMSRL 25-16	TM2I 16-1.5ISO	25	22	
	35-42	TMSR 25-27	TM2I 27-1.5ISO	52	30	
	45	TMSR 32-27	TM2I 27-1.5ISO	58	37	
2	22	TMSRT 16-16	TM2I 16-2.0ISO	22	15.5	1.15
	24	TMSR 16-16	TM2I 16-2.0ISO	22	17	
	25	TMSR 20-22	TM2I 22-2.0ISO	29	19	
	27	TMSR 20-16	TM2I 16-2.0ISO	43	20	
	28-32	TMSRL 25-16	TM2I 16-2.0ISO	25	22	
	39-42	TMSR 25-27	TM2I 27-2.0ISO	52	30	
	45-48	TMSR 32-27	TM2I 27-2.0ISO	58	37	
3	42-48	TMSR 25-27	TM2I 27-3.0ISO	52	30	1.73
	50-52	TMSR 32-27	TM2I 27-3.0ISO	58	37	
4	45-52	TMSR 25-27	TM2I 27-4.0ISO	52	30	2.31
	55	TMSR 32-38	TM2I 38-4.0ISO	55	35	
	56-58	TMSR 32-27	TM2I 27-4.0ISO	58	37	
	60-65	TMSR 40-38	TM2I 38-4.0ISO	65	46	
5	48-52	TMSR 32-38	TM2I 38-5.0ISO	55	35	2.89
5.5	56	TMSR 32-38	TM2I 38-5.5ISO	55	35	3.17
	60	TMSR 40-38	TM2I 38-5.5ISO	65	46	
6	64-68	TMSR 40-38	TM2I 38-6.0ISO	65	46	3.46

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Tooling recommendation for given internal thread specification

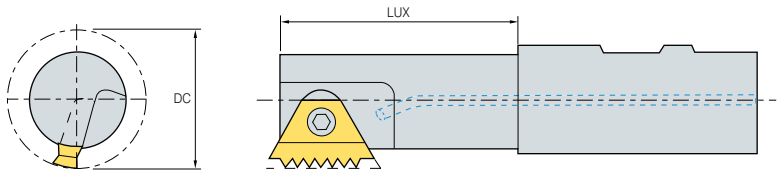


• UN

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
32	7/16-1/2	TMSR 12-10	TMI 10-32UN	12	9	0.46
	9/16-11/16	TMSR 12-11	TM2I 11-32UN	12	11.5	
	3/4-13/16	TMSR 16-16	TM2I 16-32UN	22	17	
	7/8-15/16	TMSR 20-16	TM2I 16-32UN	43	20	
	1	TMSR 25-16	TM2I 16-32UN	25	22	
28	7/16-1/2	TMSR 12-10	TMI 10-28UN	12	9	0.52
	9/16-3/4	TMSR 12-11	TM2I 11-28UN	12	11.5	
	13/16-7/8	TMSR 16-16	TM2I 16-28UN	22	17	
	15/16	TMSR 20-16	TM2I 16-28UN	43	20	
	1-1 1/8	TMSRL 25-16	TM2I 16-28UN	25	22	
24	9/16-11/16	TMSR 12-11	TM2I 11-24UN	12	11.5	0.61
20	1/2-9/16	TMSR 12-10	TMI 10-20UN	12	9	0.73
	5/8-13/16	TMSR 12-11	TM2I 11-20UN	12	11.5	
	7/8	TMSR 16-16	TM2I 16-20UN	22	17	
	15/16-1	TMSR 20-16	TM2I 16-20UN	43	20	
	1 1/16-1 1/8	TMSRL 25-16	TM2I 16-20UN	25	22	
	1 3/8-1 5/8	TMSR 25-27	TM2I 27-20UN	52	30	
	1 11/16-1 13/16	TMSR 32-27	TM2I 27-20UN	28	37	
18	5/8	TMSR 12-11	TM2I 11-18UN	12	11.5	0.81
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-18UN	25	22	
	1 7/16-1 5/8	TMSR 25-27	TM2I 27-18UN	52	30	
	1 11/16	TMSR 32-27	TM2I 27-18UN	58	37	
16	11/16-13/16	TMSR 12-11	TM2I 11-16UN	12	11.5	0.92
	7/8-15/16	TMSR 16-16	TM2I 16-16UN	22	17	
	1	TMSR 20-16	TM2I 16-16UN	43	20	
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-16UN	25	22	
	1 7/16-1 5/8	TMSR 25-27	TM2I 27-16UN	52	30	
	1 11/16-1 7/8	TMSR 32-27	TM2I 27-16UN	58	37	
14	7/8	TMSR 12-11	TM2I 11-14UN	12	11.5	1.05
12	7/8	TMSRT 16-16	TM2I 16-12UN	22	15.5	1.22
	15/16	TMSR 16-16	TM2I 16-12UN	22	17	
	1	TMSR 20-22	TM2I 22-12UN	29	19	
	1 1/16	TMSR 20-16	TM2I 16-12UN	43	20	
	1 1/8-1 1/4	TMSRL 25-16	TM2I 16-12UN	25	22	
	1 1/2-1 11/16	TMSR 25-27	TM2I 27-12UN	52	30	
	1 3/4-1 15/16	TMSR 32-27	TM2I 27-12UN	58	37	
8	1 11/16-1 15/16	TMSR 25-27	TM2I 27-8UN	52	30	1.83
	2-1 1/8	TMSR 32-27	TM2I 27-8UN	58	37	
6	2-2 1/8	TMSR 25-27	TM2I 27-6UN	52	30	2.44
	2 1/4	TMSR 32-27	TM2I 27-6UN	58	37	
	2 3/8-2 1/2	TMSR 40-38	TM2I 38-6UN	65	46	
4.5	2-2 1/4	TMSR 32-38	TM2I 38-4.5UN	55	35	3.26
4	2 1/2	TMSR 40-38	TM2I 38-4UN	65	46	3.67

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Tooling recommendation for given internal thread specification



• UNJ

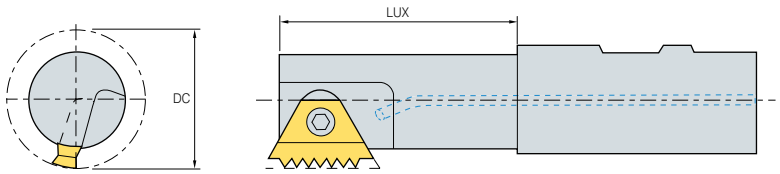
TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
24	9/16-11/16	TMSR 12-11	TM2I 11-24UNJ	12	11.5	0.55
20	1/2	TMSR 12-10	TMI 10-20UNJ	12	9	0.66
	3/4-13/16	TMSR 12-11	TM2I 11-20UNJ	12	11.5	
	7/8	TMSR 16-16	TM2I 16-20UNJ	22	17	
	15/16-1	TMSR 20-16	TM2I 16-20UNJ	43	20	
18	5/8	TMSR 12-11	TM2I 11-18UNJ	12	11.5	0.74
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-18UNJ	25	22	
16	11/16-13/16	TMSR 12-11	TM2I 11-16UNJ	12	11.5	0.83
	7/8-15/16	TMSR 16-16	TM2I 16-16UNJ	22	17	
	1	TMSR 20-16	TM2I 16-16UNJ	43	20	
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-16UNJ	25	22	
	1 7/16-1 5/8	TMSR 25-27	TM2I 27-16UNJ	52	30	
	1 11/16-1 7/8	TMSR 32-27	TM2I 27-16UNJ	58	37	
14	7/8	TMSR 12-11	TM2I 11-14UNJ	12	11.5	0.95
12	7/8	TMSRT 16-16	TM2I 16-12UNJ	22	15.5	1.11
	15/16-1	TMSR 16-16	TM2I 16-12UNJ	22	17	
	1 1/16	TMSR 20-16	TM2I 16-12UNJ	43	20	
	1 1/8-1 1/4	TMSRL 25-16	TM2I 16-12UNJ	25	22	
	1 1/2-1 11/16	TMSR 25-27	TM2I 27-12UNJ	52	30	
	1 3/4-1 15/16	TMSR 32-27	TM2I 27-12UNJ	58	37	

• W

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
26	1/2-9/16	TMSR 12-10	TMEI 10-26W	12	9	0.63
	5/8-3/4	TMSR 12-11	TM2EI 11-26W	12	11.5	
	13/16-7/8	TMSR 16-16	TM2EI 16-26W	22	17	
	15/16-1	TMSR 20-16	TM2EI 16-26W	43	20	
	1 1/16-1 1/8	TMSRL 25-16	TM2EI 16-26W	25	22	
20	9/16	TMSR 12-10	TM2EI 10-20W	12	9	0.81
	5/8-13/16	TMSR 12-11	TM2EI 11-20W	12	11.5	
	7/8-15/16	TMSR 16-16	TM2EI 16-20W	22	17	
	1	TMSR 20-16	TM2EI 16-20W	43	20	
	1 1/16-1 3/16	TMSRL 25-16	TM2EI 16-20W	25	22	
16	13/16	TMSR 16-16	TM2EI 16-16W	22	15.5	1.02
	7/8-15/16	TMSR 16-16	TM2EI 16-16W	22	17	
	1-1 1/16	TMSR 20-16	TM2EI 16-16W	43	20	
	1 1/8-1 1/4	TMSRL 25-16	TM2EI 16-16W	25	22	
	1.4-1 5/8	TMSR 25-27	TM2EI 27-16W	52	30	
	1 3/4-1.9	TMSR 32-27	TM2EI 27-16W	28	37	
12	1 1/2-1 3/4	TMSR 25-27	TM2EI 27-12W	52	30	1.36
	1 7/8	TMSR 32-27	TM2EI 27-12W	58	37	
8	1 7/8-1.9	TMSR 25-27	TM2EI 27-8W	52	30	2.03
	2.1-2 1/8	TMSR 32-27	TM2EI 27-8W	58	37	
7	2	TMSR 25-27	TM2EI 27-7W	52	30	2.32
6	2.1-2 1/8	TMSR 25-27	TM2EI 27-6W	52	30	2.71
	2 1/4	TMSR 32-38	TM2EI 38-6W	55	35	
	2 3/8-2.6	TMSR 32-27	TM2EI 27-6W	58	37	
	2 5/8-2 3/4	TMSR 40-38	TM2EI 38-6W	65	46	
5	3	TMSR 40-38	TM2EI 38-5W	65	46	3.25
4.5	3 1/2	TMSR 40-38	TM2EI 38-4.5W	65	46	3.61

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Tooling recommendation for given internal thread specification



• BSPT

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
19	3/8	TMSR 21-11	TM2EI 11-19BSPT	20	11.5	0.86
14	1/2-3/4	TMSRT 16-11	TM2EI 16-14BSPT	22	15.5	1.16
11	1-1 1/4	TMSRT 20-16	TM2EI 16-11BSPT	23	19	1.48
	1 1/2	TMSR 25-27	TM2EI 27-11BSPT	52	30	
	2-6	TMSRT 32-27	TM2EI 27-11BSPT	58	37	

• NPT

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
14	1/2	TMSRT 16-16	TM2EI 16-14NPT	22	15.5	1.33
	3/4	TMSRT 20-16	TM2EI 16-14NPT	23	19	
11.5	1	TMSRT 20-16	TM2EI 16-11.5NPT	23	19	1.64
	1 1/4	TMSR 25-27	TM2EI 27-11.5NPT	52	30	
	1 1/2-2	TMSRT 32-27	TM2EI 27-11.5NPT	58	37	
8	2 1/2	TMSRT 32-27	TM2EI 27-8NPT	58	37	2.42
	3-24	TMSR 40-38	TM2EI 38-8NPT	65	46	

• NPTF

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
14	1/2	TMSRT 16-16	TM2EI 16-14NPTF	22	15.5	1.35
	3/4	TMSRT 20-16	TM2EI 16-14NPTF	23	19	
11.5	1	TMSRT 20-16	TM2EI 16-11.5NPTF	23	19	1.63
	1 1/2	TMSR 25-27	TM2EI 27-11.5NPTF	52	30	
	2	TMSRT 32-27	TM2EI 27-11.5NPTF	58	37	
8	2 1/2	TMSRT 32-27	TM2EI 27-8NPTF	58	37	2.38
	3	TMSR 40-38	TM2EI 38-8NPTF	65	46	

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Minimum bore diameters for thread milling

Pitch	mm	0.5	0.6	0.7	0.75 0.80	0.9	1	1.25	1.5	1.75	2	-	2.5	3	3.5	4	4.5	5	5.5	-	6	-
	tpi	48	44	36	32	28	26 24	20 19	18 16	14	13 12	11.5 11	10	9 8	7	6	-	5	-	4.5	-	4
Holder designation	diameter	Minimum diameter for machining																				
TMSR 12-10	9	9.5	9.7	9.9	10	10.4	10.7	11.4	12													
TMSR 20-10	9	9.5	9.7	9.9	10	10.4	10.7	11.4	12													
TMSR 12-11	11.5	12	12.2	12.4	12.5	12.9	13.2	13.9	14.5	15.1												
TMSR 20-11	11.5	12	12.2	12.4	12.5	12.9	13.2	13.9	14.5	15.1												
TMSRL 25-11	11.5	12	12.2	12.4	12.5	12.9	13.2	13.9	14.5	15.1												
TMSRT 16-16	15.5	16	16.2	16.4	16.5	16.9	17.2	17.9	18.5	19	19.5	20										
TMSR 16-16	17	17.6	17.8	18	18.2	18.7	19	19.6	20	20.5	21	21.5										
TMSR 16-22	17	17.6	17.8	18	18.2	18.7	19	19.6	20	20.5	21	21.5										
TMSR 20-22	19	19.7	20	20.2	20.4	20.8	21	21.6	22	22.5	23	23.5										
TMSRT 20-16	19	19.7	20	20.2	20.4	20.8	21	21.6	22	22.5	23	23.5										
TMSR 20-16	20	20.7	21	21.2	21.4	21.8	22	22.6	23	23.5	24	24.5										
TMSRW 25-22	22	22.7	23	23.2	23.4	23.8	24	24.6	25	25.5	26	26.5										
TMSRL 25-22	22	22.7	23	23.2	23.4	23.8	24	24.6	25	25.5	26	26.5										
TMSRL 25-16	22	22.7	23	23.2	23.4	23.8	24	24.6	25	25.5	26	26.5										
TMSR 25-27	30	30.7	31	31.2	31.4	31.8	32	32.8	33.5	34.1	34.6	35.6	36.6	39	42	45	48					
TMSRL 25-27	30	30.7	31	31.2	31.4	31.8	32	32.8	33.5	34.1	34.6	35.6	36.6	39	42	45	48					
TMSR 32-38	35								38.5	39.1	39.6	40.6	42	44	47	50	53.4	42.5	50	44.6	57.5	56.6
TMSR 32-27	37	38	38.2	38.4	38.6	39.1	39.5	40.4	41	41.5	42	43	44	46.5	49	52	55.5					
TMSRL 32-27	37	38	38.2	38.4	38.6	39.1	39.5	40.4	41	41.5	42	43	44	46.5	49	52	55.5					
TMSRT 32-27	37	38	38.2	38.4	38.6	39.1	39.5	40	41	41.5	42	43	44	46.5	49	52	55.5					
TMSR 40-38	46								49.5	50.1	50.6	51.6	53	55	55.2	55.6	55	52.5	54	54.5	57.5	56.6
TMSRL 40-38	46								49.5	50.1	50.6	51.6	53	55	55.2	55.6	55	52.5	54	54.5	57.5	56.6

- In order to perform a thread milling operation, a milling machine with three-axis control capability for helical interpolation is required is required
- Helical interpolation is a CNC function producing tool movement along a helical path. This helical motion combines a circular movement in one plane with a simultaneous linear motion in a plane perpendicular to the first. For example, the path from point A to point B (Fig.A) on the envelope of the cylinder combines a circular movement in the x-y plane with a linear displacement in the z direction
- On most CNC systems this function can be executed in two different ways:

G02: Helical interpolation in a clockwise direction

G03: Helical interpolation in a counter-clockwise direction

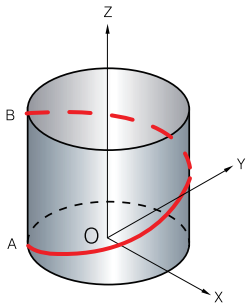


Fig. A

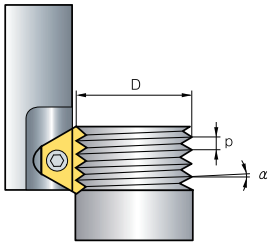


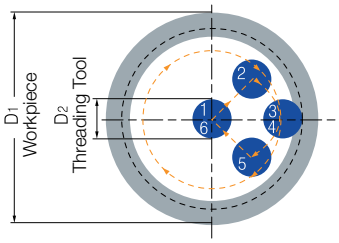
Fig. B

- The thread milling operation (Fig. B) consists of circular rotation of fhe tool around its own axis togerther with an orbiting motion along the bore or workpiece circumference. During one such orbit, the tool will shift vertically by one pitch length. These movements combined with the insert geometry create the required thread form. There are three acceptable ways of approaching the workpiece with the tool to initiate production of the thread.

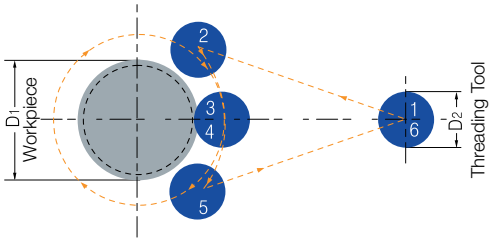
Tangential arc approach

- With this method, the tool enters and exits the workpiece smoothly. No marks are left on the workpiece and there is no vibration, even with harder materials. Although it requires slightly more complex programming than the radial approach (see below), this is the method recommended for machining the highest quality threads

Internal thread



External thread

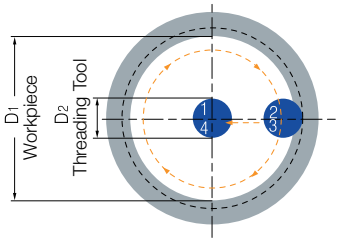


1-2: rapid approach
2-3: tool entry along tangential arc, with simultaneous feed along z-axis
3-4: helical movement during one full orbit (360°)
4-5: tool exit along tangential arc, with continuing feed along z-axis
5-6: rapid return

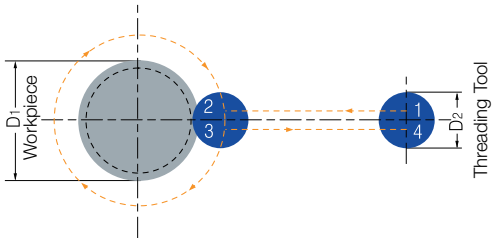
Radial approach

- This is the simplest method. This is the simplest method and below are the two characteristics of radial approach:
  ① a small vertical mark may be left at the entry (and exit) point. This is of no significance to the thread itself
  ② when using this method with very hard materials, there may be a tendency of the tool to vibrate as it approaches the full cutting depth
- Note: Radial feed during entry to the full profile depth should only be 1/3 of the subsequent circular feed

Internal thread



External thread

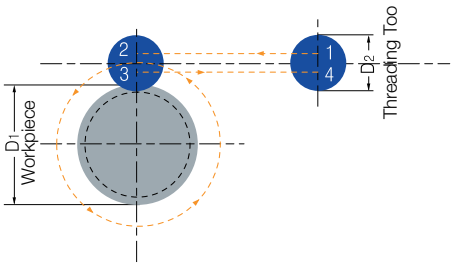


1-2: radial entry
2-3: helical movement during one full orbit (360°)
3-4: radial exit

Tangential line approach

- This method is very simple, and has all of the advantages of the tangential arc method However, it is applicable only with external threads

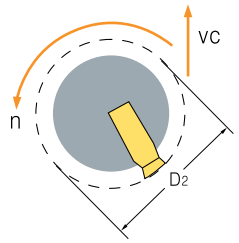
External thread



1-2: radial entry with simultaneous feed along z axis
2-3: helical movement during one full orbit (360°)
3-4: radial exit

Preparing for the Thread Milling Operation

Calculation of rotational velocity and feed at the cutting edge



$$n = \frac{vc \times 1000}{\pi \times D2}$$

$$vc = \frac{n \times \pi \times D2}{1000}$$

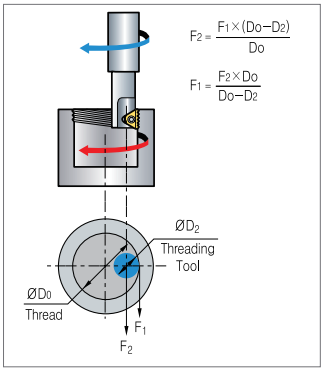
$$F1 = n \times z \times fn$$

n: Rotational Velocity (min-1)
vc: Cutting Speed (m/min)
D2: Tool holder Cutting Dia. (mm)
F1: Real Feed rate at the Cutting edges (mm/min)
z: No. of Cutting Edges
fn: Feed per Rooth per Rotation (mm/rev)

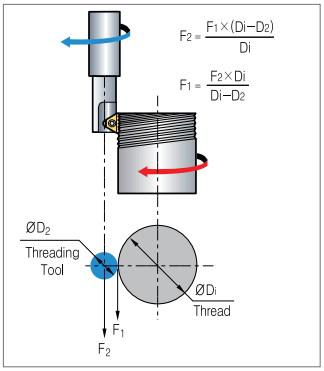
Calculation of feed rates at the tool center line

- On most CNC machines, the feed rate required for programming is that of the center-line of the tool.
  When dealing with linear tool movement, the feed rate at the cutting edge and the center line are identical, but with circular tool movement this is not the case
  The equations define the relationship between feed rates at the cutting edge and at the tool center line

Internal thread



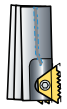
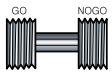
External thread



Grades and applications

- **Grade:** PC9570T
- **Application:** The general-purpose grade for machining steel and cast iron is a high toughness fine-grain material with excellent toughness. It is coated with TiCN, offering outstanding toughness and wear resistance, which enhances chip resistance and extends tool life.

Trouble shooting

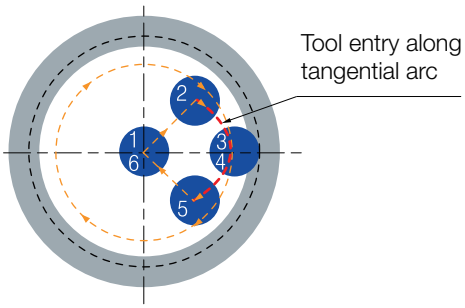
Problem	Possible	Solution
 **Increased insert flank wear**	Cutting speed too high	Reduce cutting speed/use coated insert
	Chip is too thin	Increase feed rate
	Insufficient coolant	Increase coolant flow rate
 **Chipping of cutting edge**	Chip is too thick	Reduce feed rate/Use the tangential arc method
	Vibration	Increase RPM Check stability
 **Material built-up on the cutting edge**	Incorrect cutting speed	Change cutting speed
	Unsuitable carbide grade	Use a coated carbide grade
 **Chatter/ vibration**	Feed rate is too high	Reduce the feed.
	Profile is too deep	Execute two passes, each with increased cutting depth/ Execute two passes, each cutting only half the thread length
	Thread length is too long	Execute two passes, each cutting only half the thread length
 **Insufficient thread accuracy**	Tool deflection	Reduce feed rate/Execute a “zero” cut

Recommended cutting conditions

Workpiece			Hardness brinell (HB)	vc (m/min)		Feed fz (mm/t)	
				Grade		Indexable insert	Solid endmill
				PC9570T	PC9070M		
P	Carbon steel	Low carbon (C+0.1-0.25%)	125	100 ~ 210	80 ~ 250	0.05 ~ 0.3	0.03 ~ 0.15
		Medium carbon (C = 0.25-0.55%)	150	100 ~ 180	80 ~ 230	0.05 ~ 0.25	0.03 ~ 0.1
		High carbon (C = 0.55-0.85%)	170	100 ~ 170	80 ~ 200	0.05 ~ 0.2	0.03 ~ 0.08
	Low alloy steel	Non-hardened	180	90 ~ 160	60 ~ 180	0.05 ~ 0.25	0.03 ~ 0.1
		Hardened	275	80 ~ 150	60 ~ 170	0.05 ~ 0.2	0.03 ~ 0.07
		Hardened	350	70 ~ 140	60 ~ 160	0.05 ~ 0.15	0.01 ~ 0.03
	High alloy steel	Annealed	200	60 ~ 130	40 ~ 100	0.05 ~ 0.2	0.03 ~ 0.05
		Hardened	325	70 ~ 110	30 ~ 80	0.05 ~ 0.1	0.01 ~ 0.03
	Cast steel	Low alloy	200	100 ~ 170	80 ~ 250	0.05 ~ 0.15	0.03 ~ 0.1
		High alloy	225	70 ~ 120	60 ~ 170	0.05 ~ 0.1	0.01 ~ 0.03
M	Ferritic stainless steel	Non-hardened	200	100 ~ 170	60 ~ 150	0.05 ~ 0.15	0.04 ~ 0.1
		Hardened	330	100 ~ 170	60 ~ 120	0.05 ~ 0.1	0.01 ~ 0.05
	Austenitic stainless steel	Austenitic	180	70 ~ 140	60 ~ 140	0.05 ~ 0.15	0.04 ~ 0.1
		Super austenitic	200	70 ~ 140	60 ~ 130	0.05 ~ 0.1	0.04 ~ 0.1
	Ferritic Stainless Steel Castings	Non-hardened	200	70 ~ 140	60 ~ 160	0.05 ~ 0.15	0.04 ~ 0.1
		Hardened	330	70 ~ 140	60 ~ 110	0.05 ~ 0.1	0.03 ~ 0.05
	Austenitic Stainless Steel Castings	Austenitic	200	70 ~ 120	60 ~ 150	0.05 ~ 0.15	0.04 ~ 0.1
		Hardened	330	70 ~ 120	60 ~ 100	0.05 ~ 0.1	0.03 ~ 0.05
	High temperature alloys	Annealed (Iron based)	200	20 ~ 45	30 ~ 60	0.05 ~ 0.1	0.04 ~ 0.1
		Aged (Iron based)	280	20 ~ 30	20 ~ 50	0.02 ~ 0.05	0.01 ~ 0.03
		Annealed (Nickel or Cobalt based)	250	15 ~ 20	15 ~ 35	0.02 ~ 0.05	0.01 ~ 0.03
		Aged (Nickel or Cobalt based)	350	10 ~ 15	15 ~ 30	0.02 ~ 0.05	0.01 ~ 0.03
	Titanium alloys	Pure 99.5 Ti	400Rm	70 ~ 140	40 ~ 80	0.02 ~ 0.05	0.03 ~ 0.05
		α+β alloys	1050Rm	20 ~ 50	20 ~ 50	0.02 ~ 0.05	0.03 ~ 0.05
K	Extra hard steel	Hardened & tempered	55HRC	20 ~ 45	15 ~ 45	0.01 ~ 0.03	0.005 ~ 0.01
	Malleable cast iron	Ferritic (short chips)	130	60 ~ 130	70 ~ 160	0.02 ~ 0.08	0.01 ~ 0.03
		Pearlitic (long chips)	230	60 ~ 120	60 ~ 150	0.02 ~ 0.05	0.03 ~ 0.05
	Grey cast iron	Low tensile strength	180	60 ~ 130	70 ~ 160	0.05 ~ 0.15	0.05 ~ 0.1
		High tensile strength	260	60 ~ 100	40 ~ 120	0.05 ~ 0.1	0.03 ~ 0.05
	Nodular SG iron	Ferritic	160	60 ~ 125	40 ~ 110	0.05 ~ 0.15	0.05 ~ 0.1
		Pearlitic	260	50 ~ 90	40 ~ 100	0.05 ~ 0.1	0.03 ~ 0.05
N	Aluminum alloys Wrought	Non-aging	60	100 ~ 250	200 ~ 300	0.1 ~ 0.4	0.1 ~ 0.25
		Aged	100	100 ~ 180	150 ~ 250	0.1 ~ 0.3	0.1 ~ 0.2
	Aluminum alloys	Cast	75	150 ~ 400	100 ~ 200	0.1 ~ 0.3	0.1 ~ 0.2
		Cast & aged	90	150 ~ 280	120 ~ 220	0.05 ~ 0.25	0.1 ~ 0.15
		Cast Si 13-22%	130	80 ~ 150	200 ~ 300	0.1 ~ 0.3	0.1 ~ 0.2
	Copper and copper alloys	Brass	90	120 ~ 210	200 ~ 300	0.1 ~ 0.3	0.1 ~ 0.25
		Bronze and non-leaded copper	100	120 ~ 210	150 ~ 250	0.05 ~ 0.25	0.1 ~ 0.2

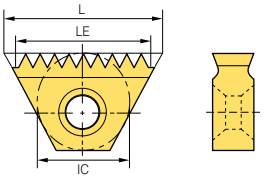
Example

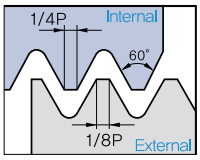
- At tool entry, set the Feed fz (mm/tooth) to 70% lower than the threading Feed
- Threading Feed: 0.3 (mm/t)
- Tool entry Feed: 0.09 (mm/t)



ISO Metric







Defined by : R262 (DIN 13)
Tolerance class : 6g/6H

• External/Internal

(mm)

Insert size		TP	Designation						LE	NT (Number of Teeth)	Tool holder
IC	L		External		PC9570T	Internal		PC9570T			
6	10.4	0.5		-		TMI	10-0.5ISO	●	10	20	TMSR - 10
		0.75		-			10-0.75ISO		9.75	13	
		1		-			10-1.0ISO	●	9	9	
		1.25		-			10-1.25ISO		8.75	7	
		1.5		-			10-1.5ISO		9	6	
6.35	11	0.5		-		TM2I	11-0.5ISO		10	20	TMSR - 11
		0.75	TM2E	11-0.75ISO			11-0.75ISO	●	10.5	14	
		1		11-1.0ISO			11-1.0ISO	●	10	10	
		1.25		11-1.25ISO			-		10	8	
		1.25		-			11-1.25ISO		8.75	7	
		1.5		11-1.5ISO			-		9	6	
		1.5		-			11-1.5ISO	●	10.5	7	
9.525	16	0.5		-		TM2I	16-0.5ISO		15	30	TMSR - 16
		0.75	TM2E	16-0.75ISO			16-0.75ISO		15	20	
		0.8		-			16-0.8ISO		14.4	18	
		1		16-1.0ISO			-		14	14	
		1		-			16-1.0ISO	●	15	15	
		1.25		16-1.25ISO			16-1.25ISO		15	12	
		1.5		16-1.5ISO	●		16-1.5ISO	●	15	10	
		1.75		16-1.75ISO			16-1.75ISO		14	8	
		2		16-2.0ISO			16-2.0ISO	●	14	7	
9.525B	22	1	TM2E	22-1.0ISO		TM2I	22-1.0ISO		22	22	TMSR - 22
		1.25		22-1.25ISO			22-1.25ISO		21.25	17	
		1.5		22-1.5ISO			22-1.5ISO	●	21	14	
		1.75		22-1.75ISO			22-1.75ISO		21	12	
		2		22-2.0ISO	●		22-2.0ISO	●	22	11	
15.875	27	1	TM2E	27-1.0ISO		TM2I	27-1.0ISO		26	26	TMSR - 27
		1.25		27-1.25ISO			27-1.25ISO		25	20	
		1.5		27-1.5ISO			27-1.5ISO	●	25.5	17	
		1.75		27-1.75ISO			27-1.75ISO		24.5	14	
		2		27-2.0ISO			27-2.0ISO	●	24	12	
		2.5		27-2.5ISO			27-2.5ISO		25	10	
		3		27-3.0ISO			27-3.0ISO	●	24	8	
		3.5		27-3.5ISO			27-3.5ISO		24.5	7	
		4		27-4.0ISO			27-4.0ISO	●	24	6	
		4.5		27-4.5ISO			27-4.5ISO		22.5	5	
19.05B	38.5	1.5	TM2E	38-1.5ISO		TM2I	38-1.5ISO		36	24	TMSR - 38
		2		38-2.0ISO			38-2.0ISO		36	18	
		3		38-3.0ISO			38-3.0ISO		36	12	
		4		38-4.0ISO			38-4.0ISO		32	8	
		4.5		38-4.5ISO			38-4.5ISO		31.5	7	
		5		38-5.0ISO			38-5.0ISO		30	6	
		5.5		38-5.5ISO			38-5.5ISO		33	6	
		6		38-6.0ISO			38-6.0ISO		30	5	

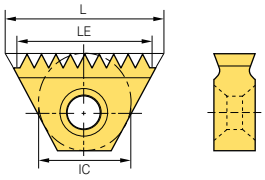
Applicable Insters **C17**

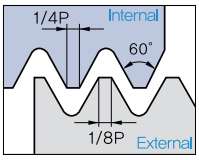
* All inserts except TMI10 code have 2 cutting edges

● : Stock item

American UNC







Defined by : ANSI B1.1.74
Tolerance class : Class 2A/2B

• External/Internal

(mm)

Insert size		TPI	Designation					LE	NT (Number of Teeth)	Tool holder
IC	L		External		PC9570T	Internal		PC9570T				
6	10.4	32	-			TMI	10-32UN		9.53	12	TMSR - 10
		28	-				10-28UN		9.07	10	
		24	-				10-24UN		9.53	9	
		20	-				10-20UN	●	8.89	7	
		18	-				10-18UN		8.47	6	
		16	-				10-16UN		7.94	5	
6.35	11	48	-			TM2I	11-48UN		10.05	19	TMSR - 11
		40	-				11-40UN		10.16	16	
		32	-				11-32UN		10.32	13	
		28	TM2E	11-28UN			11-28UN		9.98	11	
		27		11-27UN			11-27UN		10.35	11	
		24		11-24UN			11-24UN		9.53	9	
		20		11-20UN			11-20UN		10.16	8	
		18		11-18UN			11-18UN	●	9.88	7	
		16		11-16UN			11-16UN		9.53	6	
		14		11-14UN			11-14UN		9.07	5	
9.525	16	40	-			TM2I	16-40UN		14.61	40	TMSR - 16
		32	-				16-32UN		15.08	32	
		28	TM2E	16-28UN			16-28UN		14.51	28	
		27		16-27UN			16-27UN		14.11	27	
		24		16-24UN			16-24UN		14.82	24	
		20		16-20UN			16-20UN		13.97	20	
		18		16-18UN			16-18UN		14.11	18	
		16		16-16UN			16-16UN	●	14.29	16	
		14		16-14UN			16-14UN		14.51	14	
		13		16-13UN			16-13UN		13.68	13	
		12		16-12UN			16-12UN	●	14.82	12	
		11.5		16-11.5UN			16-11.5UN		13.25	11.5	
9.525B	22	24	TM2E	22-24UN		TM2I	22-24UN		21.16	20	TMSR - 22
		20		22-20UN			22-20UN		21.59	17	
		18		22-18UN			22-18UN		21.17	15	
		16		22-16UN			22-16UN		20.64	13	
		14		22-14UN			22-14UN		21.77	12	
		13		22-13UN			22-13UN		21.49	11	
		12		22-12UN			22-12UN		21.17	10	
15.875	27	24	TM2E	27-24UN		TM2I	27-24UN		25.4	24	TMSR - 27
		20		27-20UN			27-20UN		25.4	20	
		18		27-18UN			27-18UN		25.4	18	
		16		27-16UN			27-16UN		25.4	16	
		14		27-14UN			27-14UN		25.4	14	
		13		27-13UN			27-13UN		25.4	13	
		12		27-12UN			27-12UN		25.4	12	
		11.5		27-11.5UN			27-11.5UN		24.3	11	
		11		27-11UN			27-11UN		25.4	11	
		10		27-10UN			-		22.86	9	
		10		-			27-10UN		25.4	10	
		9		27-9UN			27-9UN		22.58	8	
		8		27-8UN			27-8UN		22.23	7	
		7		27-7UN			-		21.77	6	
		7		-			27-7UN		25.4	7	
		6		27-6UN			-		21.17	5	
		6		-			27-6UN		25.4	6	
19.05	38.5	6	TM2E	38-6UN		TM2I	38-6UN		38.87	8	TMSR - 38
		5		38-5UN			38-5UN		30.48	6	
		4.5		38-4.5UN			38-4.5UN		33.87	6	
		4		38-4UN			38-4UN		31.75	5	

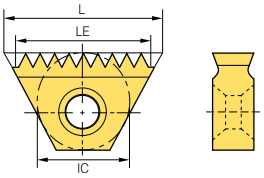
Applicable Insters C17

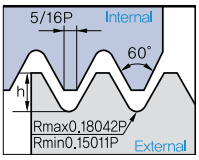
* All inserts except TMI10 code have 2 cutting edges

● : Stock item

UNJ(Unified Constant Thread)







Defined by : MIL-S-8879C
Tolerance class : 3A/3B

• External/Internal

(mm)

Insert size		TPI	Designation						LE	NT (Number of Teeth)	Tool holder
IC	L		External		PC9570T	Internal		PC9570T			
6	10.4	24		-		TMI	10-24UNJ		9.53	9	TMSR - 10
		20		-			10-20UNJ		8.89	7	
		18		-			10-18UNJ		8.47	6	
		16		-			10-16UNJ		9.53	8	
6.35	11	24	TM2E	11-24UNJ		TM2I	11-24UNJ		9.53	9	TMSR - 11
		20		11-20UNJ			11-20UNJ		10.16	8	
		18		-			11-18UNJ		9.88	7	
		16		11-16UNJ			11-16UNJ		9.53	6	
		14		11-14UNJ			11-14UNJ		9.07	5	
9.525	16	24	TM2E	16-24UNJ		TM2I	16-24UNJ		14.82	14	TMSR - 16
		20		16-20UNJ			16-20UNJ		13.97	11	
		18		16-18UNJ			16-18UNJ		14.11	10	
		16		16-16UNJ			16-16UNJ		14.29	9	
		14		16-14UNJ			16-14UNJ		14.51	8	
		13		16-13UNJ			-		13.68	7	
		12		16-12UNJ			16-12UNJ		14.82	7	
15.875	27	16	TM2E	27-16UNJ		TM2I	27-16UNJ		25.4	16	TMSR - 27
		12		27-12UNJ			27-12UNJ		25.4	12	
		11		27-11UNJ			27-11UNJ		25.4	11	

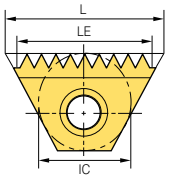
Applicable Insters **C17**

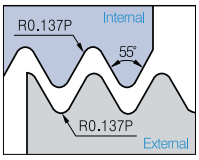
* All inserts except TMI10 code have 2 cutting edges

● : Stock item

Whitworth(BSW, BSF, BSP, BSB)







BSW Defined by : B.S.84:1956, DIN 259, ISO228/1:1982
BSP Defind by : B.S.2779:1956
Tolerance class : BSW-Medium class A, BSP-Medium class

• External/Internal

(mm)

Insert size IC	Insert size L	TPI	Designation External + Internal		PC9570T	LE	NT (Number of Teeth)	Tool holder
6	10.4	28	TMEI	10-28W		9.07	10	TMSR - 10
		26		10-26W		8.79	9	
		24		10-24W		9.53	9	
		20		10-20W		8.89	7	
		19		10-19W		9.36	7	
6.35	11	28	TM2EI	11-28W		9.98	11	TMSR - 11
		26		11-26W		9.77	10	
		24		11-24W		9.53	9	
		20		11-20W		10.16	8	
		19		11-19W		9.36	7	
		14		11-14W		9.07	5	
9.525	16	26	TM2EI	16-26W		14.65	15	TMSR - 16
		24		16-24W		14.82	14	
		20		16-20W		13.97	11	
		19		16-19W		14.71	11	
		18		16-18W		14.11	10	
		16		16-16W		14.29	9	
		14		16-14W		14.51	8	
		12		16-12W		14.82	7	
		11		16-11W	●	13.85	6	
9.525B	22	24	TM2EI	22-24W		21.17	20	TMSR - 22
		20		22-20W		21.59	17	
		19		22-19W		21.39	16	
		18		22-18W		21.17	15	
		16		22-16W		20.64	13	
		14		22-14W		21.77	12	
		12		22-12W		21.17	10	
		11		22-11W		20.78	9	
15.875	27	16	TM2EI	27-16W		25.4	16	TMSR - 27
		14		27-14W		25.4	14	
		12		27-12W		23.28	11	
		11		27-11W		23.09	10	
		10		27-10W		25.4	10	
		9		27-9W		22.58	8	
		8		27-8W		22.23	7	
		7		27-7W		21.77	6	
		6		27-6W		21.17	5	
19.05B	38.5	11	TM2EI	38-11W		34.64	15	TMSR - 38
		6		38-6W		33.87	8	
		5		38-5W		30.48	6	
		4.5		38-4.5W		33.87	6	

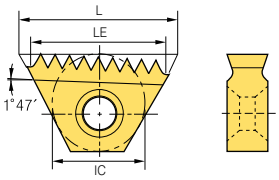
Applicable Insters C17

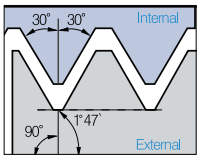
* All inserts except TMI10 code have 2 cutting edges

● : Stock item

NPT







Defined by : USAS B2.1:1968
Tolerance class : Standard NPT

• External/Internal

(mm)

Insert size		TPI	Designation		PC9570T	LE	NT (Number of Teeth)	Tool holder	
IC	L		External+Internal					RH	LH
9.525	16	18	TM2E	16-18NPT *		14.11	10	TMSRT - 16	TMSLT - 16
		14	TM2EI	16-14NPT		14.51	8		
		11.5		16-11.5NPT		13.25	6		
9.525B	22	14	TM2EI	22-14NPT		21.77	12	TMSRT - 22	TMSLT - 22
15.875	27	11.5	TM2EI	27-11.5NPT	●	24.3	11	TMSR - 27	TMSL - 27
		8		27-8NPT	●	22.23	7		
19.05B	38.5	11.5	TM2EI	38-11.5NPT		35.34	16	TMSR - 38	TMSL - 38
		8		38-8NPT		31.75	10		

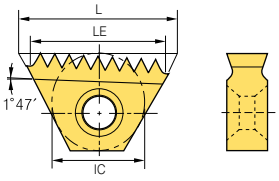
Applicable Inserts **C17**

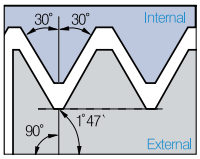
* TM2E16-18NPT is for external threading

● : Stock item

NPTF







Defined by : ANSI 1.20.3-1976
Tolerance class : Standard NPTF

• External/Internal

(mm)

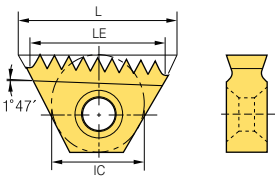
Insert size		TPI	Designation		PC9570T	LE	NT (Number of Teeth)	Tool holder	
IC	L		External+Internal					RH	LH
9.525	16	14	TM2EI	16-14NPTF	●	14.51	8	TMSRT - 16	TMSLT - 16
		11.5		16-11.5NPTF		13.25	6		
9.525B	22	14	TM2EI	22-14NPTF		21.77	12	TMSRT - 22	TMSLT - 22
		11.5		22-11.5NPTF		19.88	9		
15.875	27	11.5	TM2EI	27-11.5NPTF		24.3	11	TMSR - 27	TMSL - 27
		8		27-8NPTF		22.23	7		
19.05B	38.5	11.5	TM2EI	38-11.5NPTF		35.34	16	TMSR - 38	TMSL - 38
		8		38-8NPTF		31.75	10		

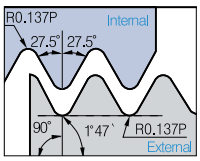
Applicable holders **C17**

● : Stock item

BSPT







Defined by : B.S 21:1985
Tolerance class : Standard BSPT

• External/Internal

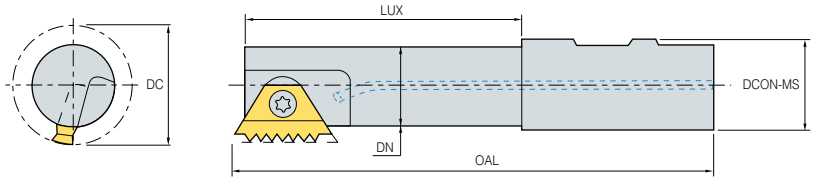
(mm)

Insert size		TPI	Designation		PC9570T	LE	NT (Number of Teeth)	Tool holder	
IC	L		External+Internal					RH	LH
6.35	11	19	TM2EI	11-19BSPT		9.36	7	TMSR - 10	TMSL - 10
9.525	16	14	TM2EI	16-14BSPT		14.51	8	TMSRT - 16	TMSLT - 16
		11		16-11BSPT		13.85	6		
15.875	27	11	TM2EI	27-11BSPT		23.09	10	TMSR - 27	TMSL - 27

Applicable Inserts **C17**

● : Stock item

Standard Type



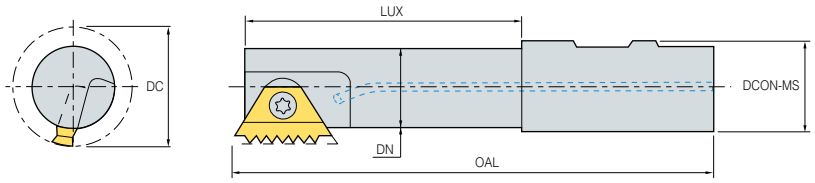
(mm)

Insert size IC	Designation		Stock	DC	DCON-MS	DN	LUX	OAL	Screw	Wrench
6	TMSR	12-10		9	12	6.8	12	69	STM10	TW07P
		20-10		9	20	6.8	17	84		
6.35	TMSR	12-11	●	11.5	12	8.9	12	70	STM11	TW08P
		20-11	●	11.5	20	8.9	20	85		
9.525	TMSR	16-16	●	17	16	13.6	22	90	STM1622	TW10P
		20-16	●	20	20	16.6	43	95		
9.525B	TMSR	16-22		17	16	13.5	29	79.5	STM1622	TW10P
		20-22	●	19	20	15.5	29	81.5		
		25-22		19	25	15.5	30	92.3		
	TMSRW	25-22		22	25	18.5	30	90.8		
15.875	TMSR	25-27	●	30	25	24.0	52	110	STM27	TW25L
	TMSL	25-27		30	25	24.0	52	110		
	TMSR	32-27		37	32	31.0	58	120		
19.05	TMSR	32-38		35	32	27.0	53	115	STM38	TW30L
		40-38		46	40	38.0	63	135		

Applicable holders **C12~C16**

●: Stock item

Long Type



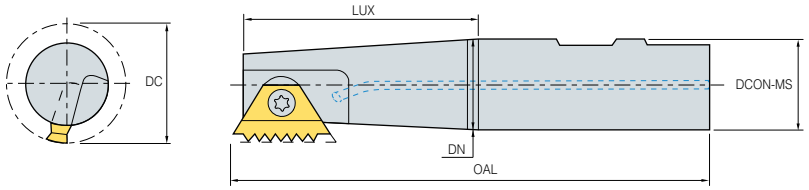
(mm)

Insert size IC	Designation		Stock	DC	DCON-MS	DN	LUX	OAL	Screw	Wrench
6.35	TMSRL	25-11		11.5	25	8.9	17	125	STM11	TW08P
9.525B	TMSRL	25-16	●	22	25	18.6	25	125	STM1622	TW10P
9.525B	TMSRL	20-22	●	19	20	15.5	44	96.5	STM1622	TW10P
		25-22		22	25	18.6	63.5	125		
15.875	TMSRL	25-27		30	25	24	92	150	STM27	TW25L
		32-27		37	32	31	98	160		
19.05B	TMSRL	40-38		46	40	38	93	168	STM38	TW30L

Applicable holders **C12~C16**

●: Stock item

Taper Type



(mm)

Insert size IC	Designation		Stock	DC	DCON-MS	DN	LUX	OAL	Screw	Wrench
9.525	TMSRT	16-16	●	15.5	16	12.5	22	90	STM1622	TW10P
		20-16		19	20	15	23	85	STMT16	
9.525B	TMSRT	16-22		17	16	13.5	29	79.5	STM1622	TW10P
		20-22		19	20	15.5	29	81.5		
15.875	TMSRT	32-27		37	32	31.	58	120	STM27	TW25L

Applicable holders **C12~C16**

●: Stock item



PART D

DRILL

Korloy drills provide a total solution for hole making, based on tooling know-how as well as extensive research and development for our tools.

Technical Information for DRILL

D2 KORLOY Drills

Indexable Drills

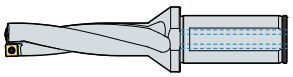
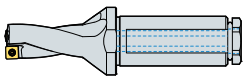
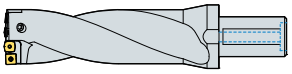
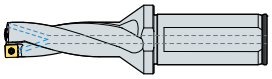
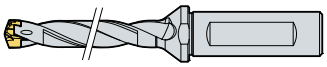
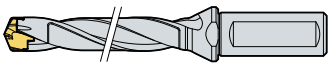
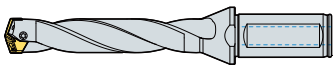
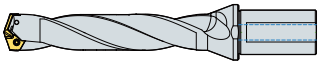
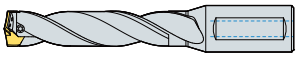
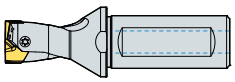
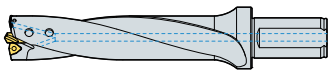
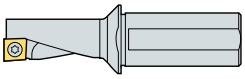
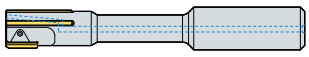
D3 Technical Information for KING Drill
D9 KING Drill
D20 Technical Inforamation for KING Drill (For through coolant system with a lathe)
D21 KING Drill (For through coolant system with a lathe)
D24 Technical Information for KING Drill (For large diameter drilling)
D25 KING Drill (For large diameter drilling)
D26 Technical Information for KED Plus Drill
D29 KED Plus Drill

D37 Technical Information for TPDC Plus Drill
D45 TPDC Plus Drill
D52 Technical Information for TPDB Plus Drill
D58 TPDB Plus Drill
D65 Technical Information for TPDB-DS
D67 TPDB-DS
D69 Technical Information for TPDB-H
D72 TPDB-H
D75 Technical Information for TPDB-F
D77 TPDB-F
D79 Technical Information for WPDC
D82 Center Drill
D83 WPDC
D85 Technical Information for Multi Turn
D87 Multi Turn

Indexable Reamers

D88 Technical Information for Indexable Reamer
D91 Indexable Reamers



Type	Designation		Shape	Drills dia.(Ø)	Aspect ratio	Page
Indexable Drills	**KING Drill**	**K□D**	 Available insert:SP□T, XO□T	Ø12.0~Ø60.5	2D~5D	D11 ~ D19
	KING Drill HP	**K□D..HP**	 Available insert:SP□T, XO□T	Ø12.0~Ø60.5	2D~4D	D21 ~ D23
	KING Drill (for large diameter drilling)	**K□D**	 Available insert:SP□T, XO□T	Ø61.0~Ø100.0	2D~4D	D25
	KED Plus Drill	**E□D**	 Available insert:SP□T, XO□T	Ø12.0~Ø60.5	2D~5D	D29 ~ D36
	TPDC Plus Drill	**TPDX**	 Available insert:TPD□□□□XP	Ø8.0~Ø11.9	3D~8D	D46
		TPDC	 Available insert:TPD□□□□C□	Ø12.0~Ø30.9	1.5D~12D	D49 ~ D51
	TPDB Plus Drill	**TPDB-P**	 Available insert:TPD□□□B	Ø10.0~Ø32.9	3D~12D	D60 ~ D64
		TPDB-DS	 Available insert:TPD□□□B–DS	Ø33.0~Ø39.9	3D~8D	D68
		TPDB-H	 Available insert:TPD□□□BP–H	Ø14.0~Ø32.9	3D~8D	D73 ~ D74
		TPDB-F	 Available insert:TPD□□□B–F	Ø14.0~Ø30.9	1.5D	D78
	Indexable Drills & Drill with center	**WPDC**	 Available insert:WC□T	Ø25.0~Ø80.0	5D~8D	D83 ~ D84
	Multi Turn	**MT**	 Available insert:QC□T	Ø10.0~Ø32.0	2.25D	D87
Reamer	Indexable Reamer	**IRT**	 Available insert: RI	Ø10.0~Ø31.0	3D~5D	D92
		IRB	 Available insert:RI	Ø10.0~Ø31.0	3D~5D	D93

Optimized insert design for maximum drilling efficiency

KING Drill

Code system

K	5D	200	25	□	-	07

KING / KORLOY

Aspect ratio (L/D)
2D, 3D, 4D, 5D

Drill diameter
Ø20.0 mm
(One decimal place marked)

Shank diameter
Ø20 mm
Ø25 mm
Ø32 mm
Ø40 mm

Shank shape
No mark : Flange Shank, Weldone
HP : Flange Shank, Weldon, PT Tap
F1 : Flange Shank, Whistle Notch
F2 : Flange Shank, Without Side Lock
S : Straight Shank, Weldone
S1 : Straight Shank, Whistle Notch
S2 : Straight Shank, Without Side Lock
M0, M1, M2, M3... : MT0, MT1, MT2, MT3...
H63, H100 : HSK63, HSK100
B30, B40, B50 : BT30, BT40, BT50

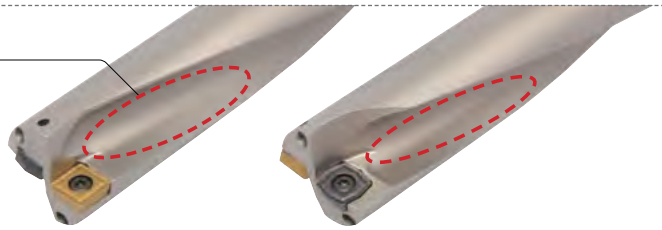
Inscribed circle of insert
04, 05, 06, 07, 09, 11, 13, 15, 18

Features

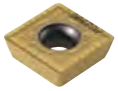
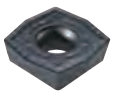
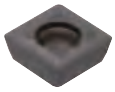
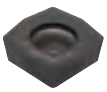
- Optimized design of inserts for maximum drilling efficiency
- Excellent cutting performance and chip control due to the optimized geometry and chip breaker of both inserts, central & peripheral
- Different inserts, optimized for the central and peripheral insert locations in order to maximize cutting tool life

Optimized flute system - 2 coolant holes applied

- The optimized shape of the flute increases the rigidity of the drill body and improves chip evacuation



Features of chip breaker

Chip breaker	PD		LD		ND		RD
Features	- Universal - At medium speed and medium feed		- Superior chip control for machining mild steel and stainless steel - Light cutting (at low~medium speed and low feed)		- Sharp cutting edge for aluminum machining - Insert surface buffed for high quality result - E Class tolerance		- Improved chipping resistance - Excellent performance in case of frequent fracture and chipping on the cutting edge
Insert	Peripheral insert	Central insert	Peripheral insert	Central insert	Peripheral insert	Central insert	Central insert
Shape							
Grades for workpiece	NC5330 : P, M, K PC3700 : P PC5300 : P, M, K, S PC6100 : K PC9540 : P, M, S	PC5300 : P, M, K, S PC9540 : P, M, S	PC5335 : P, M		H01 : N		PC5300 : P,M,K,S

Recommended cutting conditions

Workpiece				Insert			vc(m/min)	Aspect ratio (L/D) = 2D, 3D, 4D Feed rate (mm/rev) per drill dia. (mm)					
ISO		Workpiece	Hardness (HB)	Chip breaker	Grade			Ø12~Ø16	Ø17~Ø23	Ø24~Ø29	Ø30~Ø42	Ø43~Ø60	Ø61~Ø100
					Central	Peripheral							
P	Carbon steel	Low carbon steel	80~180	LD	PC5335	PC5335	120(60~170)	0.04~0.08	0.04~0.08	0.04~0.08	0.04~0.08	0.04~0.08	0.04~0.08
				PD/RD	PC5300	PC3700	150(120~180)						
						NC5330	180(140~220)						
		High carbon steel	180~280	PD	PC5300	PC3700	120(90~150)	0.04~0.10	0.04~0.12	0.05~0.16	0.06~0.16	0.06~0.18	0.06~0.18
						NC5330	150(110~190)	0.04~0.06	0.04~0.07	0.04~0.08	0.04~0.08	0.04~0.08	0.04~0.08
	Alloy steel	Low alloy steel	140~260	LD	PC5335	PC5335	120(60~160)	0.06~0.10	0.06~0.10	0.06~0.12	0.06~0.14	0.06~0.14	0.06~0.14
				PD	PC5300	PC3700	150(120~170)	0.06~0.12	0.06~0.12	0.06~0.14	0.06~0.16	0.06~0.16	0.06~0.16
						NC5330	180(140~210)	0.06~0.08	0.06~0.08	0.06~0.10	0.06~0.12	0.06~0.12	0.06~0.12
		Low alloy heattreated steel	200~400	PD	PC5300	PC5300	100(50~150)	0.04~0.10	0.06~0.10	0.06~0.12	0.06~0.14	0.06~0.14	0.06~0.14
		High alloy steel	260~320	PD	PC5300	PC3700	100(50~160)	0.05~0.11	0.05~0.11	0.05~0.13	0.05~0.15	0.05~0.15	0.05~0.15
		High alloy heattreated steel	300~450	PD	PC5300	PC5300	70(30~120)	0.04~0.08	0.06~0.08	0.06~0.10	0.06~0.12	0.06~0.12	0.06~0.12
M	Stainless steel	Stainless steel	135-275	LD	PC5335	PC5335	120(80~140)	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.08	0.04~0.08	0.04~0.08
				PD	PC5300	PC5300	130(100~160)	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.08	0.04~0.08	0.04~0.08
					PC9540	PC9540	90(60~120)	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.08	0.04~0.08	0.04~0.08
K	Cast iron	Gray cast iron	150~230	PD	PC5300	PC6100	190(150~250)	0.04~0.12	0.05~0.14	0.06~0.18	0.10~0.22	0.10~0.26	0.10~0.26
		Ductile cast iron	150~230	PD	PC5300	PC6100	130(100~160)	0.04~0.07	0.04~0.08	0.04~0.10	0.05~0.12	0.05~0.12	0.05~0.12
S	Heat resisting alloy	Ni-heat resisting alloy	130~400	PD	PC5300	PC5300	50(30~100)	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10
					PC9540	PC9540	40(20~80)	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10
		Ti-heat resisting alloy	130~400	LD	PC5335	PC5335	60(40~80)	0.04~0.08	0.04~0.10	0.06~0.12	0.06~0.14	0.06~0.16	0.06~0.16
				PD	PC5300	PC5300	60(40~80)	0.04~0.08	0.04~0.10	0.06~0.12	0.06~0.14	0.06~0.16	0.06~0.16
		High hardened steel	400 Over	PD	PC5300	PC5300	40(20~80)	0.04~0.05	0.04~0.06	0.04~0.08	0.04~0.08	0.04~0.08	0.04~0.08
N	Aluminium	Aluminium	30~150	ND	H01	H01	300(250~400)	0.05~0.14	0.06~0.16	0.10~0.20	0.10~0.22	0.12~0.25	0.12~0.25
		Alloyed copper	150-160	ND	H01	H01	250(200~300)	0.05~0.14	0.06~0.16	0.10~0.20	0.10~0.22	0.12~0.25	0.12~0.25

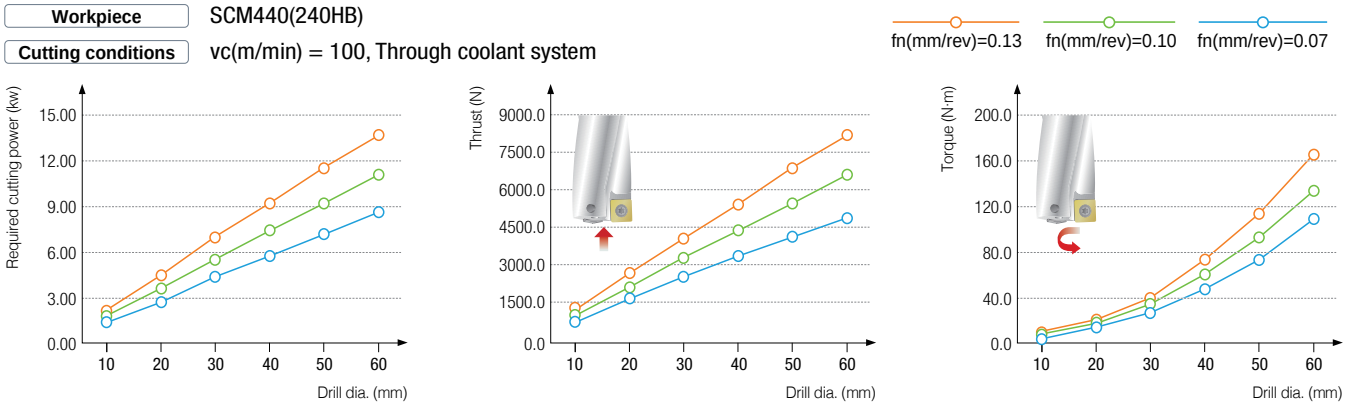
• The Max. feed of 5D holders is 70%~80% of the max. conditions of 2D/3D/4D holders
• In interrupted machining part, reduce 30~50% of feed from the above machining around interrupted part

Required cutting power

- The graphs below show the cutting force required in drilling
- Machining with the KING Drill and a machine with high rigidity and power

Workpiece SCM440(240HB)

Cutting conditions vc(m/min) = 100, Through coolant system

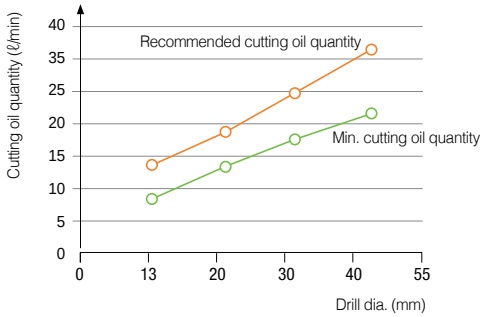


Cutting oil quantity

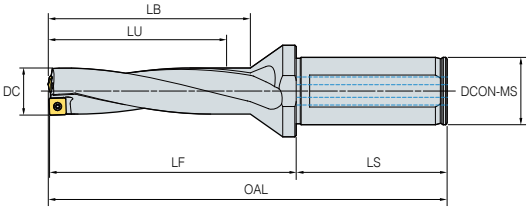
Workpiece SCM440(240HB)

Cutting conditions vc(m/min) = 100, Through coolant system

※ The data of the graph above could be changed depending on workpiece and cutting condition



Drill tolerance and hole tolerance



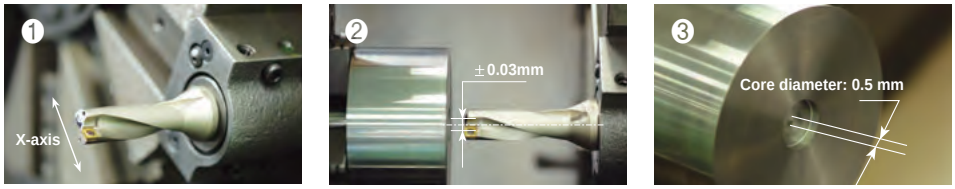
(mm)

Drill dia.(DC)		Ø12 ~ Ø29	Ø30 ~ Ø45	Ø46 ~ Ø60.5
2D~3D	Drill tolerance	0 ~ -0.15	0 ~ -0.15	0 ~ -0.15
	Hole tolerance	+0.2 ~ -0.1	+0.25 ~ -0.1	+0.28 ~ -0.1
4D~5D	Drill tolerance	0 ~ -0.15	0 ~ -0.15	0 ~ -0.15
	Hole tolerance	+0.25 ~ -0.05	+0.3 ~ -0.05	+0.33 ~ -0.05

Notice for setting the drill in the lathe

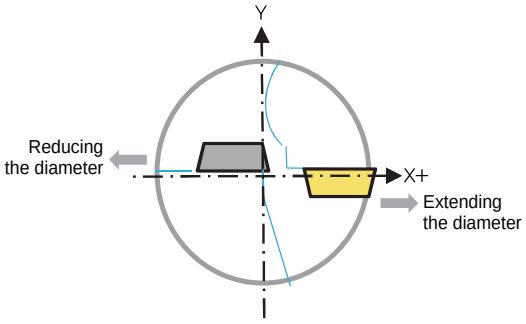
- Set the peripheral insert parallel to the X axis. (based on the side lock)
- If the machined core is 0.5 mm after machining 5 mm, that is the proper setting

※ Please make sure that the location of the side lock could be different depending on manufacturers of machine



Range of adjusting machining diameter in the lathe

- In machining in the lathe, the KING Drill can extend and reduce the machining diameter by adjusting the x-axis. Please refer to the table showing the range of adjusting drilling diameter below
- The more the drilling diameter is extended or reduced, the more the drill loses drilling balance. In this case, reduce the feed or cutting speed in machining
- Reducing the machining diameter excessively could damage the holder



(mm)

Drill dia. (Ø)	Range of adjusting drilling diameter (Ø)	Drill dia. (Ø)	Range of adjusting drilling diameter (Ø)	Drill dia. (Ø)	Range of adjusting drilling diameter (Ø)	Drill dia. (Ø)	Range of adjusting drilling diameter (Ø)
12.0	11.7~12.4	24.5	23.9~25.1	37.0	36.3~37.7	49.5	48.7~50.2
12.5	12.2~12.9	25.0	24.4~25.6	37.5	36.8~38.2	50.0	49.2~50.7
13.0	12.7~13.4	25.5	24.9~26.1	38.0	37.3~38.7	50.5	49.7~51.2
13.5	13.2~13.9	26.0	25.4~26.6	38.5	37.8~39.2	51.0	50.2~51.7
14.0	13.6~14.5	26.5	25.9~27.1	39.0	38.3~39.7	51.5	50.7~52.2
14.5	14.1~15.0	27.0	26.4~27.6	39.5	38.8~40.2	52.0	51.2~52.7
15.0	14.6~15.5	27.5	26.9~28.1	40.0	39.3~40.7	52.5	51.7~53.2
15.5	15.1~16.0	27.8	27.4~28.6	40.5	39.8~41.2	53.0	52.2~53.7
16.0	15.6~16.5	28.5	27.9~29.1	41.0	40.3~41.7	53.5	52.7~54.2
16.5	16.0~17.0	29.0	28.4~29.6	41.5	40.8~42.2	54.0	53.2~54.7
17.0	16.5~17.5	29.5	28.9~30.1	42.0	41.3~42.7	54.5	53.7~55.2
17.5	17.0~18.0	30.0	29.3~30.7	42.5	41.8~43.2	55.0	54.2~55.7
18.0	17.5~18.5	30.5	29.8~31.2	43.0	42.2~43.7	55.5	54.7~56.2
18.5	18.0~19.0	31.0	30.3~31.7	43.5	42.7~44.2	56.0	55.2~56.7
19.0	18.5~19.5	31.5	30.8~32.2	44.0	43.2~44.7	56.5	55.7~57.2
19.5	19.0~20.0	32.0	31.3~32.7	44.5	43.7~45.2	57.0	56.2~57.7
20.0	19.4~20.6	32.5	31.8~33.2	45.0	44.2~45.7	57.5	56.7~58.2
20.5	19.9~21.1	33.0	32.3~33.7	45.5	44.7~46.2	58.0	57.2~58.7
21.0	20.4~21.6	33.5	32.8~34.2	46.0	45.2~46.7	58.5	57.7~59.2
21.5	20.9~22.1	34.0	33.3~34.7	46.5	45.7~47.2	59.0	58.2~59.7
22.0	21.4~22.6	34.5	33.8~35.2	47.0	46.2~47.7	59.5	58.7~60.2
22.5	21.9~23.1	35.0	34.3~35.7	47.5	46.7~48.2	60.0	59.2~60.7
23.0	22.4~23.6	35.5	34.8~36.2	48.0	47.2~48.7	60.5	59.7~61.2
23.5	22.9~24.1	36.0	35.3~36.7	48.5	47.7~49.2		
24.0	23.4~24.6	36.5	35.8~37.2	49.0	48.2~49.7		

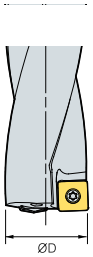
Insert and parts

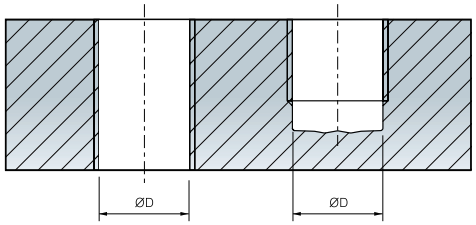
Drill dia. (mm)	Peripheral insert	Central insert	Screw	Wrench	Torque (N•m)
Ø12.0~Ø13.5	SP□T040204-□□	XO□T040204-□□	FTNA0204	TW06P	0.4
Ø13.6~Ø16.0	SP□T050204-□□	XO□T050204-□□	FTNA0204	TW06P	0.4
Ø16.1~Ø19.5	SP□T060205-□□	XO□T060204-□□	FTKA02206S	TW07P	0.8
Ø19.6~Ø23.5	SP□T07T208-□□	XO□T07T205-□□	FTKA02565	TW07S	0.8
Ø23.6~Ø29.5	SP□T090308-□□	XO□T090305-□□	FTKA0307	TW09S	1.2
Ø29.6~Ø35.5	SP□T11T308-□□	XO□T11T306-□□	FTKA03508	TW15S	3
Ø35.6~Ø42.5	SP□T130410-□□	XO□T130406-□□	FTKA0410	TW15S	3
Ø42.6~Ø50.5	SP□T15M510-□□	XO□T15M508-□□	FTNC04511	TW20S	5
Ø50.6~Ø60.5	SP□T180510-□□	XO□T180508-□□	FTNA0511	TW20-100	5

- In clamping an insert, please clean the tip seat and apply CASMOLY1000 on the screw
- Please make sure to use a Korloy-produced wrench and screw only

KING Drill - for machining a tap foundation hole

- There are two types of specifications of tap, metric and inch. The KING Drill is available for machining both thru tap and blind tap





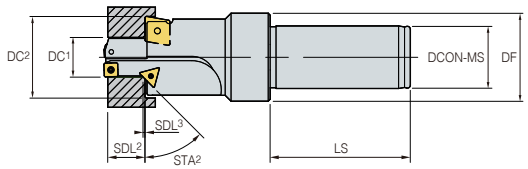
Thru tap Blind tap

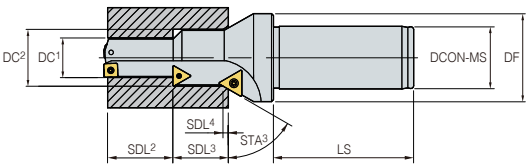
(mm)

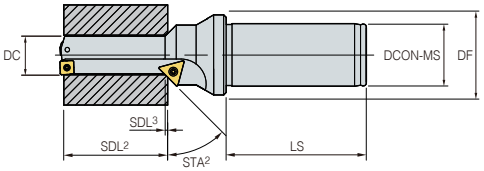
Tap type	Thread	ØD	Designation	Reference
Mertic	M14 x 2.0	12.0	K3D12020-04	F13
	M16 x 2.0	14.0	K3D14020-05	F13
	M18 x 2.5	15.5	K3D15520-05	F13
	M20 x 2.5	17.5	K3D17525-06	F13
	M22 x 2.5	19.5	K3D19525-06	F13
	M24 x 3.0	21.0	K3D21025-07	F13
	M27 x 3.0	24.0	K3D24032-09	F13
	M30 x 3.5	26.5	K3D26532-09	F13
	M33 x 4.0	29.0	K3D29032-09	F13
	M36 x 4.0	32.0	K3D30032-11	F14
	M39 x 4.0	35.0	K3D35032-11	F14
	M42 x 4.5	37.5	K3D37540-13	F14
Inch	9/16-12 UNC	12.2	K3D12220-04	F13
	5/8-11 UNC	13.5	K3D13520-04	F13
	3/4-10 UNC	16.5	K3D16525-06	F13
	7/8-9 UNC	19.5	K3D19525-06	F13
	9/16-18 UNF	12.9	K3D12920-04	F13
	5/8-18 UNF	14.5	K3D14520-05	F13
	3/4-16 UNF	17.5	K3D17525-06	F13

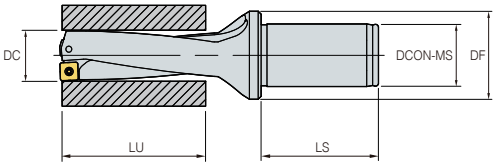
- The same applies to DC value KED Plus Drill

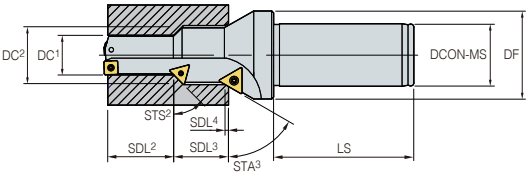
Special Drill Order Form

☐ 

☐ 

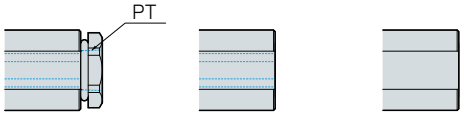
☐ 

☐ 

☐ 

■ Coolant type

☐ Through coolant Plug type (Standard) ☐ Through coolant Non plug type ☐ No coolant



■ Hole type

☐ Blind hole ☐ Thru hole

■ Types of shank

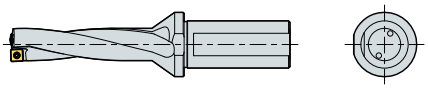
☐  Flat Type

☐  Weldon Type

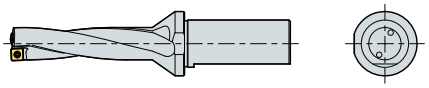
☐  Whistle Notch Type

■ Location of side lock

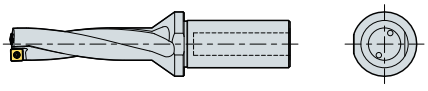
☐ Parallel to peripheral insert (standard)



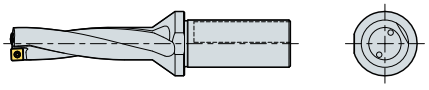
☐ 90°angle to peripheral insert (standard)



☐ 180°angle to peripheral insert (standard)



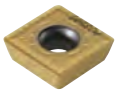
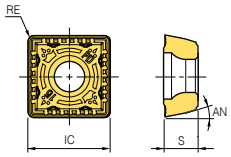
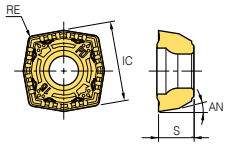
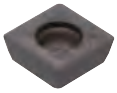
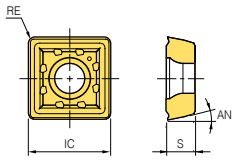
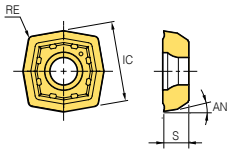
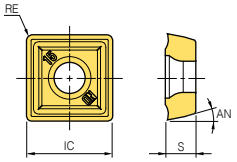
☐ 270° angle to peripheral insert (standard)



■ Note

- Currently using tool:
- Current cutting condition
  - RPM or vc (m/min):
  - vf (mm/min) or fn (mm/rev):
  - Depth of cut (mm):
- Standard of measuring tool life:
- Currently using machine
  - Machining center:
  - General lathe:
  - CNC lathe:

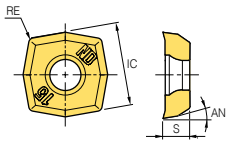
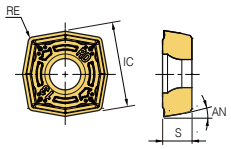
Available insert

Picture	Designation	Coated							Uncoated	Dimension (mm)					Configuration
		NC5330	NCM535	PC3700	PC6100	PC9540	PC5335	PC5300	H01	IC	S	RE	AN	CEDC	
[Peripheral] SPMT-PD  Universal	040204-PD	●	●	●	●	●		●		4.7	2.4	0.4	11	4	
	050204-PD	●	●	●	●	●		●		5.1	2.4	0.4	11	4	
	060205-PD	●	●	●	●	●		●		6.2	2.5	0.5	11	4	
	07T208-PD	●	●	●	●	●		●		7.5	2.87	0.8	11	4	
	090308-PD	●	●	●	●	●		●		9.2	3.3	0.8	11	4	
	11T308-PD	●	●	●	●	●		●		11	4	0.8	11	4	
	130410-PD	●	●	●	●	●		●		13	4.5	1	11	4	
	15M510-PD	●	●	●	●	●		●		15.2	5	1	11	4	
	180510-PD	●	●	●	●	●		●		18.2	5.5	1	11	4	
[Central] XOMT-PD  Universal	040204-PD					●		●		4.9	2.4	0.4	9	4	
	050204-PD					●		●		5.4	2.4	0.4	9	4	
	060204-PD					●		●		6.6	2.5	0.4	9	4	
	07T205-PD					●		●		7.8	2.8	0.5	9	4	
	090305-PD					●		●		9.6	3.3	0.5	9	4	
	11T306-PD					●		●		11.4	4	0.6	9	4	
	130406-PD					●		●		13.6	4.5	0.6	9	4	
	15M508-PD					●		●		15.9	5	0.8	9	4	
	180508-PD					●		●		18.9	5.5	0.8	9	4	
[Peripheral] SPMT-LD  Mild steel	060205-LD						●			6.2	2.5	0.5	11	4	
	07T208-LD						●			7.5	2.8	0.8	11	4	
	090308-LD						●			9.2	3.3	0.8	11	4	
	11T308-LD						●			11	4	0.8	11	4	
	130410-LD						●			13	4.5	1	11	4	
	15M510-LD						●			15.2	5	1	11	4	
	180510-LD						●			18.2	5.5	1	11	4	
[Central] XOMT-LD  Mild steel	060204-LD						●			6.6	2.5	0.4	9	4	
	07T205-LD						●			7.8	2.8	0.5	9	4	
	090305-LD						●			9.6	3.3	0.5	9	4	
	11T306-LD						●			11.4	4	0.6	9	4	
	130406-LD						●			13.6	4.5	0.6	9	4	
	15M508-LD						●			15.9	5	0.8	9	4	
	180508-LD						●			18.9	5.5	0.8	9	4	
[Peripheral] SPET-ND  Al	040204-ND								●	4.7	2.4	0.4	11	4	
	050204-ND								●	5.1	2.4	0.4	11	4	
	060205-ND								●	6.2	2.5	0.5	11	4	
	07T208-ND								●	7.5	2.8	0.8	11	4	
	090308-ND								●	9.2	3.3	0.8	11	4	
	11T308-ND								●	11	4	0.8	11	4	
	130410-ND								●	13	4.5	1	11	4	
	15M510-ND								●	15.2	5	1	11	4	
	180510-ND								●	18.2	5.5	1	11	4	

Applicable holders **D11 ~ D19**

● : Stock Item

Available insert

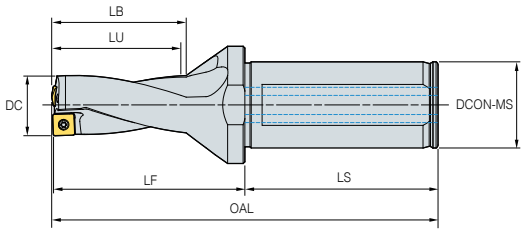
Picture	Designation	Coated							Uncoated	Dimension (mm)					Configuration
		NC5330	NCM535	PC3700	PC6100	PC9540	PC5335	PC5300	H01	IC	S	RE	AN	CEDC	
[Central] XOET-ND  AI	040204-ND								●	4.9	2.4	0.4	9	4	
	050204-ND								●	5.4	2.4	0.4	9	4	
	060204-ND								●	6.6	2.5	0.4	9	4	
	07T205-ND								●	7.8	2.8	0.5	9	4	
	090305-ND								●	9.6	3.3	0.5	9	4	
	11T306-ND								●	11.4	4	0.6	9	4	
	130406-ND								●	13.6	4.5	0.6	9	4	
	15M508-ND								●	15.9	5	0.8	9	4	
	180508-ND								●	18.9	5.5	0.8	9	4	
[Central] XOMT-RD  Rein fored cutting-edge	07T207-RD							●		7.8	2.8	0.7	9	4	
	090308-RD							●		9.6	3.3	0.8	9	4	
	11T309-RD							●		11.4	4	0.9	9	4	
	130410-RD							●		13.6	4.5	1	9	4	
	15M511-RD							●		15.9	5	1.1	9	4	
	180512-RD							●		18.9	5.5	1.2	9	4	

Applicable holders **D11 ~ D19**

● : Stock Item

KING Drill(2D)





(mm)

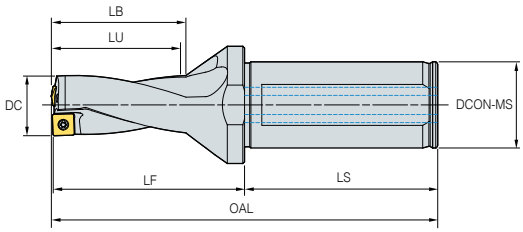
	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K2D	12020-04*	●	12	20	24	40.71	27	50	91	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04	●	12.5	20	24	40.71	27	50	91			
	13020-04	●	13	20	26	42.71	29	50	93			
	13520-04*	●	13.5	20	26	42.71	29	50	93			
	14020-05*	●	14	20	28	45.6	31	50	96	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05*	●	14.5	20	28	45.6	31	50	96			
	15020-05	●	15	20	30	48.6	33	50	99			
	15520-05*	●	15.5	20	30	48.5	33	50	99			
	16020-05	●	16	20	32	50.5	35	50	101			
	16525-06*	●	16.5	25	32	50.6	35	56	107	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	●	17	25	34	52.6	37	56	109			
	17525-06*	●	17.5	25	34	52.5	37	56	109			
	18025-06	●	18	25	36	55.5	39	56	112			
	18525-06	●	18.5	25	36	55.5	39	56	112			
	19025-06	●	19	25	38	57.4	41	56	114			
	19525-06*	●	19.5	25	38	57.4	41	56	114			
	20025-07	●	20	25	40	61.5	43	56	118	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	●	20.5	25	40	61.4	43	56	118			
	21025-07*	●	21	25	42	63.4	45	56	120			
	21525-07	●	21.5	25	42	63.4	45	56	120			
	22025-07	●	22	25	44	65.4	47	56	122			
	22525-07	●	22.5	25	44	65.3	47	56	122			
	23025-07	●	23	25	46	69.3	49	56	126			
	23525-07	●	23.5	25	46	69.3	49	56	126			
	24032-09*	●	24	32	48	72.4	51	60	133	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	●	24.5	32	48	72.4	51	60	133			
	25032-09	●	25	32	50	74.3	53	60	135			
	25532-09	●	25.5	32	50	74.3	53	60	135			
	26032-09	●	26	32	52	76.3	55	60	137			
	26532-09*	●	26.5	32	52	76.3	55	60	137			
	27032-09	●	27	32	54	79.2	57	60	140			
	27532-09	●	27.5	32	54	79.2	57	60	140			
	28032-09	●	28	32	56	82.2	59	60	143			
	28532-09	●	28.5	32	56	82.2	59	60	143			
	29032-09	●	29	32	58	84.1	61	60	145			
	29532-09*	●	29.5	32	58	84.1	61	60	145			
	30032-11	●	30	32	60	89	63	60	150	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	●	30.5	32	60	89	63	60	150			
	31032-11	●	31	32	62	91	65	60	152			
	31532-11	●	31.5	32	62	91	65	60	152			
	32032-11*	●	32	32	64	93	67	60	154			
	32532-11	●	32.5	32	64	93	67	60	154			
	33032-11	●	33	32	66	96	69	60	157			
	33532-11	●	33.5	32	66	96	69	60	157			
	34032-11	●	34	32	68	98	71	60	159			
	34532-11	●	34.5	32	68	97.9	71	60	159			
	35032-11*	●	35	32	70	99.9	73	60	161			
	35532-11	●	35.5	32	70	99.9	73	60	161			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(2D)





(mm)

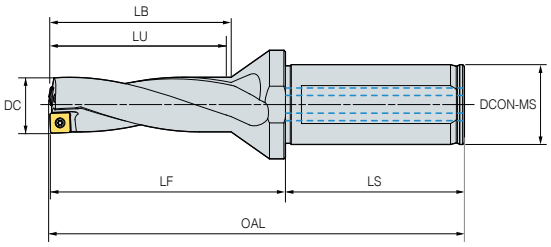
	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K2D	36040-13	●	36	40	72	105.1	76	70	176	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	●	36.5	40	72	105	76	70	176			
	37040-13	●	37	40	74	107	78	70	178			
	37540-13*	●	37.5	40	74	107	78	70	178			
	38040-13	●	38	40	76	109.9	80	70	181			
	38540-13	●	38.5	40	76	109.9	80	70	181			
	39040-13	●	39	40	78	111.9	82	70	183			
	39540-13	●	39.5	40	78	111.9	82	70	183			
	40040-13	●	40	40	80	114.8	84	70	186			
	40540-13	●	40.5	40	80	114.8	84	70	186			
	41040-13	●	41	40	82	116.8	86	70	188			
	41540-13	●	41.5	40	82	116.8	86	70	188			
	42040-13	●	42	40	84	119.7	88	70	191			
	42540-13	●	42.5	40	84	119.7	88	70	191			
	43040-15	●	43	40	86	124.8	91	70	196	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	●	43.5	40	86	124.8	91	70	196			
	44040-15	●	44	40	88	126.8	93	70	198			
	44540-15	●	44.5	40	88	126.7	93	70	198			
	45040-15	●	45	40	90	129.7	95	70	201			
	45540-15	●	45.5	40	90	129.7	95	70	201			
	46040-15	●	46	40	92	131.7	97	70	203			
	46540-15	●	46.5	40	92	131.6	97	70	203			
	47040-15	●	47	40	94	134.6	99	70	206			
	47540-15	●	47.5	40	94	134.6	99	70	206			
	48040-15	●	48	40	96	136.6	101	70	208			
	48540-15	●	48.5	40	96	136.5	101	70	208			
	49040-15	●	49	40	98	138.5	103	70	210			
	49540-15	●	49.5	40	98	138.5	103	70	210			
	50040-15	●	50	40	100	140.5	105	70	212			
	50540-15	●	50.5	40	100	140.5	105	70	212			
	51040-18	●	51	40	102	146.6	108	70	218	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18		51.5	40	102	146.6	108	70	218			
	52040-18	●	52	40	104	148.6	110	70	220			
	52540-18		52.5	40	104	148.5	110	70	220			
	53040-18	●	53	40	106	150.5	112	70	222			
	53540-18		53.5	40	106	150.5	112	70	222			
	54040-18	●	54	40	108	152.4	114	70	224			
	54540-18		54.5	40	108	152.4	114	70	224			
	55040-18	●	55	40	110	154.4	116	70	226			
	55540-18		55.5	40	110	154.4	116	70	226			
	56040-18	●	56	40	112	158.3	118	70	230			
	56540-18		56.5	40	112	158.3	118	70	230			
	57040-18	●	57	40	114	161.3	121	70	233			
	57540-18		57.5	40	114	161.3	121	70	233			
	58040-18	●	58	40	116	164.2	124	70	236			
	58540-18		58.5	40	116	164.2	124	70	236			
	59040-18	●	59	40	118	167.2	127	70	239			
	59540-18		59.5	40	118	167.2	127	70	239			
	60040-18	●	60	40	120	170.2	130	70	242			
	60540-18		60.5	40	120	170.2	130	70	242			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(3D)





(mm)

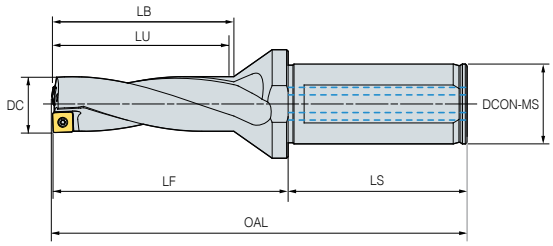
	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K3D	12020-04*	●	12	20	36	52.71	39	50	103	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12220-04*	●	12.2	20	36	52.71	39	50	103			
	12520-04	●	12.5	20	36	52.71	39	50	103			
	12920-04*	●	12.9	20	36	55.71	42	50	106			
	13020-04	●	13	20	39	55.71	42	50	106			
	13520-04*	●	13.5	20	39	55.71	42	50	106			
	14020-05*	●	14	20	42	59.6	45	50	110	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05*	●	14.5	20	42	59.6	45	50	110			
	15020-05	●	15	20	45	63.6	48	50	114			
	15520-05*	●	15.5	20	45	63.5	48	50	114			
	16020-05	●	16	20	48	66.5	51	50	117			
	16525-06*	●	16.5	25	48	66.6	51	56	123	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	●	17	25	51	69.6	54	56	126			
	17525-06*	●	17.5	25	51	69.5	54	56	126			
	18025-06	●	18	25	54	73.5	57	56	130			
	18525-06	●	18.5	25	54	73.5	57	56	130			
	19025-06	●	19	25	57	76.4	60	56	133			
	19525-06*	●	19.5	25	57	76.4	60	56	133			
	20025-07	●	20	25	60	81.5	63	56	138	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	●	20.5	25	60	81.4	63	56	138			
	21025-07*	●	21	25	63	84.4	66	56	141			
	21525-07	●	21.5	25	63	84.4	66	56	141			
	22025-07	●	22	25	66	87.4	69	56	144			
	22525-07	●	22.5	25	66	87.3	69	56	144			
	23025-07	●	23	25	69	92.3	72	56	149			
	23525-07	●	23.5	25	69	92.3	72	56	149			
	24032-09*	●	24	32	72	96.4	75	60	157	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	●	24.5	32	72	96.4	75	60	157			
	25032-09	●	25	32	75	99.3	78	60	160			
	25532-09	●	25.5	32	75	99.3	78	60	160			
	26032-09	●	26	32	78	102.3	81	60	163			
	26532-09*	●	26.5	32	78	102.3	81	60	163			
	27032-09	●	27	32	81	106.2	84	60	167			
	27532-09	●	27.5	32	81	106.2	84	60	167			
	28032-09	●	28	32	84	110.2	87	60	171			
	28532-09	●	28.5	32	84	110.2	87	60	171			
	29032-09	●	29	32	87	113.1	90	60	174			
	29532-09*	●	29.5	32	87	113.1	90	60	174			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(3D)





(mm)

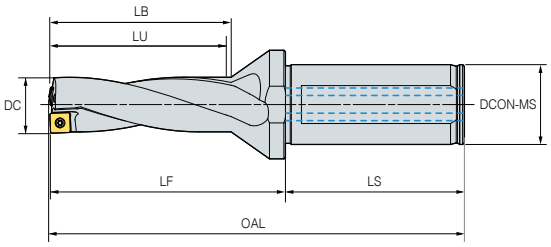
	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K3D	30032-11	●	30	32	90	119	93	60	180	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	●	30.5	32	90	119	93	60	180			
	31032-11	●	31	32	93	122	96	60	183			
	31532-11	●	31.5	32	93	122	96	60	183			
	32032-11*	●	32	32	96	125	99	60	186			
	32532-11	●	32.5	32	96	125	99	60	186			
	33032-11	●	33	32	99	129	102	60	190			
	33532-11	●	33.5	32	99	129	102	60	190			
	34032-11	●	34	32	102	132	105	60	193			
	34532-11	●	34.5	32	102	131.9	105	60	193			
	35032-11*	●	35	32	105	134.9	108	60	196			
	35532-11	●	35.5	32	105	134.9	108	60	196			
	36040-13	●	36	40	108	141.1	112	70	212	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	●	36.5	40	108	141	112	70	212			
	37040-13	●	37	40	111	144	115	70	215			
	37540-13*	●	37.5	40	111	144	115	70	215			
	38040-13	●	38	40	114	147.9	118	70	219			
	38540-13	●	38.5	40	114	147.9	118	70	219			
	39040-13	●	39	40	117	150.9	121	70	222			
	39540-13	●	39.5	40	117	150.9	121	70	222			
	40040-13	●	40	40	120	154.8	124	70	226			
	40540-13	●	40.5	40	120	154.8	124	70	226			
	41040-13	●	41	40	123	157.8	127	70	229			
	41540-13	●	41.5	40	123	157.8	127	70	229			
	42040-13	●	42	40	126	161.7	130	70	233			
	42540-13	●	42.5	40	126	161.7	130	70	233			
	43040-15	●	43	40	129	167.8	134	70	239	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	●	43.5	40	129	167.8	134	70	239			
	44040-15	●	44	40	132	170.8	137	70	242			
	44540-15	●	44.5	40	132	170.7	137	70	242			
	45040-15	●	45	40	135	174.7	140	70	246			
	45540-15	●	45.5	40	135	174.7	140	70	246			
	46040-15	●	46	40	138	177.7	143	70	249			
	46540-15	●	46.5	40	138	177.6	143	70	249			
	47040-15	●	47	40	141	181.6	146	70	253			
	47540-15	●	47.5	40	141	181.6	146	70	253			
	48040-15	●	48	40	144	184.6	149	70	256			
	48540-15	●	48.5	40	144	184.5	149	70	256			
	49040-15	●	49	40	147	187.5	152	70	259			
	49540-15	●	49.5	40	147	187.5	152	70	259			
	50040-15	●	50	40	150	190.5	155	70	262			
	50540-15	●	50.5	40	150	190.5	155	70	262			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(3D)





(mm)

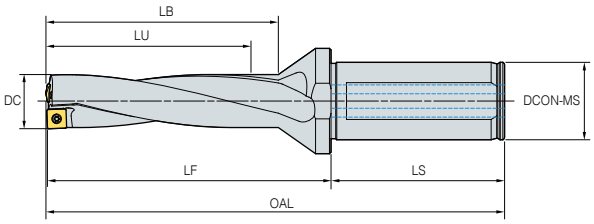
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K3D	51040-18	●	51	40	153	197.6	159	70	269	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18		51.5	40	153	197.6	159	70	269			
	52040-18	●	52	40	156	200.6	162	70	272			
	52540-18		52.5	40	156	200.5	162	70	272			
	53040-18	●	53	40	159	203.5	165	70	275			
	53540-18		53.5	40	159	203.5	165	70	275			
	54040-18	●	54	40	162	206.4	168	70	278			
	54540-18		54.5	40	162	206.4	168	70	278			
	55040-18	●	55	40	165	209.4	171	70	281			
	55540-18		55.5	40	165	209.4	171	70	281			
	56040-18	●	56	40	168	214.3	174	70	286			
	56540-18		56.5	40	168	214.3	174	70	286			
	57040-18	●	57	40	171	218.3	178	70	290			
	57540-18		57.5	40	171	218.3	178	70	290			
	58040-18	●	58	40	174	222.2	182	70	294			
	58540-18		58.5	40	174	222.2	182	70	294			
	59040-18	●	59	40	177	226.2	186	70	298			
	59540-18		59.5	40	177	226.2	186	70	298			
	60040-18	●	60	40	180	230.2	190	70	302			
	60540-18		60.5	40	180	230.2	190	70	302			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(4D)





(mm)

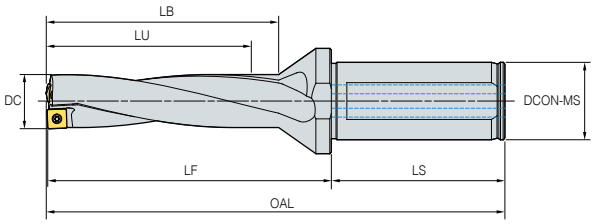
	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K4D	12020-04*	●	12	20	48	64.71	51	50	115	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04	●	12.5	20	48	64.71	51	50	115			
	13020-04	●	13	20	52	68.71	55	50	119			
	13520-04*	●	13.5	20	52	68.71	55	50	119			
	14020-05*	●	14	20	56	73.6	59	50	124	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05*	●	14.5	20	56	73.6	59	50	124			
	15020-05	●	15	20	60	78.6	63	50	129			
	15520-05*	●	15.5	20	60	78.5	63	50	129			
	16020-05	●	16	20	64	82.5	67	50	133			
	16525-06*	●	16.5	25	64	82.6	67	56	139	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	●	17	25	68	86.6	71	56	143			
	17525-06*	●	17.5	25	68	86.5	71	56	143			
	18025-06	●	18	25	72	91.5	75	56	148			
	18525-06	●	18.5	25	72	91.5	75	56	148			
	19025-06	●	19	25	76	95.4	79	56	152			
	19525-06*	●	19.5	25	76	95.4	79	56	152			
	20025-07	●	20	25	80	101.5	83	56	158	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	●	20.5	25	80	101.4	83	56	158			
	21025-07*	●	21	25	84	105.4	87	56	162			
	21525-07	●	21.5	25	84	105.4	87	56	162			
	22025-07	●	22	25	88	109.4	91	56	166			
	22525-07	●	22.5	25	88	109.3	91	56	166			
	23025-07	●	23	25	92	115.3	95	56	172			
	23525-07	●	23.5	25	92	115.3	95	56	172			
	24032-09*	●	24	32	96	120.4	99	60	181	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	●	24.5	32	96	120.4	99	60	181			
	25032-09	●	25	32	100	124.3	103	60	185			
	25532-09	●	25.5	32	100	124.3	103	60	185			
	26032-09	●	26	32	104	128.3	107	60	189			
	26532-09*	●	26.5	32	104	128.3	107	60	189			
	27032-09	●	27	32	108	133.2	111	60	194			
	27532-09	●	27.5	32	108	133.2	111	60	194			
	28032-09	●	28	32	112	138.2	115	60	199			
	28532-09	●	28.5	32	112	138.2	115	60	199			
	29032-09	●	29	32	116	142.1	119	60	203			
	29532-09*	●	29.5	32	116	142.1	119	60	203			
	30032-11	●	30	32	120	149	123	60	210	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	●	30.5	32	120	149	123	60	210			
	31032-11	●	31	32	124	153	127	60	214			
	31532-11	●	31.5	32	124	153	127	60	214			
	32032-11*	●	32	32	128	157	131	60	218			
	32532-11	●	32.5	32	128	157	131	60	218			
	33032-11	●	33	32	132	162	135	60	223			
	33532-11	●	33.5	32	132	162	135	60	223			
	34032-11	●	34	32	136	166	139	60	227			
	34532-11	●	34.5	32	136	165.9	139	60	227			
	35032-11*	●	35	32	140	169.9	143	60	231			
	35532-11	●	35.5	32	140	169.9	143	60	231			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(4D)





(mm)

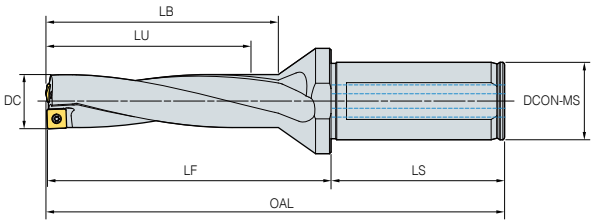
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K4D	36040-13	●	36	40	144	177.1	148	70	248	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	●	36.5	40	144	177	148	70	248			
	37040-13	●	37	40	148	181	152	70	252			
	37540-13*	●	37.5	40	148	181	152	70	252			
	38040-13	●	38	40	152	185.9	156	70	257			
	38540-13	●	38.5	40	152	185.9	156	70	257			
	39040-13	●	39	40	156	189.9	160	70	261			
	39540-13	●	39.5	40	156	189.9	160	70	261			
	40040-13	●	40	40	160	194.8	164	70	266			
	40540-13	●	40.5	40	160	194.8	164	70	266			
	41040-13	●	41	40	164	198.8	168	70	270			
	41540-13	●	41.5	40	164	198.8	168	70	270			
	42040-13	●	42	40	168	212.7	172	70	284			
	42540-13	●	42.5	40	168	212.7	172	70	284			
	43040-15	●	43	40	172	210.8	177	70	282	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	●	43.5	40	172	210.8	177	70	282			
	44040-15	●	44	40	176	214.8	181	70	286			
	44540-15	●	44.5	40	176	214.7	181	70	286			
	45040-15	●	45	40	180	219.7	185	70	291			
	45540-15	●	45.5	40	180	219.7	185	70	291			
	46040-15	●	46	40	184	223.7	189	70	295			
	46540-15	●	46.5	40	184	223.6	189	70	295			
	47040-15	●	47	40	188	228.6	193	70	300			
	47540-15	●	47.5	40	188	228.6	193	70	300			
	48040-15	●	48	40	192	232.6	197	70	304			
	48540-15	●	48.5	40	192	232.5	197	70	304			
	49040-15	●	49	40	196	236.5	201	70	308			
	49540-15	●	49.5	40	196	236.5	201	70	308			
	50040-15	●	50	40	200	240.5	205	70	312			
	50540-15	●	50.5	40	200	240.5	205	70	312			
	51040-18	●	51	40	204	248.6	210	70	320	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18		51.5	40	204	248.6	210	70	320			
	52040-18	●	52	40	208	252.6	214	70	324			
	52540-18		52.5	40	208	252.5	214	70	324			
	53040-18	●	53	40	212	256.5	218	70	328			
	53540-18		53.5	40	212	256.5	218	70	328			
	54040-18	●	54	40	216	260.4	222	70	332			
	54540-18		54.5	40	216	260.4	222	70	332			
	55040-18	●	55	40	220	264.4	226	70	336			
	55540-18		55.5	40	220	264.4	226	70	336			
	56040-18	●	56	40	224	270.3	230	70	342			
	56540-18		56.5	40	224	270.3	230	70	342			
	57040-18	●	57	40	228	275.3	235	70	347			
	57540-18		57.5	40	228	275.3	235	70	347			
	58040-18	●	58	40	232	280.2	240	70	352			
	58540-18		58.5	40	232	280.2	240	70	352			
	59040-18	●	59	40	236	285.2	245	70	357			
	59540-18		59.5	40	236	285.2	245	70	357			
	60040-18	●	60	40	240	290.2	250	70	362			
	60540-18		60.5	40	240	290.2	250	70	362			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(5D)





(mm)

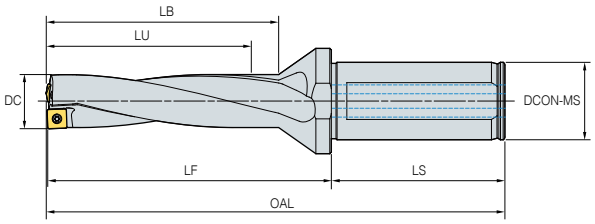
	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K5D	12020-04*	●	12	20	60	76.71	63	50	127	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04	●	12.5	20	60	76.71	63	50	127			
	13020-04	●	13	20	65	81.71	68	50	132			
	13520-04*	●	13.5	20	65	81.71	68	50	132			
	14020-05*	●	14	20	70	87.6	73	50	138	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520-05*	●	14.5	20	70	87.6	73	50	138			
	15020-05	●	15	20	75	93.6	78	50	144			
	15520-05*	●	15.5	20	75	93.5	78	50	144			
	16020-05	●	16	20	80	98.5	83	50	149			
	16525-06*	●	16.5	25	80	98.6	83	56	155	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06	●	17	25	85	103.6	88	56	160			
	17525-06*	●	17.5	25	85	103.5	88	56	160			
	18025-06	●	18	25	90	109.5	93	56	166			
	18525-06	●	18.5	25	90	109.5	93	56	166			
	19025-06	●	19	25	95	114.4	98	56	171			
	19525-06*	●	19.5	25	95	114.4	98	56	171			
	20025-07	●	20	25	100	121.5	103	56	178	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07	●	20.5	25	100	121.4	103	56	178			
	21025-07*	●	21	25	105	126.4	108	56	183			
	21525-07	●	21.5	25	105	126.4	108	56	183			
	22025-07	●	22	25	110	131.4	113	56	188			
	22525-07	●	22.5	25	110	131.3	113	56	188			
	23025-07	●	23	25	115	138.3	118	56	195			
	23525-07	●	23.5	25	115	138.3	118	56	195			
	24032-09*	●	24	32	120	144.4	123	60	205	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09	●	24.5	32	120	144.4	123	60	205			
	25032-09	●	25	32	125	149.3	128	60	210			
	25532-09	●	25.5	32	125	149.3	128	60	210			
	26032-09	●	26	32	130	154.3	133	60	215			
	26532-09*	●	26.5	32	130	154.3	133	60	215			
	27032-09	●	27	32	135	160.2	138	60	221			
	27532-09	●	27.5	32	135	160.2	138	60	221			
	28032-09	●	28	32	140	166.2	143	60	227			
	28532-09	●	28.5	32	140	166.2	143	60	227			
	29032-09	●	29	32	145	171.1	148	60	232			
	29532-09*	●	29.5	32	145	171.1	148	60	232			
	30032-11	●	30	32	150	179	153	60	240	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11	●	30.5	32	150	179	153	60	240			
	31032-11	●	31	32	155	184	158	60	245			
	31532-11	●	31.5	32	155	184	158	60	245			
	32032-11*	●	32	32	160	189	163	60	250			
	32532-11	●	32.5	32	160	189	163	60	250			
	33032-11	●	33	32	165	195	168	60	256			
	33532-11	●	33.5	32	165	195	168	60	256			
	34032-11	●	34	32	170	200	173	60	261			
	34532-11	●	34.5	32	170	199.9	173	60	261			
	35032-11*	●	35	32	175	204.9	178	60	266			
	35532-11	●	35.5	32	175	204.9	178	60	266			

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(5D)





(mm)

	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K5D	36040-13	●	36	40	180	213.1	184	70	284	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13	●	36.5	40	180	213	184	70	284			
	37040-13	●	37	40	185	218	189	70	289			
	37540-13*	●	37.5	40	185	218	189	70	289			
	38040-13	●	38	40	190	223.9	194	70	295			
	38540-13	●	38.5	40	190	223.9	194	70	295			
	39040-13	●	39	40	195	228.9	199	70	300			
	39540-13	●	39.5	40	195	228.9	199	70	300			
	40040-13	●	40	40	200	234.8	204	70	306			
	40540-13	●	40.5	40	200	234.8	204	70	306			
	41040-13	●	41	40	205	239.8	209	70	311			
	41540-13	●	41.5	40	205	239.8	209	70	311			
	42040-13	●	42	40	210	245.7	214	70	317			
	42540-13	●	42.5	40	210	245.7	214	70	317			
	43040-15	●	43	40	215	253.8	220	70	325	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15	●	43.5	40	215	254.8	221	70	326			
	44040-15	●	44	40	220	258.8	225	70	330			
	44540-15	●	44.5	40	220	258.7	225	70	330			
	45040-15	●	45	40	225	264.7	230	70	336			
	45540-15	●	45.5	40	225	264.7	230	70	336			
	46040-15	●	46	40	230	269.7	235	70	341			
	46540-15	●	46.5	40	230	269.6	235	70	341			
	47040-15	●	47	40	235	275.6	240	70	347			
	47540-15	●	47.5	40	235	275.6	240	70	347			
	48040-15	●	48	40	240	280.6	245	70	352			
	48540-15	●	48.5	40	240	280.5	245	70	352			
	49040-15	●	49	40	245	285.5	250	70	357			
	49540-15	●	49.5	40	245	285.5	250	70	357			
	50040-15	●	50	40	250	290.5	255	70	362			
	50540-15	●	50.5	40	250	290.5	255	70	362			
	51040-18	●	51	40	255	299.6	261	70	371	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18		51.5	40	255	299.6	261	70	371			
	52040-18	●	52	40	260	304.6	266	70	376			
	52540-18		52.5	40	260	304.5	266	70	376			
	53040-18	●	53	40	265	309.5	271	70	381			
	53540-18		53.5	40	265	309.5	271	70	381			
	54040-18	●	54	40	270	314.4	276	70	386			
	54540-18		54.5	40	270	314.4	276	70	386			
	55040-18	●	55	40	275	319.4	281	70	391			
	55540-18		55.5	40	275	319.4	281	70	391			
	56040-18	●	56	40	280	326.3	286	70	398			
	56540-18		56.5	40	280	326.3	286	70	398			
	57040-18	●	57	40	285	332.3	292	70	404			
	57540-18		57.5	40	285	332.3	292	70	404			
	58040-18	●	58	40	290	338.2	298	70	410			
	58540-18		58.5	40	290	338.2	298	70	410			
	59040-18	●	59	40	295	344.2	304	70	416			
	59540-18		59.5	40	295	344.2	304	70	416			
	60040-18	●	60	40	300	350.2	310	70	422			
	60540-18		60.5	40	300	350.2	310	70	422			

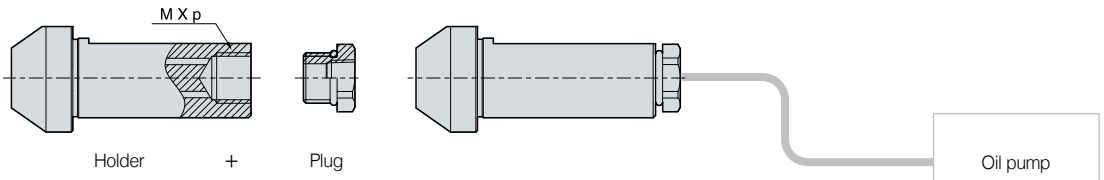
Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

Drill with through coolant system for general lathe and CNC lathe without through coolant system

KING Drill(For through coolant system with a lathe)

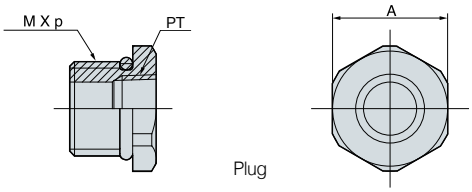
- Through coolant system with drill holder, plug, oil-hole hose and oil-hole pump
- PT TAP in the plug is combined to PT TAP connected to oil hose
- Available to use the drill without a plug in milling machine



- Clamping oil hose to the bottom of plug and connect the oil pump to the holder

(mm)

Tap type	Diameter	Shank dia.	M x p	Plug
K□D120~16020HP-□□	Ø12.0 ~ Ø16.0	Ø20	M12 x 1.5	PLG12PT18
K□D161~23525HP-□□	Ø16.1 ~ Ø23.5	Ø25	M16 x 1.5	PLG16PT18
K□D236~35532HP-□□	Ø23.6 ~ Ø35.5	Ø32	M20 x 2.0	PLG20PT14
K□D356~60940HP-□□	Ø35.6 ~ Ø60.5	Ø40	M27 x 2.0	PLG27PT38



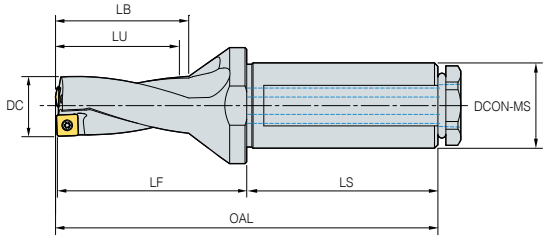
- Plug is assembled

Plug Type	M x p	PT Tap	A
PLG12PT18	M12 x 1.5	1/8	16
PLG16PT18	M16 x 1.5	1/8	19
PLG20PT14	M20 x 2.0	1/4	26
PLG27PT38	M27 x 2.0	3/8	35

KING Drill(2D)

For through coolant system with a lathe





(mm)

	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K2D	13020HP-04	●	13	20	26	42.71	29	50	93	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	13520HP-04*		13.5	20	26	42.71	29	50	93			
	14020HP-05*	●	14	20	28	45.6	31	50	96	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	15020HP-05		15	20	30	48.6	33	50	99			
	16020HP-05	●	16	20	32	50.5	35	50	101			
	17025HP-06		17	25	34	52.6	37	56	109	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	18025HP-06	●	18	25	36	55.5	39	56	112			
	19025HP-06		19	25	38	57.4	41	56	114			
	20025HP-07	●	20	25	40	61.5	43	56	118	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	21025HP-07*		21	25	42	63.4	45	56	120			
	22025HP-07	●	22	25	44	65.4	47	56	122			
	23025HP-07		23	25	46	69.3	49	56	126			
	24032HP-09*	●	24	32	48	72.4	51	60	133	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	25032HP-09		25	32	50	74.3	53	60	135			
	26032HP-09	●	26	32	52	76.3	55	60	137			
	27032HP-09		27	32	54	79.2	57	60	140			
	28032HP-09	●	28	32	56	82.2	59	60	143			
	29032HP-09		29	32	58	84.1	61	60	145			

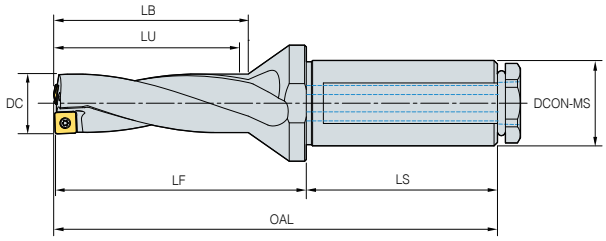
Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(3D)

For through coolant system with a lathe





(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K3D	13020HP-04	●	13	20	39	55.71	42	50	106	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	13520HP-04*	●	13.5	20	39	55.71	42	50	106			
	14020HP-05*	●	14	20	42	59.6	45	50	110	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	14520HP-05*	●	14.5	20	42	59.6	45	50	110			
	15020HP-05	●	15	20	45	63.6	48	50	114			
	15520HP-05*	●	15.5	20	45	63.5	48	50	114			
	16020HP-05	●	16	20	48	66.5	51	50	117			
	16525HP-06*	●	16.5	25	48	66.6	51	56	123	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025HP-06	●	17	25	51	69.6	54	56	126			
	17525HP-06*	●	17.5	25	51	69.5	54	56	126			
	18025HP-06	●	18	25	54	73.5	57	56	130			
	18525HP-06	●	18.5	25	54	73.5	57	56	130			
	19025HP-06	●	19	25	57	76.4	60	56	133			
	19525HP-06*	●	19.5	25	57	76.4	60	56	133			
	20025HP-07	●	20	25	60	81.5	63	56	138	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525HP-07	●	20.5	25	60	81.4	63	56	138			
	21025HP-07*	●	21	25	63	84.4	66	56	141			
	21525HP-07	●	21.5	25	63	84.4	66	56	141			
	22025HP-07	●	22	25	66	87.4	69	56	144			
	22525HP-07	●	22.5	25	66	87.3	69	56	144			
	23025HP-07	●	23	25	69	92.3	72	56	149			
	23525HP-07	●	23.5	25	69	92.3	72	56	149			
	24032HP-09*	●	24	32	72	96.4	75	60	157	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532HP-09	●	24.5	32	72	96.4	75	60	157			
	25032HP-09	●	25	32	75	99.3	78	60	160			
	25532HP-09	●	25.5	32	75	99.3	78	60	160			
	26032HP-09	●	26	32	78	102.3	81	60	163			
	26532HP-09*	●	26.5	32	78	102.3	81	60	163			
	27032HP-09	●	27	32	81	106.2	84	60	167			
	27532HP-09	●	27.5	32	81	106.2	84	60	167			
	28032HP-09	●	28	32	84	110.2	87	60	171			
	28532HP-09	●	28.5	32	84	110.2	87	60	171			
	29032HP-09	●	29	32	87	113.1	90	60	174			
	29532HP-09*	●	29.5	32	87	113.1	90	60	174			

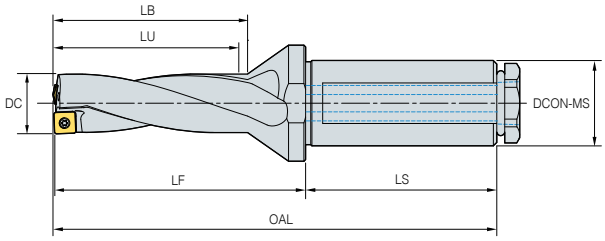
Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KING Drill(4D)

For through coolant system with a lathe





(mm)

	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K4D	13020HP-04	●	13	20	52	42.71	29	50	93	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	13520HP-04*		13.5	20	52	42.71	29	50	93			
	14020HP-05*	●	14	20	56	73.6	59	50	124	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	15020HP-05		15	20	60	78.6	63	50	129			
	16020HP-05	●	16	20	64	82.5	67	50	133			
	17025HP-06		16	20	64	82.5	67	50	133	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	18025HP-06	●	18	25	72	91.5	75	56	148			
	19025HP-06		19	25	76	95.4	79	56	152			
	20025HP-07	●	20	25	80	101.5	83	56	158	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	21025HP-07*		21	25	84	105.4	87	56	162			
	22025HP-07	●	22	25	88	109.4	91	56	166			
	23025HP-07		23	25	92	115.3	95	56	172			
	24032HP-09*	●	24	32	96	120.4	99	60	181	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	25032HP-09		25	32	100	124.3	103	60	185			
	26032HP-09	●	26	32	104	128.3	107	60	189			
	27032HP-09		27	32	108	133.2	11	60	194			
	28032HP-09	●	28	32	112	138.2	115	60	199			
	29032HP-09		29	32	116	142.1	119	60	203			

Applicable inserts **D9 ~ 10**

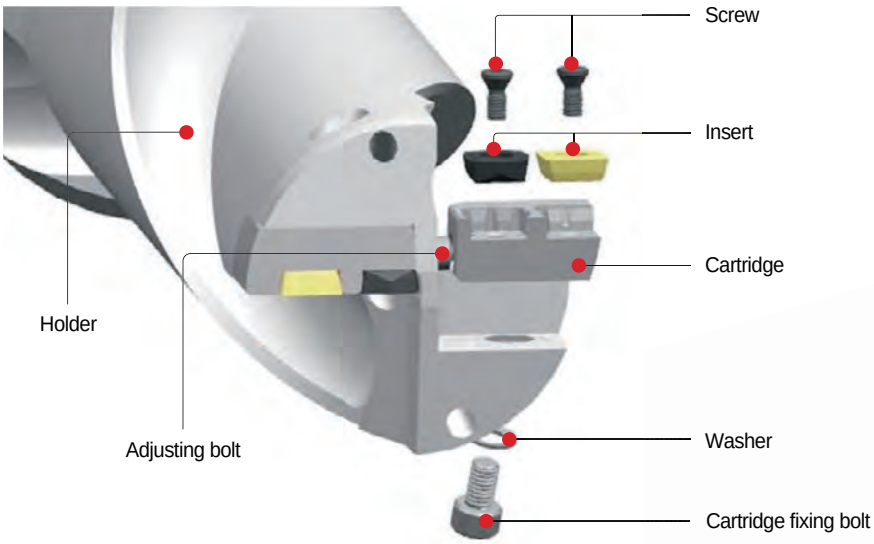
∗The items marked * can machine a tap foundation hole(Reference D7 page)

High rigidity drill produces cost efficiency due to cartridge replacement

KING Drill(For large diameter drilling)

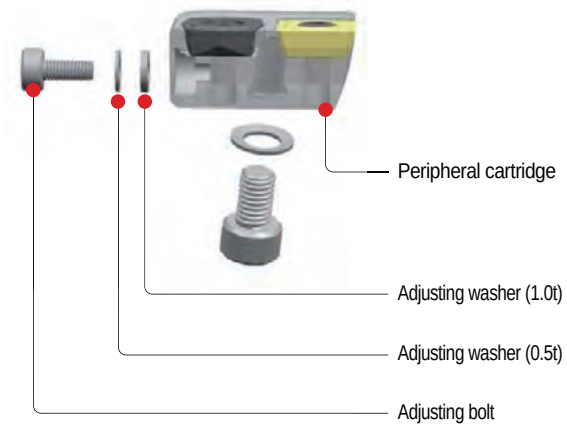
- Cartridge type for Ø61~Ø100 drilling
- Peripheral cartridge can adjust the drilling diameter within 5 mm
- Easy to adjust drilling diameter with adjusting bolt

Structure of KING Drill (for large diameter) parts





Adjustment of drill diameter

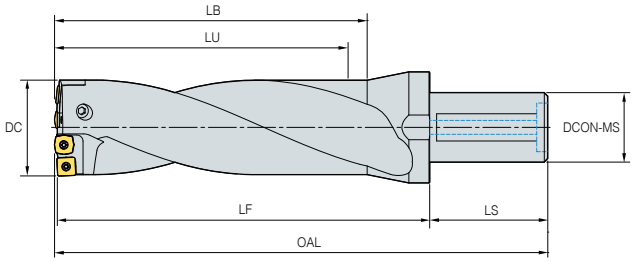


Adjustment Ø (mm)	Adjusting washer	
	Designation	Width(mm)
1	WA0305	0.5
2	WA0310	1.0
3	WA0305 + WA0310	1.5
4	WA0310 x 2	2.0
5	WA0305 + WA0310 x 2	2.5

※ Adjusting washer adjusts the drilling diameter within 5 mm

KING Drill

For through coolant system with a lathe



(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert		Screw	Wrench
										Internal	External		
K2D	616550-11	●	61	50	122	174.06	130	80	255	KDC6165C	KDC6165P	FTKA03508	TW15S
	657050-13	●	65	50	130	183.88	140	80	265	KDC6570C	KDC6570P	FTKA0410	TW15S
	707550-13	●	70	50	140	193.88	150	80	275	KDC7075C	KDC7075P	FTKA0410	TW15S
	758050-13	●	75	50	150	203.88	160	80	285	KDC7580C	KDC7580P	FTKA0410	TW15S
	808550-15	●	80	50	160	213.8	170	80	295	KDC8085C	KDC8085P	FTNC04511	TW20S
	859050-15	●	85	50	170	223.8	180	80	305	KDC8590C	KDC8590P	FTNC04511	TW20S
	909550-15	●	90	50	180	233.8	190	80	315	KDC9095C	KDC9095P	FTNC04511	TW20S
	9510050-18	●	95	50	190	243.5	200	80	325	KDC95100C	KDC95100P	FTNA0511	TW20-100
K3D	616550-11	●	61	50	183	239.06	195	80	320	KDC6165C	KDC6165P	FTKA03508	TW15S
	657050-13	●	65	50	195	253.88	210	80	335	KDC6570C	KDC6570P	FTKA0410	TW15S
	707550-13	●	70	50	210	268.88	225	80	350	KDC7075C	KDC7075P	FTKA0410	TW15S
	758050-13	●	75	50	225	283.88	240	80	365	KDC7580C	KDC7580P	FTKA0410	TW15S
	808550-15	●	80	50	240	298.8	255	80	380	KDC8085C	KDC8085P	FTNC04511	TW20S
	859050-15	●	85	50	255	313.8	270	80	395	KDC8590C	KDC8590P	FTNC04511	TW20S
	909550-15	●	90	50	270	328.8	85	80	410	KDC9095C	KDC9095P	FTNC04511	TW20S
	9510050-18	●	95	50	285	343.5	300	80	425	KDC95100C	KDC95100P	FTNA0511	TW20-100
K4D	616550-11	●	61	50	244	304.06	260	80	385	KDC6165C	KDC6165P	FTKA03508	TW15S
	657050-13	●	65	50	260	323.88	280	80	405	KDC6570C	KDC6570P	FTKA0410	TW15S
	707550-13	●	70	50	280	343.88	300	80	425	KDC7075C	KDC7075P	FTKA0410	TW15S
	758050-13	●	75	50	300	363.88	320	80	445	KDC7580C	KDC7580P	FTKA0410	TW15S
	808550-15	●	80	50	320	383.8	340	80	465	KDC8085C	KDC8085P	FTNC04511	TW20S
	859050-15	●	85	50	340	403.8	360	80	485	KDC8590C	KDC8590P	FTNC04511	TW20S
	909550-15	●	90	50	360	423.8	380	80	505	KDC9095C	KDC9095P	FTNC04511	TW20S

Applicable inserts **D9 ~ 10**

Parts

Cartridge		Range(Ø)	Insert				Screw	Wrench
Internal	External		Designation	Quantity	Designation	Quantity		
KDC6165C	KDC6165P	61~65	XO□T11T306-□□	2	SP□T11T308-□□	2	FTKA03508	TW15S
KDC6570C	KDC6570P	65~70	XO□T130406-□□	2	SP□T130410-□□	2	FTKA0410	TW15S
KDC7075C	KDC7075P	70~75	XO□T130406-□□	2	SP□T130410-□□	2	FTKA0410	TW15S
KDC7580C	KDC7580P	75~80	XO□T130406-□□	2	SP□T130410-□□	2	FTKA0410	TW15S
KDC8085C	KDC8085P	80~85	XO□T15M508-□□	2	SP□T15M510-□□	2	FTNC04511	TW20S
KDC8590C	KDC8590P	85~90	XO□T15M508-□□	2	SP□T15M510-□□	2	FTNC04511	TW20S
KDC9095C	KDC9095P	90~95	XO□T15M508-□□	2	SP□T15M510-□□	2	FTNC04511	TW20S
KDC95100C	KDC95100P	95~100	XO□T180508-□□	2	SP□T180510-□□	2	FTNA0511	TW20-100

KORLOY Indexable New Generation Economical Drill

KED Plus Drill

- Economical drill with good chip control due to optimal chip flute enlarging the space for chip flow
- Stable machining due to optimal shape and cutting edge arrangement of central and peripheral inserts

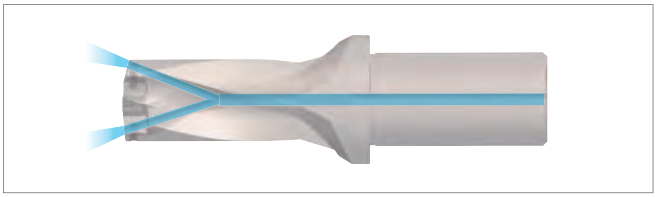
Code system

E	4D	-	200	-	25	-	07	-	P
KING, Economical	**Aspect ratio (L/D)** 2D, 3D, 4D, 5D		**Drill diameter** 200 : Ø20.0 mm (One decimal place marked)		**Shank diameter** Ø20, Ø25 Ø32, Ø40 mm		**Inscribed circle of insert** 04, 05, 06, 07, 09, 11, 13, 15, 18		**Plus**

Holder Features

- Excellent chip control for suitable cutting range with small diameters (Ø12-Ø23.5) due to the cutting fluid system and chip flute
- Excellent surface finish for suitable cutting range with medium to large diameters (Ø24-Ø60.5) due to widened chip pockets even in deep drilling
- Increased the rigidity of drill body and improved chip evacuation due to optimalized shape of flute

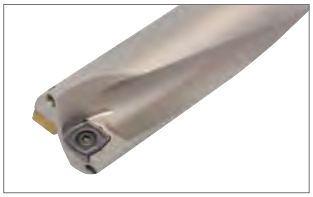
Optimized flute system - 2 coolant holes applied



Peripheral insert

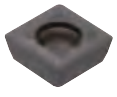


Central insert



Features of chip breaker

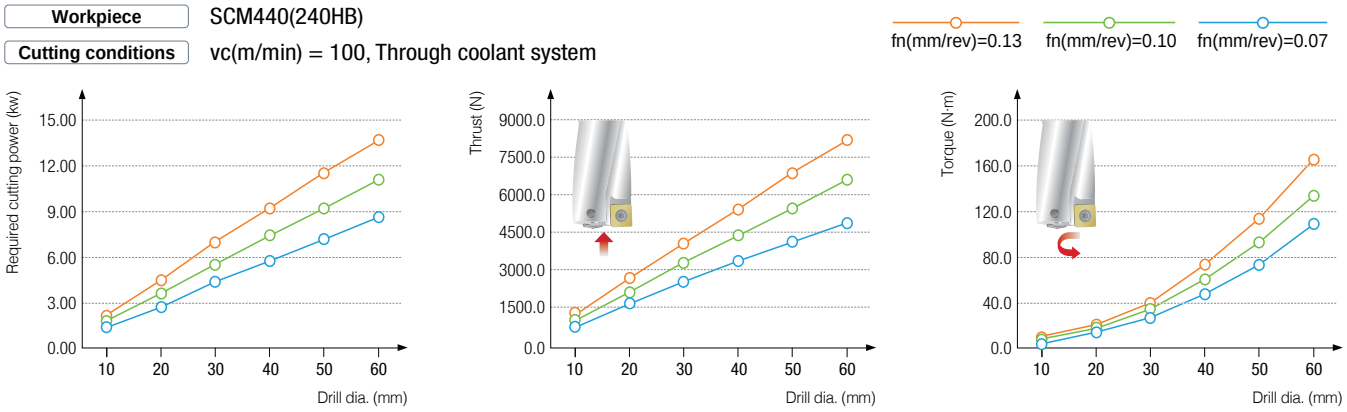
- Optimized design of inserts for maximum drilling efficiency
  - Excellent cutting performance and chip control due to the optimized geometry and chip breaker of both inserts: central and peripheral
  - A set of differently shaped central and peripheral inserts optimizing the insert locations in order to maximize cutting tool life

Chip breaker	PD		LD		ND		RD
Features	- Universal - At medium speed and medium feed		- Superior chip control for machining mild steel and stainless steel - Light cutting (at low~medium speed and low feed)		- Sharp cutting edge for aluminum machining - Insert surface buffed for high quality result - E Class tolerance		- Improved chipping resistance - Excellent performance in case of frequent fracture and chipping on the cutting edge
Insert	External	Internal	External	Internal	External	Internal	Internal
Shape							
Grades for workpiece	NC5330 : P, M, K PC3700 : P PC5300 : P, M, K, S PC6100 : K PC9540 : P, M, S	PC5300 : P, M, K, S PC9540 : P, M, S	PC5335 : P, M		H01 : N		PC5300 : P,M,K,S

Required cutting power

Workpiece SCM440(240HB)

Cutting conditions vc(m/min) = 100, Through coolant system



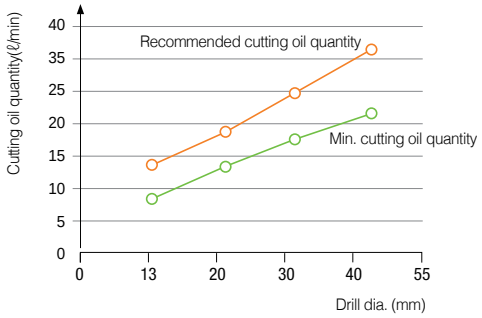
※ Cutting force shown as the above is base on drilling in facilities with enough rigidity and power

Cutting oil quantity

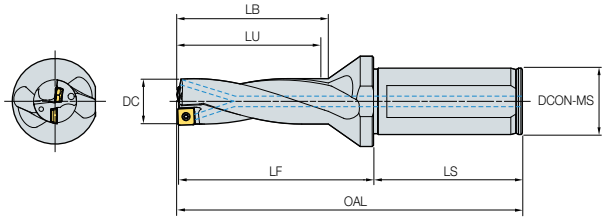
Workpiece SCM440(240HB)

Cutting conditions vc(m/min) = 100, Through coolant system

※ The data of the graph above could be changed depending on workpiece and cutting condition



Drill tolerance and hole tolerance



(mm)

Drill dia.(DC)		Ø12 ~ Ø29	Ø30 ~ Ø45	Ø46 ~ Ø60.5
2D~3D	Drill tolerance(DC)	-0.15 ~ 0	-0.15 ~ 0	-0.15 ~ 0
	Hole tolerance	-0.1 ~ +0.2	-0.1 ~ +0.25	-0.1 ~ +0.28
4D~5D	Drill tolerance(DC)	-0.15 ~ 0	-0.15 ~ 0	-0.15 ~ 0
	Hole tolerance	-0.05 ~ +0.25	-0.05 ~ +0.3	-0.05 ~ +0.33

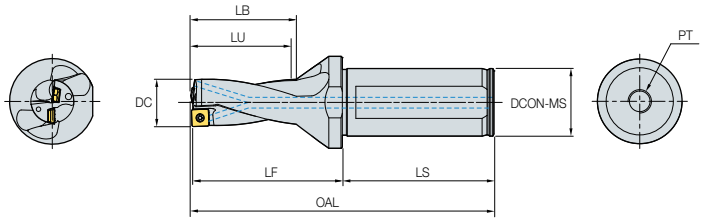
Recommended cutting conditions

Workpiece				Insert			vc(m/min)	Aspect ratio (L/D) = 2D, 3D, 4D Feed rate (mm/rev) per drill dia. (mm)				
ISO		Workpiece	Hardness (HB)	Chip breaker	Grade			Ø12~Ø16	Ø17~Ø23	Ø24~Ø29	Ø30~Ø42	Ø43~Ø60
					Central	Peripheral						
P	Carbon steel	Low carbon steel	80~180	LD	PC5335	PC5335	120(60~170)	0.04~0.08	0.04~0.08	0.04~0.08	0.04~0.08	0.04~0.08
				PD/RD	PC5300	PC3700	150(120~180)					
						NC5330	180(140~220)					
		High carbon steel	180~280	PD	PC5300	PC3700	120(90~150)	0.04~0.10	0.04~0.12	0.05~0.16	0.06~0.16	0.06~0.18
						NC5330	150(110~190)	0.04~0.06	0.04~0.07	0.04~0.08	0.04~0.08	0.04~0.08
	Alloy steel	Low alloy steel	140~260	LD	PC5335	PC5335	120(60~160)	0.06~0.10	0.06~0.10	0.06~0.12	0.06~0.14	0.06~0.14
				PD	PC5300	PC3700	150(120~170)	0.06~0.12	0.06~0.12	0.06~0.14	0.06~0.16	0.06~0.16
						NC5330	180(140~210)	0.06~0.08	0.06~0.08	0.06~0.10	0.06~0.12	0.06~0.12
		Low alloy heattreated steel	200~400	PD	PC5300	PC3700	100(50~150)	0.04~0.10	0.06~0.10	0.06~0.12	0.06~0.14	0.06~0.14
		High alloy steel	260~320	PD	PC5300	PC3700	100(50~160)	0.05~0.11	0.05~0.11	0.05~0.13	0.05~0.15	0.05~0.15
		High alloy heattreated steel	300~450	PD	PC5300	PC3700	70(30~120)	0.04~0.08	0.06~0.08	0.06~0.10	0.06~0.12	0.06~0.12
M	Stainless steel	Stainless steel	135~275	LD	PD5335	PC5335	120(80~140)	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.08	0.04~0.08
				PD	PC5300	PC3700	130(100~160)	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.08	0.04~0.08
					PC9540	PC9540	90(60~120)	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.08	0.04~0.08
K	Cast iron	Gray cast iron	150~230	PD	PC5300	PC6100	190(150~250)	0.04~0.12	0.05~0.14	0.06~0.18	0.10~0.22	0.10~0.26
		Ductile cast iron	150~230	PD	PC5300	PC6100	130(100~160)	0.04~0.07	0.04~0.08	0.04~0.10	0.05~0.12	0.05~0.12
S	Heat resisting alloy	Ni-heat resisting alloy	130~400	PD	PC5300	PC3700	50(30~100)	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10
					PC9540	PC9540	40(20~80)	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10	0.04~0.10
		Ti-heat resisting alloy	130~400	LD	PC5335	PC5335	60(40~80)	0.04~0.08	0.04~0.10	0.06~0.12	0.06~0.14	0.06~0.16
				PD	PC5300	PC3700	60(40~80)	0.04~0.08	0.04~0.10	0.06~0.12	0.06~0.14	0.06~0.16
		High hardened steel	400이상	PD	PC5300	PC3700	40(20~80)	0.04~0.05	0.04~0.06	0.04~0.08	0.04~0.08	0.04~0.08
N	Aluminium	Aluminium	30~150	ND	H01	H01	300(250~400)	0.05~0.14	0.06~0.16	0.10~0.20	0.10~0.22	0.12~0.25
		Alloyed copper	150-160	ND	H01	H01	250(200~300)	0.05~0.14	0.06~0.16	0.10~0.20	0.10~0.22	0.12~0.25

• The Max. feed of 5D holders is 70%~80% of the max. conditions of 2D/3D/4D holders
• In interrupted machining part, reduce 30~50% of feed from the above machining around interrupted part

KED Plus Drill(2D)





(mm)

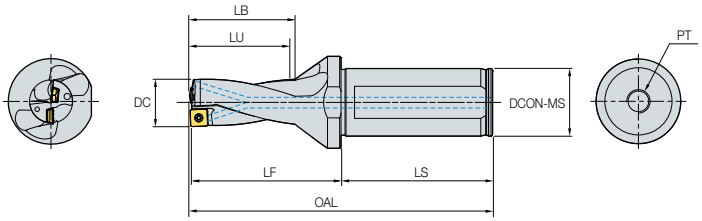
	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E2D-	12020-04-P*	●	12	20	24	40.71	27	50	91	1/8	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04-P		12.5	20	24	40.71	27	50	91				
	13020-04-P	●	13	20	26	42.71	29	50	93				
	13520-04-P*	●	13.5	20	26	42.71	29	50	93				
	14020-05-P*	●	14	20	28	45.6	31	50	96		SP□T050204-□□ XO□T050204-□□		
	14520-05-P*	●	14.5	20	28	45.6	31	50	96				
	15020-05-P	●	15	20	30	48.6	33	50	99				
	15520-05-P*	●	15.5	20	30	48.5	33	50	99				
	16020-05-P	●	16	20	32	50.5	35	50	101				
	16525-06-P*	●	16.5	25	32	50.6	35	56	107		SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06-P	●	17	25	34	52.6	37	56	109				
	17525-06-P*	●	17.5	25	34	52.5	37	56	109				
	18025-06-P	●	18	25	36	55.5	39	56	112				
	18525-06-P	●	18.5	25	36	55.5	39	56	112				
	19025-06-P	●	19	25	38	57.4	41	56	114				
	19525-06-P*	●	19.5	25	38	57.4	41	56	114				
	20025-07-P	●	20	25	40	61.5	43	56	118		SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07-P	●	20.5	25	40	61.4	43	56	118				
	21025-07-P*	●	21	25	42	63.4	45	56	120				
	21525-07-P	●	21.5	25	42	63.4	45	56	120				
	22025-07-P	●	22	25	44	65.4	47	56	122				
	22525-07-P	●	22.5	25	44	65.3	47	56	122				
	23025-07-P	●	23	25	46	69.3	49	56	126				
	23525-07-P	●	23.5	25	46	69.3	49	56	126				
	24032-09-P*	●	24	32	48	72.4	51	60	133	1/4	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09-P	●	24.5	32	48	72.4	51	60	133				
	25032-09-P	●	25	32	50	74.3	53	60	135				
	25532-09-P	●	25.5	32	50	74.3	53	60	135				
	26032-09-P	●	26	32	52	76.3	55	60	137				
	26532-09-P*	●	26.5	32	52	76.3	55	60	137				
	27032-09-P	●	27	32	54	79.2	57	60	140				
	27532-09-P	●	27.5	32	54	79.2	57	60	140				
	28032-09-P	●	28	32	56	82.2	59	60	143				
	28532-09-P	●	28.5	32	56	82.2	59	60	143				
	29032-09-P	●	29	32	58	84.1	61	60	145				
	29532-09-P*	●	29.5	32	58	84.1	61	60	145				
	30032-11-P	●	30	32	60	89	63	60	150		SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11-P		30.5	32	60	89	63	60	150				
	31032-11-P	●	31	32	62	91	65	60	152				
	31532-11-P		31.5	32	62	91	65	60	152				
	32032-11-P*	●	32	32	64	93	67	60	154				
	32532-11-P		32.5	32	64	93	67	60	154				
	33032-11-P	●	33	32	66	96	69	60	157				
	33532-11-P		33.5	32	66	96	69	60	157				
	34032-11-P	●	34	32	68	98	71	60	159				
	34532-11-P		34.5	32	68	97.9	71	60	159				
	35032-11-P*	●	35	32	70	99.9	73	60	161				
	35532-11-P		35.5	32	70	99.9	73	60	161				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KED Plus Drill(2D)





(mm)

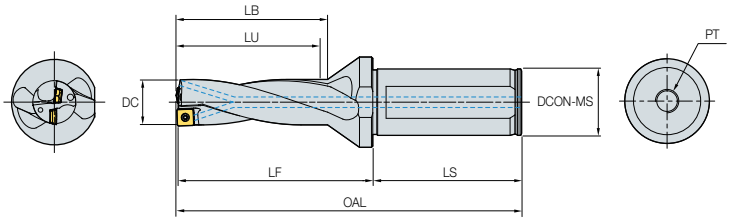
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E2D-	36040-13-P	●	36	40	72	105.1	76	70	176	1/4	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13-P		36.5	40	72	105	76	70	176				
	37040-13-P	●	37	40	74	107	78	70	178				
	37540-13-P*		37.5	40	74	107	78	70	178				
	38040-13-P	●	38	40	76	109.9	80	70	181				
	38540-13-P		38.5	40	76	109.9	80	70	181				
	39040-13-P	●	39	40	78	111.9	82	70	183				
	39540-13-P		39.5	40	78	111.9	82	70	183				
	40040-13-P	●	40	40	80	114.8	84	70	186				
	40540-13-P		40.5	40	80	114.8	84	70	186				
	41040-13-P	●	41	40	82	116.8	86	70	188				
	41540-13-P		41.5	40	82	116.8	86	70	188				
	42040-13-P	●	42	40	84	119.7	88	70	191				
	42540-13-P		42.5	40	84	119.7	88	70	191				
	43040-15-P	●	43	40	86	124.8	91	70	196		SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15-P		43.5	40	86	124.8	91	70	196				
	44040-15-P	●	44	40	88	126.8	93	70	198				
	44540-15-P		44.5	40	88	126.7	93	70	198				
	45040-15-P	●	45	40	90	129.7	95	70	201				
	45540-15-P		45.5	40	90	129.7	95	70	201				
	46040-15-P	●	46	40	92	131.7	97	70	203				
	46540-15-P		46.5	40	92	131.6	97	70	203				
	47040-15-P	●	47	40	94	134.6	99	70	206				
	47540-15-P		47.5	40	94	134.6	99	70	206				
	48040-15-P	●	48	40	96	136.6	101	70	208				
	48540-15-P		48.5	40	96	136.5	101	70	208				
	49040-15-P	●	49	40	98	138.5	103	70	210				
	49540-15-P		49.5	40	98	138.5	103	70	210				
	50040-15-P	●	50	40	100	140.5	105	70	212				
	50540-15-P		50.5	40	100	140.5	105	70	212				
	51040-18-P	●	51	40	102	146.6	108	70	218		SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18-P		51.5	40	102	146.6	108	70	218				
	52040-18-P	●	52	40	104	148.6	110	70	220				
	52540-18-P		52.5	40	104	148.5	110	70	220				
	53040-18-P	●	53	40	106	150.5	112	70	222				
	53540-18-P		53.5	40	106	150.5	112	70	222				
	54040-18-P	●	54	40	108	152.4	114	70	224				
	54540-18-P		54.5	40	108	152.4	114	70	224				
	55040-18-P	●	55	40	110	154.4	116	70	226				
	55540-18-P		55.5	40	110	154.4	116	70	226				
	56040-18-P	●	56	40	112	158.3	118	70	230				
	56540-18-P		56.5	40	112	158.3	118	70	230				
	57040-18-P	●	57	40	114	161.3	121	70	233				
	57540-18-P		57.5	40	114	161.3	121	70	233				
	58040-18-P	●	58	40	116	164.2	124	70	236				
	58540-18-P		58.5	40	116	164.2	124	70	236				
	59040-18-P	●	59	40	118	167.2	127	70	239				
	59540-18-P		59.5	40	118	167.2	127	70	239				
	60040-18-P	●	60	40	120	170.2	130	70	242				
	60540-18-P		60.5	40	120	170.2	130	70	242				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KED Plus Drill(3D)





(mm)

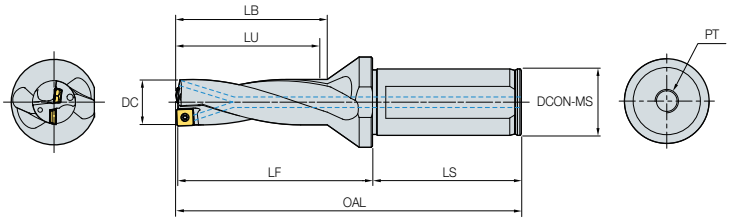
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E3D-	12020-04-P*	●	12	20	36	52.71	39	50	103	1/8	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04-P		12.5	20	36	52.71	39	50	103				
	13020-04-P	●	13	20	39	55.71	42	50	106				
	13520-04-P*	●	13.5	20	39	55.71	42	50	106				
	14020-05-P*	●	14	20	42	59.6	45	50	110		SP□T050204-□□ XO□T050204-□□		
	14520-05-P*	●	14.5	20	42	59.6	45	50	110				
	15020-05-P	●	15	20	45	63.6	48	50	114				
	15520-05-P*	●	15.5	20	45	63.5	48	50	114				
	16020-05-P	●	16	20	48	66.5	51	50	117				
	16525-06-P*	●	16.5	25	48	66.6	51	56	123		SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06-P	●	17	25	51	69.6	54	56	126				
	17525-06-P*	●	17.5	25	51	69.5	54	56	126				
	18025-06-P	●	18	25	54	73.5	57	56	130				
	18525-06-P	●	18.5	25	54	73.5	57	56	130				
	19025-06-P	●	19	25	57	76.4	60	56	133				
	19525-06-P*	●	19.5	25	57	76.4	60	56	133				
	20025-07-P	●	20	25	60	81.5	63	56	138		SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07-P	●	20.5	25	60	81.4	63	56	138				
	21025-07-P*	●	21	25	63	84.4	66	56	141				
	21525-07-P	●	21.5	25	63	84.4	66	56	141				
	22025-07-P	●	22	25	66	87.4	69	56	144				
	22525-07-P	●	22.5	25	66	87.3	69	56	144				
	23025-07-P	●	23	25	69	92.3	72	56	149				
	23525-07-P	●	23.5	25	69	92.3	72	56	149				
	24032-09-P*	●	24	32	72	96.4	75	60	157	1/4	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09-P	●	24.5	32	72	96.4	75	60	157				
	25032-09-P	●	25	32	75	99.3	78	60	160				
	25532-09-P	●	25.5	32	75	99.3	78	60	160				
	26032-09-P	●	26	32	78	102.3	81	60	163				
	26532-09-P*	●	26.5	32	78	102.3	81	60	163				
	27032-09-P	●	27	32	81	106.2	84	60	167				
	27532-09-P	●	27.5	32	81	106.2	84	60	167				
	28032-09-P	●	28	32	84	110.2	87	60	171				
	28532-09-P	●	28.5	32	84	110.2	87	60	171				
	29032-09-P	●	29	32	87	113.1	90	60	174				
	29532-09-P*	●	29.5	32	87	113.1	90	60	174				
	30032-11-P	●	30	32	90	119	93	60	180		SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11-P		30.5	32	90	119	93	60	180				
	31032-11-P	●	31	32	93	122	96	60	183				
	31532-11-P		31.5	32	93	122	96	60	183				
	32032-11-P*	●	32	32	96	125	99	60	186				
	32532-11-P		32.5	32	96	125	99	60	186				
	33032-11-P	●	33	32	99	129	102	60	190				
	33532-11-P		33.5	32	99	129	102	60	190				
	34032-11-P	●	34	32	102	132	105	60	193				
	34532-11-P		34.5	32	102	131.9	105	60	193				
	35032-11-P*	●	35	32	105	134.9	108	60	196				
	35532-11-P		35.5	32	105	134.9	108	60	196				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KED Plus Drill(3D)





(mm)

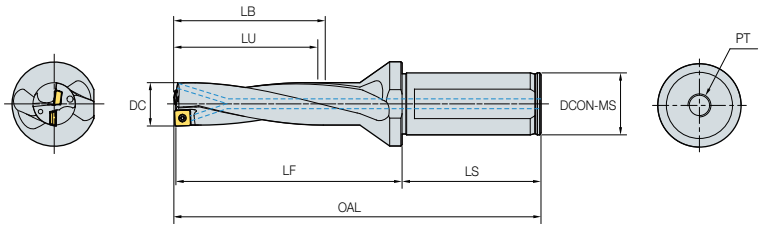
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E3D-	36040-13-P	●	36	40	108	141.1	112	70	212	1/4	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13-P		36.5	40	108	141	112	70	212				
	37040-13-P	●	37	40	111	144	115	70	215				
	37540-13-P*		37.5	40	111	144	115	70	215				
	38040-13-P	●	38	40	114	147.9	118	70	219				
	38540-13-P		38.5	40	114	147.9	118	70	219				
	39040-13-P	●	39	40	117	150.9	121	70	222				
	39540-13-P		39.5	40	117	150.9	121	70	222				
	40040-13-P	●	40	40	120	154.8	124	70	226				
	40540-13-P		40.5	40	120	154.8	124	70	226				
	41040-13-P	●	41	40	123	157.8	127	70	229				
	41540-13-P		41.5	40	123	157.8	127	70	229				
	42040-13-P	●	42	40	126	161.7	130	70	233				
	42540-13-P		42.5	40	126	161.7	130	70	233				
	43040-15-P	●	43	40	129	167.8	134	70	239		SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15-P		43.5	40	129	167.8	134	70	239				
	44040-15-P	●	44	40	132	170.8	137	70	242				
	44540-15-P		44.5	40	132	170.7	137	70	242				
	45040-15-P	●	45	40	135	174.7	140	70	246				
	45540-15-P		45.5	40	135	174.7	140	70	246				
	46040-15-P	●	46	40	138	177.7	143	70	249				
	46540-15-P		46.5	40	138	177.6	143	70	249				
	47040-15-P	●	47	40	141	181.6	146	70	253				
	47540-15-P		47.5	40	141	181.6	146	70	253				
	48040-15-P	●	48	40	144	184.6	149	70	256				
	48540-15-P		48.5	40	144	184.5	149	70	256				
	49040-15-P	●	49	40	147	187.5	152	70	259				
	49540-15-P		49.5	40	147	187.5	152	70	259				
	50040-15-P	●	50	40	150	190.5	155	70	262				
	50540-15-P		50.5	40	150	190.5	155	70	262				
	51040-18-P	●	51	40	153	197.6	159	70	269		SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18-P		51.5	40	153	197.6	159	70	269				
	52040-18-P	●	52	40	156	200.6	162	70	272				
	52540-18-P		52.5	40	156	200.5	162	70	272				
	53040-18-P	●	53	40	159	203.5	165	70	275				
	53540-18-P		53.5	40	159	203.5	165	70	275				
	54040-18-P	●	54	40	162	206.4	168	70	278				
	54540-18-P		54.5	40	162	206.4	168	70	278				
	55040-18-P	●	55	40	165	209.4	171	70	281				
	55540-18-P		55.5	40	165	209.4	171	70	281				
	56040-18-P	●	56	40	168	214.3	174	70	286				
	56540-18-P		56.5	40	168	214.3	174	70	286				
	57040-18-P	●	57	40	171	218.3	178	70	290				
	57540-18-P		57.5	40	171	218.3	178	70	290				
	58040-18-P	●	58	40	174	222.2	182	70	294				
	58540-18-P		58.5	40	174	222.2	182	70	294				
	59040-18-P	●	59	40	177	226.2	186	70	298				
	59540-18-P		59.5	40	177	226.2	186	70	298				
	60040-18-P	●	60	40	180	230.2	190	70	302				
	60540-18-P		60.5	40	180	230.2	190	70	302				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KED Plus Drill(4D)





(mm)

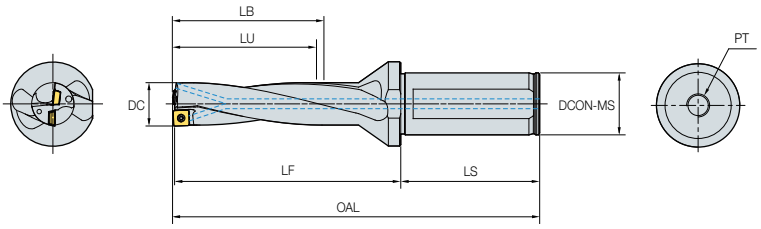
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E4D-	12020-04-P*	●	12	20	48	64.71	51	50	115	1/8	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04-P	●	12.5	20	48	64.71	51	50	115				
	13020-04-P	●	13	20	52	68.71	55	50	119				
	13520-04-P*	●	13.5	20	52	68.71	55	50	119				
	14020-05-P*	●	14	20	56	73.6	59	50	124		SP□T050204-□□ XO□T050204-□□		
	14520-05-P*	●	14.5	20	56	73.6	59	50	124				
	15020-05-P	●	15	20	60	78.6	63	50	129				
	15520-05-P*	●	15.5	20	60	78.5	63	50	129				
	16020-05-P	●	16	20	64	82.5	67	50	133				
	16525-06-P*	●	16.5	25	64	82.6	67	56	139		SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06-P	●	17	25	68	86.6	71	56	143				
	17525-06-P*	●	17.5	25	68	86.5	71	56	143				
	18025-06-P	●	18	25	72	91.5	75	56	148				
	18525-06-P	●	18.5	25	72	91.5	75	56	148				
	19025-06-P	●	19	25	76	95.4	79	56	152				
	19525-06-P*	●	19.5	25	76	95.4	79	56	152				
	20025-07-P	●	20	25	80	101.5	83	56	158		SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07-P	●	20.5	25	80	101.4	83	56	158				
	21025-07-P*	●	21	25	84	105.4	87	56	162				
	21525-07-P	●	21.5	25	84	105.4	87	56	162				
	22025-07-P	●	22	25	88	109.4	91	56	166				
	22525-07-P	●	22.5	25	88	109.3	91	56	166				
	23025-07-P	●	23	25	92	115.3	95	56	172				
	23525-07-P	●	23.5	25	92	115.3	95	56	172				
	24032-09-P*	●	24	32	96	120.4	99	60	181	1/4	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09-P	●	24.5	32	96	120.4	99	60	181				
	25032-09-P	●	25	32	100	124.3	103	60	185				
	25532-09-P	●	25.5	32	100	124.3	103	60	185				
	26032-09-P	●	26	32	104	128.3	107	60	189				
	26532-09-P*	●	26.5	32	104	128.3	107	60	189				
	27032-09-P	●	27	32	108	133.2	111	60	194				
	27532-09-P	●	27.5	32	108	133.2	111	60	194				
	28032-09-P	●	28	32	112	138.2	115	60	199				
	28532-09-P	●	28.5	32	112	138.2	115	60	199				
	29032-09-P	●	29	32	116	142.1	119	60	203				
	29532-09-P*	●	29.5	32	116	142.1	119	60	203				
	30032-11-P	●	30	32	120	149	123	60	210		SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11-P		30.5	32	120	149	123	60	210				
	31032-11-P	●	31	32	124	153	127	60	214				
	31532-11-P		31.5	32	124	153	127	60	214				
	32032-11-P*	●	32	32	128	157	131	60	218				
	32532-11-P		32.5	32	128	157	131	60	218				
	33032-11-P	●	33	32	132	162	135	60	223				
	33532-11-P		33.5	32	132	162	135	60	223				
	34032-11-P	●	34	32	136	166	139	60	227				
	34532-11-P		34.5	32	136	165.9	139	60	227				
	35032-11-P*	●	35	32	140	169.9	143	60	231				
	35532-11-P		35.5	32	140	169.9	143	60	231				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KED Plus Drill(4D)





(mm)

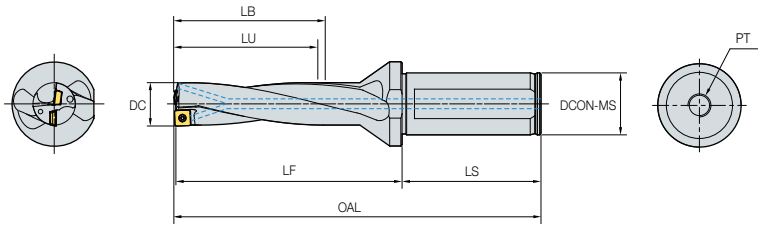
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E4D-	36040-13-P	●	36	40	144	177.1	148	70	248	1/4	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13-P		36.5	40	144	177	148	70	248				
	37040-13-P	●	37	40	148	181	152	70	252				
	37540-13-P*		37.5	40	148	181	152	70	252				
	38040-13-P	●	38	40	152	185.9	156	70	257				
	38540-13-P		38.5	40	152	185.9	156	70	257				
	39040-13-P	●	39	40	156	189.9	160	70	261				
	39540-13-P		39.5	40	156	189.9	160	70	261				
	40040-13-P	●	40	40	160	194.8	164	70	266				
	40540-13-P		40.5	40	160	194.8	164	70	266				
	41040-13-P	●	41	40	164	198.8	168	70	270				
	41540-13-P		41.5	40	164	198.8	168	70	270				
	42040-13-P	●	42	40	168	212.7	172	70	284				
	42540-13-P		42.5	40	168	212.7	172	70	284				
	43040-15-P	●	43	40	172	210.8	177	70	282		SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15-P		43.5	40	172	210.8	177	70	282				
	44040-15-P	●	44	40	176	214.8	181	70	286				
	44540-15-P		44.5	40	176	214.7	181	70	286				
	45040-15-P	●	45	40	180	219.7	185	70	291				
	45540-15-P		45.5	40	180	219.7	185	70	291				
	46040-15-P	●	46	40	184	223.7	189	70	295				
	46540-15-P		46.5	40	184	223.6	189	70	295				
	47040-15-P	●	47	40	188	228.6	193	70	300				
	47540-15-P		47.5	40	188	228.6	193	70	300				
	48040-15-P	●	48	40	192	232.6	197	70	304				
	48540-15-P		48.5	40	192	232.5	197	70	304				
	49040-15-P	●	49	40	196	236.5	201	70	308				
	49540-15-P		49.5	40	196	236.5	201	70	308				
	50040-15-P	●	50	40	200	240.5	205	70	312				
	50540-15-P		50.5	40	200	240.5	205	70	312				
	51040-18-P	●	51	40	204	248.6	210	70	320		SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18-P		51.5	40	204	248.6	210	70	320				
	52040-18-P	●	52	40	208	252.6	214	70	324				
	52540-18-P		52.5	40	208	252.5	214	70	324				
	53040-18-P	●	53	40	212	256.5	218	70	328				
	53540-18-P		53.5	40	212	256.5	218	70	328				
	54040-18-P	●	54	40	216	260.4	222	70	332				
	54540-18-P		54.5	40	216	260.4	222	70	332				
	55040-18-P	●	55	40	220	264.4	226	70	336				
	55540-18-P		55.5	40	220	264.4	226	70	336				
	56040-18-P	●	56	40	224	270.3	230	70	342				
	56540-18-P		56.5	40	224	270.3	230	70	342				
	57040-18-P	●	57	40	228	275.3	235	70	347				
	57540-18-P		57.5	40	228	275.3	235	70	347				
	58040-18-P	●	58	40	232	280.2	240	70	352				
	58540-18-P		58.5	40	232	280.2	240	70	352				
	59040-18-P	●	59	40	236	285.2	245	70	357				
	59540-18-P		59.5	40	236	285.2	245	70	357				
	60040-18-P	●	60	40	240	290.2	250	70	362				
	60540-18-P		60.5	40	240	290.2	250	70	362				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KED Plus Drill(5D)





(mm)

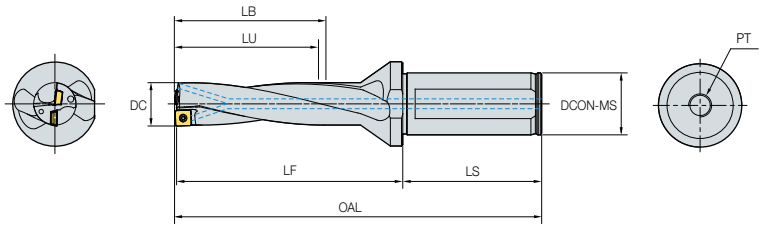
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E5D-	12020-04-P*		12	20	60	76.71	63	50	127	1/8	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	12520-04-P		12.5	20	60	76.71	63	50	127				
	13020-04-P	●	13	20	65	81.71	68	50	132				
	13520-04-P*	●	13.5	20	65	81.71	68	50	132				
	14020-05-P*	●	14	20	70	87.6	73	50	138		SP□T050204-□□ XO□T050204-□□		
	14520-05-P*	●	14.5	20	70	87.6	73	50	138				
	15020-05-P	●	15	20	75	93.6	78	50	144				
	15520-05-P*	●	15.5	20	75	93.5	78	50	144				
	16020-05-P	●	16	20	80	98.5	83	50	149				
	16525-06-P*	●	16.5	25	80	98.6	83	56	155		SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	17025-06-P	●	17	25	85	103.6	88	56	160				
	17525-06-P*	●	17.5	25	85	103.5	88	56	160				
	18025-06-P	●	18	25	90	109.5	93	56	166				
	18525-06-P	●	18.5	25	90	109.5	93	56	166				
	19025-06-P	●	19	25	95	114.4	98	56	171				
	19525-06-P*	●	19.5	25	95	114.4	98	56	171				
	20025-07-P	●	20	25	100	121.5	103	56	178		SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	20525-07-P	●	20.5	25	100	121.4	103	56	178				
	21025-07-P*	●	21	25	105	126.4	108	56	183				
	21525-07-P	●	21.5	25	105	126.4	108	56	183				
	22025-07-P	●	22	25	110	131.4	113	56	188				
	22525-07-P	●	22.5	25	110	131.3	113	56	188				
	23025-07-P	●	23	25	115	138.3	118	56	195				
	23525-07-P	●	23.5	25	115	138.3	118	56	195				
	24032-09-P*	●	24	32	120	144.4	123	60	205	1/4	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	24532-09-P	●	24.5	32	120	144.4	123	60	205				
	25032-09-P	●	25	32	125	149.3	128	60	210				
	25532-09-P	●	25.5	32	125	149.3	128	60	210				
	26032-09-P	●	26	32	130	154.3	133	60	215				
	26532-09-P*	●	26.5	32	130	154.3	133	60	215				
	27032-09-P	●	27	32	135	160.2	138	60	221				
	27532-09-P	●	27.5	32	135	160.2	138	60	221				
	28032-09-P	●	28	32	140	166.2	143	60	227				
	28532-09-P	●	28.5	32	140	166.2	143	60	227				
	29032-09-P	●	29	32	145	171.1	148	60	232				
	29532-09-P*	●	29.5	32	145	171.1	148	60	232				
	30032-11-P	●	30	32	150	179	153	60	240		SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	30532-11-P		30.5	32	150	179	153	60	240				
	31032-11-P	●	31	32	155	184	158	60	245				
	31532-11-P		31.5	32	155	184	158	60	245				
	32032-11-P*	●	32	32	160	189	163	60	250				
	32532-11-P		32.5	32	160	189	163	60	250				
	33032-11-P	●	33	32	165	195	168	60	256				
	33532-11-P		33.5	32	165	195	168	60	256				
	34032-11-P	●	34	32	170	200	173	60	261				
	34532-11-P		34.5	32	170	199.9	173	60	261				
	35032-11-P*	●	35	32	175	204.9	178	60	266				
	35532-11-P		35.5	32	175	204.9	178	60	266				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

KED Plus Drill(5D)





(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PT	Applicable insert	Screw	Wrench
E5D-	36040-13-P	●	36	40	180	213.1	184	70	284	1/4	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	36540-13-P		36.5	40	180	213	184	70	284				
	37040-13-P	●	37	40	185	218	189	70	289				
	37540-13-P*		37.5	40	185	218	189	70	289				
	38040-13-P	●	38	40	190	223.9	194	70	295				
	38540-13-P		38.5	40	190	223.9	194	70	295				
	39040-13-P	●	39	40	195	228.9	199	70	300				
	39540-13-P		39.5	40	195	228.9	199	70	300				
	40040-13-P	●	40	40	200	234.8	204	70	306				
	40540-13-P		40.5	40	200	234.8	204	70	306				
	41040-13-P	●	41	40	205	239.8	209	70	311				
	41540-13-P		41.5	40	205	239.8	209	70	311				
	42040-13-P	●	42	40	210	245.7	214	70	317				
	42540-13-P		42.5	40	210	245.7	214	70	317				
	43040-15-P	●	43	40	215	253.8	220	70	325		SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	43540-15-P		43.5	40	215	254.8	221	70	326				
	44040-15-P	●	44	40	220	258.8	225	70	330				
	44540-15-P		44.5	40	220	258.7	225	70	330				
	45040-15-P	●	45	40	225	264.7	230	70	336				
	45540-15-P		45.5	40	225	264.7	230	70	336				
	46040-15-P	●	46	40	230	269.7	235	70	341				
	46540-15-P		46.5	40	230	269.6	235	70	341				
	47040-15-P	●	47	40	235	275.6	240	70	347				
	47540-15-P		47.5	40	235	275.6	240	70	347				
	48040-15-P	●	48	40	240	280.6	245	70	352				
	48540-15-P		48.5	40	240	280.5	245	70	352				
	49040-15-P	●	49	40	245	285.5	250	70	357				
	49540-15-P		49.5	40	245	285.5	250	70	357				
	50040-15-P	●	50	40	250	290.5	255	70	362				
	50540-15-P		50.5	40	250	290.5	255	70	362				
	51040-18-P	●	51	40	255	299.6	261	70	371		SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	51540-18-P		51.5	40	255	299.6	261	70	371				
	52040-18-P	●	52	40	260	304.6	266	70	376				
	52540-18-P		52.5	40	260	304.5	266	70	376				
	53040-18-P	●	53	40	265	309.5	271	70	381				
	53540-18-P		53.5	40	265	309.5	271	70	381				
	54040-18-P	●	54	40	270	314.4	276	70	386				
	54540-18-P		54.5	40	270	314.4	276	70	386				
	55040-18-P	●	55	40	275	319.4	281	70	391				
	55540-18-P		55.5	40	275	319.4	281	70	391				
	56040-18-P	●	56	40	280	326.3	286	70	398				
	56540-18-P		56.5	40	280	326.3	286	70	398				
	57040-18-P	●	57	40	285	332.3	292	70	404				
	57540-18-P		57.5	40	285	332.3	292	70	404				
	58040-18-P	●	58	40	290	338.2	298	70	410				
	58540-18-P		58.5	40	290	338.2	298	70	410				
	59040-18-P	●	59	40	295	344.2	304	70	416				
	59540-18-P		59.5	40	295	344.2	304	70	416				
	60040-18-P	●	60	40	300	350.2	310	70	422				
	60540-18-P		60.5	40	300	350.2	310	70	422				

Applicable inserts **D9 ~ 10**

∗The items marked * can machine a tap foundation hole(Reference D7 page)

High quality and high feed top solid indexable drill

TPDC Plus Drill

(XP, CP, CM, CN, CP-FC)

- The optimal tool shape for drilling realizing high precision and high feed machining as of carbide solid drill performance level
- Usable for various machining through enlarged line-up by workpieces, depth of cuts and workpiece shapes

Code system

- **Insert**

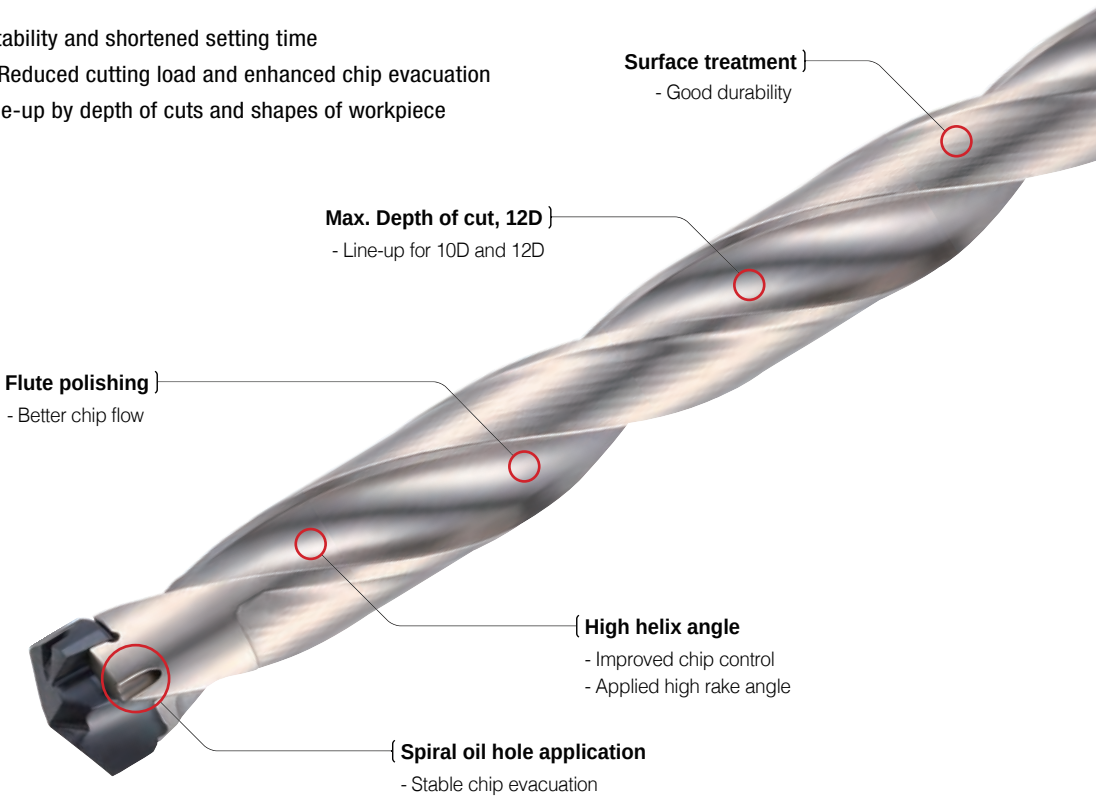
TPD	1500	C	P	-	□
Top solid Piercing Drill	**Drill diameter** 1500 : Ø15.00 mm	**Insert type** X, C : Cone type	**Machining area** P : Steel and general M : Stainless steel K : Cast iron N : Non-ferrous metal		**Cutting edge** No code: Standard F: Flat FC: Flat Candle

- **Holder**

TPD	C	5D	-	150	20	-	75
Top solid Piercing Drill	**Insert type** X, C : Cone type	**Aspect ratio (L/D)** 1.5D, 3D, 5D 8D, 10D, 12D		**Drill diameter** 150 : Ø15.00~ Ø15.99 mm	**Shank diameter** 20 : Ø20 mm		**Flute length** 75 : 75 mm

Features

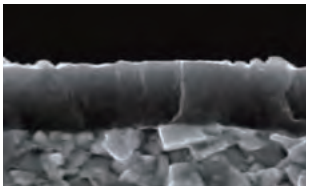
- One step clamp system - Increased stability and shortened setting time
- High helix angle and flute polishing - Reduced cutting load and enhanced chip evacuation
- Various applications from enlarged line-up by depth of cuts and shapes of workpiece



Insert features

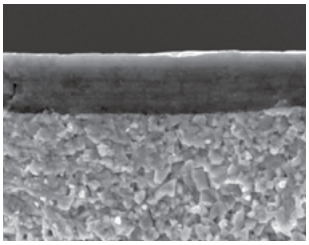
Shape		Application	Drill dia. (mm)	Features
	XP	P	Ø8.00~Ø11.99	• High durability due to the strong clamping system • Excellent quality of machining and stable machining from high clamping force • Enhanced performance by high lubricated grade
	CP	P K	Ø12.00~Ø30.99	• High quality machining due to excellent centering: Good roundness and surface finish • Excellent chip control from exclusive edge design: Stable machining by good chip forming and chip evacuation
	CM	M	Ø12.00~Ø30.99	• Ensuring strength of point and cutting edge: Stable machinability • Increased stability of machining due to low cutting load • Applied grade with high built up edge resistance and chipping resistance
	CN	N	Ø12.00~Ø30.99	• Cutting edge with low cutting load: Excellent chip evacuation from increased surface finish of insert by special after treatment • Long tool life due to ultra-fine substrate application
	FC	P	Ø12.00~Ø30.99	• Cutting edge shape with excellent centering: Stable machinability from low cutting load • Available in various machining applications: Flat surface, angled surface, curved surface drilling, plunging and boring • Reduced cycle time by simplified tools: Endmill+drill machining→TPDC-CP-FC insert

Grade features



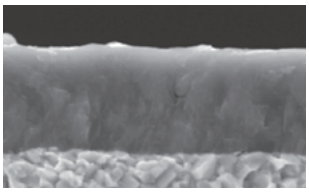
PC5335

- PVD coating technology with high toughness and excellent lubrication
- Coating with high adherence
- General grade for various kinds of workpiece machining



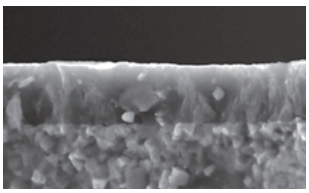
PC330P

- Improved wear resistance, built up edge resistance and heat resistance due to multi-coating layer with high hardness and lubrication
- Improved resistance against chipping and breakage due to alternating laminated structure which minimizes vertical crack
- Grade for carbon steel machining



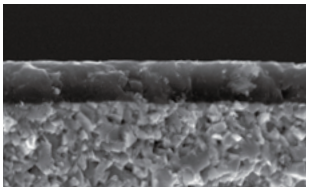
PC5300

- PVD coating layer with high hardness and stability at high temperature
- Stable hole-making from high strength of cutting edge and chipping resistance
- Grade for alloy steel and cast iron machining



PC330N

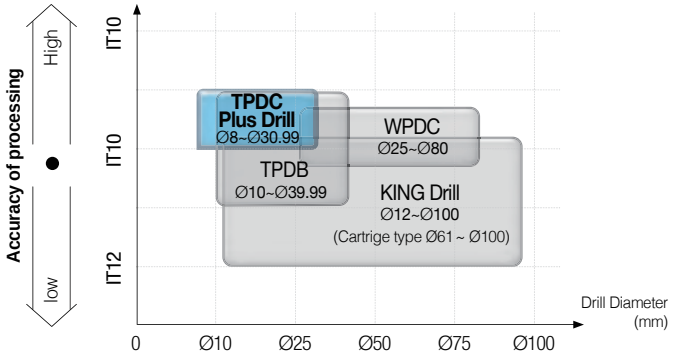
- PVD coating technology with hard and smooth surface
- Coating layer with stability of thermal shock and adherence
- Grade for stainless steel machining

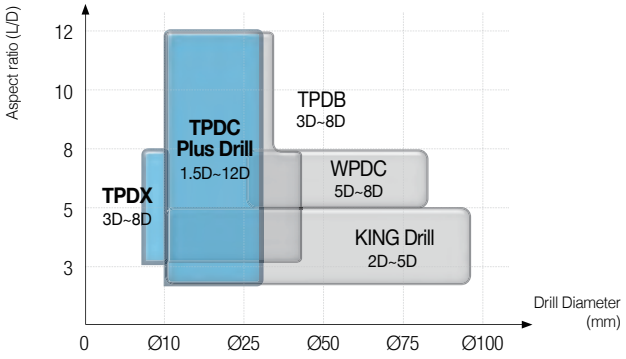


PC325U

- Enhanced lubrication of surface and reduced cutting load
- Long tool life from higher welding resistance
- Optimal grade for general workpice cutting such as carbon steel

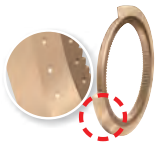
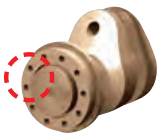
Application range





Tools	Application range					
	Drill Diameter(Ø)	Aspect ratio(L/D)	Tolerance of drill dia.	Tolerance of hole	Surface finish of hole (Ra)	Workpiece material
TPDC Plus Drill	8.00 ~ 30.99mm	1.5, 3, 5, 8, 10, 12	h7	IT10	≤ 3.0㎛	P, M, K, N

Applicable industries

Generation of wind and nuclear power	Shipbuilding	Railway and construction	Aircraft	Automobile
				

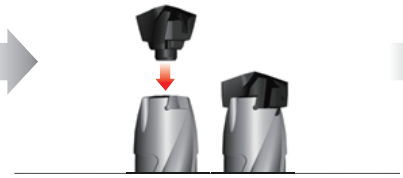
How to clamp insert

Using the improved wrench

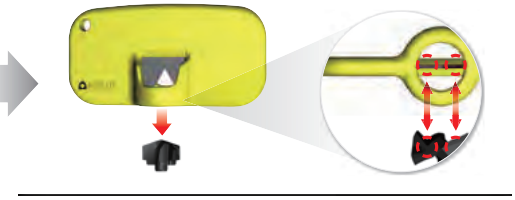
• Using the insert with slot on the top (Use the improved inserts only)



① Clean the mounting seat with air or cloth



② Put an insert on the holder



③ Put the wrench in the slot parallel



④ After fixing the wrench firmly, turn it clockwise and clamp the insert to the holder

Clamped state



Using the existing wrench

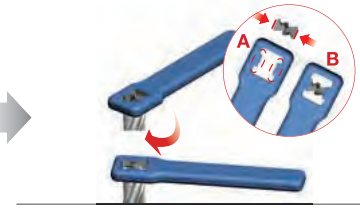
• Using any inserts (Use both existing inserts and improved inserts) ▶ Use only the improved wrench later



① Clean the mounting seat with air or cloth



② Put an insert on the holder



Clamped state



③ A part of wrench and B part of insert must be parallel to each other before clamp the insert Turn the wrench clockwise to finish clamping

Recommended cutting conditions (XP)

【3D Drilling】

Workpiece			Grade	vc (m/min)	Aspect ratio (L/D) = 3D Feed rate (mm/rev) per drill dia. (mm)	
ISO	Workpiece	HB			Ø8.00~Ø9.99	Ø10.00~Ø11.99
P Carbon steel	Low carbon steel	80~120	PC325U	**110**(80~140)	0.12~0.22	0.15~0.28
	High carbon steel	180~280	PC325U	**90**(70~110)		
P Alloy steel	Low alloy steel	140~260	PC325U	**90**(70~110)	0.12~0.25	0.14~0.28
	Low alloy heat-treated steel	200~400	PC325U	**70**(50~90)		
	High alloy steel	260~320	PC325U	**70**(50~90)	0.12~0.20	0.12~0.22
	High alloy heat-treated steel	300~450	PC325U	**60**(40~80)		
K Cast iron	Gray cast iron	150~230	PC325U	**125**(90~160)	0.15~0.30	0.20~0.35
	Ductile cast iron	160~260	PC325U	**110**(80~140)		

※ In interrupted machining, reduce the feed to 0.1-0.15 machining around the interrupted part

【5D Drilling】

Workpiece			Grade	vc (m/min)	Aspect ratio (L/D) = 5D Feed rate (mm/rev) per drill dia. (mm)	
ISO	Workpiece	HB			Ø8.00~Ø9.99	Ø10.00~Ø11.99
P Carbon steel	Low carbon steel	80~120	PC325U	**110**(80~140)	0.12~0.22	0.15~0.28
	High carbon steel	180~280	PC325U	**90**(70~110)		
P Alloy steel	Low alloy steel	140~260	PC325U	**90**(70~110)	0.12~0.25	0.14~0.28
	Low alloy heat-treated steel	200~400	PC325U	**70**(50~90)		
	High alloy steel	260~320	PC325U	**70**(50~90)	0.12~0.20	0.12~0.22
	High alloy heat-treated steel	300~450	PC325U	**60**(40~80)		
K Cast iron	Gray cast iron	150~230	PC325U	**125**(90~160)	0.15~0.30	0.20~0.35
	Ductile cast iron	160~260	PC325U	**110**(80~140)		

※ In interrupted machining, reduce the feed to 0.1-0.15 machining around the interrupted part

【8D Drilling】

Workpiece			Grade	vc (m/min)	Aspect ratio (L/D) = 8D Feed rate (mm/rev) per drill dia. (mm)	
ISO	Workpiece	HB			Ø8.00~Ø9.99	Ø10.00~Ø11.99
P Carbon steel	Low carbon steel	80~120	PC325U	**100**(70~130)	0.10~0.20	0.12~0.25
	High carbon steel	180~280	PC325U	**80**(60~100)		
P Alloy steel	Low alloy steel	140~260	PC325U	**80**(60~100)	0.10~0.22	0.12~0.25
	Low alloy heat-treated steel	200~400	PC325U	**60**(40~80)		
	High alloy steel	260~320	PC325U	**60**(40~80)	0.10~0.17	0.10~0.20
	High alloy heat-treated steel	300~450	PC325U	**50**(30~70)		
K Cast iron	Gray cast iron	150~230	PC325U	**115**(80~150)	0.12~0.27	0.17~0.32
	Ductile cast iron	160~260	PC325U	**100**(70~130)		

※ In interrupted machining, reduce the feed to 0.1-0.15 machining around the interrupted part
※ In case of 8D drilling, please use a Pilot Dirll

Recommended cutting conditions (CP/CM/CN)

【1.5D/3D Drilling】

Workpiece			Insert	Grade	vc (m/min)	Aspect ratio (L/D) = 1.5D, 3D Feed rate (mm/rev) per drill dia. (mm)		
ISO	Workpiece	HB				Ø12.00~Ø17.99	Ø18.00~Ø25.99	Ø26.00~Ø30.99
P Carbon steel	Low carbon steel	80~120	CP	PC5335 PC330P	**120**(90~140)	0.25~0.35	0.30~0.40	0.35~0.45
	High carbon steel	180~280	CP	PC5335 PC330P	**110**(80~130)	0.25~0.35	0.30~0.40	0.30~0.45
P Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	**120**(90~140)	0.28~0.40	0.33~0.43	0.38~0.48
	Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	**80**(60~100)	0.28~0.40	0.33~0.43	0.30~0.48
	High alloy steel	260~320	CP	PC5335 PC5300	**75**(60~90)	0.20~0.35	0.22~0.40	0.25~0.45
	High alloy heat-treated steel	300~450	CP	PC5335 PC5300	**65**(50~80)	0.20~0.35	0.22~0.40	0.22~0.45
M Stainless steel	Austenitic	135~275	CM	PC330N	**65**(50~80)	0.05~0.15	0.10~0.20	0.15~0.25
	Ferritic, martensitic	135~275	CM	PC330N	**75**(60~90)	0.10~0.20	0.15~0.30	0.20~0.35
K Cast	Gray cast iron	150~230	CP	PC5335 PC5300	**130**(90~140)	0.35~0.45	0.40~0.50	0.45~0.55
	Ductile cast iron	160~260	CP	PC5335 PC5300	**120**(80~130)	0.30~0.40	0.30~0.45	0.40~0.50
N Non-ferrous metal	Aluminum	30~150	CN	H01	**200**(120~220)	0.35~0.45	0.40~0.50	0.45~0.55
	Copper alloy	150~160	CN	H01	**200**(120~220)	0.35~0.45	0.40~0.50	0.45~0.55

※ In interrupted machining, reduce the feed to 0.1-0.15 machining around the interrupted part
※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

【5D Drilling】

Workpiece			Insert	Grade	vc (m/min)	Aspect ratio (L/D) = 5D Feed rate (mm/rev) per drill dia. (mm)		
ISO	Workpiece	HB				Ø12.00~Ø17.99	Ø18.00~Ø25.99	Ø26.00~Ø30.99
P Carbon steel	Low carbon steel	80~120	CP	PC5335 PC330P	**110**(80~140)	0.15~0.30	0.20~0.35	0.25~0.40
	High carbon steel	180~280	CP	PC5335 PC330P	**100**(70~130)	0.15~0.30	0.20~0.35	0.25~0.40
P Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	**110**(80~140)	0.18~0.35	0.23~0.38	0.28~0.43
	Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	**75**(50~100)	0.18~0.35	0.23~0.38	0.28~0.43
	High alloy steel	260~320	CP	PC5335 PC5300	**70**(50~90)	0.18~0.30	0.20~0.35	0.25~0.40
	High alloy heat-treated steel	300~450	CP	PC5335 PC5300	**60**(40~80)	0.18~0.30	0.20~0.35	0.22~0.40
M Stainless steel	Austenitic	135~275	CM	PC330N	**60**(40~80)	0.05~0.15	0.10~0.20	0.15~0.25
	Ferritic, martensitic	135~275	CM	PC330N	**70**(50~90)	0.10~0.20	0.15~0.30	0.20~0.35
K Cast	Gray cast iron	150~230	CP	PC5335 PC5300	**120**(80~140)	0.25~0.40	0.30~0.45	0.35~0.50
	Ductile cast iron	160~260	CP	PC5335 PC5300	**110**(70~130)	0.20~0.35	0.25~0.40	0.30~0.45
N Non-ferrous metal	Aluminum	30~150	CN	H01	**200**(90~220)	0.35~0.45	0.40~0.50	0.45~0.55
	Copper alloy	150~160	CN	H01	**200**(90~220)	0.35~0.45	0.40~0.50	0.45~0.55

※ In interrupted machining, reduce the feed to 0.1-0.15 machining around the interrupted part
※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

Recommended cutting conditions (CP/CM/CN)

【8D Drilling】

Workpiece			Insert	Grade	vc (m/min)	Aspect ratio (L/D) = 8D Feed rate (mm/rev) per drill dia. (mm)		
ISO	Workpiece	HB				Ø12.00~Ø17.99	Ø18.00~Ø25.99	Ø26.00~Ø30.99
P Carbon steel	Low carbon steel	80~120	CP	PC5335 PC330P	**100**(70~130)	0.12~0.25	0.17~0.30	0.22~0.35
	High carbon steel	180~280	CP	PC5335 PC330P	**90**(60~120)	0.12~0.25	0.17~0.30	0.22~0.35
P Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	**100**(70~130)	0.15~0.30	0.20~0.33	0.25~0.38
	Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	**65**(40~90)	0.15~0.30	0.20~0.33	0.25~0.38
	High alloy steel	260~320	CP	PC5335 PC5300	**60**(40~80)	0.15~0.25	0.17~0.30	0.22~0.35
	High alloy heat-treated steel	300~450	CP	PC5335 PC5300	**50**(30~70)	0.15~0.25	0.17~0.30	0.22~0.35
M Stainless steel	Austenitic	135~275	CM	PC330N	**50**(30~70)	0.05~0.10	0.05~0.15	0.10~0.20
	Ferritic, martensitic	135~275	CM	PC330N	**60**(40~80)	0.05~0.15	0.10~0.25	0.15~0.30
K Cast	Gray cast iron	150~230	CP	PC5335 PC5300	**110**(70~130)	0.22~0.35	0.27~0.40	0.32~0.45
	Ductile cast iron	160~260	CP	PC5335 PC5300	**100**(60~120)	0.17~0.30	0.22~0.35	0.27~0.40
N Non-ferrous metal	Aluminum	30~150	CN	H01	**190**(80~200)	0.30~0.40	0.35~0.45	0.40~0.50
	Copper alloy	150~160	CN	H01	**190**(80~200)	0.30~0.40	0.35~0.45	0.40~0.50

※ In interrupted machining, reduce the feed to 0.1-0.15 machining around the interrupted part
※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

【10D/12D Drilling】

Workpiece			Insert	Grade	vc (m/min)	Aspect ratio (L/D) =10D, 12D Feed rate (mm/rev) per drill dia. (mm)		
ISO	Workpiece	HB				Ø12.00~Ø17.99	Ø18.00~Ø25.99	Ø26.00~Ø30.99
P Carbon steel	Low carbon steel	80~120	CP	PC5335 PC330P	**90**(60~120)	0.10~0.20	0.15~0.25	0.20~0.30
	High carbon steel	180~280	CP	PC5335 PC330P	**80**(50~110)	0.10~0.20	0.15~0.25	0.20~0.30
P Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	**90**(60~120)	0.13~0.25	0.18~0.28	0.23~0.33
	Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	**55**(40~80)	0.13~0.30	0.18~0.28	0.23~0.33
	High alloy steel	260~320	CP	PC5335 PC5300	**50**(40~70)	0.13~0.25	0.15~0.25	0.20~0.30
	High alloy heat-treated steel	300~450	CP	PC5335 PC5300	**40**(30~60)	0.13~0.25	0.15~0.25	0.20~0.30
M Stainless steel	Austenitic	135~275	CM	PC330N	**50**(30~60)	0.05~0.10	0.05~0.15	0.10~0.20
	Ferritic, martensitic	135~275	CM	PC330N	**60**(40~70)	0.05~0.15	0.10~0.25	0.15~0.30
K Cast	Gray cast iron	150~230	CP	PC5335 PC5300	**100**(60~120)	0.20~0.30	0.25~0.35	0.30~0.40
	Ductile cast iron	160~260	CP	PC5335 PC5300	**90**(50~110)	0.15~0.25	0.20~0.30	0.25~0.35
N Non-ferrous metal	Aluminum	30~150	CN	H01	**180**(70~190)	0.28~0.35	0.33~0.40	0.38~0.45
	Copper alloy	150~160	CN	H01	**180**(70~190)	0.28~0.35	0.33~0.40	0.38~0.45

※ In interrupted machining, reduce the feed to 0.1-0.15 machining around the interrupted part
※ In case of 10D and 12D, apply the recommended cutting conditions in the other side
※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

How to drill a deep hole (10D/12D)

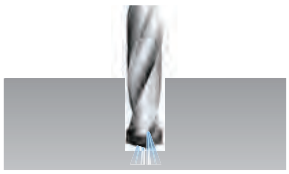
• Using a pilot drill (recommended)

1. Drilling a pilot hole (with a pilot drill)



• Drill a 0.5D pilot hole in 70% lower cutting speed with 1.5D drill or 3D drill

2. Start drilling



• Start drilling in recommended cutting conditions after replacing the drill

• Without pilot drill

1. Drilling a pilot hole (without a pilot drill)



• After drill 0.5D with 70% lower cutting speed, stop drilling for 2-3 seconds putting the drill in the hole

2. Stop drilling



• Stop supplying the coolant and take out the drill from the hole. Then, stop drilling for 2-3 seconds

3. Ready to drill



• After putting the drill in the hole to 2-3 mm upper than the bottom of the pilot hole, start supplying the coolant. Then, be ready to start drilling

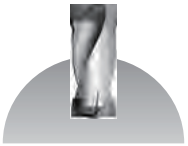
4. Stop drilling



• Start drilling in recommended cutting conditions

Recommended cutting conditions (CP-FC)

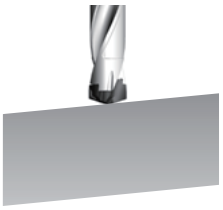
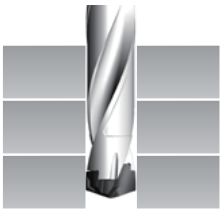
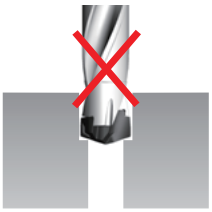
Workpiece				Graade	vc (m/min)	Aspect ratio (L/D) = 1.5D, 3D, 5D) Feed rate (mm/rev) per drill dia. (mm)		
ISO		Workpiece	HB			Ø12.00-Ø17.99	Ø18.00-Ø25.99	Ø26.00-Ø30.99
P	Carbon steel	Low carbon steel (SM10C, SM20C etc)	80-120	PC5335	**90**(70-110)	0.18-0.28	0.2-0.3	0.23-0.33
		High carbon steel (SM45C, SM50C etc)	180-280		**80**(60-100)	0.18-0.28	0.2-0.3	0.23-0.33
	Alloy steel	Low alloy steel (SCM420, SCM440 etc)	140-260		**90**(70-110)	0.18-0.28	0.2-0.3	0.23-0.33
		High alloy steel (SCM435, SCM445 etc)	260-320		**70**(50-90)	0.18-0.28	0.2-0.3	0.23-0.33

Machining	Flat surface drilling	Angled surface drilling	Curved surface drilling	Plunging	Boring
Pic.					
1.5D/3D	○	○	○	○	○
5D	○	×	×	×	×

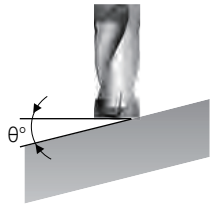
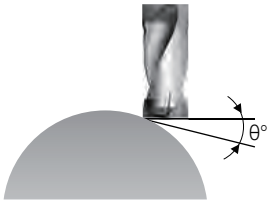
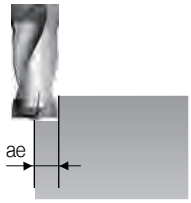
※ Please refer to the precaution in drilling in case of angled surface drilling, curved surface drilling, plunging and boring

Precaution in drilling

• TPDC-CP/CM/CN

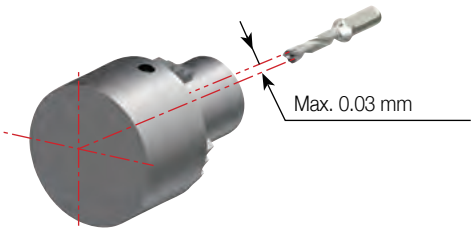
Angled surface drilling	Stacked plates drilling	Plunging	Boring
			
• The approach angle between drill and the workpiece at the beginning and the end should be less than 6° • Reduce the feed (fn) to 30-50% than general cutting conditions at the beginning and the end of angled surface	• Gap between the plates could make wrong chip evacuation causing fracture of the drill • Place stacked plates without any gap between each	• Irregular cutting resistance in plunging could cause fracture and deformation of the drill	• Boring is not recommended due to wear and chipping in the corner of the insert

• TPDC-CP-FC

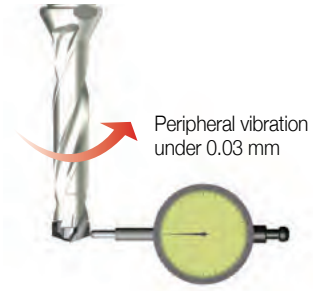
Angled surface drilling	Curved surface drilling	Plunging	Boring
			
• Reduce the feed (fn) to 30% than general cutting conditions at the beginning and the end of angled surface (Recommended only in case of θ is less than 10°)	• Reduce the feed (fn) to 30% than general cutting conditions at the beginning of curved surface (In case, θ is over 30°, reduce it to 50%)	• Reduce the depth of cut (ae) to shorter than 1/2 of drill diameter • In case, the depth of cut is longe than drill diameter, plunge with divided depth of cut	• Reduce the feed (fn) to 30% than general cutting conditions at the beginning of boring • Start with 2 mm stepping before boring to prevent long chip

Check point in drilling

- Condition of the clamped workpiece
- Revolution of the main axis of the machine
- Condition of the holder
- Run-out of the clamped drill (Max. 0.03 mm)
- Condition of supplying coolant (pressure, flow, concentration)
- Chip evacuation



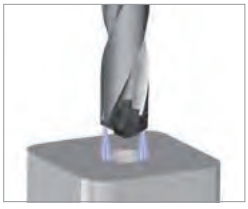
Setting of the horizontal equipment



Setting of the vertical equipment

Supply of coolant

- Supply enough coolant to the beginning of the hole
- Minimum pressure of oil coolant: 5 bar
- Minimum flow of coolant: 5 ℓ/min

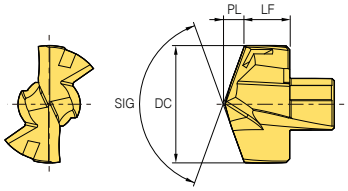




Available insert (TPDX)



XP



(mm)

Designation		Coated PC325U	DC	LF	PL	SIG	Holder	Wrench
TPD	0800XP	●	8	3.3	1.22	140	TPDX□D-08012-□	TPDC -W0811
	0810XP	●	8.1	3.3	1.24	140		
	0820XP	●	8.2	3.3	1.25	140		
	0830XP	●	8.3	3.2	1.27	140		
	0840XP	●	8.4	3.2	1.28	140		
	0850XP	●	8.5	3.2	1.3	140	TPDX□D-08512-□	
	0860XP	●	8.6	3.2	1.31	140		
	0870XP	●	8.7	3.2	1.33	140		
	0880XP	●	8.8	3.2	1.35	140		
	0890XP	●	8.9	3.1	1.36	140		
	0900XP	●	9	3.6	1.38	140	TPDX□D-09012-□	
	0910XP	●	9.1	3.6	1.39	140		
	0920XP	●	9.2	3.6	1.41	140		
	0930XP	●	9.3	3.6	1.42	140		
	0940XP	●	9.4	3.6	1.44	140		
	0950XP	●	9.5	3.6	1.45	140	TPDX□D-09512-□	
	0960XP	●	9.6	3.5	1.47	140		
	0970XP	●	9.7	3.5	1.48	140		
	0980XP	●	9.8	3.5	1.5	140		
	0990XP	●	9.9	3.5	1.51	140		
	1000XP	●	10	4.0	1.53	140	TPDX□D-10016-□	
	1010XP	●	10.1	4.0	1.54	140		
	1020XP	●	10.2	3.9	1.56	140		
	1030XP	●	10.3	3.9	1.57	140		
	1040XP	●	10.4	3.9	1.59	140		
	1050XP	●	10.5	3.9	1.61	140	TPDX□D-10516-□	
	1060XP	●	10.6	3.9	1.62	140		
	1070XP	●	10.7	3.9	1.64	140		
	1080XP	●	10.8	3.9	1.65	140		
	1090XP	●	10.9	3.8	1.67	140		
	1100XP	●	11	4.3	1.68	140	TPDX□D-11016-□	
	1110XP	●	11.1	4.3	1.7	140		
	1120XP	●	11.2	4.3	1.71	140		
	1130XP	●	11.3	4.3	1.73	140		
	1140XP	●	11.4	4.3	1.74	140		
	1150XP	●	11.5	4.2	1.76	140	TPDX□D-11516-□	
	1160XP	●	11.6	4.2	1.77	140		
	1170XP	●	11.7	4.2	1.79	140		
	1180XP	●	11.8	4.2	1.8	140		
	1190XP	●	11.9	4.2	1.82	140		

Applicable holders **D46**

※ We can provide if you order exact machining specification

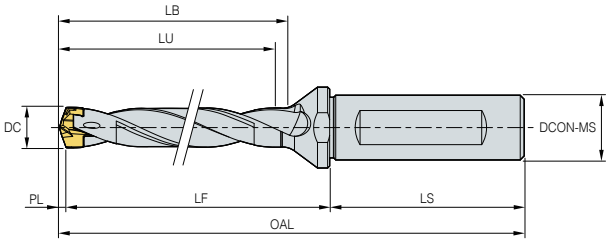
● : Stock Item

• Parts (applicable wrench)

Picture	Designation	Drill diameter ØD (mm)	Torque (N•m)
	**TPDC-W0811**	8.00-11.99	0.7-1.5

TPDX(3D/5D/8D)





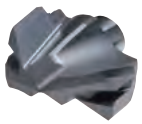
(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert
TPDX	3D-08012-24	●	8	12	25.22	35.98	29.22	45	82.2	TPD0800XP-0849XP
	3D-08512-26	●	8.5	12	26.80	37.80	31.05	45	84.1	TPD0850XP-0899XP
	3D-09012-27	●	9	12	28.38	39.52	32.88	45	85.9	TPD0900XP-0949XP
	3D-09512-29	●	9.5	12	29.95	41.25	34.70	45	87.7	TPD0950XP-0999XP
	3D-10016-30	●	10	16	31.53	45.07	36.53	48	94.6	TPD1000XP-1049XP
	3D-10516-32	●	10.5	16	33.11	46.89	38.36	48	96.5	TPD1050XP-1099XP
	3D-11016-33	●	11	16	34.68	48.52	40.18	48	98.2	TPD1100XP-1149XP
	3D-11516-35	●	11.5	16	36.26	50.34	42.01	48	100.1	TPD1150XP-1199XP
	5D-08012-40	●	8	12	41.22	51.98	45.22	45	98.2	TPD0800XP-0849XP
	5D-08512-43	●	8.5	12	43.80	54.80	48.05	45	101.1	TPD0850XP-0899XP
	5D-09012-45	●	9	12	46.38	57.52	50.88	45	103.9	TPD0900XP-0949XP
	5D-09512-48	●	9.5	12	48.95	60.25	53.70	45	106.7	TPD0950XP-0999XP
	5D-10016-50	●	10	16	51.53	65.07	56.53	48	114.6	TPD1000XP-1049XP
	5D-10516-53	●	10.5	16	54.11	67.89	59.36	48	117.5	TPD1050XP-1099XP
	5D-11016-55	●	11	16	56.68	70.52	62.18	48	120.2	TPD1100XP-1149XP
	5D-11516-58	●	11.5	16	59.26	73.34	65.01	48	123.1	TPD1150XP-1199XP
	8D-08012-64	●	8	12	65.22	75.98	69.22	45	122.2	TPD0800XP-0849XP
	8D-08512-68	●	8.5	12	69.30	80.30	73.55	45	126.6	TPD0850XP-0899XP
	8D-09012-72	●	9	12	73.38	84.52	77.88	45	130.9	TPD0900XP-0949XP
	8D-09512-76	●	9.5	12	77.45	88.75	82.20	45	135.2	TPD0950XP-0999XP
	8D-10016-80	●	10	16	81.53	95.07	86.53	48	144.6	TPD1000XP-1049XP
	8D-10516-84	●	10.5	16	85.61	99.39	90.86	48	149.0	TPD1050XP-1099XP
	8D-11016-88	●	11	16	89.68	103.52	95.18	48	153.2	TPD1100XP-1149XP
	8D-11516-92	●	11.5	16	93.76	107.84	99.51	48	157.6	TPD1150XP-1199XP

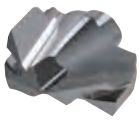
Applicable holders **D45**

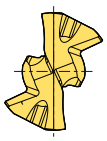
※ We can provide if you order exact machining specification. Ex) Ø10 and 60 mm depth of cut → TPDX6D-10016-60

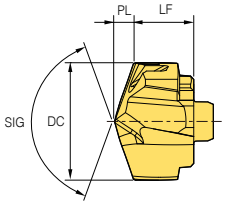
Available insert (TPDC)


CP


CM


CN





(mm)

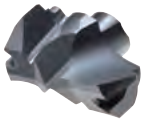
P type (CP) Designation	Coated PC5335	M type (CM) Designation	Coated PC330N	N type (CN) Designation	Uncoated H01	DC	LF	PL	SIG	Holder	Wrench
TPD 1200CP	●	TPD 1200CM	●	TPD 1200CN		12	6.2	1.89	140	TPDC□D-12016-□	TPDC-W1216
1220CP	●	1220CM	●	1220CN		12.2	6.2	1.92	140		
1250CP	●	1250CM	●	1250CN		12.5	6.1	1.97	140	TPDC□D-12516-□	
1260CP	●	1260CM	●	1260CN		12.6	6.1	1.99	140		
1300CP	●	1300CM	●	1300CN		13	6.8	2.05	140	TPDC□D-13016-□	
1350CP	●	1350CM	●	1350CN		13.5	6.7	2.13	140	TPDC□D-13516-□	
1400CP	●	1400CM	●	1400CN		14	7.3	2.21	140		
1420CP	●	1420CM	●	1420CN		14.2	7.3	2.24	140	TPDC□D-14016-□	
1430CP	●	1430CM	●	1430CN		14.3	7.3	2.25	140		
1450CP	●	1450CM	●	1450CN		14.5	7.2	2.29	140	TPDC□D-14516-□	
1500CP	●	1500CM	●	1500CN		15	7.7	2.36	140		
1520CP	●	1520CM	●	1520CN		15.2	7.7	2.4	140	TPDC□D-15020-□	
1550CP	●	1550CM	●	1550CN		15.5	7.7	2.44	140		
1600CP	●	1600CM	●	1600CN		16	8.3	2.52	140		
1630CP	●	1630CM	●	1630CN		16.3	8.2	2.57	140		
1650CP	●	1650CM	●	1650CN		16.5	8.2	2.6	140	TPDC□D-16020-□	
1670CP	●	1670CM	●	1670CN		16.7	8.2	2.63	140		
1690CP	●	1690CM	●	1690CN		16.9	8.1	2.66	140		
1700CP	●	1700CM	●	1700CN		17	8.8	2.68	140		TPDC-W1721
1750CP	●	1750CM	●	1750CN		17.5	8.7	2.76	140	TPDC□D-17020-□	
1770CP	●	1770CM	●	1770CN		17.7	8.7	2.79	140		
1800CP	●	1800CM	●	1800CN		18	9.4	2.84	140		
1810CP	●	1810CM	●	1810CN		18.1	9.4	2.85	140		
1850CP	●	1850CM	●	1850CN		18.5	9.3	2.92	140	TPDC□D-18025-□	
1860CP	●	1860CM	●	1860CN		18.6	9.3	2.93	140		
1870CP	●	1870CM	●	1870CN		18.7	9.3	2.95	140		
1900CP	●	1900CM	●	1900CN		19	9.8	3	140		
1920CP	●	1920CM	●	1920CN		19.2	9.8	3.03	140		
1930CP	●	1930CM	●	1930CN		19.3	12.8	3.04	140	TPDC□D-19025-□	
1950CP	●	1950CM	●	1950CN		19.5	9.7	3.07	140		
1970CP	●	1970CM	●	1970CN		19.7	9.7	3.11	140		
2000CP	●	2000CM	●	2000CN		20	10.4	3.15	140	TPDC□D-20025-□	
2050CP	●	2050CM	●	2050CN		20.5	10.3	3.23	140		
2100CP	●	2100CM	●	2100CN		21	10.9	3.31	140	TPDC□D-21025-□	
2150CP	●	2150CM	●	2150CN		21.5	10.8	3.39	140		
2200CP	●	2200CM	●	2200CN		22	11.4	3.52	140		TPDC-W2225
2250CP	●	2250CM	●	2250CN		22.5	11.3	3.6	140	TPDC□D-22025-□	
2260CP	●	2260CM	●	2260CN		22.6	11.3	3.62	140		
2270CP	●	2270CM	●	2270CN		22.7	11.3	3.63	140		
2300CP	●	2300CM	●	2300CN		23	11.8	3.68	140		
2350CP	●	2350CM	●	2350CN		23.5	11.7	3.76	140	TPDC□D-23025-□	
2400CP	●	2400CM	●	2400CN		24	12.4	3.84	140		
2450CP	●	2450CM	●	2450CN		24.5	12.3	3.92	140	TPDC□D-24032-□	
2500CP	●	2500CM	●	2500CN		25	12.9	4	140		
2530CP	●	2530CM	●	2530CN		25.3	12.9	4.05	140		
2550CP	●	2550CM	●	2550CN		25.5	12.8	4.08	140	TPDC□D-25032-□	
2580CP	●	2580CM	●	2580CN		25.8	12.8	4.13	140		
2590CP	●	2590CM	●	2590CN		25.9	12.8	4.15	140		
2600CP	●	2600CM	●	2600CN		26	13.4	4.16	140		TPDC-W2630
2650CP	●	2650CM	●	2650CN		26.5	13.4	4.24	140	TPDC□D-26032-□	
2700CP	●	2700CM	●	2700CN		27	13.9	4.32	140		
2750CP	●	2750CM	●	2750CN		27.5	13.8	4.4	140	TPDC□D-27032-□	
2800CP	●	2800CM	●	2800CN		28	14.4	4.48	140		
2850CP	●	2850CM	●	2850CN		28.5	14.3	4.56	140	TPDC□D-28032-□	
2900CP	●	2900CM	●	2900CN		29	15	4.64	140		
2950CP	●	2950CM	●	2950CN		29.5	14.9	4.72	140	TPDC□D-29032-□	
3000CP	●	3000CM	●	3000CN		30	15.5	4.8	140		
3050CP	●	3050CM	●	3050CN		30.5	15.4	4.88	140	TPDC□D-30032-□	

Applicable holders **D49 ~ D51** ※ We can provide if you order exact machining specification Ex) Ø15.9 and carbon steel machining → TPDC1590CP/PC330P ● : Stock Item

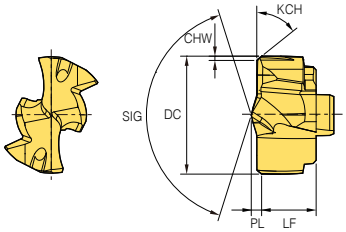
• Parts (applicable wrench)

Picture	Designation		Drill diameter ØD (mm)	Torque (N•m)
	TPDC-	W1216	12.00-16.99	2.0-3.0
		W1721	17.00-21.99	2.0-4.0
		W2225	22.00-25.99	3.0-4.0
		W2630	26.00-30.99	4.0-5.0

Available insert (TPDC)



FC



(mm)

Designation		Coated PC5335	DC	LF	PL	SIG	KCH	CHW	Holder	Chamfer (mm) a	Chamfer (mm) a	Wrench
TPD	1200CP-FC	●	12	5.7	1.05	145	50	0.38	TPDC□D-12016-□	0.38	0.45	TPDC-W1216
	1220CP-FC		12.2	5.7	1.05	145	50	0.38				
	1250CP-FC		12.5	5.7	1.05	145	50	0.38	TPDC□D-12516-□			
	1260CP-FC		12.6	5.7	1.05	145	50	0.38				
	1300CP-FC	●	13	6.4	1.05	145	50	0.38	TPDC□D-13016-□			
	1350CP-FC		13.5	6.4	1.05	145	50	0.38	TPDC□D-13516-□			
	1400CP-FC	●	14	6.9	1.15	145	50	0.38	TPDC□D-14016-□			
	1420CP-FC		14.2	6.9	1.15	145	50	0.38				
	1430CP-FC		14.3	6.9	1.15	145	50	0.38				
	1450CP-FC		14.5	6.9	1.15	145	50	0.38	TPDC□D-14516-□			
	1500CP-FC	●	15	7.3	1.15	145	50	0.38	TPDC□D-15020-□			
	1550CP-FC		15.5	7.3	1.15	145	50	0.38				
	1600CP-FC	●	16	8	1.25	145	50	0.38	TPDC□D-16020-□			
	1630CP-FC		16.3	8	1.25	145	50	0.38				
	1650CP-FC		16.5	8	1.25	145	50	0.38				
	1670CP-FC		16.7	8	1.25	145	50	0.38				
	1700CP-FC	●	17	8.2	1.35	145	50	0.46	TPDC□D-17020-□	0.46	0.55	TPDC-W1721
	1750CP-FC		17.5	8.2	1.35	145	50	0.46				
	1770CP-FC		17.7	8.2	1.35	145	50	0.46				
	1800CP-FC	●	18	8.8	1.45	145	50	0.46	TPDC□D-18025-□			
	1810CP-FC		18.1	8.8	1.45	145	50	0.46				
	1850CP-FC		18.5	8.8	1.45	145	50	0.46				
	1860CP-FC		18.6	8.8	1.45	145	50	0.46				
	1870CP-FC		18.7	8.8	1.45	145	50	0.46				
	1900CP-FC	●	19	9.2	1.45	145	50	0.46	TPDC□D-19025-□			
	1920CP-FC		19.2	9.2	1.45	145	50	0.46				
	1950CP-FC		19.5	9.2	1.45	145	50	0.46				
	1970CP-FC		19.7	9.2	1.45	145	50	0.46				
	2000CP-FC	●	20	9.8	1.45	145	50	0.46	TPDC□D-20025-□			
	2050CP-FC		20.5	9.8	1.45	145	50	0.46				
	2100CP-FC	●	21	10	1.55	145	50	0.46	TPDC□D-21025-□			
	2150CP-FC		21.5	10	1.55	145	50	0.46				
	2200CP-FC	●	22	11	1.55	145	50	0.46	TPDC□D-22025-□			TPDC-W2225
	2250CP-FC		22.5	11	1.55	145	50	0.46				
	2260CP-FC		22.6	11	1.55	145	50	0.46				
	2270CP-FC		22.7	11	1.55	145	50	0.46				
	2300CP-FC	●	23	11.4	1.65	145	50	0.46	TPDC□D-23025-□			
	2350CP-FC		23.5	11.4	1.65	145	50	0.46				
	2400CP-FC	●	24	12.2	1.65	145	50	0.46	TPDC□D-24032-□			
	2450CP-FC		24.5	12.2	1.65	145	50	0.46				
	2500CP-FC	●	25	12.5	1.75	145	50	0.46	TPDC□D-25032-□			
	2530CP-FC		25.3	12.5	1.75	145	50	0.46				
	2550CP-FC		25.5	12.5	1.75	145	50	0.46				
	2580CP-FC		25.8	12.5	1.75	145	50	0.46				
	2590CP-FC		25.9	12.5	1.75	145	50	0.46				
	2600CP-FC	●	26	13.1	1.85	145	50	0.55	TPDC□D-26032-□	0.54	0.65	TPDC-W2630
	2650CP-FC		26.5	13.1	1.85	145	50	0.55				
	2700CP-FC	●	27	13.4	1.95	145	50	0.55	TPDC□D-27032-□			
	2750CP-FC		27.5	13.4	1.95	145	50	0.55				
	2800CP-FC	●	28	13.8	1.95	145	50	0.55	TPDC□D-28032-□			
	2850CP-FC		28.5	13.8	1.95	145	50	0.55				
	2900CP-FC	●	29	14.4	2.05	145	50	0.55	TPDC□D-29032-□			
	2950CP-FC		29.5	14.4	2.05	145	50	0.55				
	3000CP-FC	●	30	15.1	2.05	145	50	0.55	TPDC□D-30032-□			
	3050CP-FC		30.5	15.1	2.05	145	50	0.55				

Applicable holders **D49 ~ D51**

※We can provide if you order exact machining specification Ex) Ø15.9 and carbon steel machining → TPDC1590CP-FC/PC5335

● : Stock Item

※ TPDC-CP-FC insert: impossible to be reground

• Parts (applicable wrench)

Picture	Designation		Drill diameter ØD (mm)	Torque (N•m)
	TPDC-	W1216	12.00-16.99	2.0-3.0
		W1721	17.00-21.99	2.0-4.0
		W2225	22.00-25.99	3.0-4.0
		W2630	26.00-30.99	4.0-5.0

TPDC(1.5D/3D)



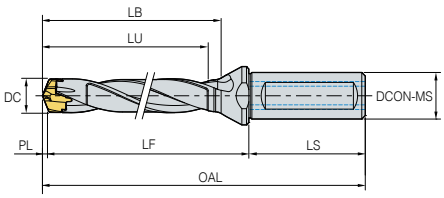


Fig. 1

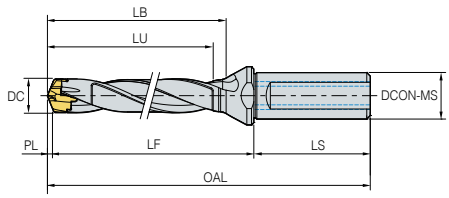


Fig. 2

(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Fig.
TPDC	1.5D-12016-18	●	12	16	19.89	35.01	25.90	48	84.9	TPD1200C□-1249C□	1
	1.5D-12516-19	●	12.5	16	20.72	35.93	26.90	48	85.9	TPD1250C□-1299C□	1
	1.5D-13016-20	●	13	16	21.55	37.05	28.10	48	87.1	TPD1300C□-1349C□	1
	1.5D-13516-20	●	13.5	16	22.38	37.97	29.10	48	88.1	TPD1350C□-1399C□	1
	1.5D-14016-21	●	14	16	23.21	40.99	32.20	48	93.2	TPD1400C□-1449C□	1
	1.5D-14516-22	●	14.5	16	24.04	41.91	33.20	48	94.2	TPD1450C□-1499C□	1
	1.5D-15020-23	●	15	20	24.86	43.04	32.30	50	95.4	TPD1500C□-1599C□	2
	1.5D-16020-24	●	16	20	26.52	45.08	34.50	50	97.6	TPD1600C□-1699C□	2
	1.5D-17020-26	●	17	20	28.18	47.02	36.60	50	99.7	TPD1700C□-1799C□	2
	1.5D-18025-27	●	18	25	29.84	51.06	38.80	56	109.9	TPD1800C□-1899C□	2
	1.5D-19025-28	●	19	25	31.50	53.00	40.90	56	112	TPD1900C□-1999C□	2
	1.5D-20025-30	●	20	25	33.15	55.05	43.10	56	114.2	TPD2000C□-2099C□	2
	1.5D-21025-31	●	21	25	34.81	57.09	45.30	56	116.4	TPD2100C□-2199C□	2
	1.5D-22025-33	●	22	25	35.84	59.66	47.40	56	118.5	TPD2200C□-2299C□	2
	1.5D-23025-34	●	23	25	37.47	61.73	49.60	56	120.7	TPD2300C□-2399C□	2
	1.5D-24032-36	●	24	32	39.10	66.70	51.70	60	129.8	TPD2400C□-2499C□	2
	1.5D-25032-37	●	25	32	41.50	68.00	53.90	60	132	TPD2500C□-2599C□	2
	1.5D-26032-39	●	26	32	43.16	70.04	56.10	60	134.2	TPD2600C□-2699C□	2
	1.5D-27032-40	●	27	32	44.82	71.98	58.20	60	136.3	TPD2700C□-2799C□	2
	1.5D-28032-42	●	28	32	46.48	73.92	60.30	60	138.4	TPD2800C□-2899C□	2
	1.5D-29032-43	●	29	32	48.14	76.06	62.60	60	140.7	TPD2900C□-2999C□	2
	1.5D-30032-45	●	30	32	49.80	78.00	64.70	60	142.8	TPD3000C□-3099C□	2
	3D-12016-36	●	12	16	37.89	49.00	39.90	48	98.9	TPD1200C□-1249C□	1
	3D-12516-38	●	12.5	16	39.47	50.90	41.90	48	100.9	TPD1250C□-1299C□	1
	3D-13016-39	●	13	16	41.05	53.10	44.10	48	103.1	TPD1300C□-1349C□	1
	3D-13516-41	●	13.5	16	42.63	54.00	45.10	48	104.1	TPD1350C□-1399C□	1
	3D-14016-42	●	14	16	44.21	56.00	47.20	48	106.2	TPD1400C□-1449C□	1
	3D-14516-44	●	14.5	16	45.79	56.90	48.20	48	107.2	TPD1450C□-1499C□	1
	3D-15020-45	●	15	20	47.36	61.00	50.40	50	113.4	TPD1500C□-1599C□	2
	3D-16020-48	●	16	20	50.52	64.00	53.50	50	116.5	TPD1600C□-1699C□	2
	3D-17020-51	●	17	20	53.68	67.00	56.70	50	119.7	TPD1700C□-1799C□	2
	3D-18025-54	●	18	25	56.84	73.10	60.90	56	131.9	TPD1800C□-1899C□	2
	3D-19025-57	●	19	25	60.00	76.00	64.00	56	135	TPD1900C□-1999C□	2
	3D-20025-60	●	20	25	63.15	79.10	67.20	56	138.2	TPD2000C□-2099C□	2
	3D-21025-63	●	21	25	66.31	82.10	70.40	56	141.4	TPD2100C□-2199C□	2
	3D-22025-66	●	22	25	68.84	85.70	73.50	56	144.5	TPD2200C□-2299C□	2
	3D-23025-69	●	23	25	71.97	89.70	77.70	56	148.7	TPD2300C□-2399C□	2
	3D-24032-72	●	24	32	75.10	95.70	80.80	60	158.8	TPD2400C□-2499C□	2
	3D-25032-75	●	25	32	79.00	98.00	84.00	60	162	TPD2500C□-2599C□	2
	3D-26032-78	●	26	32	82.16	109.00	95.20	60	173.2	TPD2600C□-2699C□	2
	3D-27032-81	●	27	32	85.32	112.00	98.30	60	176.3	TPD2700C□-2799C□	2
	3D-28032-84	●	28	32	88.48	115.90	102.40	60	180.4	TPD2800C□-2899C□	2
	3D-29032-87	●	29	32	91.64	120.10	106.70	60	184.7	TPD2900C□-2999C□	2
	3D-30032-90	●	30	32	94.80	123.00	109.80	60	187.8	TPD3000C□-3099C□	2

Applicable inserts **D47 ~ D48**

※ We can provide if you order exact machining specification. Ex) Ø15 and 60 mm depth of cut → TPDC4D-15020-60

TPDC(5D/8D)



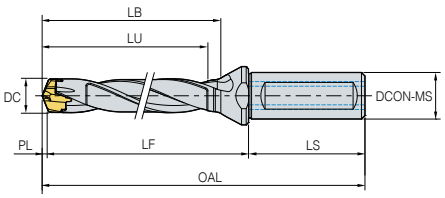


Fig. 1

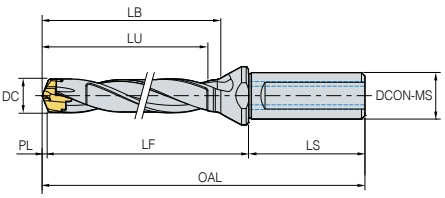


Fig. 2

(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Fig.
TPDC	5D-12016-60	●	12	16	61.89	73.00	63.90	48	122.9	TPD1200C□-1249C□	1
	5D-12516-63	●	12.5	16	64.47	75.90	66.90	48	125.9	TPD1250C□-1299C□	1
	5D-13016-65	●	13	16	67.05	79.10	70.10	48	129.1	TPD1300C□-1349C□	1
	5D-13516-68	●	13.5	16	69.63	81.00	72.10	48	131.1	TPD1350C□-1399C□	1
	5D-14016-70	●	14	16	72.21	84.00	75.20	48	134.2	TPD1400C□-1449C□	1
	5D-14516-73	●	14.5	16	74.79	85.90	77.20	48	136.2	TPD1450C□-1499C□	1
	5D-15020-75	●	15	20	77.36	91.00	80.40	50	143.4	TPD1500C□-1599C□	2
	5D-16020-80	●	16	20	82.52	96.00	85.50	50	148.5	TPD1600C□-1699C□	2
	5D-17020-85	●	17	20	87.68	101.00	90.70	50	153.7	TPD1700C□-1799C□	2
	5D-18025-90	●	18	25	92.84	109.10	96.90	56	167.9	TPD1800C□-1899C□	2
	5D-19025-95	●	19	25	98.00	114.00	102.00	56	173	TPD1900C□-1999C□	2
	5D-20025-100	●	20	25	103.15	119.10	107.20	56	178.2	TPD2000C□-2099C□	2
	5D-21025-105	●	21	25	108.31	124.10	112.40	56	183.4	TPD2100C□-2199C□	2
	5D-22025-110	●	22	25	112.84	129.70	117.50	56	188.5	TPD2200C□-2299C□	2
	5D-23025-115	●	23	25	117.97	135.70	123.70	56	194.7	TPD2300C□-2399C□	2
	5D-24032-120	●	24	32	123.10	143.70	128.80	60	206.8	TPD2400C□-2499C□	2
	5D-25032-125	●	25	32	129.00	148.00	134.00	60	212	TPD2500C□-2599C□	2
	5D-26032-130	●	26	32	134.16	161.00	147.20	60	225.2	TPD2600C□-2699C□	2
	5D-27032-135	●	27	32	139.32	166.00	152.30	60	230.3	TPD2700C□-2799C□	2
	5D-28032-140	●	28	32	144.48	171.90	158.40	60	236.4	TPD2800C□-2899C□	2
	5D-29032-145	●	29	32	149.64	178.10	164.70	60	242.7	TPD2900C□-2999C□	2
	5D-30032-150	●	30	32	154.80	183.00	169.80	60	247.8	TPD3000C□-3099C□	2
	8D-12016-96	●	12	16	97.89	109.00	99.90	48	158.9	TPD1200C□-1249C□	1
	8D-12516-100	●	12.5	16	101.97	113.40	104.40	48	163.4	TPD1250C□-1299C□	1
	8D-13016-104	●	13	16	106.05	118.10	109.10	48	168.1	TPD1300C□-1349C□	1
	8D-13516-108	●	13.5	16	110.13	121.50	112.60	48	171.6	TPD1350C□-1399C□	1
	8D-14016-112	●	14	16	114.21	126.00	117.20	48	176.2	TPD1400C□-1449C□	1
	8D-14516-116	●	14.5	16	118.29	129.40	120.70	48	179.7	TPD1450C□-1499C□	1
	8D-15020-120	●	15	20	122.36	136.00	125.40	50	188.4	TPD1500C□-1599C□	2
	8D-16020-128	●	16	20	130.52	144.00	133.50	50	196.5	TPD1600C□-1699C□	2
	8D-17020-136	●	17	20	138.68	152.00	141.70	50	204.7	TPD1700C□-1799C□	2
	8D-18025-144	●	18	25	146.84	163.10	150.90	56	221.9	TPD1800C□-1899C□	2
	8D-19025-152	●	19	25	155.00	171.00	159.00	56	230	TPD1900C□-1999C□	2
	8D-20025-160	●	20	25	163.15	179.10	167.20	56	238.2	TPD2000C□-2099C□	2
	8D-21025-168	●	21	25	171.31	187.10	175.40	56	246.4	TPD2100C□-2199C□	2
	8D-22025-176	●	22	25	178.84	195.70	183.50	56	254.5	TPD2200C□-2299C□	2
	8D-23025-184	●	23	25	186.97	204.70	192.70	56	263.7	TPD2300C□-2399C□	2
	8D-24032-192	●	24	32	195.10	215.70	200.80	60	278.8	TPD2400C□-2499C□	2
	8D-25032-200	●	25	32	204.00	223.00	209.00	60	287	TPD2500C□-2599C□	2
	8D-26032-208	●	26	32	212.16	239.00	224.20	60	303.2	TPD2600C□-2699C□	2
	8D-27032-216	●	27	32	220.32	247.00	231.30	60	311.3	TPD2700C□-2799C□	2
	8D-28032-224	●	28	32	228.48	255.90	239.40	60	320.4	TPD2800C□-2899C□	2
	8D-29032-232	●	29	32	236.64	265.10	247.70	60	329.7	TPD2900C□-2999C□	2
	8D-30032-240	●	30	32	244.80	273.00	254.80	60	337.8	TPD3000C□-3099C□	2

Applicable inserts **D47 ~ D48**

※ We can provide if you order exact machining specification. Ex) Ø15 and 60 mm depth of cut → TPDC4D-15020-60

TPDC(10D/12D)



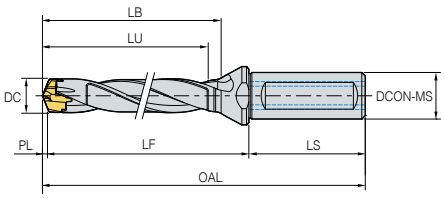


Fig. 1

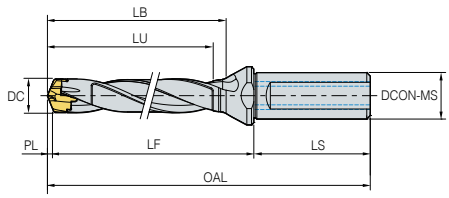


Fig. 2

(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Fig.
TPDC	10D-12016-120		12	16	121.89	137.01	127.90	48	186.9	TPD1200C□-1249C□	1
	10D-12516-125		12.5	16	126.97	141.90	132.90	48	191.9	TPD1250C□-1299C□	1
	10D-13016-130		13	16	132.05	147.10	138.10	48	197.1	TPD1300C□-1349C□	1
	10D-13516-135		13.5	16	137.13	153.00	144.10	48	203.1	TPD1350C□-1399C□	1
	10D-14016-140		14	16	142.21	160.00	151.20	48	210.2	TPD1400C□-1449C□	1
	10D-14516-145		14.5	16	147.29	164.90	156.20	48	215.2	TPD1450C□-1499C□	1
	10D-15020-150		15	20	152.36	171.00	151.90	50	223.4	TPD1500C□-1599C□	1
	10D-16020-160		16	20	162.52	181.10	156.90	50	233.6	TPD1600C□-1699C□	1
	10D-17020-170		17	20	172.68	191.00	162.10	50	243.7	TPD1700C□-1799C□	1
	10D-18025-180		18	25	182.84	204.10	168.10	56	262.9	TPD1800C□-1899C□	1
	10D-19025-190		19	25	193.00	215.00	175.20	56	274	TPD1900C□-1999C□	1
	10D-20025-200		20	25	203.15	225.10	180.20	56	284.2	TPD2000C□-2099C□	1
	10D-21025-210		21	25	213.31	235.10	160.40	56	294.4	TPD2100C□-2199C□	1
	10D-22025-220		22	25	222.84	246.70	170.60	56	305.5	TPD2200C□-2299C□	1
	10D-23025-230		23	25	232.97	257.70	180.70	56	316.7	TPD2300C□-2399C□	1
	10D-24032-240		24	32	243.10	270.70	191.90	60	333.8	TPD2400C□-2499C□	2
	10D-25032-250		25	32	254.00	280.00	203.00	60	344	TPD2500C□-2599C□	2
	10D-26032-260		26	32	264.16	291.00	213.20	60	355.2	TPD2600C□-2699C□	2
	10D-27032-270		27	32	274.32	302.00	223.40	60	366.3	TPD2700C□-2799C□	2
	10D-28032-280		28	32	284.48	311.90	234.50	60	376.4	TPD2800C□-2899C□	2
	10D-29032-290		29	32	294.64	322.10	245.70	60	386.7	TPD2900C□-2999C□	2
	10D-30032-300		30	32	304.80	333.00	255.80	60	397.8	TPD3000C□-3099C□	2
	12D-12016-144		12	16	145.89	161.00	266.00	48	210.9	TPD1200C□-1249C□	1
	12D-12516-150		12.5	16	151.97	165.90	277.20	48	215.9	TPD1250C□-1299C□	1
	12D-13016-156		13	16	158.05	171.10	288.30	48	221.1	TPD1300C□-1349C□	1
	12D-13516-162		13.5	16	164.13	177.00	298.40	48	227.1	TPD1350C□-1399C□	1
	12D-14016-168		14	16	170.21	184.00	308.70	48	234.2	TPD1400C□-1449C□	1
	12D-14516-174		14.5	16	176.29	188.90	319.80	48	239.2	TPD1450C□-1499C□	1
	12D-15020-180		15	20	182.36	196.00	185.40	50	248.4	TPD1500C□-1599C□	1
	12D-16020-192		16	20	194.52	213.10	202.60	50	265.6	TPD1600C□-1699C□	1
	12D-17020-204		17	20	206.68	225.00	214.70	50	277.7	TPD1700C□-1799C□	1
	12D-18025-216		18	25	218.84	240.10	227.90	56	298.9	TPD1800C□-1899C□	1
	12D-19025-228		19	25	231.00	253.00	241.00	56	312	TPD1900C□-1999C□	1
	12D-20025-240		20	25	243.15	265.10	253.20	56	324.2	TPD2000C□-2099C□	1
	12D-21025-252		21	25	255.31	277.10	265.40	56	336.4	TPD2100C□-2199C□	1
	12D-22025-264		22	25	266.84	290.70	278.50	56	349.5	TPD2200C□-2299C□	1
	12D-23025-276		23	25	278.97	303.70	291.70	56	362.7	TPD2300C□-2399C□	1
	12D-24032-288		24	32	291.10	318.70	303.80	60	381.8	TPD2400C□-2499C□	2
	12D-25032-300		25	32	304.00	330.00	316.00	60	394	TPD2500C□-2599C□	2
	12D-26032-312		26	32	316.16	343.00	329.20	60	407.2	TPD2600C□-2699C□	2
	12D-27032-324		27	32	328.32	356.00	342.30	60	420.3	TPD2700C□-2799C□	2
	12D-28032-336		28	32	340.48	367.90	354.40	60	432.4	TPD2800C□-2899C□	2
	12D-29032-348		29	32	352.64	380.10	366.70	60	444.7	TPD2900C□-2999C□	2
	12D-30032-360		30	32	364.80	393.00	379.80	60	457.8	TPD3000C□-3099C□	2

Applicable inserts **D47 ~ D48**

※ We can provide if you order exact machining specification. Ex) Ø15 and 60 mm depth of cut → TPDC4D-15020-60

Highly precise and efficient top solid indexable drill

TPDB Plus Drill Series

(**TPDB** [Standard], **TPDB-DS** [Medium/Large dia.], **TPDB-H** [H-Beam], **TPDB-F** [Flat])

- **Highly precise clamping system** - Superior clamping precision with auto-centering system and highly precise grinding clamping parts
- **Screw on clamping system** - Easy to replace inserts
- **Sharp cutting edge** - Low cutting load and good chip control
- **Holder with excellent durability** - Holder with high rigidity and excellent wear resistance due to special surface treatment
- **Holder with excellent chip control** - Low cutting resistance and outstanding chip evaluation applying high helix angle

Code system

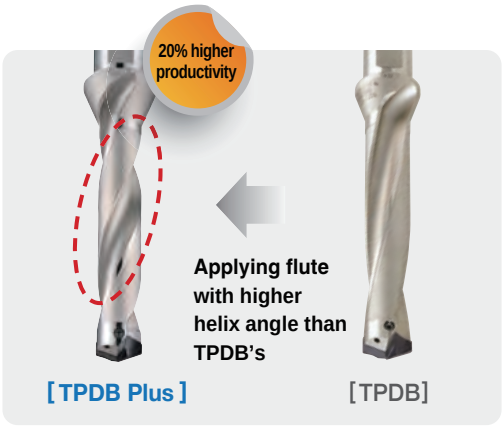
• **Insert**

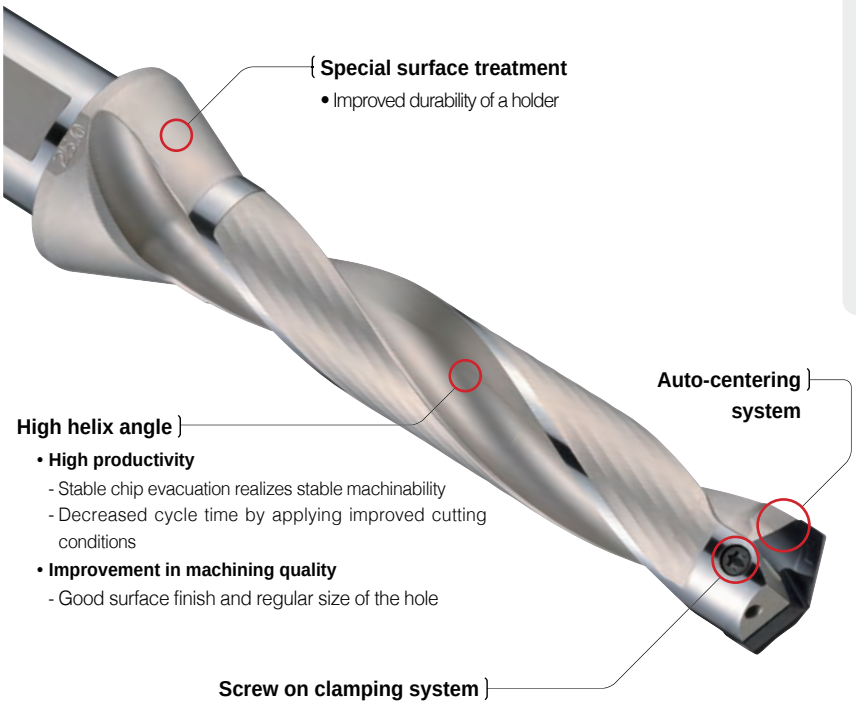
TPD	200	B
Top solid Piercing Drill	**Drill diameter** 200 : Ø20.0 mm	**Insert type** B : Blade type

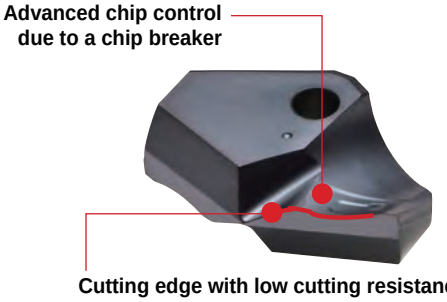
• **Holder**

TPD	B	-	200	-	25	-	5	-	P
Top solid Piercing Drill	**Insert type** B : Blade type		**Drill diameter** 200 : Ø20.0 mm		**Shank diameter** 25 : Ø25 mm		**Aspect ratio (L/D)** 3D, 5D, 8D, 10D, 12D		**Plus**

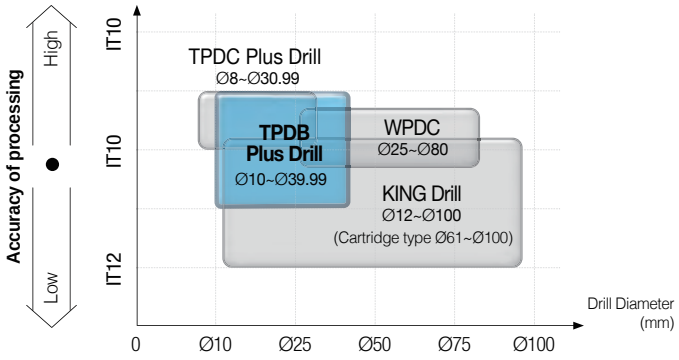
Features

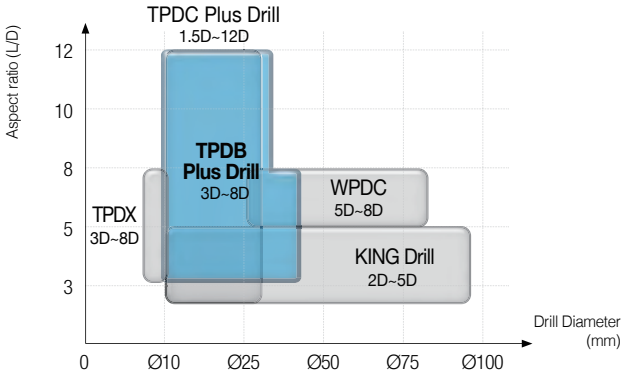






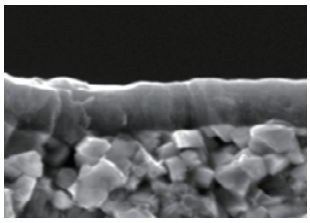
Application range





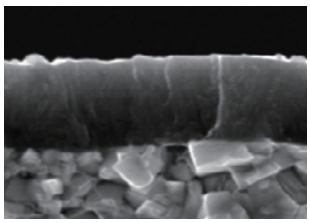
Tools		Application range			
		Drill Diameter (Ø)	Aspect ratio (L/D)	Tolerance of drill dia.	Workpiece
TPDB Plus Drill	TPDB	10.0 ~ 32.99 mm	3, 5, 8, 10, 12	h7	P, K
	TPDB-DS	33.0 ~ 39.99 mm	3, 5, 8		P, K
	TPDB-H	14.0 ~ 32.99 mm	3, 4, 5, 8		P
	TPDB-F	14.0 ~ 30.99 mm	1.5		P

Grade features



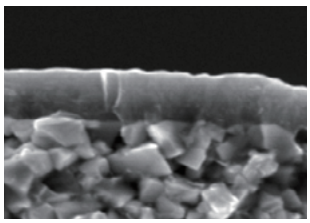
PC5300

- Applying PVD coating with high hardness and stability in machining at high temperature
- Stable Drilling due to high cutting edge strength and excellent chipping resistance
- Optimal grade for Drilling alloy Steel and Cast iron



PC5335

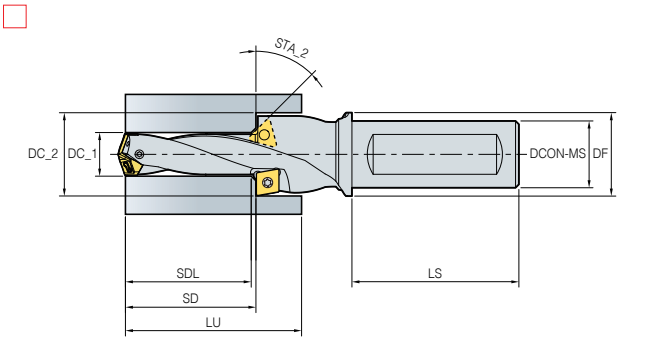
- Applying PVD coating with high toughness and excellent lubrication
- Coating layer highly adhering to substrate
- Optimal grade for general structural Carbon steel (FE360B, etc.) and machine structural Carbon steel (C45, etc.) machining

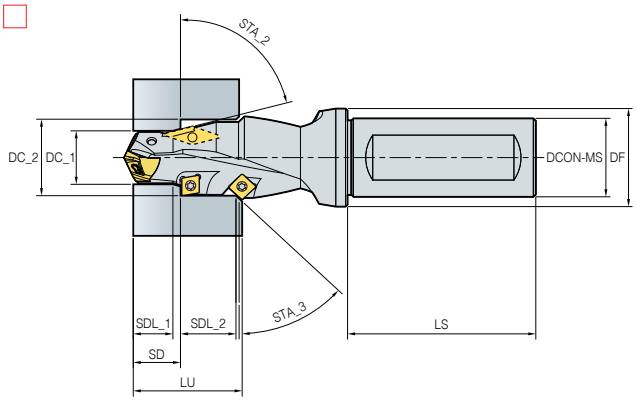


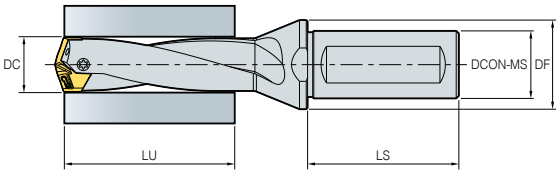
PC330P

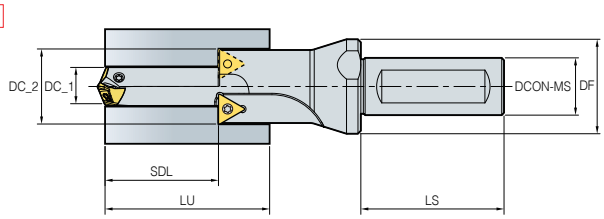
- Applying PVD coating with high surface finish and excellent lubrication
- Coating layer with excellent hardness at high temperature and oxidation resistance
- Optimal grade for welding structural Carbon steel (E355DD, etc.)

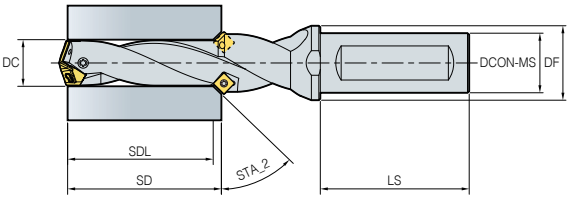
Special Drill Order Form











Hole type

☐ Blind hole ☐ Thru hole

Coolant type

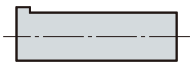
☐ Interna ☐ External

Special note

- Currently using tool :
- Current cutting condition
  - n (rpm) or vc (m/min) :
  - vf (mm/min) or fn (mm/rev) :
  - Depth of cut, ap (mm) :
- Standard of measuring tool life :
- Currently using machine
  - Machining center :
  - General lathe :
  - CNC lathe :

Types of shank

☐  Plain type

☐  Flat type

☐  Weldon type

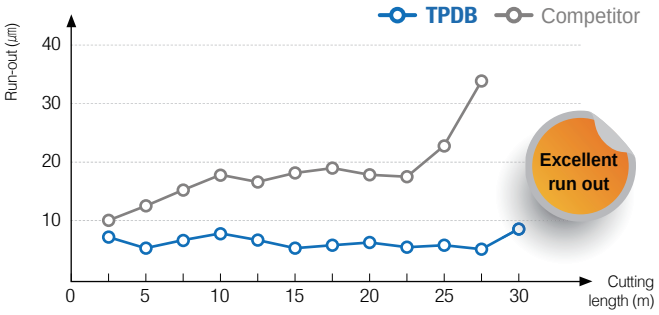
☐  Whistle notch type

Run-out

Workpiece Alloy steel (SCM440, HRC22)

Cutting conditions vc(m/min)=90, fn(mm/rev)=0.25, ap(mm)=120, wet(20 bar)

Tools **Insert :** TPD250B(PC5300)
Holder : TPDB250-32-5-P(Drill dia.=Ø25mm)



How to clamp an insert

Clamping an insert to a holder



① Put an insert on the tip seat of the holder.
② As the **[Pic. 1],** push the insert to the v-shaped groove of the holder.
③ Screw and clamp the insert.

Changing the used insert to a new one





① Unscrew and separate the used insert from the holder.
② As the **[Pic. 2],** clean the insert seat.
③ Put a new insert on the tip seat.
④ As the **[Pic. 3],** clamp the insert pushing it with a hand not to separate from the holder.

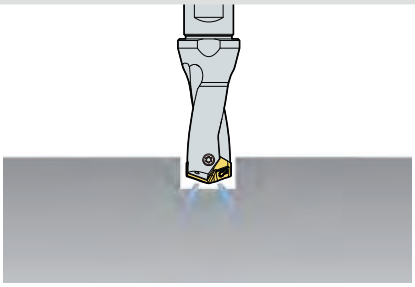
Recommended cutting conditions

Workpiece					Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	vc (m/min)	Aspect ratio (L/D) = 3D, 5D fn (mm/rev)		
ISO	Workpiece material		KS	ISO					Ø10~Ø16.9	Ø17~Ø26.9	Ø27~Ø32.9
P	Carbon steel	C = 0.10~0.25%	SM15C SM25C	C15 C25	1500	90~200	PC5335 PC330P	80~140	0.30~0.15	0.35~0.20	0.40~0.25
		C = 0.25~0.55%	SM35C SM45C	C35 C45	1600	125~225	PC5335 PC330P	80~140	0.30~0.15	0.35~0.20	0.40~0.25
		C = 0.55~0.80%	SM58C	C60	1700	150~250	PC5335 PC330P	70~130	0.30~0.15	0.35~0.20	0.40~0.25
	Alloy steel ≤ 5%	Non-hardened	SCM440	42CrMo4	1700	180	PC5300	80~140	0.35~0.18	0.38~0.23	0.43~0.28
		Hardened and Tempered	SCM445	-	2050	350	PC5300	50~100	0.35~0.18	0.38~0.23	0.43~0.28
	Alloy steel ≤ 5%	Annealed	STD11	-	1950	200	PC5300	50~90	0.30~0.18	0.35~0.20	0.40~0.25
		Hardened tool steel	STD61	X40CrMoV5-1	3000	352	PC5300	40~80	0.30~0.18	0.35~0.20	0.40~0.25
K	Gray cast iron		GC250 GC350	250 350	900	150~230	PC5300	80~140	0.35~0.18	0.40~0.20	0.45~0.25
	Ductile cast iron		GCD400 GCD500 GCD600	400-15 150-10 600-3	870	160~260	PC5300	70~130	0.35~0.18	0.40~0.20	0.45~0.25

※ In case of 8D, machine in 20 ~ 30% lower cutting conditions than the mentioned above, or machine the beginning of hole (1.5D) before Drilling.
※ In interrupted machining, reduce the feed to 0.1~ 0.15 machining around the interrupted part.
※ Refer to the 'Recommended Drilling method' on the page D56 for Drilling of 10D - 12D.

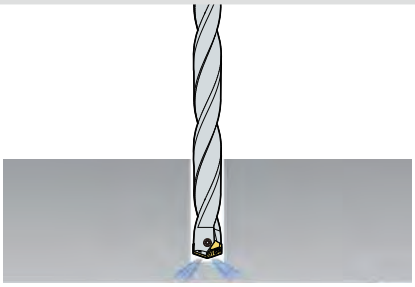
Recommended Drilling method (10D, 12D)

Machine a pilot hole (with a pilot Drill)



- Machine a pilot hole with the depth of cut as 0.5D and at 30% lower speed using a 1.5D or 3D Drill.

Start Drilling



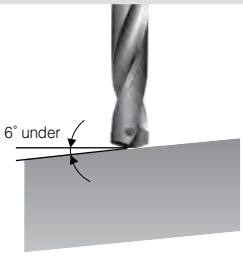
- After machining the pilot hole, replace the pilot Drill to a Drill for further operation and machine in recommended cutting conditions.



[Result of recommended Drilling] [Result of general Drilling]

Precaution in Drilling

Angled surface Drilling



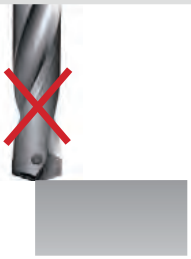
- The approach angle between Drill and the workpiece at the beginning and the end should be less than 6°.
- Reduce the feed (fn) to 30-50% than general cutting conditions at the beginning and the end of angled surface.

Stacked plates Drilling



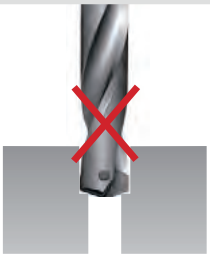
- Gap between the plates could make wrong chip evacuation causing fracture of the Drill.
- Strongly clamp the workpiece together to eliminate any gaps and then proceed with usage.

Plunging



- Irregular cutting resistance in plunging could cause fracture and deformation of the Drill.

Boring



- Boring is not recommended as it can cause excessive wear and chipping at the insert's corner.
- In case of necessity, process it with a 2mm stepping. (30% reduction in transfer during processing)

Basic checklist for the Drilling operations

- Workpiece clamping condition
- Rotational state of the main axial in the machining equipment
- Holder condition
- Clamped drill's Run-out : Max. 0.03 mm
- Coolant supply condition (pressure, flow rate,concentration)
- Chip evacuation condition

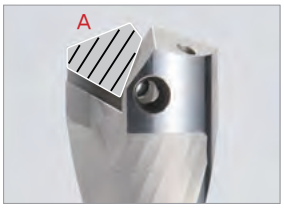
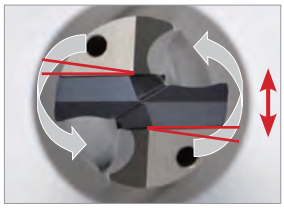
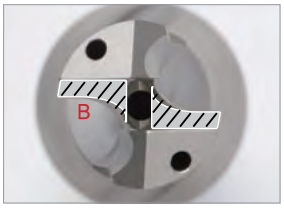
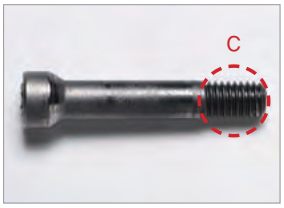
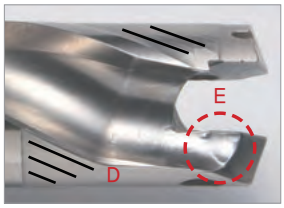
Coolant application system

- Adequate supply of cutting fluid at the entrance of the hole
- Minimum cutting fluid pressure : 5 bar or above
- Minimum flow rate : 5ℓ/min or avobe

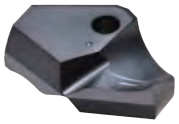


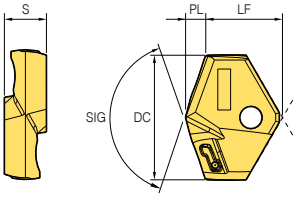
[Dry] [Internal coolant] [External coolant]

Replacement of holders and screws

Worn part	How to check	Description
[Pic. 1] 	[Pic. 2] Check the gap 	• In case of Drilling for a long time as shown in the **[Pic. 1]** the 'A' part is torn and twisted due to torque. • As shown in the **[Pic.2]** check the gap between the insert and the tip seat turning the clamped insert from side to side. If there is a gap between them, replace the used holder to a new one.
[Pic. 3] 	[Pic. 4] Check the moving 	• The insert could move up or down due to the load on the Z-axis in Drilling over an extended period of time which causes wear on the 'B' part as shown the **[Pic.3].** • After clamping an insert, if the insert is moving or there is a gap between the insert and the tip seat as shown in the **[Pic.4]** replace the used holder to a new one.
[Pic. 5] 	Check the moving 	• After an extended period of use, the screw can be worn as shown in the 'C' part of **[Pic.5]** which could decrease the clamping force of the insert. When the screw is worn, replace the old screw to a new one among the enclosed extras. • Spreading the grease on the screw makes it last longer
[Pic. 6] ① Check the 'D' and 'E' parts as shown in the **[Pic.6]** ② Check whether the chips are getting longer or not.		• Winding or jamming of long and tiny chips in Drilling causes wear or scratch on the 'D' part as shown in the **[Pic.6]** due to chattering from machining in improper cutting conditions. In that case, reset the cutting conditions and check the Run-out before machining. • The excessive wear of the part 'E' as shown in the **[Pic.6]** relating to chip curling might cause long chips.

Available insert(TPDB)



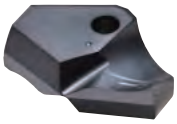


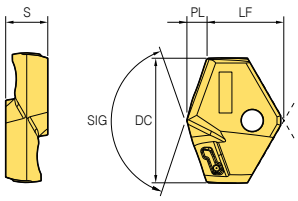
(mm)

Designation		Coated			DC	S	LF	PL	SIG
		PC5300	PC5335	PC330P					
TPD	100B	●			10.0	3.5	6.21	1.58	140˚
	101B	●			10.1	3.5	6.20	1.59	140˚
	102B	●			10.2	3.5	6.18	1.61	140˚
	103B	●			10.3	3.5	6.17	1.62	140˚
	105B	●			10.5	3.5	6.13	1.66	140˚
	108B	●			10.8	3.5	6.09	1.70	140˚
	110B	●	●		11.0	3.5	7.06	1.73	140˚
	111B	●			11.1	3.5	7.04	1.75	140˚
	115B	●			11.5	3.5	6.98	1.81	140˚
	118B	●			11.8	3.5	6.93	1.86	140˚
	120B	●	●		12.0	3.5	7.22	2.07	140˚
	121B	●			12.1	3.5	7.21	2.08	140˚
	122B	●			12.2	3.5	7.19	2.10	140˚
	123B	●			12.3	3.5	7.17	2.12	140˚
	124B	●			12.4	3.5	7.16	2.13	140˚
	125B	●	●		12.5	3.5	7.14	2.15	140˚
	126B	●			12.6	3.5	7.12	2.17	140˚
	130B	●			13.0	4.0	8.05	2.24	140˚
	132B	●			13.2	4.0	8.02	2.27	140˚
	135B	●			13.5	4.0	7.97	2.32	140˚
	137B	●			13.7	4.0	7.93	2.36	140˚
	140B	●	●		14.0	4.0	8.38	2.41	140˚
	141B	●			14.1	4.0	8.36	2.43	140˚
	142B	●			14.2	4.0	8.35	2.44	140˚
	143B	●			14.3	4.0	8.33	2.46	140˚
	144B	●			14.4	4.0	8.31	2.48	140˚
	145B	●	●		14.5	4.0	8.29	2.50	140˚
	146B	●			14.6	4.0	8.28	2.51	140˚
	147B	●			14.7	4.0	8.26	2.53	140˚
	150B	●	●		15.0	4.0	8.71	2.58	140˚
	151B	●			15.1	4.0	8.69	2.60	140˚
	152B	●			15.2	4.0	8.67	2.62	140˚
	154B	●			15.4	4.0	8.64	2.65	140˚
	155B	●	●		15.5	4.0	8.62	2.67	140˚
	157B	●			15.7	4.0	8.59	2.70	140˚
	158B	●			15.8	4.0	8.57	2.72	140˚
	159B			●	15.9	4.0	8.55	2.74	140˚
	160B	●	●		16.0	5.5	9.54	2.75	140˚
	161B	●			16.1	5.5	9.52	2.77	140˚
	162B	●			16.2	5.5	9.50	2.79	140˚
	163B	●			16.3	5.5	9.48	2.81	140˚
	164B	●			16.4	5.5	9.47	2.82	140˚
	165B	●			16.5	5.5	9.45	2.84	140˚
	166B	●			16.6	5.5	9.43	2.86	140˚
	167B	●			16.7	5.5	9.41	2.88	140˚
	170B	●	●	●	17.0	5.5	9.86	2.93	140˚
	171B	●			17.1	5.5	9.85	2.94	140˚
	172B	●			17.2	5.5	9.83	2.96	140˚
	173B	●			17.3	5.5	9.81	2.98	140˚
	174B	●			17.4	5.5	9.79	3.00	140˚
	175B	●	●	●	17.5	5.5	9.78	3.01	140˚
	176B	●			17.6	5.5	9.76	3.03	140˚
	177B	●			17.7	5.5	9.74	3.05	140˚
	178B	●			17.8	5.5	9.73	3.06	140˚
	180B	●	●	●	18.0	6.0	10.69	3.10	140˚
	181B	●			18.1	6.0	10.67	3.12	140˚
	182B	●			18.2	6.0	10.66	3.13	140˚
	185B	●	●	●	18.5	6.0	10.60	3.19	140˚
	186B	●	●		18.6	6.0	10.59	3.20	140˚
	187B	●			18.7	6.0	10.57	3.22	140˚
	190B	●	●		19.0	6.0	11.02	3.27	140˚
	191B	●			19.1	6.0	11.00	3.29	140˚
	192B	●			19.2	6.0	10.98	3.31	140˚
	193B	●			19.3	6.0	10.97	3.32	140˚
	195B	●			19.5	6.0	10.93	3.36	140˚

Applicable holders **D60 ~ D64**

Available insert(TPDB)





(mm)

Designation		Coated			DC	S	LF	PL	SIG
		PC5300	PC5335	PC330P					
TPD	196B	●			19.6	6.0	10.92	3.37	140˚
	197B	●			19.7	6.0	10.90	3.39	140˚
	198B	●			19.8	6.0	10.88	3.41	140˚
	200B	●			20.0	6.5	11.99	3.44	140˚
	201B	●	●	●	20.1	6.5	11.97	3.46	140˚
	202B	●			20.2	6.5	11.95	3.48	140˚
	204B	●			20.4	6.5	11.92	3.51	140˚
	205B	●			20.5	6.5	11.90	3.53	140˚
	206B	●			20.6	6.5	11.88	3.55	140˚
	210B	●			21.0	6.5	12.31	3.62	140˚
	211B	●	●	●	21.1	6.5	12.30	3.63	140˚
	212B	●			21.2	6.5	12.28	3.65	140˚
	213B	●			21.3	6.5	12.26	3.67	140˚
	215B	●			21.5	6.5	12.23	3.70	140˚
	217B	●			21.7	6.5	12.19	3.74	140˚
	219B	●			21.9	6.5	12.16	3.77	140˚
	220B	●			22.0	7.0	12.64	3.79	140˚
	222B	●	●		22.2	7.0	12.61	3.82	140˚
	223B	●			22.3	7.0	12.59	3.84	140˚
	225B	●			22.5	7.0	12.56	3.87	140˚
	227B	●			22.7	7.0	12.52	3.91	140˚
	230B	●			23.0	7.0	12.97	3.96	140˚
	235B	●	●		23.5	7.0	12.88	4.05	140˚
	237B	●			23.7	7.0	12.85	4.08	140˚
	240B	●			24.0	7.5	13.45	4.13	140˚
	242B	●	●		24.2	7.5	13.41	4.17	140˚
	244B	●			24.4	7.5	13.38	4.20	140˚
	245B	●			24.5	7.5	13.36	4.22	140˚
	247B	●			24.7	7.5	13.33	4.25	140˚
	250B	●			25.0	7.5	13.65	4.43	140˚
	251B	●	●		25.1	7.5	13.64	4.44	140˚
	252B	●			25.2	7.5	13.62	4.46	140˚
	253B	●			25.3	7.5	13.60	4.48	140˚
	255B	●			25.5	7.5	13.56	4.52	140˚
	256B	●			25.6	7.5	13.55	4.53	140˚
	258B	●			25.8	7.5	13.51	4.57	140˚
	259B	●			25.9	7.5	13.49	4.59	140˚
	260B	●			26.0	8.5	13.98	4.60	140˚
	262B	●	●		26.2	8.5	13.94	4.64	140˚
	265B	●			26.5	8.5	13.89	4.69	140˚
	270B	●			27.0	8.5	14.80	4.78	140˚
	275B	●		●	27.5	8.5	14.71	4.87	140˚
	280B	●			28.0	9.5	15.76	4.96	140˚
	285B	●			28.5	9.5	15.67	5.05	140˚
	290B	●			29.0	9.5	16.09	5.13	140˚
	295B	●			29.5	9.5	16.00	5.22	140˚
	300B	●			30.0	10.0	16.26	5.46	140˚
	310B	●			31.0	10.0	16.58	5.64	140˚
	320B	●		●	32.0	10.0	16.90	5.82	140˚
	329B	●			32.9	10.0	16.73	5.99	140˚

Applicable holders **D60 ~ D64**

※ We can provide nonstock items with Ø10.00-Ø32.99

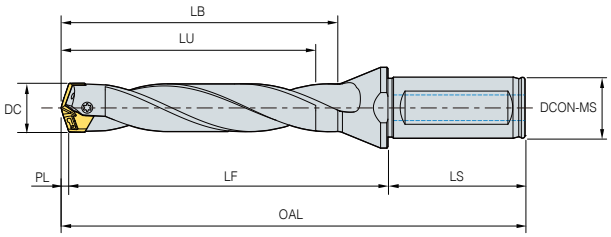
● : Stock Item

Parts

Designation		Drill dia. (ØD)	Screw	Wrench	Torque (N•m)
TPD	100B ~ 129B	10.0 ~ 12.9	FTNB0209-P	TW06P	0.4
	130B ~ 149B	13.0 ~ 14.9	FTNB02512-P	TW07S	0.8
	150B ~ 179B	15.0 ~ 17.9	FTNB02514-P	TW07S	0.8
	180B ~ 199B	18.0 ~ 19.9	FTNB0316-P	TW09S	1.2
	200B ~ 239B	20.0 ~ 23.9	FTNB0319	TW09S	1.2
	240B ~ 259B	24.0 ~ 25.9	FTNB03522	TW15S	3.0
	260B ~ 279B	26.0 ~ 27.9	FTNB03524	TW15S	3.0
	280B ~ 299B	28.0 ~ 29.9	FTNB0426	TW15S	3.0
	300B ~ 329B	30.0 ~ 32.9	FTNB0528	TW20-100	4.0

TPDB(3D)





(mm)

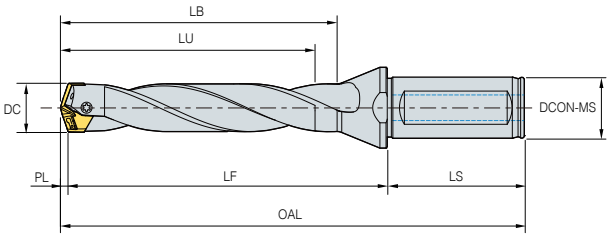
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDB	100-16-3-P	●	10.0~10.4	16	31.58	47.02	37.08	48	96.6	1.58	TPD100B~104B
	105-16-3-P	●	10.5~10.9	16	33.16	47.94	38.91	48	97.6	1.66	TPD105B~109B
	110-16-3-P	●	11.0~11.4	16	34.73	49.97	40.73	48	99.7	1.73	TPD110B~114B
	115-16-3-P	●	11.5~11.9	16	36.31	50.89	42.56	48	100.7	1.81	TPD115B~119B
	120-16-3-P	●	12.0~12.4	16	38.07	53.83	44.57	48	103.9	2.07	TPD120B~124B
	125-16-3-P	●	12.5~12.9	16	39.65	55.75	46.4	48	105.9	2.15	TPD125B~129B
	130-16-3-P	●	13.0~13.4	16	41.24	59.06	48.24	48	109.3	2.24	TPD130B~134B
	135-16-3-P	●	13.5~13.9	16	42.82	60.98	50.07	48	111.3	2.32	TPD135B~139B
	140-16-3-P	●	14.0~14.4	16	44.41	63.09	51.91	48	113.5	2.41	TPD140B~144B
	145-16-3-P	●	14.5~14.9	16	46	66	53.75	48	116.5	2.5	TPD145B~149B
	150-20-3-P	●	15.0~15.4	20	47.58	68.12	55.58	50	120.7	2.58	TPD150B~154B
	155-20-3-P	●	15.5~15.9	20	49.17	70.03	57.42	50	122.7	2.67	TPD155B~159B
	160-20-3-P	●	16.0~16.4	20	50.75	72.15	59.25	50	124.9	2.75	TPD160B~164B
	165-20-3-P	●	16.5~16.9	20	52.34	74.06	61.09	50	126.9	2.84	TPD165B~169B
	170-20-3-P	●	17.0~17.4	20	53.93	77.17	62.93	50	130.1	2.93	TPD170B~174B
	175-20-3-P	●	17.5~17.9	20	55.51	79.09	64.76	50	132.1	3.01	TPD175B~179B
	180-25-3-P	●	18.0~18.4	25	57.1	81.1	66.6	56	140.2	3.1	TPD180B~184B
	185-25-3-P	●	18.5~18.9	25	58.69	83.01	68.44	56	142.2	3.19	TPD185B~189B
	190-25-3-P	●	19.0~19.4	25	60.27	86.03	70.27	56	145.3	3.27	TPD190B~194B
	195-25-3-P	●	19.5~19.9	25	61.86	87.94	72.11	56	147.3	3.36	TPD195B~199B
	200-25-3-P	●	20.0~20.4	25	63.44	90.06	73.94	56	149.5	3.44	TPD200B~204B
	205-25-3-P	●	20.5~20.9	25	65.03	91.97	75.78	56	151.5	3.53	TPD205B~209B
	210-25-3-P	●	21.0~21.4	25	66.62	91.08	77.62	60	154.7	3.62	TPD210B~214B
	215-25-3-P	●	21.5~21.9	25	68.2	93	79.45	60	156.7	3.7	TPD215B~219B
	220-25-3-P	●	22.0~22.4	25	69.79	95.11	81.29	60	158.9	3.79	TPD220B~224B
	225-25-3-P	●	22.5~22.9	25	71.37	97.03	83.12	60	160.9	3.87	TPD225B~229B
	230-25-3-P	●	23.0~23.4	25	72.96	100.14	84.96	60	164.1	3.96	TPD230B~234B
	235-25-3-P	●	23.5~23.9	25	74.55	102.05	86.8	60	166.1	4.05	TPD235B~239B
	240-32-3-P	●	24.0~24.4	32	76.13	108.17	88.63	60	172.3	4.13	TPD240B~244B
	245-32-3-P	●	24.5~24.9	32	77.72	110.08	90.47	60	174.3	4.22	TPD245B~249B
	250-32-3-P	●	25.0~25.4	32	79.43	113.07	92.43	60	177.5	4.43	TPD250B~254B
	255-32-3-P	●	25.5~25.9	32	81.02	114.98	94.27	60	179.5	4.52	TPD255B~259B
	260-32-3-P	●	26.0~26.9	32	82.6	117.1	96.1	60	181.7	4.6	TPD260B~269B
	270-32-3-P	●	27.0~27.9	32	85.78	122.12	99.78	60	186.9	4.78	TPD270B~279B
	280-32-3-P	●	28.0~28.9	32	88.96	126.04	103.46	60	191.0	4.96	TPD280B~289B
	290-32-3-P	●	29.0~29.9	32	92.13	131.07	107.13	60	196.2	5.13	TPD290B~299B
	300-32-3-P	●	30.0~30.9	32	95.46	133.94	110.96	60	199.4	5.46	TPD300B~309B
	310-32-3-P	●	31.0~31.9	32	98.64	138.96	114.64	60	204.6	5.64	TPD310B~319B
	320-32-3-P	●	32.0~32.9	32	101.82	140.98	118.32	60	206.8	5.82	TPD320B~329B

Applicable inserts **D58 ~ D59**

● : Stock Item

TPDB(5D)





(mm)

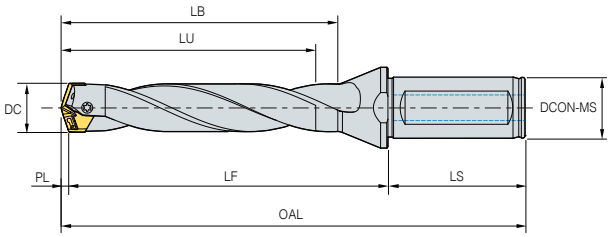
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDB	100-16-5-P	●	10.0-10.4	16	51.58	67.02	57.08	48	116.6	1.58	TPD100B~104B
	105-16-5-P	●	10.5-10.9	16	54.16	68.94	59.91	48	118.6	1.66	TPD105B~109B
	110-16-5-P	●	11.0-11.4	16	56.73	71.97	62.73	48	121.7	1.73	TPD110B~114B
	115-16-5-P	●	11.5-11.9	16	59.31	74.89	65.56	48	124.7	1.81	TPD115B~119B
	120-16-5-P	●	12.0-12.4	16	62.07	78.03	68.57	48	128.1	2.07	TPD120B~124B
	125-16-5-P	●	12.5-12.9	16	64.65	81.05	71.4	48	131.2	2.15	TPD125B~129B
	130-16-5-P	●	13.0-13.4	16	67.24	85.06	74.24	48	135.3	2.24	TPD130B~134B
	135-16-5-P	●	13.5-13.9	16	69.82	88.08	77.07	48	138.4	2.32	TPD135B~139B
	140-16-5-P	●	14.0-14.4	16	72.41	91.09	79.91	48	141.5	2.41	TPD140B~144B
	145-16-5-P	●	14.5-14.9	16	75	95.1	82.75	48	145.6	2.5	TPD145B~149B
	150-20-5-P	●	15.0-15.4	20	77.58	98.12	85.58	50	150.7	2.58	TPD150B~154B
	155-20-5-P	●	15.5-15.9	20	80.17	101.03	88.42	50	153.7	2.67	TPD155B~159B
	160-20-5-P	●	16.0-16.4	20	82.75	104.15	91.25	50	156.9	2.75	TPD160B~164B
	165-20-5-P	●	16.5-16.9	20	85.34	107.06	94.09	50	159.9	2.84	TPD165B~169B
	170-20-5-P	●	17.0-17.4	20	87.93	111.17	96.93	50	164.1	2.93	TPD170B~174B
	175-20-5-P	●	17.5-17.9	20	90.51	114.09	99.76	50	167.1	3.01	TPD175B~179B
	180-25-5-P	●	18.0-18.4	25	93.1	117.1	102.6	56	176.2	3.1	TPD180B~184B
	185-25-5-P	●	18.5-18.9	25	95.69	120.01	105.44	56	179.2	3.19	TPD185B~189B
	190-25-5-P	●	19.0-19.4	25	98.27	124.03	108.27	56	183.3	3.27	TPD190B~194B
	195-25-5-P	●	19.5-19.9	25	100.86	126.94	111.11	56	186.3	3.36	TPD195B~199B
	200-25-5-P	●	20.0-20.4	25	103.44	130.06	113.94	56	189.5	3.44	TPD200B~204B
	205-25-5-P	●	20.5-20.9	25	106.03	132.97	116.78	56	192.5	3.53	TPD205B~209B
	210-25-5-P	●	21.0-21.4	25	108.62	133.08	119.62	60	196.7	3.62	TPD210B~214B
	215-25-5-P	●	21.5-21.9	25	111.2	136	122.45	60	199.7	3.7	TPD215B~219B
	220-25-5-P	●	22.0-22.4	25	113.79	139.11	125.29	60	202.9	3.79	TPD220B~224B
	225-25-5-P	●	22.5-22.9	25	116.37	142.03	128.12	60	205.9	3.87	TPD225B~229B
	230-25-5-P	●	23.0-23.4	25	118.96	146.14	130.96	60	210.1	3.96	TPD230B~234B
	235-25-5-P	●	23.5-23.9	25	121.55	149.05	133.8	60	213.1	4.05	TPD235B~239B
	240-32-5-P	●	24.0-24.4	32	124.13	156.17	136.63	60	220.3	4.13	TPD240B~244B
	245-32-5-P	●	24.5-24.9	32	126.72	159.08	139.47	60	223.3	4.22	TPD245B~249B
	250-32-5-P	●	25.0-25.4	32	129.43	163.07	142.43	60	227.5	4.43	TPD250B~254B
	255-32-5-P	●	25.5-25.9	32	132.02	165.98	145.27	60	230.5	4.52	TPD255B~259B
	260-32-5-P	●	26.0-26.9	32	134.6	169.1	148.1	60	233.7	4.6	TPD260B~269B
	270-32-5-P	●	27.0-27.9	32	139.78	176.12	153.78	60	240.9	4.78	TPD270B~279B
	280-32-5-P	●	28.0-28.9	32	144.96	182.04	159.46	60	247.0	4.96	TPD280B~289B
	290-32-5-P	●	29.0-29.9	32	150.13	189.07	165.13	60	254.2	5.13	TPD290B~299B
	300-32-5-P	●	30.0-30.9	32	155.46	193.94	170.96	60	259.4	5.46	TPD300B~309B
	310-32-5-P	●	31.0-31.9	32	160.64	200.96	176.64	60	266.6	5.64	TPD310B~319B
	320-32-5-P	●	32.0-32.9	32	165.82	204.98	182.32	60	270.8	5.82	TPD320B~329B

Applicable inserts **D58 ~ D59**

● : Stock Item

TPDB(8D)





(mm)

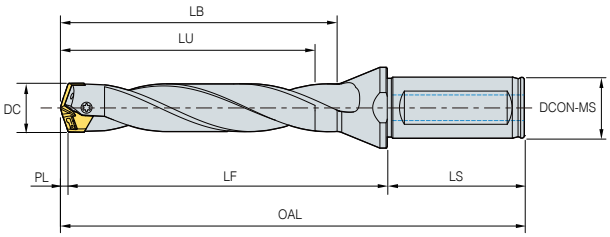
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDB	100-16-8-P	●	10.0~10.4	16	81.58	97.02	87.08	48	146.6	1.58	TPD100B~104B
	105-16-8-P	●	10.5~10.9	16	85.66	100.94	91.41	48	150.6	1.66	TPD105B~109B
	110-16-8-P	●	11.0~11.4	16	89.73	104.97	95.73	48	154.7	1.73	TPD110B~114B
	115-16-8-P	●	11.5~11.9	16	93.81	108.89	100.06	48	158.7	1.81	TPD115B~119B
	120-16-8-P	●	12.0~12.4	16	98.07	114.03	104.57	48	164.1	2.07	TPD120B~124B
	125-16-8-P	●	12.5~12.9	16	102.15	118.55	108.9	48	168.7	2.15	TPD125B~129B
	130-16-8-P	●	13.0~13.4	16	106.24	124.06	113.24	48	174.3	2.24	TPD130B~134B
	135-16-8-P	●	13.5~13.9	16	110.32	128.58	117.57	48	178.9	2.32	TPD135B~139B
	140-16-8-P	●	14.0~14.4	16	114.41	133.09	121.91	48	183.5	2.41	TPD140B~144B
	145-16-8-P	●	14.5~14.9	16	118.5	138.6	126.25	48	189.1	2.5	TPD145B~149B
	150-20-8-P	●	15.0~15.4	20	122.58	143.12	130.58	50	195.7	2.58	TPD150B~154B
	155-20-8-P	●	15.5~15.9	20	126.67	147.53	134.92	50	200.2	2.67	TPD155B~159B
	160-20-8-P	●	16.0~16.4	20	130.75	152.15	139.25	50	204.9	2.75	TPD160B~164B
	165-20-8-P	●	16.5~16.9	20	134.84	156.56	143.59	50	209.4	2.84	TPD165B~169B
	170-20-8-P	●	17.0~17.4	20	138.93	162.17	147.93	50	215.1	2.93	TPD170B~174B
	175-20-8-P	●	17.5~17.9	20	143.01	166.59	152.26	50	219.6	3.01	TPD175B~179B
	180-25-8-P	●	18.0~18.4	25	147.1	171.1	156.6	56	230.2	3.1	TPD180B~184B
	185-25-8-P	●	18.5~18.9	25	151.19	175.51	160.94	56	234.7	3.19	TPD185B~189B
	190-25-8-P	●	19.0~19.4	25	155.27	181.03	165.27	56	240.3	3.27	TPD190B~194B
	195-25-8-P	●	19.5~19.9	25	159.36	185.44	169.61	56	244.8	3.36	TPD195B~199B
	200-25-8-P	●	20.0~20.4	25	163.44	190.06	173.94	56	249.5	3.44	TPD200B~204B
	205-25-8-P	●	20.5~20.9	25	167.53	194.47	178.28	56	254	3.53	TPD205B~209B
	210-25-8-P	●	21.0~21.4	25	171.62	196.08	182.62	60	259.7	3.62	TPD210B~214B
	215-25-8-P	●	21.5~21.9	25	175.7	200.5	186.95	60	264.2	3.7	TPD215B~219B
	220-25-8-P	●	22.0~22.4	25	179.79	205.11	191.29	60	268.9	3.79	TPD220B~224B
	225-25-8-P	●	22.5~22.9	25	183.87	209.73	195.62	60	273.6	3.87	TPD225B~229B
	230-25-8-P	●	23.0~23.4	25	187.96	215.14	199.96	60	279.1	3.96	TPD230B~234B
	235-25-8-P	●	23.5~23.9	25	192.05	219.55	204.3	60	283.6	4.05	TPD235B~239B
	240-32-8-P	●	24.0~24.4	32	196.13	228.17	208.63	60	292.3	4.13	TPD240B~244B
	245-32-8-P	●	24.5~24.9	32	200.22	232.58	212.97	60	296.8	4.22	TPD245B~249B
	250-32-8-P	●	25.0~25.4	32	204.43	238.07	217.43	60	302.5	4.43	TPD250B~254B
	255-32-8-P	●	25.5~25.9	32	208.52	242.48	221.77	60	307	4.52	TPD255B~259B
	260-32-8-P	●	26.0~26.9	32	212.6	247.1	226.1	60	311.7	4.6	TPD260B~269B
	270-32-8-P	●	27.0~27.9	32	220.78	257.12	234.78	60	321.9	4.78	TPD270B~279B
	280-32-8-P	●	28.0~28.9	32	228.96	266.04	243.46	60	331	4.96	TPD280B~289B
	290-32-8-P	●	29.0~29.9	32	237.13	276.07	252.13	60	341.2	5.13	TPD290B~299B
	300-32-8-P	●	30.0~30.9	32	245.46	283.94	260.96	60	349.4	5.46	TPD300B~309B
	310-32-8-P	●	31.0~31.9	32	253.64	293.96	269.64	60	359.6	5.64	TPD310B~319B
	320-32-8-P	●	32.0~32.9	32	261.82	300.98	278.32	60	366.8	5.82	TPD320B~329B

Applicable inserts **D58 ~ D59**

● : Stock Item

TPDB(10D)





(mm)

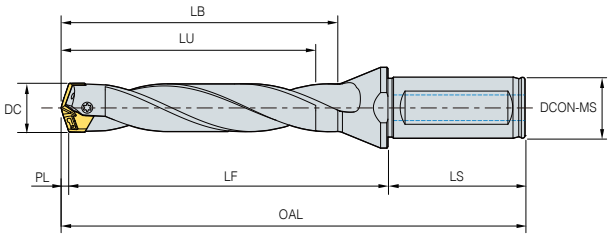
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDB	100-16-10-P	●	10.0~10.4	16	101.58	117.02	107.08	48	166.6	1.58	TPD100B~104B
	105-16-10-P	●	10.5~10.9	16	106.66	121.94	112.41	48	171.6	1.66	TPD105B~109B
	110-16-10-P	●	11.0~11.4	16	111.73	126.97	117.73	48	176.7	1.73	TPD110B~114B
	115-16-10-P	●	11.5~11.9	16	116.81	131.89	123.06	48	181.7	1.81	TPD115B~119B
	120-16-10-P	●	12.0~12.4	16	122.07	138.03	128.57	48	188.1	2.07	TPD120B~124B
	125-16-10-P	●	12.5~12.9	16	127.15	143.55	133.9	48	193.7	2.15	TPD125B~129B
	130-16-10-P	●	13.0~13.4	16	132.24	150.06	139.24	48	200.3	2.24	TPD130B~134B
	135-16-10-P	●	13.5~13.9	16	137.32	155.58	144.57	48	205.9	2.32	TPD135B~139B
	140-16-10-P	●	14.0~14.4	16	142.41	161.09	149.91	48	211.5	2.41	TPD140B~144B
	145-16-10-P	●	14.5~14.9	16	147.5	167.6	155.25	48	218.1	2.5	TPD145B~149B
	150-20-10-P	●	15.0~15.4	20	152.58	173.12	160.58	50	225.7	2.58	TPD150B~154B
	155-20-10-P	●	15.5~15.9	20	157.67	178.53	165.92	50	231.2	2.67	TPD155B~159B
	160-20-10-P	●	16.0~16.4	20	162.75	184.15	171.25	50	236.9	2.75	TPD160B~164B
	165-20-10-P	●	16.5~16.9	20	167.84	189.56	176.59	50	242.4	2.84	TPD165B~169B
	170-20-10-P	●	17.0~17.4	20	172.93	196.17	181.93	50	249.1	2.93	TPD170B~174B
	175-20-10-P	●	17.5~17.9	20	178.01	201.59	187.26	50	254.6	3.01	TPD175B~179B
	180-25-10-P	●	18.0~18.4	25	183.1	207.1	192.6	56	266.2	3.1	TPD180B~184B
	185-25-10-P	●	18.5~18.9	25	188.19	212.51	197.94	56	271.7	3.19	TPD185B~189B
	190-25-10-P	●	19.0~19.4	25	193.27	219.03	203.27	56	278.3	3.27	TPD190B~194B
	195-25-10-P	●	19.5~19.9	25	198.36	224.44	208.61	56	283.8	3.36	TPD195B~199B
	200-25-10-P	●	20.0~20.4	25	203.44	230.06	213.94	56	289.5	3.44	TPD200B~204B
	205-25-10-P	●	20.5~20.9	25	208.53	235.47	219.28	56	295	3.53	TPD205B~209B
	210-25-10-P	●	21.0~21.4	25	213.62	238.08	224.62	60	301.7	3.62	TPD210B~214B
	215-25-10-P	●	21.5~21.9	25	218.7	243.5	229.95	60	307.2	3.7	TPD215B~219B
	220-25-10-P	●	22.0~22.4	25	223.79	249.11	235.29	60	312.9	3.79	TPD220B~224B
	225-25-10-P	●	22.5~22.9	25	228.87	254.73	240.62	60	318.6	3.87	TPD225B~229B
	230-25-10-P	●	23.0~23.4	25	233.96	261.14	245.96	60	325.1	3.96	TPD230B~234B
	235-25-10-P	●	23.5~23.9	25	239.05	266.55	251.3	60	330.6	4.05	TPD235B~239B
	240-32-10-P	●	24.0~24.4	32	244.13	276.17	256.63	60	340.3	4.13	TPD240B~244B
	245-32-10-P	●	24.5~24.9	32	249.22	281.58	261.97	60	345.8	4.22	TPD245B~249B
	250-32-10-P	●	25.0~25.4	32	254.43	288.07	267.43	60	352.5	4.43	TPD250B~254B
	255-32-10-P	●	25.5~25.9	32	259.52	293.48	272.77	60	358	4.52	TPD255B~259B
	260-32-10-P	●	26.0~26.9	32	264.6	299.1	278.1	60	363.7	4.6	TPD260B~269B
	270-32-10-P	●	27.0~27.9	32	274.78	311.12	288.78	60	375.9	4.78	TPD270B~279B
	280-32-10-P	●	28.0~28.9	32	284.96	322.04	299.46	60	387	4.96	TPD280B~289B
	290-32-10-P	●	29.0~29.9	32	295.13	334.07	310.13	60	399.2	5.13	TPD290B~299B
	300-32-10-P	●	30.0~30.9	32	305.46	343.94	320.96	60	409.4	5.46	TPD300B~309B
	310-32-10-P	●	31.0~31.9	32	315.64	355.96	331.64	60	421.6	5.64	TPD310B~319B
	320-32-10-P	●	32.0~32.9	32	325.82	364.98	342.32	60	430.8	5.82	TPD320B~329B

Applicable inserts **D58 ~ D59**

● : Stock Item

TPDB(12D)





(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDB	100-16-12-P	●	10.0~10.4	16	121.58	137.02	127.08	48	186.6	1.58	TPD100B~104B
	105-16-12-P	●	10.5~10.9	16	127.66	142.94	133.41	48	192.6	1.66	TPD105B~109B
	110-16-12-P	●	11.0~11.4	16	133.73	148.97	139.73	48	198.7	1.73	TPD110B~114B
	115-16-12-P	●	11.5~11.9	16	139.81	154.89	146.06	48	204.7	1.81	TPD115B~119B
	120-16-12-P	●	12.0~12.4	16	146.07	162.03	152.57	48	212.1	2.07	TPD120B~124B
	125-16-12-P	●	12.5~12.9	16	152.15	168.55	158.9	48	218.7	2.15	TPD125B~129B
	130-16-12-P	●	13.0~13.4	16	158.24	176.06	165.24	48	226.3	2.24	TPD130B~134B
	135-16-12-P	●	13.5~13.9	16	164.32	182.58	171.57	48	232.9	2.32	TPD135B~139B
	140-16-12-P	●	14.0~14.4	16	170.41	189.09	177.91	48	239.5	2.41	TPD140B~144B
	145-16-12-P	●	14.5~14.9	16	176.5	196.6	184.25	48	247.1	2.5	TPD145B~149B
	150-20-12-P	●	15.0~15.4	20	182.58	203.12	190.58	50	255.7	2.58	TPD150B~154B
	155-20-12-P	●	15.5~15.9	20	188.67	209.53	196.92	50	262.2	2.67	TPD155B~159B
	160-20-12-P	●	16.0~16.4	20	194.75	216.15	203.25	50	268.9	2.75	TPD160B~164B
	165-20-12-P	●	16.5~16.9	20	200.84	222.56	209.59	50	275.4	2.84	TPD165B~169B
	170-20-12-P	●	17.0~17.4	20	206.93	230.17	215.93	50	283.1	2.93	TPD170B~174B
	175-20-12-P	●	17.5~17.9	20	213.01	236.59	222.26	50	289.6	3.01	TPD175B~179B
	180-25-12-P	●	18.0~18.4	25	219.1	243.1	228.6	56	302.2	3.1	TPD180B~184B
	185-25-12-P	●	18.5~18.9	25	225.19	249.51	234.94	56	308.7	3.19	TPD185B~189B
	190-25-12-P	●	19.0~19.4	25	231.27	257.03	241.27	56	316.3	3.27	TPD190B~194B
	195-25-12-P	●	19.5~19.9	25	237.36	263.44	247.61	56	322.8	3.36	TPD195B~199B
	200-25-12-P	●	20.0~20.4	25	243.44	270.06	253.94	56	329.5	3.44	TPD200B~204B
	205-25-12-P	●	20.5~20.9	25	249.53	276.47	260.28	56	336	3.53	TPD205B~209B
	210-25-12-P	●	21.0~21.4	25	255.62	280.08	266.62	60	343.7	3.62	TPD210B~214B
	215-25-12-P	●	21.5~21.9	25	261.7	286.5	272.95	60	350.2	3.7	TPD215B~219B
	220-25-12-P	●	22.0~22.4	25	267.79	293.11	279.29	60	356.9	3.79	TPD220B~224B
	225-25-12-P	●	22.5~22.9	25	273.87	299.73	285.62	60	363.6	3.87	TPD225B~229B
	230-25-12-P	●	23.0~23.4	25	279.96	307.14	291.96	60	371.1	3.96	TPD230B~234B
	235-25-12-P	●	23.5~23.9	25	286.05	313.55	298.3	60	377.6	4.05	TPD235B~239B
	240-32-12-P	●	24.0~24.4	32	292.13	324.17	304.63	60	388.3	4.13	TPD240B~244B
	245-32-12-P	●	24.5~24.9	32	298.22	330.58	310.97	60	394.8	4.22	TPD245B~249B
	250-32-12-P	●	25.0~25.4	32	304.43	338.07	317.43	60	402.5	4.43	TPD250B~254B
	255-32-12-P	●	25.5~25.9	32	310.52	344.48	323.77	60	409	4.52	TPD255B~259B
	260-32-12-P	●	26.0~26.9	32	316.6	351.1	330.1	60	415.7	4.6	TPD260B~269B
	270-32-12-P	●	27.0~27.9	32	328.78	365.12	342.78	60	429.9	4.78	TPD270B~279B
	280-32-12-P	●	28.0~28.9	32	340.96	378.04	355.46	60	443	4.96	TPD280B~289B
	290-32-12-P	●	29.0~29.9	32	353.13	392.07	368.13	60	457.2	5.13	TPD290B~299B
	300-32-12-P	●	30.0~30.9	32	365.46	403.94	380.96	60	469.4	5.46	TPD300B~309B
	310-32-12-P	●	31.0~31.9	32	377.64	417.96	393.64	60	483.6	5.64	TPD310B~319B
	320-32-12-P	●	32.0~32.9	32	389.82	428.98	406.32	60	494.8	5.82	TPD320B~329B

Applicable inserts **D58 ~ D59**

● : Stock Item

TPDB-DS

- A curved linear insert with high helix angle applied holder, which has low cutting load and excellent chip handling performance.
- Excellent clamping stability with a specially designed clamping section and 2 screws-on clamping methods.
- Improved wear resistance and durability through special surface treatment.

Code system

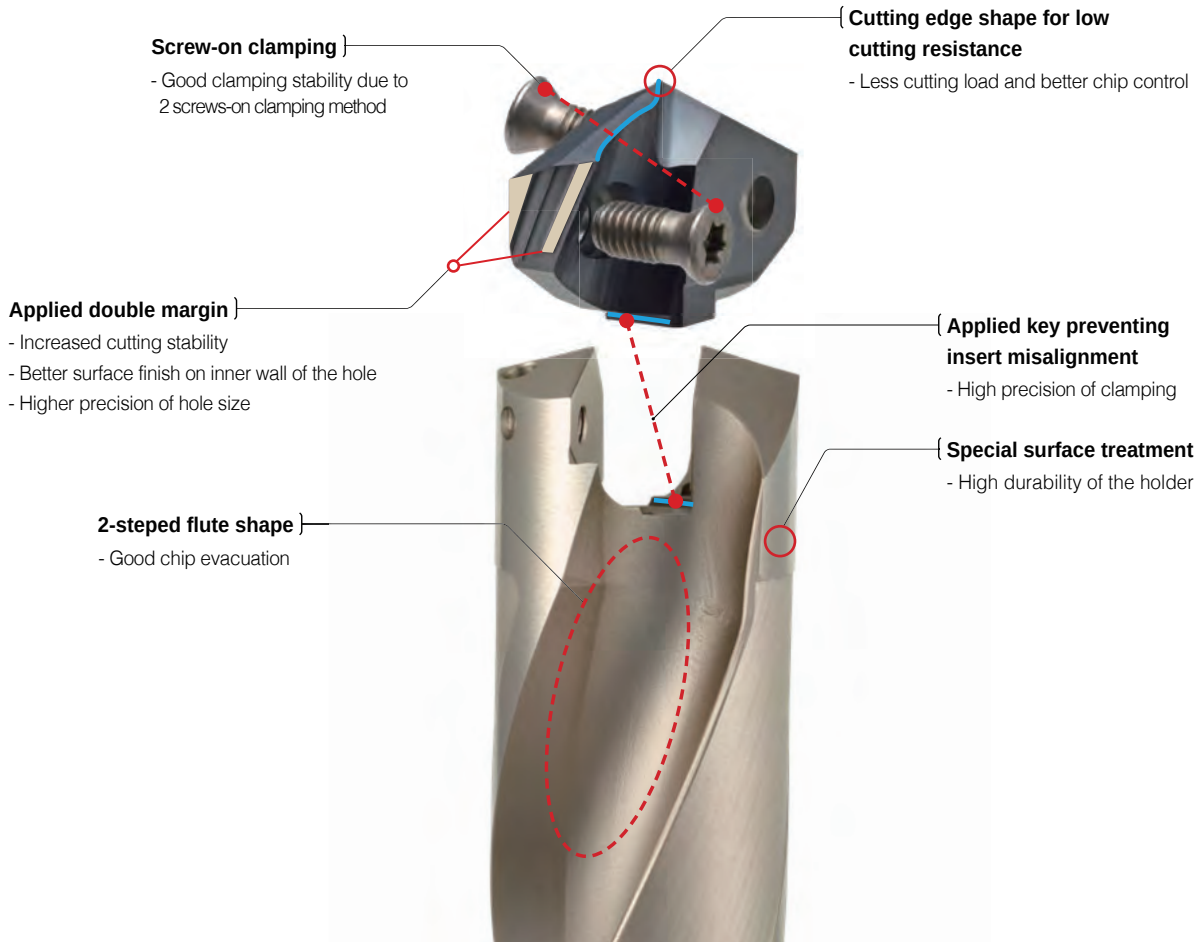
• Insert

TPD	360	B	-	DS
Top solid Piercing Drill	**Drill diameter** 360 : Ø36.0	**Insert type** B : Blade type		**Margin shape** DS : Double margin Shape

• Holder

TPD	B	360	-	40	-	5	-	P
Top solid Piercing Drill	**Insert type** B : Blade type	**Drill diameter** 360 : Ø36.0		**Shank diameter** 40 : Ø40		**Aspect ratio(L/D)** 3D, 5D, 8D		**Plus**

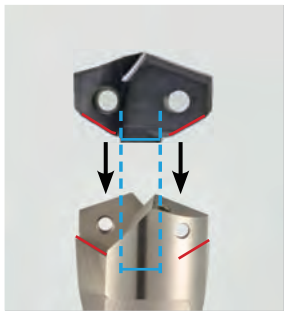
Features



How to clamp an insert



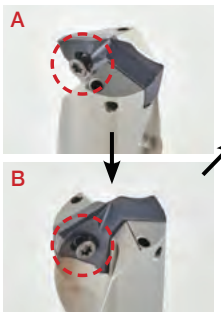
① Clean the tip seat.



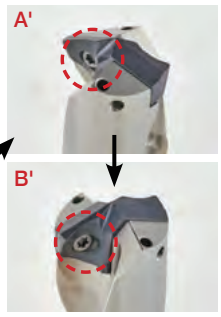
② Put an insert in



③ Lightly press the insert while screwing to prevent it from rotating.



④ Clamp a screw partially just like in the case of A and B to prevent laterality



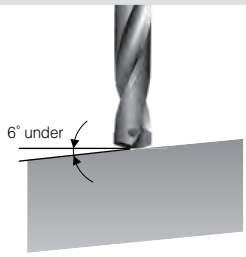
⑤ Clamp the screws completely in the order of A', B'.

Recommended cutting conditions

Workpiece					Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	vc (m/min)	Aspect ratio (L/D) = 3D, 5D
ISO	Workpiece material		KS	ISO					fn (mm/rev)
P	Carbon steel	C = 0.10~0.25%	SM15C SM25C	C15 C25	1500	90~200	PC5300	80~140	0.4~0.25
		C = 0.25~0.55%	SM35C SM45C	C35 C45	1600	125~225	PC5300	80~140	0.4~0.25
		C = 0.55~0.80%	SM58C	C60	1700	150~250	PC5300	70~130	0.4~0.25
	Alloy steel ≤ 5%	Non-hardened	SCM440	42CrMo4	1700	180	PC5300	80~130	0.45~0.25
		Hardened and Tempered	SCM445	-	2050	350	PC5300	60~110	0.45~0.25
	Alloy steel ≤ 5%	Annealed	STD11	-	1950	200	PC5300	60~100	0.4~0.25
		Hardened tool steel	STD61	X40CrMoV5-1	3000	352	PC5300	50~90	0.35~0.2
K	Gray cast iron		GC250 GC350	250 350	900	150~230	PC5300	80~140	0.45~0.25
	Ductile cast iron		GCD400 GCD500 GCD600	400-15 150-10 600-3	870	160~260	PC5300	70~130	0.45~0.25

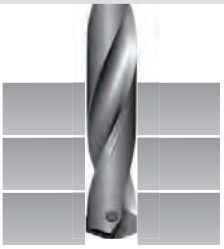
Precaution in Drilling

Angled surface Drilling



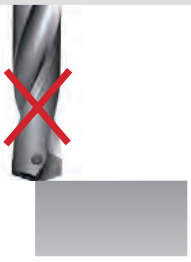
- The approach angle between Drill and the workpiece at the beginning and the end should be less than 6°.
- Reduce the feed (fn) to 30-50% than general cutting conditions at the beginning and the end of angled surface.

Stacked plates Drilling



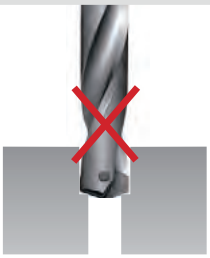
- Gap between the plates could make wrong chip evacuation causing fracture of the Drill.
- Strongly clamp the workpiece together to eliminate any gaps and then proceed with usage.

Plunging



- Irregular cutting resistance in plunging could cause fracture and deformation of the Drill.

Boring



- Boring is not recommended as it can cause excessive wear and chipping at the insert's corner.
- In case of necessity, process it with a 2mm stepping. (30% reduction in transfer during processing)

Basic checklist for the Drilling operations

- Workpiece clamping condition
- Rotational state of the main axial in the machining equipment
- Holder condition
- Clamped drill's Run-out : Max. 0.03 mm
- Coolant supply condition (pressure, flow rate,concentration)
- Chip evacuation condition

Coolant application system

- Adequate supply of cutting fluid at the entrance of the hole
- Minimum cutting fluid pressure : 5 bar or above
- Minimum flow rate : 5ℓ/min or avobe



[Dry]

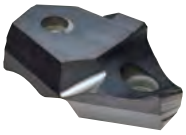


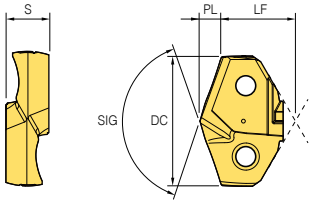
[Internal coolant]



[External coolant]

Available insert(TPDB-DS)





(mm)

Designation		Coated PC5300	DC	S	LF	PL	SIG
TPD	330B-DS	●	33.0	10.5	18.16	5.38	140°
	335B-DS		33.5	10.5	18.08	5.46	140°
	340B-DS	●	34.0	11.0	18.55	5.54	140°
	345B-DS		34.5	11.0	18.47	5.62	140°
	350B-DS	●	35.0	11.5	19.48	5.70	140°
	355B-DS	●	35.5	11.5	19.40	5.78	140°
	360B-DS	●	36.0	11.5	20.41	5.87	140°
	365B-DS		36.5	11.5	20.33	5.95	140°
	370B-DS	●	37.0	12.0	20.80	6.03	140°
	375B-DS		37.5	12.0	20.72	6.11	140°
	380B-DS	●	38.0	12.0	21.63	6.19	140°
	385B-DS	●	38.5	12.0	21.55	6.27	140°
	390B-DS	●	39.0	12.5	22.02	6.35	140°
	395B-DS		39.5	12.5	21.93	6.44	140°

Applicable holders **D68**

※ TPD Inserts not list above within the range of Ø33.00 ~ Ø39.99 can be made to order

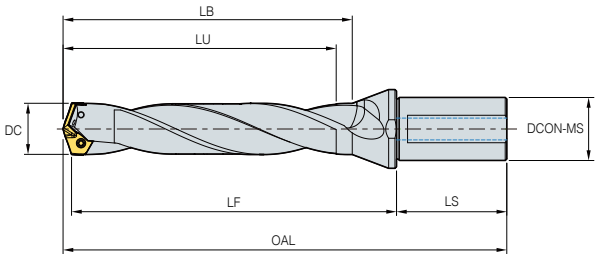
● : Stock Item

Parts

Designation		Drill dia. DC (mm)	Screw	Wrench
TPD	330B-DS ~ 339B-DS	33.0 ~ 33.9	FTKA0410	TW15S
	340B-DS ~ 349B-DS	34.0 ~ 34.9	FTKA0410	TW15S
	350B-DS ~ 359B-DS	35.0 ~ 35.9	FTKA0410	TW15S
	360B-DS ~ 369B-DS	36.0 ~ 36.9	FTNC04511	TW20S
	370B-DS ~ 379B-DS	37.0 ~ 37.9	FTNC04511	TW20S
	380B-DS ~ 389B-DS	38.0 ~ 38.9	FTNA0511	TW20S
	390B-DS ~ 399B-DS	39.0 ~ 39.9	FTNA0511	TW20S

TPDB-DS(3D/5D/8D)





(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDB	330-40-3-P	●	33.0~33.9	40	104.38	140.30	117.58	70	215.7	5.38	TPD330B~339B-DS
	340-40-3-P	●	34.0~34.9	40	107.54	144.41	121.15	70	219.9	5.54	TPD340B~349B-DS
	350-40-3-P	●	35.0~35.9	40	110.70	148.51	124.71	70	224.2	5.70	TPD350B~359B-DS
	360-40-3-P	●	36.0~36.9	40	113.87	152.60	128.27	70	228.5	5.87	TPD360B~369B-DS
	370-40-3-P	●	37.0~37.9	40	117.03	156.70	131.83	70	232.7	6.03	TPD370B~379B-DS
	380-40-3-P	●	38.0~38.9	40	120.19	160.81	135.40	70	237.0	6.19	TPD380B~389B-DS
	390-40-3-P	●	39.0~39.9	40	123.35	164.91	138.96	70	241.3	6.35	TPD390B~399B-DS
	330-40-5-P		33.0~33.9	40	170.38	206.30	183.58	70	281.7	5.38	TPD330B~339B-DS
	340-40-5-P		34.0~34.9	40	175.54	212.41	189.15	70	287.9	5.54	TPD340B~349B-DS
	350-40-5-P		35.0~35.9	40	180.70	218.51	194.71	70	294.2	5.70	TPD350B~359B-DS
	360-40-5-P		36.0~36.9	40	185.87	224.60	200.27	70	300.5	5.87	TPD360B~369B-DS
	370-40-5-P		37.0~37.9	40	191.03	230.70	205.83	70	306.7	6.03	TPD370B~379B-DS
	380-40-5-P		38.0~38.9	40	196.19	236.81	211.40	70	313.0	6.19	TPD380B~389B-DS
	390-40-5-P		39.0~39.9	40	201.35	242.91	216.96	70	319.3	6.35	TPD390B~399B-DS
	330-40-8-P		33.0~33.9	40	269.38	305.30	282.58	70	380.7	5.38	TPD330B~339B-DS
	340-40-8-P		34.0~34.9	40	277.54	314.41	291.15	70	389.9	5.54	TPD340B~349B-DS
	350-40-8-P		35.0~35.9	40	285.70	323.51	299.71	70	399.2	5.70	TPD350B~359B-DS
	360-40-8-P		36.0~36.9	40	293.87	332.60	308.27	70	408.5	5.87	TPD360B~369B-DS
	370-40-8-P		37.0~37.9	40	302.03	341.70	316.83	70	417.7	6.03	TPD370B~379B-DS
	380-40-8-P		38.0~38.9	40	310.19	350.81	325.40	70	427.0	6.19	TPD380B~389B-DS
	390-40-8-P		39.0~39.9	40	318.35	359.91	333.96	70	436.3	6.35	TPD390B~399B-DS

Applicable inserts **D67**

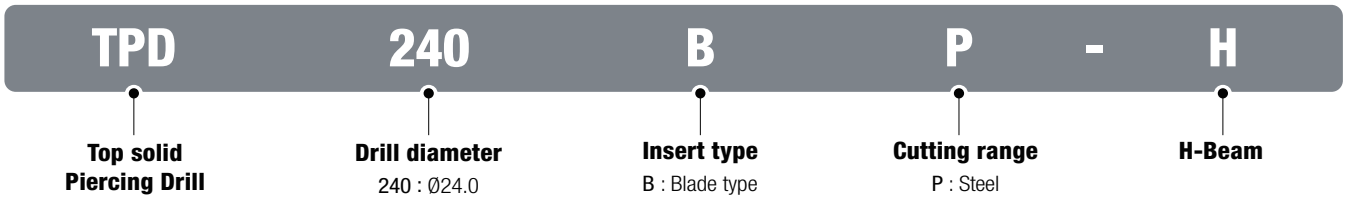
※ We can provide if you order exact machining specification ● : Stock Item

TPDB-H

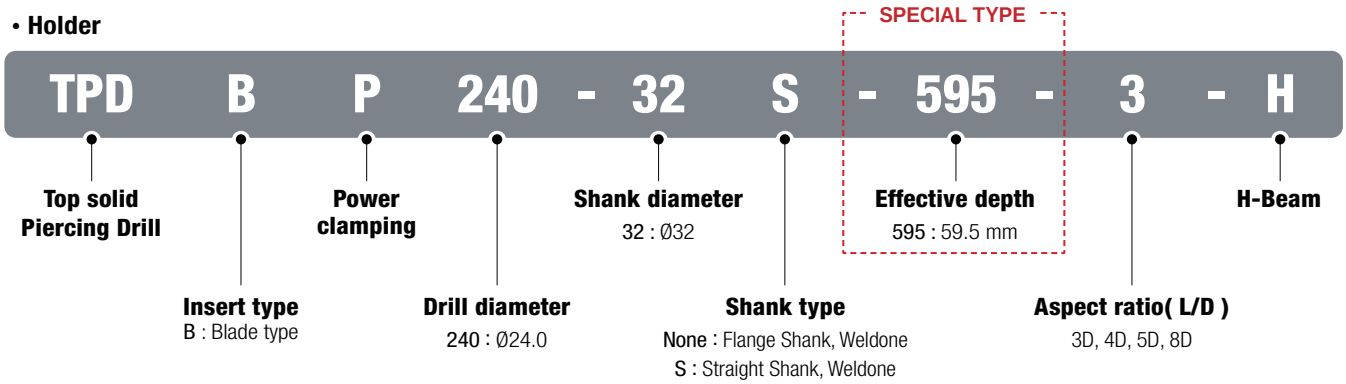
- **High precision clamping system** - High precision clamping due highly precise grinding and auto-centering
- **Screw on clamping system** - Enhanced clamping force and clamping stability from applying a main screw and a sub screw
- **Edge design with excellent centering** - Low cutting load and good chip control
- **Applying shape for better chip breaking** - Increasing chip breaking due to applying web taper
- **High durability holder** - Improved wear resistance and durability with special surface treatment implementation
- **Optimally designed oil hole** - Long tool life

Code system

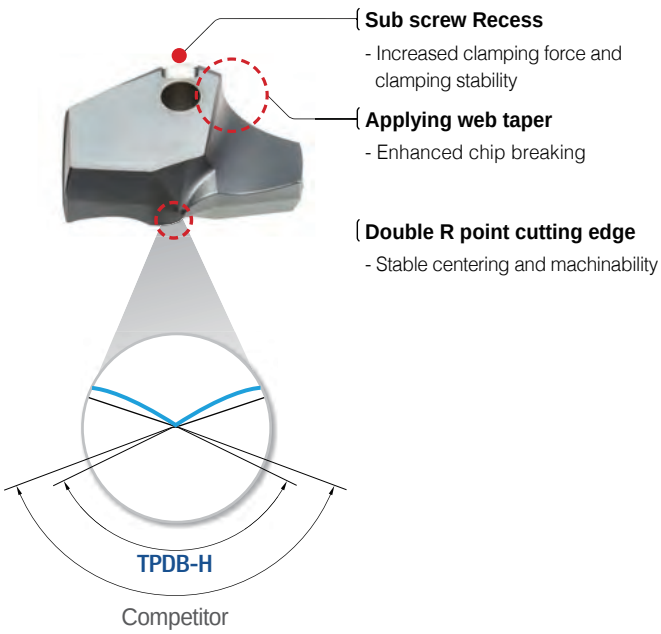
•

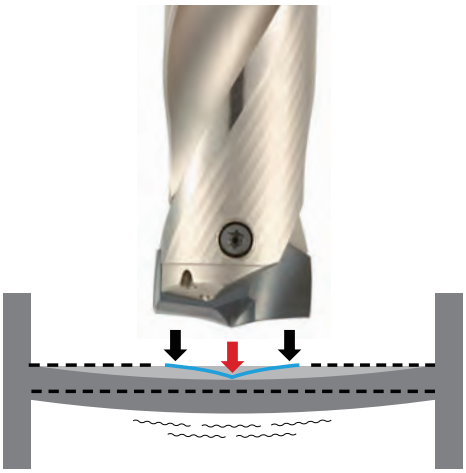


• Holder



Insert Features

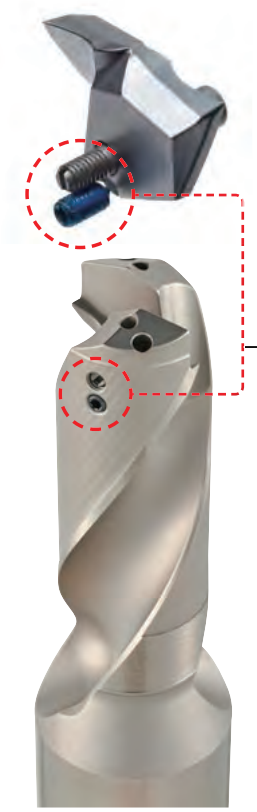




Applied Double R point edge design optimized for excellent centering and stable machinability.

Machinability and productivity are improved by minimizing both workpiece's bending and chipping at edge corner section.

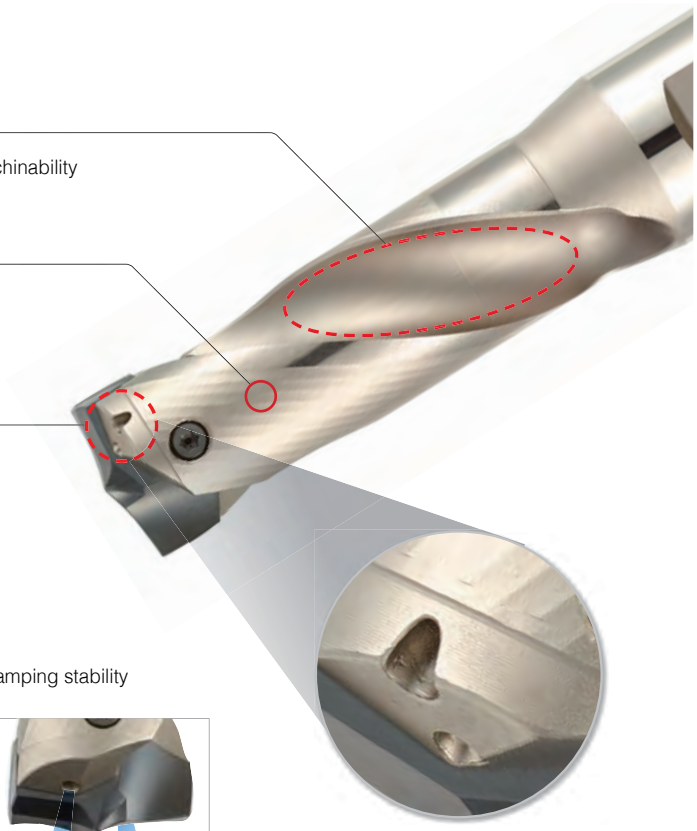
Holder features



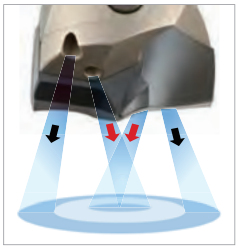
High helix angle
- Good chip evacuation and machinability

Special surface treatment
- Good holder durability

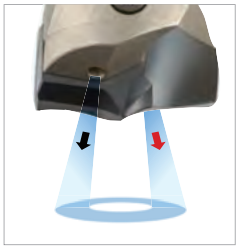
4 hole cooling system
- Long tool life



Additional sub screw
- Increased clamping force and clamping stability



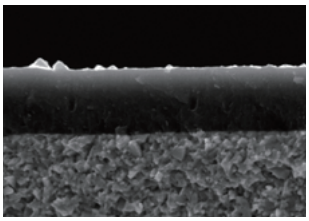
[TPDB-H]



[Competitor]

Concentrated coolant injection on delicate cutting edge increases tool life

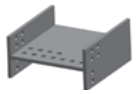
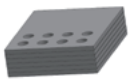
Grade features



PC340UL

- Applying high toughness substrate with good fracture resistance
- Applying PVD coating technology enhancing lubrication and welding resistance
- Increasing chipping resistance and cutting stability due to good surface finish

Workpiece and recommended cutting conditions

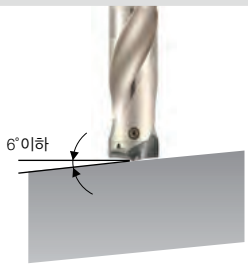
Workpiece					Yield Strength (Mpa, min)	Brinell hardness (HB	Grade	vc (m/min)	Aspect ratio (L/D) = 3D, 4D, 5D, 8D fn(mm/rev)	
ISO	Workpiece material		KS	AISI					Ø14 ~ Ø21.9	Ø22 ~ Ø32.9
P	H-Beam		SS275 (SS400*) SM355 (SM490*) SHN355 (SHN490*)	A36 A572	275 355 355 (t≤16)	-	PC340UL	60~75	0.25~0.2	0.3~0.2
	Angle						PC340UL	60~75	0.25~0.2	0.3~0.2
	Plate						PC340UL	60~75	0.25~0.2	0.3~0.2
	Plate (Stacked)						PC340UL	55~65	0.25~0.15	0.25~0.15

※ In case of 5D over, machine in 30% lower cutting conditions or use under the above conditions

* : Old symbol

Precaution in Drilling

Angled surface Drilling



- The approach angle between Drill and the workpiece at the beginning and the end should be less than 6°.
- Reduce the feed (fn) to 30-50% than general cutting conditions at the beginning and the end of angled surface.

Stacked plates Drilling



- Gap between the plates could make wrong chip evacuation causing fracture of the Drill.
- Strongly clamp the workpiece together to eliminate any gaps and then proceed with usage.

Plunging



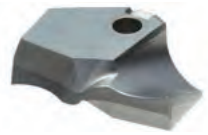
- Irregular cutting resistance in plunging could cause fracture and deformation of the Drill.

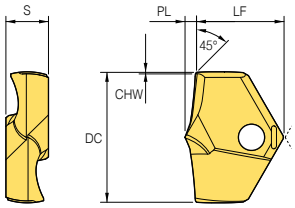
Boring



- Boring is not recommended as it can cause excessive wear and chipping at the insert's corner.
- In case of necessity, process it with a 2mm stepping. (30% reduction in transfer during processing)

Available insert(TPDB-H)





(mm)

Designation		Coated PC340UL	DC	S	LF	PL	CHW
TPD	140BP-H	●	14.0	4.0	9.45	1.17	0.05
	150BP-H		15.0	4.0	9.83	1.29	0.05
	160BP-H	●	16.0	5.5	10.73	1.39	0.07
	170BP-H		17.0	5.5	11.14	1.48	0.07
	180BP-H	●	18.0	6.0	12.15	1.51	0.07
	190BP-H		19.0	6.0	12.54	1.60	0.07
	200BP-H	●	20.0	6.5	13.45	1.67	0.07
	210BP-H		21.0	6.5	13.86	1.76	0.07
	220BP-H	●	22.0	7.0	14.54	1.89	0.09
	230BP-H		23.0	7.0	14.70	1.94	0.09
	240BP-H	●	24.0	7.5	15.56	2.02	0.09
	250BP-H		25.0	7.5	15.98	2.10	0.09
	260BP-H	●	26.0	8.5	16.35	2.23	0.09
	270BP-H	●	27.0	8.5	17.43	2.28	0.13
	280BP-H		28.0	9.5	18.26	2.32	0.13
	290BP-H		29.0	9.5	18.64	2.55	0.13
	300BP-H	●	30.0	10.0	19.03	2.61	0.13
	310BP-H		31.0	10.0	19.44	2.70	0.13
	320BP-H	●	32.0	10.0	19.85	2.79	0.13

Applicable holders **D73 ~ D74**

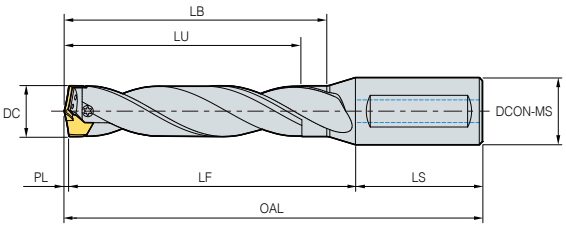
● : Stock Item

Parts

Designation		Drill dia. DC (mm)	Screw	Wrench	Sub screw	Wrench for sub screw
TPD	140BP-H~159BP-H	Ø14.0 ~ Ø15.9	FTNB02512-P	TW07S	-	-
	160BP-H~179BP-H	Ø16.0 ~ Ø17.9	FTNB02514-P	TW07S	KHMA02505	HW13LB
	180BP-H~199BP-H	Ø18.0 ~ Ø19.9	FTNB0316-P	TW09S	KHMA02505	HW13LB
	200BP-H~239BP-H	Ø20.0 ~ Ø23.9	FTNB0319	TW09S	KHMA0306	HW15L
	240BP-H~259BP-H	Ø24.0 ~ Ø25.9	FTNB03522	TW15S	KHMA0308	HW15L
	260BP-H~279BP-H	Ø26.0 ~ Ø27.9	FTNB03524	TW15S	KHMA0308	HW15L
	280BP-H~299BP-H	Ø28.0 ~ Ø29.9	FTNB0426	TW15S	KHMA0410	HW20L
	300BP-H~329BP-H	Ø30.0 ~ Ø32.9	FTNB0528	TW20-100	KHMA0410	HW20L

TPDB-H(3D/4D)





(mm)

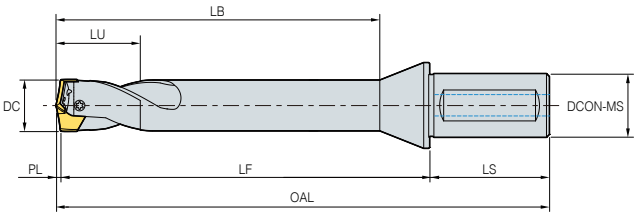
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBP	140-16S-3-H	●	14.0~14.9	16	35.67	48.83	43.17	48	98.0	1.17	TPD140BP-H ~149BP-H
	150-20S-3-H		15.0~15.9	20	38.29	52.21	46.29	50	103.5	1.29	TPD150BP-H ~159BP-H
	160-20S-3-H	●	16.0~16.9	20	40.89	55.11	49.39	50	106.5	1.39	TPD160BP-H ~169BP-H
	170-20S-3-H		17.0~17.9	20	43.48	58.02	52.48	50	109.5	1.48	TPD170BP-H ~179BP-H
	180-20S-3-H	●	18.0~18.9	20	46.01	62.49	55.51	50	114.0	1.51	TPD180BP-H ~189BP-H
	190-20S-3-H		19.0~19.9	20	48.60	67.40	58.60	50	119.0	1.60	TPD190BP-H ~199BP-H
	200-25S-3-H	●	20.0~20.9	25	51.17	76.33	61.67	56	128.0	1.67	TPD200BP-H ~ 209BP-H
	210-25S-3-H		21.0~21.9	25	53.76	73.24	64.76	56	131.0	1.76	TPD210BP-H ~ 219BP-H
	220-25S-3-H	●	22.0~22.9	25	56.39	76.11	67.89	56	134.0	1.89	TPD220BP-H ~ 229BP-H
	230-25S-3-H		23.0~23.9	25	58.94	79.06	70.94	56	137.0	1.94	TPD230BP-H ~ 239BP-H
	240-32S-3-H	●	24.0~24.9	32	61.52	84.78	74.02	60	146.8	2.02	TPD240BP-H ~ 249BP-H
	250-32S-3-H		25.0~25.9	32	64.10	84.90	77.10	60	147.0	2.10	TPD250BP-H ~ 259BP-H
	260-32S-3-H	●	26.0~26.9	32	66.73	87.77	80.23	60	150.0	2.23	TPD260BP-H ~ 269BP-H
	270-32S-3-H	●	27.0~27.9	32	69.28	90.72	83.28	60	153.0	2.28	TPD270BP-H ~ 279BP-H
	280-32S-3-H		28.0~28.9	32	71.82	93.68	86.32	60	156.0	2.32	TPD280BP-H ~ 289BP-H
	290-32S-3-H		29.0~29.9	32	74.55	96.45	89.55	60	159.0	2.55	TPD290BP-H ~ 299BP-H
	300-32S-3-H	●	30.0~30.9	32	77.11	99.39	92.61	60	162.0	2.61	TPD300BP-H ~ 309BP-H
	310-32S-3-H		31.0~31.9	32	79.70	102.30	95.70	60	165.0	2.70	TPD310BP-H ~ 319BP-H
	320-32S-3-H	●	32.0~32.9	32	82.29	105.21	98.79	60	168.0	2.79	TPD320BP-H ~ 329BP-H
	140-16S-4-H		14.0~14.9	16	49.67	62.83	57.17	48	112.0	1.17	TPD140BP-H ~149BP-H
	150-20S-4-H		15.0~15.9	20	53.29	67.21	61.29	50	118.5	1.29	TPD150BP-H ~159BP-H
	160-20S-4-H		16.0~16.9	20	56.89	71.11	65.39	50	122.5	1.39	TPD160BP-H ~169BP-H
	170-20S-4-H		17.0~17.9	20	60.48	75.02	69.48	50	126.5	1.48	TPD170BP-H ~179BP-H
	180-20S-4-H		18.0~18.9	20	64.01	80.49	73.51	50	132.0	1.51	TPD180BP-H ~189BP-H
	190-20S-4-H		19.0~19.9	20	67.60	86.40	77.60	50	138.0	1.60	TPD190BP-H ~199BP-H
	200-25S-4-H		20.0~20.9	25	71.17	96.33	81.67	56	148.0	1.67	TPD200BP-H ~ 209BP-H
	210-25S-4-H		21.0~21.9	25	74.76	94.24	85.76	56	152.0	1.76	TPD210BP-H ~ 219BP-H
	220-25S-4-H	●	22.0~22.9	25	78.39	98.11	89.89	56	156.0	1.89	TPD220BP-H ~ 229BP-H
	230-25S-4-H		23.0~23.9	25	81.94	102.06	93.94	56	160.0	1.94	TPD230BP-H ~ 239BP-H
	240-32S-4-H	●	24.0~24.9	32	85.52	108.78	98.02	60	170.8	2.02	TPD240BP-H ~ 249BP-H
	250-32S-4-H		25.0~25.9	32	89.10	109.90	102.10	60	172.0	2.10	TPD250BP-H ~ 259BP-H
	260-32S-4-H	●	26.0~26.9	32	92.73	113.77	106.23	60	176.0	2.23	TPD260BP-H ~ 269BP-H
	270-32S-4-H	●	27.0~27.9	32	96.28	117.72	110.28	60	180.0	2.28	TPD270BP-H ~ 279BP-H
	280-32S-4-H		28.0~28.9	32	99.82	121.68	114.32	60	184.0	2.32	TPD280BP-H ~ 289BP-H
	290-32S-4-H		29.0~29.9	32	103.55	125.45	118.55	60	188.0	2.55	TPD290BP-H ~ 299BP-H
	300-32S-4-H		30.0~30.9	32	107.11	129.39	122.61	60	192.0	2.61	TPD300BP-H ~ 309BP-H
	310-32S-4-H		31.0~31.9	32	110.70	133.30	126.70	60	196.0	2.70	TPD310BP-H ~ 319BP-H
	320-32S-4-H		32.0~32.9	32	114.29	137.21	130.79	60	200.0	2.79	TPD320BP-H ~ 329BP-H

Applicable inserts **D72**

● : Stock Item

TPDB-H(5D/8D)





(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBP	140-16-345-5-H	●	14.0~14.9	16	35.67	83.83	71.17	48	133.0	1.17	TPD140BP-H ~149BP-H
	150-20-370-5-H		15.0~15.9	20	38.29	90.21	76.29	50	141.5	1.29	TPD150BP-H ~159BP-H
	160-20-395-5-H	●	16.0~16.9	20	40.89	95.11	81.39	50	146.5	1.39	TPD160BP-H ~169BP-H
	170-20-420-5-H		17.0~17.9	20	43.48	100.02	86.48	50	151.5	1.48	TPD170BP-H ~179BP-H
	180-20-445-5-H	●	18.0~18.9	20	46.01	106.49	91.51	50	158.0	1.51	TPD180BP-H ~189BP-H
	190-20-470-5-H		19.0~19.9	20	48.60	113.40	96.60	50	165.0	1.60	TPD190BP-H ~199BP-H
	200-25-495-5-H	●	20.0~20.9	25	51.17	123.33	101.67	56	175.0	1.67	TPD200BP-H ~ 209BP-H
	210-25-520-5-H		21.0~21.9	25	53.76	122.24	106.76	56	180.0	1.76	TPD210BP-H ~ 219BP-H
	220-25-545-5-H	●	22.0~22.9	25	56.39	127.11	111.89	56	185.0	1.89	TPD220BP-H ~ 229BP-H
	230-25-570-5-H		23.0~23.9	25	58.94	132.06	116.94	56	190.0	1.94	TPD230BP-H ~ 239BP-H
	240-32-595-5-H	●	24.0~24.9	32	61.52	144.78	122.02	60	206.8	2.02	TPD240BP-H ~ 249BP-H
	250-32-620-5-H		25.0~25.9	32	64.10	146.90	127.10	60	209.0	2.10	TPD250BP-H ~ 259BP-H
	260-32-645-5-H	●	26.0~26.9	32	66.73	151.77	132.23	60	214.0	2.23	TPD260BP-H ~ 269BP-H
	270-32-670-5-H		27.0~27.9	32	69.28	156.72	137.28	60	219.0	2.28	TPD270BP-H ~ 279BP-H
	280-32-695-5-H		28.0~28.9	32	71.82	161.68	142.32	60	224.0	2.32	TPD280BP-H ~ 289BP-H
	290-32-720-5-H		29.0~29.9	32	74.55	166.45	147.55	60	229.0	2.55	TPD290BP-H ~ 299BP-H
	300-32-745-5-H	●	30.0~30.9	32	77.11	171.39	152.61	60	234.0	2.61	TPD300BP-H ~ 309BP-H
	310-32-770-5-H		31.0~31.9	32	79.70	176.30	157.70	60	239.0	2.70	TPD310BP-H ~ 319BP-H
	320-32-795-5-H	●	32.0~32.9	32	82.29	181.21	162.79	60	244.0	2.79	TPD320BP-H ~ 329BP-H
	140-16-345-8-H	●	14.0~14.9	16	35.67	125.83	113.17	48	175.0	1.17	TPD140BP-H ~149BP-H
	150-20-370-8-H		15.0~15.9	20	38.29	135.21	121.29	50	186.5	1.29	TPD150BP-H ~159BP-H
	160-20-395-8-H	●	16.0~16.9	20	40.89	143.11	129.39	50	194.5	1.39	TPD160BP-H ~169BP-H
	170-20-420-8-H		17.0~17.9	20	43.48	151.02	137.48	50	202.5	1.48	TPD170BP-H ~179BP-H
	180-20-445-8-H	●	18.0~18.9	20	46.01	160.49	145.51	50	212.0	1.51	TPD180BP-H ~189BP-H
	190-20-470-8-H		19.0~19.9	20	48.60	170.40	153.60	50	222.0	1.60	TPD190BP-H ~199BP-H
	200-25-495-8-H	●	20.0~20.9	25	51.17	183.33	161.67	56	235.0	1.67	TPD200BP-H ~ 209BP-H
	210-25-520-8-H		21.0~21.9	25	53.76	185.24	169.76	56	243.0	1.76	TPD210BP-H ~ 219BP-H
	220-25-545-8-H	●	22.0~22.9	25	56.39	193.11	177.89	56	251.0	1.89	TPD220BP-H ~ 229BP-H
	230-25-570-8-H		23.0~23.9	25	58.94	201.06	185.94	56	259.0	1.94	TPD230BP-H ~ 239BP-H
	240-32-595-8-H		24.0~24.9	32	61.52	216.78	194.02	60	278.8	2.02	TPD240BP-H ~ 249BP-H
	250-32-620-8-H		25.0~25.9	32	64.10	221.90	202.10	60	284.0	2.10	TPD250BP-H ~ 259BP-H
	260-32-645-8-H		26.0~26.9	32	66.73	229.77	210.23	60	292.0	2.23	TPD260BP-H ~ 269BP-H
	270-32-670-8-H		27.0~27.9	32	69.28	237.72	218.28	60	300.0	2.28	TPD270BP-H ~ 279BP-H
	280-32-695-8-H		28.0~28.9	32	71.82	245.68	226.32	60	308.0	2.32	TPD280BP-H ~ 289BP-H
	290-32-720-8-H		29.0~29.9	32	74.55	253.45	234.55	60	316.0	2.55	TPD290BP-H ~ 299BP-H
	300-32-745-8-H		30.0~30.9	32	77.11	261.39	242.61	60	324.0	2.61	TPD300BP-H ~ 309BP-H
	310-32-770-8-H		31.0~31.9	32	79.70	269.30	250.70	60	332.0	2.70	TPD310BP-H ~ 319BP-H
	320-32-795-8-H		32.0~32.9	32	82.29	277.21	258.79	60	340.0	2.79	TPD320BP-H ~ 329BP-H

Applicable inserts **D72**

● : Stock Item

TPDB-F

- **High precision clamping system** - High precision clamping due to high precise grinding and auto-centering
- **Screw on clamping system** - Easy to replace insert
- **Cutting edge with 180º point angle** - Flat bottom machining
- **Low cutting load cutting edge** - Low cutting load and excellent chip control
- **High durability holder** - Improved wear resistance and durability with special surface treatment implementation
- **Holder with good chip evacuation** - Good chip evacuation and reduced cutting load with high helix angle

Code system

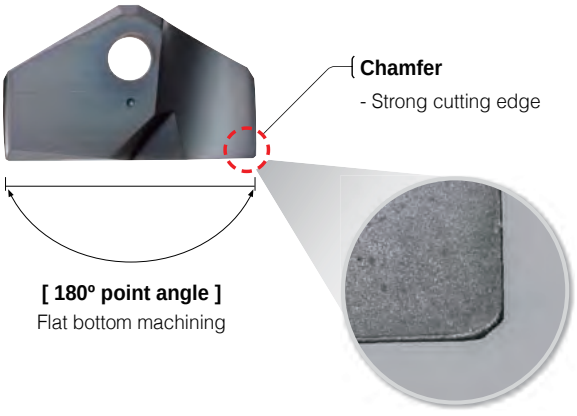
- **Insert**

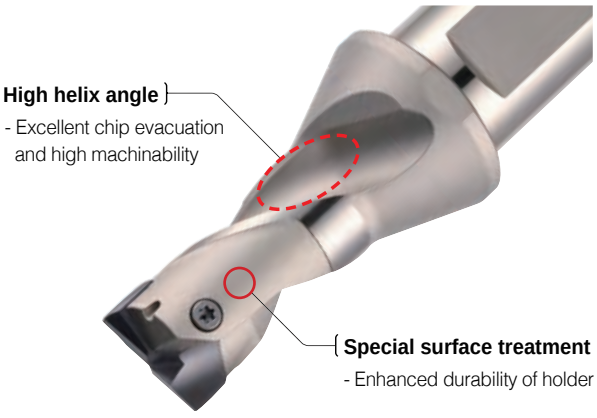
TPD	200	B	-	F
Top solid Piercing Drill	**Drill diameter** 200 : Ø20.0	**Insert type** B: Blade type		**Cutting edge** F: Flat FC: Flat Candle

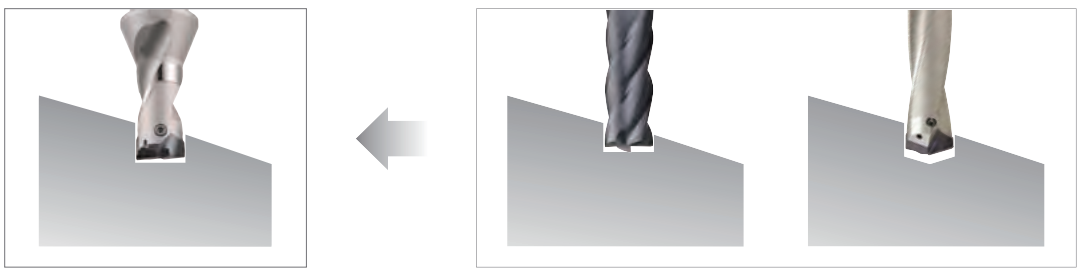
- **Holder**

TPD	B	220	-	25	-	1.5	-	F
Top solid Piercing Drill	**Insert type** B : Blade type	**Drill diameter** 200 : Ø20.0		**Shank diameter** 25 : Ø25		**Aspect ratio(L/D)** 1.5D		**Flat**

Features

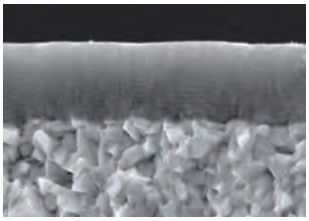






[Endmill + Drill] [Endmill] [Drill]

Grade features

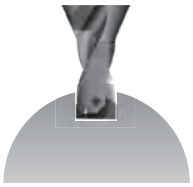


PC5400

- PVD coating technology with high lubrication, built up edge resistance and chipping resistance
- Excellent chipping resistance due to high toughness coating with high adhesive strength
- Enhanced fracture resistance and stable machinability due to ultra-fine substrate with high toughness substrate

추천절삭조건

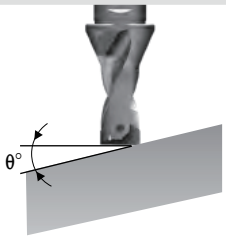
Workpiece					Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	vc (m/min)	Aspect ratio (L/D) = 1.5D fn (mm/rev)	
ISO	Workpiece material		KS	ISO					Ø14 ~ Ø21.9	Ø22 ~ Ø30.9
P	Carbon steel	C = 0.10~0.25%	SM15C SM25C	C15 C25	1500	90~200	PC5400	60~100	0.3~0.2	0.32~0.22
		C = 0.25~0.55%	SM35C SM45C	C35 C45	1600	125~225	PC5400	60~100	0.3~0.2	0.32~0.22
		C = 0.55~0.80%	SM58C	C60	1700	150~250	PC5400	50~90	0.3~0.2	0.32~0.22
	Alloy steel ≤ 5%	Non-hardened	SCM440	42CrMo4	1700	180	PC5400	50~90	0.3~0.2	0.32~0.22
		Hardened and Tempered	SCM445	-	2050	350	PC5400	40~80	0.2~0.2	0.32~0.22
	Alloy steel ≤ 5%	Annealed	STD11	-	1950	200	PC5400	40~80	0.28~0.18	0.3~0.2
		Hardened tool steel	STD61	X40CrMoV5-1	3000	352	PC5400	30~70	0.28~0.18	0.3~0.2

Type	Flat surface Drilling	Angled surface Drilling	Curved surface Drilling	Plunging	Boring
Fig.					
1.5D	○	○	○	○	○

※ Please refer to the precaution in Drilling in case of angled surface, curved surface Drilling, plunging and boring.

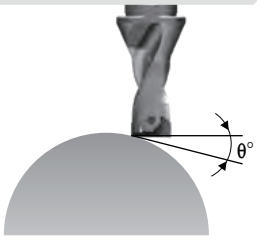
Precaution in Drilling

Angled surface Drilling



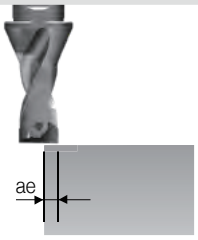
- Reduce the feed (fn) to 30% than general cutting conditions at the beginning and the end of angled surface. (In case, θ is over 30°, reduce it to 50%.)

Curved surface Drilling



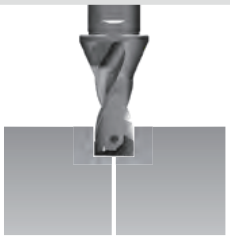
- Reduce the feed(fn) to 30% than general cutting conditions at the beginning of curved surface. (In case, θ is over 30°, reduce it to 50%.)

Plunging



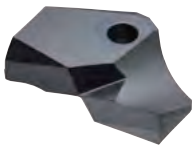
- Reduce the depth of cut(ae) to shorter than 1/2 of Drill diameter.
- In case, the depth of cut is longer than Drill diameter, plunge with divided depth of cut.

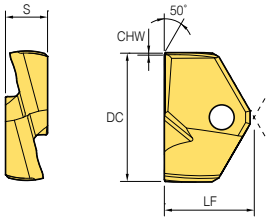
Boring



- Reduce the feed (fn) to 30% than general cutting conditions at the beginning of boring.
- Start with 2 mm stepping before boring to prevent long chip.

Available insert(TPDB-F)





(mm)

Designation		Coated PC5400	DC	S	LF	CHW
TPD	140B-F		14.0	4.0	9.04	0.06
	145B-F		14.5	4.0	9.04	0.06
	150B-F		15.0	4.0	9.54	0.06
	155B-F		15.5	4.0	9.54	0.06
	160B-F		16.0	5.5	10.54	0.06
	165B-F		16.5	5.5	10.54	0.06
	170B-F		17.0	5.5	11.04	0.06
	175B-F		17.5	5.5	11.04	0.06
	180B-F		18.0	6.0	12.18	0.06
	185B-F		18.5	6.0	12.18	0.06
	190B-F		19.0	6.0	12.77	0.06
	195B-F		19.5	6.0	12.77	0.06
	200B-F		20.0	6.5	13.18	0.08
	205B-F		20.5	6.5	13.18	0.08
	210B-F		21.0	6.5	13.68	0.08
	215B-F		21.5	6.5	13.68	0.08
	220B-F	●	22.0	7.0	14.18	0.08
	225B-F		22.5	7.0	14.18	0.08
	230B-F		23.0	7.0	14.68	0.08
	235B-F		23.5	7.0	14.68	0.08
	240B-F		24.0	7.5	15.33	0.08
	245B-F		24.5	7.5	15.33	0.08
	250B-F		25.0	7.5	15.83	0.08
	255B-F		25.5	7.5	15.83	0.08
	260B-F		26.0	8.5	16.33	0.08
	265B-F	●	26.5	8.5	16.33	0.08
	270B-F		27.0	8.5	17.33	0.08
	275B-F		27.5	8.5	17.33	0.08
	280B-F		28.0	9.5	18.33	0.08
	285B-F		28.5	9.5	18.33	0.08
	290B-F		29.0	9.5	18.97	0.08
	295B-F		29.5	9.5	18.97	0.08
	300B-F		30.0	10.0	19.47	0.08
	305B-F		30.5	10.0	19.47	0.08

Applicable holders **D78**

※ TPD Inserts not list above within the range of Ø14.00 ~ Ø30.99 can be made to order

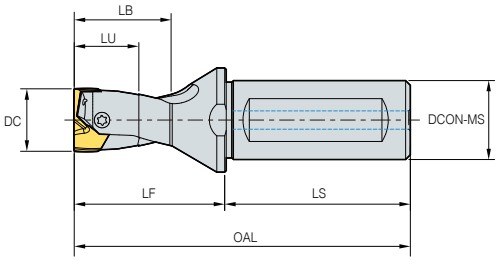
● : Stock Item

Parts

Designation		Drill dia. DC (mm)	Screw	Wrench	Torque (N · m)
TPD	140B-F ~ 149B-F	14.0 ~ 14.9	FTNB02512-P	TW07S	0.8
	150B-F ~ 179B-F	15.0 ~ 17.9	FTNB02514-P	TW07S	0.8
	180B-F ~ 199B-F	18.0 ~ 19.9	FTNB0316-P	TW09S	1.2
	200B-F ~ 239B-F	20.0 ~ 23.9	FTNB0319	TW09S	1.2
	240B-F ~ 259B-F	24.0 ~ 25.9	FTNB03522	TW15S	3.0
	260B-F ~ 279B-F	26.0 ~ 27.9	FTNB03524	TW15S	3.0
	280B-F ~ 299B-F	28.0 ~ 29.9	FTNB0426	TW15S	3.0
	300B-F ~ 309B-F	30.0 ~ 30.9	FTNB0528	TW20-100	4.0

TPDB-F(1.5D)





(mm)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert
TPDB	140-16-1.5-F		14.0~14.4	16	21.00	38.0	28.0	48	86.0	TPD140B-F ~ 144B-F
	145-16-1.5-F		14.5~14.9	16	21.75	39.0	29.0	48	87.0	TPD145B-F ~ 149B-F
	150-20-1.5-F		15.0~15.4	20	22.50	43.0	30.0	50	93.0	TPD150B-F ~ 154B-F
	155-20-1.5-F		15.5~15.9	20	23.25	44.0	31.0	50	94.0	TPD155B-F ~ 159B-F
	160-20-1.5-F		16.0~16.4	20	24.00	45.0	32.0	50	95.0	TPD160B-F ~ 164B-F
	165-20-1.5-F		16.5~16.9	20	24.75	46.0	33.0	50	96.0	TPD165B-F ~ 169B-F
	170-20-1.5-F		17.0~17.4	20	25.50	47.0	34.0	50	97.0	TPD170B-F ~ 174B-F
	175-20-1.5-F		17.5~17.9	20	26.25	48.0	35.0	50	98.0	TPD175B-F ~ 179B-F
	180-20-1.5-F		18.0~18.4	20	27.00	49.0	36.0	50	99.0	TPD180B-F ~ 184B-F
	185-20-1.5-F		18.5~18.9	20	27.75	50.0	37.0	50	100.0	TPD185B-F ~ 189B-F
	190-25-1.5-F		19.0~19.4	25	28.50	45.0	38.0	56	101.0	TPD190B-F ~ 194B-F
	195-25-1.5-F		19.5~19.9	25	29.25	46.0	39.0	56	102.0	TPD195B-F ~ 199B-F
	200-25-1.5-F		20.0~20.4	25	30.00	60.0	40.0	56	116.0	TPD200B-F ~ 204B-F
	205-25-1.5-F		20.5~20.9	25	30.75	61.0	41.0	56	117.0	TPD205B-F ~ 209B-F
	210-25-1.5-F		21.0~21.4	25	31.50	62.0	42.0	56	118.0	TPD210B-F ~ 214B-F
	215-25-1.5-F		21.5~21.9	25	32.25	63.0	43.0	56	119.0	TPD215B-F ~ 219B-F
	220-25-1.5-F		22.0~22.4	25	33.00	64.0	44.0	56	120.0	TPD220B-F ~ 224B-F
	225-25-1.5-F		22.5~22.9	25	33.75	65.0	45.0	56	121.0	TPD225B-F ~ 229B-F
	230-25-1.5-F		23.0~23.4	25	34.50	66.0	46.0	56	122.0	TPD230B-F ~ 234B-F
	235-25-1.5-F		23.5~23.9	25	35.25	67.0	47.0	56	123.0	TPD235B-F ~ 239B-F
	240-32-1.5-F		24.0~24.4	32	36.00	68.5	48.0	60	128.5	TPD240B-F ~ 244B-F
	245-32-1.5-F		24.5~24.9	32	36.75	69.5	49.0	60	129.5	TPD245B-F ~ 249B-F
	250-32-1.5-F		25.0~25.4	32	37.50	70.5	50.0	60	130.5	TPD250B-F ~ 254B-F
	255-32-1.5-F		25.5~25.9	32	38.25	71.5	51.0	60	131.5	TPD255B-F ~ 259B-F
	260-32-1.5-F		26.0~26.4	32	39.00	72.5	52.0	60	132.5	TPD260B-F ~ 264B-F
	265-32-1.5-F		26.5~26.9	32	39.75	73.5	53.0	60	133.5	TPD265B-F ~ 269B-F
	270-32-1.5-F		27.0~27.4	32	40.50	74.5	54.0	60	134.5	TPD270B-F ~ 274B-F
	275-32-1.5-F		27.5~27.9	32	41.25	75.5	55.0	60	135.5	TPD275B-F ~ 279B-F
	280-32-1.5-F		28.0~28.4	32	42.00	76.5	56.0	60	136.5	TPD280B-F ~ 284B-F
	285-32-1.5-F		28.5~28.9	32	42.75	77.5	57.0	60	137.5	TPD285B-F ~ 289B-F
	290-32-1.5-F		29.0~29.4	32	43.50	78.5	58.0	60	138.5	TPD290B-F ~ 294B-F
	295-32-1.5-F		29.5~29.9	32	44.25	79.5	59.0	60	139.5	TPD295B-F ~ 299B-F
	300-32-1.5-F		30.0~30.4	32	45.00	80.5	60.0	60	140.5	TPD300B-F ~ 304B-F
	305-32-1.5-F		30.5~30.9	32	45.75	81.5	61.0	60	141.5	TPD305B-F ~ 309B-F

Applicable inserts **D77**

● : Stock Item

Convenient and quickly adjustable drill height

WPDC

Indexable drill clamped with center drill

Code system

• **Holder**

WPDC	410	40	8
Type	**Drill diameter**	**Shank diameter**	**Aspect ratio (L/D)**
WPDC : Using W-type I/S center drill NPDC : Using N-type I/S center drill	410 : Ø41.0 mm 6570 : Ø65~70 mm	32 : Ø32 mm 40 : Ø40 mm	5 : 5D 6.5 : 6.5D 8 : 8D

• **Cartridge**

CWP	4145	C
Type	**Drill diameter**	**Classification**
CWP : Cartridge-WPDC	4145 : Ø41~45 mm 450 : Ø45.0 mm	C : Central P : Peripheral

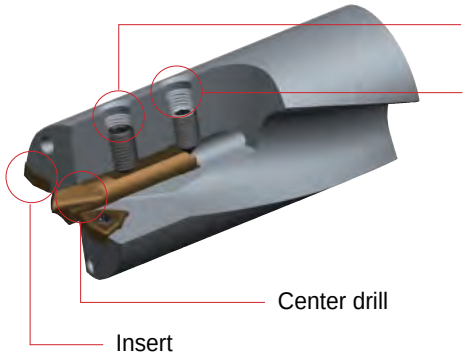
• **Center drill**

CD	H	1035
Type	**Coolant**	**Diameter × length of tool**
Center Dril	H : Coolant Unmarked : None	0630 : Ø6 × 30 mm 0835 : Ø8 × 35 mm 1035 : Ø10 × 35 mm 1238 : Ø12 × 38 mm 1645 : Ø16 × 45 mm

• **Grade**

PC	40H
Product name	**Coating layer**
PVD coating	40H : TiN coating

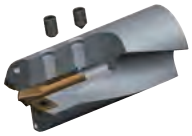
How to clamp the drills



Feature of corn-point system

- Convenient and quick adjustable heights when inserting the center drill
- In case the center drill brakes while in usage, it can be replaced with the bolt for adjusting cone point
- The bolt for adjusting cone point prevents chattering on the center drill

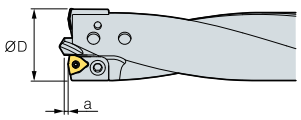
Clamping

❶	❷	❸	❹	❺
				
Place a center drill	Clamp insert and cartridge	Adjust the center drill with the bolt for adjusting cone point	Clamp the center drill firmly with fixing bolt	Reassure the clamp with bolt for adjusting cone point

※ Use safety covers for your safety when clamping the center drill and insert
※ When machining, be careful of the drill disk

Length of the 'a' part of center drill

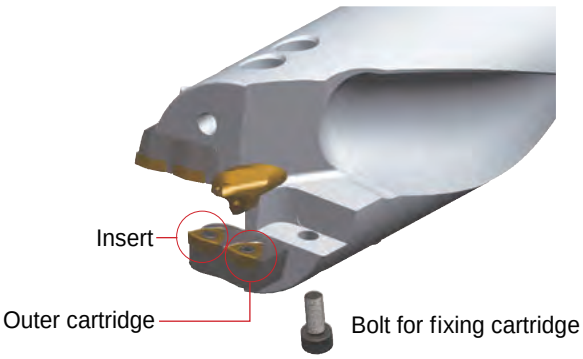
- The length of 'a' being too short can cause bad surface finish or high cutting load
- On the other hand, the length of 'a' being too long can make tool failure and chattering while drilling



Diameter (ØD)	Length of the 'a' part of center drill		
	Steel	Alloy steel	Non-ferrous metal
25~30	1.2	1.0	1.5
31~40	1.5	1.3	1.8
41~50	1.8	1.5	2.2
51~59	2.2	1.8	2.5
60~75	2.5	2.0	2.8
76~80	3.0	2.5	3.5

Adjusting diameter of cartridge type drill

1) Disassemble a cartridge from the holder by loosening the bolt fixed for outer cartridge
2) Machine after calculating the hole size on the side of the outer cartridge
3) Trim the sharp part after machining
4) Clamp the bolt for fixing cartridge without any gap in between the holder and the machined outer cartridge



1) Range of adjustable drill diameter

① Single cartridge type (Drill diameter Ø41~Ø59) ⋯› -1.0 mm
② Dual cartridge type (Drill diameter Ø60~Ø80) ⋯› -5.0 mm

2) Diameter of the standard drills is provided with maximum size of standards

Ex) WPDC6570-40-6.5 ⋯› Drill diameter 70.0 mm

Ex) How to adjust drill diameter to Ø66.0 machining with WPDC6570-40-8
⋯› To make the drill diameter of outer cartridge to Ø66.0, machine 2.0 mm (Ø70.0-Ø66.0 = 4 ⋯› 4÷2 = 2 (radius))

Recommended cutting conditions

Workpiece				Chip breaker	Grade	vc (m/min)	Aspect ratio (L/D) = 5D, 6.5D, 8D					
							Feed rate (mm/rev) per drill dia. (mm)					
ISO		Workpiece	HB				~Ø30	Ø31~Ø40	Ø41~Ø50	Ø51~Ø59	Ø60~Ø75	Ø76~Ø80
P	Carbon steel	Low carbon steel (~0.25%)	80~180	C21N	PC5335	190(160~220)	0.07~0.11	0.08~0.12	0.10~0.14	0.12~0.16	0.12~0.16	0.12~0.16
		High carbon steel (0.25%~)	180~280	C21N	PC5335	140(110~170)	0.07~0.11	0.08~0.12	0.10~0.14	0.12~0.16	0.12~0.16	0.12~0.16
	Alloy steel	Low alloy steel	140~260	C21N	PC5335	130(100~160)	0.08~0.12	0.08~0.12	0.10~0.14	0.12~0.18	0.12~0.18	0.12~0.18
		High alloy steel	50~260	C21N	PC5335	100(70~130)	0.06~0.10	0.08~0.12	0.08~0.12	0.10~0.16	0.10~0.16	0.10~0.16
M	Stainless steel	Stainless steel	135~275	C21N	PC5335	100(70~130)	0.06~0.10	0.08~0.12	0.10~0.12	0.12~0.14	0.12~0.14	0.12~0.14
K	Cast iron	Gray cast iron	150~220	C21N	PC5335	160(130~190)	0.09~0.15	0.10~0.16	0.12~0.2	0.14~0.22	0.14~0.22	0.14~0.22
		Ductile cast iron	200~300	C21N	PC5335	140(170~110)	0.09~0.15	0.10~0.16	0.12~0.2	0.14~0.22	0.14~0.22	0.14~0.22
		Malleable cast iron	130~230	C21N	PC5335	150(180~120)	0.09~0.15	0.10~0.16	0.12~0.2	0.14~0.22	0.14~0.22	0.14~0.22
N	Non-ferrous metal	Aluminum	30~150	C21N	PC5335	300(250~350)	0.08~0.12	0.10~0.14	0.12~0.16	0.14~0.18	0.14~0.18	0.14~0.18
		Alloyed copper	150~160	C21N	PC5335	250(200~300)	0.08~0.12	0.10~0.14	0.12~0.16	0.14~0.18	0.14~0.18	0.14~0.18
S	Heat resistant alloy	Heat resistant alloy	130~400	C21N	PC5335	50(70~30)	0.05~0.08	0.05~0.08	0.06~0.10	0.06~0.10	0.06~0.10	0.06~0.10

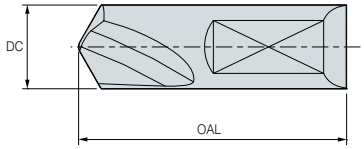
Parts of WPDC type indexable drills

Designation	ØD	Insert			Center drill			Cartridge		
		Insert	Screw	Wrench	Center drill	fixed bolt	cone point bolt	Central	Peripheral	Fixed bolt
WPDC 250-32-□	25	WC□T030204-C21N	FTKA02206	TW06S	CD0630	KHA0508	KHC0510			
260~280-32-□	26~28	WC□T040204-C21N	FTNA02555	TW07S						
290~300-32-□	29~30					KHA0510				
310~350-32-□	31~35	WC□T050308-C21N	FTKA0307	TW09S	CD0835	KHA0610	KHC0610			
360~400-32-□	36~40					KHA0612				
410-40-□	41	WC□T06T308-C21N	FTKA03508	TW15S	CDH1035	KHA0812	KHC0812	CWP4145C	CWP410P	BHA0510
420-40-□	42								CWP420P	
430-40-□	43								CWP430P	
440-40-□	44								CWP440P	
450-40-□	45								CWP450P	
460-40-□	46					KHA0815		CWP4650C	CWP460P	BHA0512
470-40-□	47								CWP470P	
480-40-□	48								CWP480P	
490-40-□	49								CWP490P	
500-40-□	50								CWP500P	
510-40-□	51	WC□T080408-C21N	FTKA0411K	TW15S	CDH1238	KHA1015	KHC1016	CWP5155C	CWP510P	BHA0612
520-40-□	52								CWP520P	
530-40-□	53								CWP530P	
540-40-□	54								CWP540P	
550-40-□	55								CWP550P	
560-40-□	56							CWP5659C	CWP560P	BHA0614
570-40-□	57								CWP570P	
580-40-□	58								CWP580P	
590-40-□	59								CWP590P	
6065-40-□	60~65	WC□T050308-C21N	FTKA0307	TW09S		KHA1020	KHA1020	CWP6065C	CWP6065P	BHA0510
6570-40-□	65~70							CWP6570C	CWP6570P	
7075-40-□	70~75							CWP7075C	CWP7075P	
7580-40-□	75~80	WC□T06T308-C21N	FTKA03508	TW15S	CDH1645			CWP7580C	CWP7580T	BHA0612

Applicable inserts **D83**

Center Drill



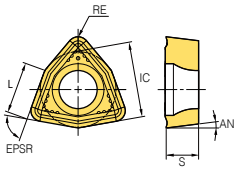
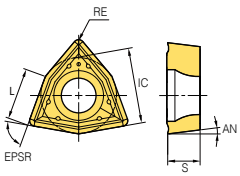


(mm)

Designation	DC	OAL	Oil-hole
CD 0630	6	30	X
CD 0835	8	35	X
CDH 1035	10	35	○
CDH 1238	12	38	○
CDH 1645	16	45	○

• This is HSS with Tin coating

Applicable insert

Picture	Designation	Coated							Uncoated	Dimension (mm)						Configuration
		NC5330	NCM535	PC3700	PC6100	PC9530	PC9540	PC5335	PC5300	H01	IC	S	RE	CBMD	AN	CEDC	
WCMT-C20N 	030208-C20N							●			5.56	2.38	0.8	C20N	7	3	
	040208-C20N							●			6.35	2.38	0.8	C20N	7	3	
	050308-C20N		●					●			7.94	3.18	0.8	C20N	7	3	
	06T308-C20N		●					●			9.525	3.97	0.8	C20N	7	3	
	080408-C20N							●			12.7	4.76	0.8	C20N	7	3	
	080412-C20N		●					●			12.7	4.76	1.2	C20N	7	3	
WCMT-C21N 	030204-C21N							●			5.56	2.38	0.4	C21N	7	3	
	040204-C21N							●			6.35	2.38	0.4	C21N	7	3	
	040208-C21N							●			6.35	2.38	0.8	C21N	7	3	
	050308-C21N							●			7.94	3.18	0.8	C21N	7	3	
	06T308-C21N							●			9.525	3.97	0.8	C21N	7	3	
	080408-C21N							●			12.7	4.76	0.8	C21N	7	3	

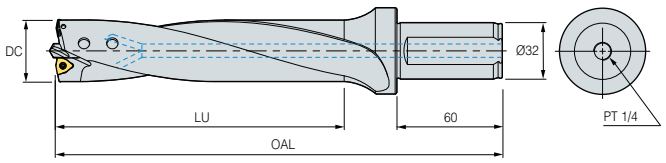
Applicable inserts **D83 ~ D84**

● : Stock Item

WPDC(5D/6.5D/8D)

Standard type





(mm)

Designation		DC	5D		6.5D		8D		Applicable insert	Center drill
			LU	OAL	LU	OAL	LU	OAL		
WPDC	250-32-□	25	150	240	185	275	220	310	WC□T030204-C21N	CD0630
	260-32-□	26	150	240	185	275	220	310	WC□T040204-C21N	
	270-32-□	27	150	240	185	275	220	310		
	280-32-□	28	150	240	185	275	220	310		
	290-32-□	29	150	240	185	275	220	310		
	300-32-□	30	150	240	185	275	220	310		
	310-32-□	31	175	265	218	308	260	350	WC□T050308-C21N	CD0835
	320-32-□	32	175	265	218	308	260	350		
	330-32-□	33	175	265	218	308	260	350		
	340-32-□	34	175	265	218	308	260	350		
	350-32-□	35	175	265	218	308	260	350		
	360-32-□	36	200	290	250	340	300	390		
	370-32-□	37	200	290	250	340	300	390		
	380-32-□	38	200	290	250	340	300	390		
	390-32-□	39	200	290	250	340	300	390		
	400-32-□	40	200	290	250	340	300	390		

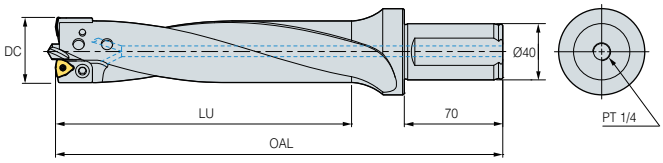
Applicable inserts **D83**

* We can provide if you order exact diameter
Ex) machining hole 32.5 mm * 6.5D WPDC325-32-6.5

WPDC(5D/6.5D/8D)



Single insert catridge type



(mm)

Designation		DC	5D		6.5D		8D		Applicable insert	Center drill	Cartridge	
			LU	OAL	LU	OAL	LU	OAL			Inner	Outer
WPDC	410-40-□	41	225	330	283	388	340	445	WC□T06T308-C21N	CDH1035	CWP4145C	CWP410P
	420-40-□	42	225	330	283	388	340	445				CWP420P
	430-40-□	43	225	330	283	388	340	445				CWP430P
	440-40-□	44	225	330	283	388	340	445				CWP440P
	450-40-□	45	225	330	283	388	340	445				CWP450P
	460-40-□	46	250	355	315	420	380	485			CWP4650C	CWP460P
	470-40-□	47	250	355	315	420	380	485				CWP470P
	480-40-□	48	250	355	315	420	380	485				CWP480P
	490-40-□	49	250	355	315	420	380	485				CWP490P
	500-40-□	50	250	355	315	420	380	485				CWP500P
	510-40-□	51	275	380	348	453	420	525	WC□T080408-C21N	CDH1238	CWP5155C	CWP510P
	520-40-□	52	275	380	348	453	420	525				CWP520P
	530-40-□	53	275	380	348	453	420	525				CWP530P
	540-40-□	54	275	380	348	453	420	525				CWP540P
	550-40-□	55	275	380	348	453	420	525				CWP550P
	560-40-□	56	300	405	380	485	460	565			CWP5659C	CWP560P
	570-40-□	57	300	405	380	485	460	565				CWP570P
	580-40-□	58	300	405	380	485	460	565				CWP580P
	590-40-□	59	300	405	380	485	460	565				CWP590P

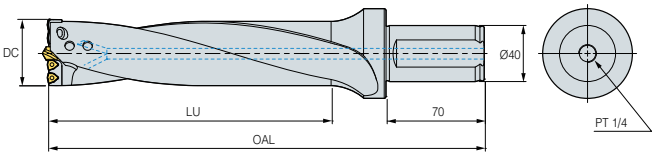
Applicable inserts **D83**

* We can provide if you order exact diameter
Ex) machining hole 47.5 mm * 5D -> WPDC475-40-5

WPDC(5D/6.5D/8D)



Dual insert cartridge type



(mm)

Designation		DC	DCX	5D		6.5D		8D		Applicable insert	Center drill	Cartridge	
				LU	OAL	LU	OAL	LU	OAL			Inner	Outer
WPDC	6065-40-□	60~65	60~65	325	430	423	528	520	625			CWP6065C	CWP6065P
	6570-40-□	65~70	65~70	350	455	455	560	560	665	WC□T050308-C21N	CDH1238	CWP6570C	CWP6570P
	7075-40-□	70~75	70~75	375	480	488	593	600	705			CWP7075C	CWP7075P
	7580-40-□	75~80	75~80	400	505	520	625	640	745	WC□T06T308-C21N	CDH1645	CWP7580C	CWP7580P

Applicable inserts **D83**

* We can provide if you order exact diameter
Ex) machining hole 70.5 mm * 6.5D -> WPDC705-40-6.5

Multi Turn

Code system

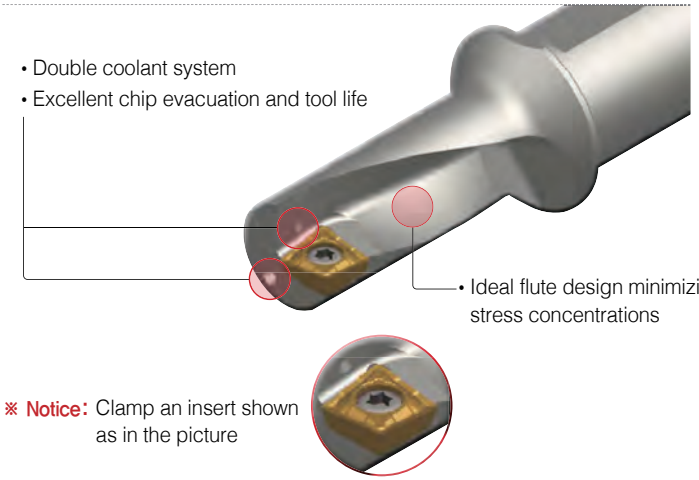
• Insert

Q	C	M	T	08	03	04	-	CM
Insert shape	Relief angle	Tolerance	Cross section type	Cutting edge length	Height of cutting edge	Nose radius		Chip breaker

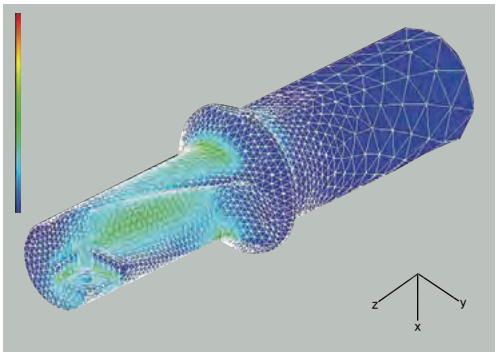
• Holder

MT	20	R	-	2.25D
Brand Name	Tool diameter	Hand		Aspect ratio (L/D)

Tool design by FEM analysis

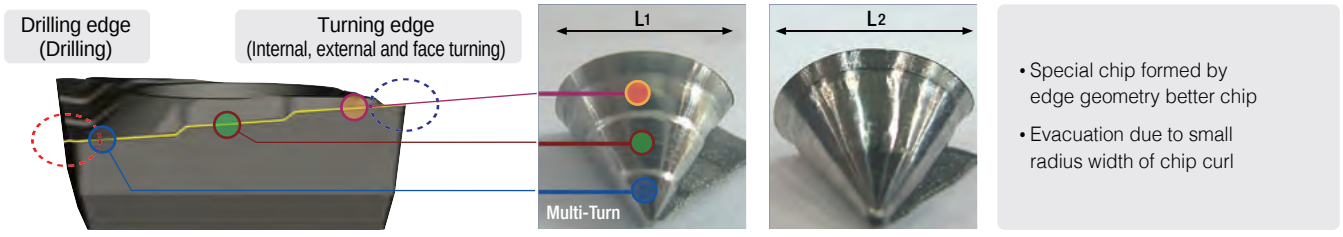


※ Notice: Clamp an insert shown as in the picture

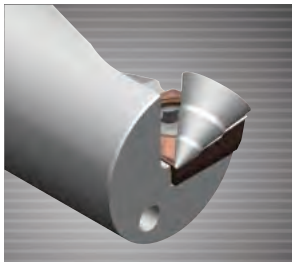


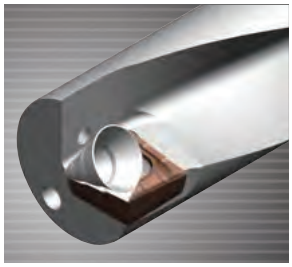
• Minimized stress during cutting, prevented damage from vibration and longer tool life **Optimized design**

Creative stepping cutting edge



• Special chip formed by edge geometry better chip
• Evacuation due to small radius width of chip curl

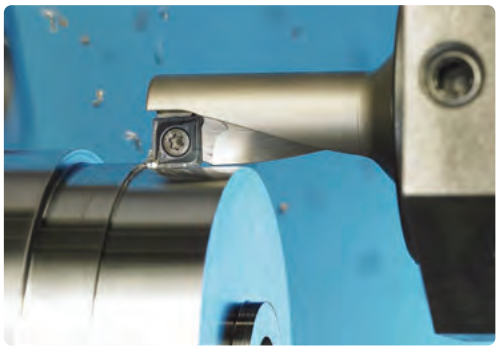




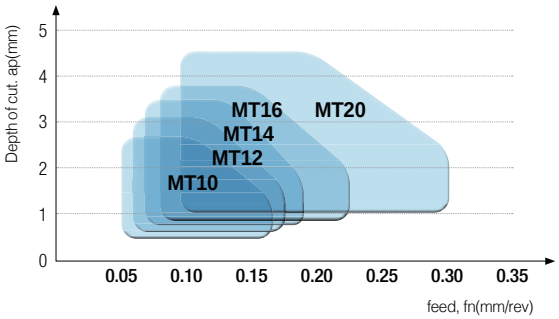
Comparison	Multi turn	Competitor A	Competitor B
Feed fn (mm/rev) = 0.08			
Feed fn (mm/rev) = 0.10			
Chip width (rate)	80%	100%	120%

User's guide

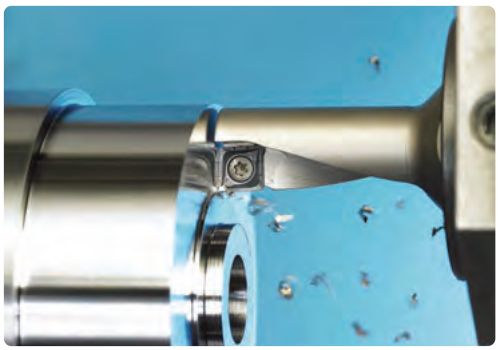
External / Internal turning



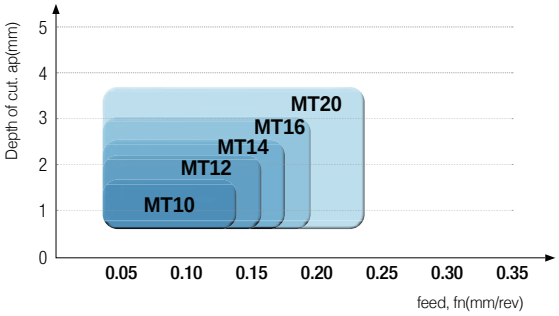
Application range



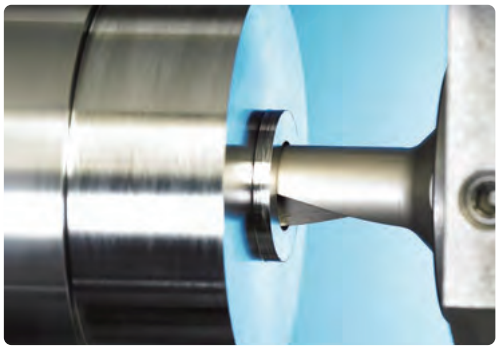
Facing



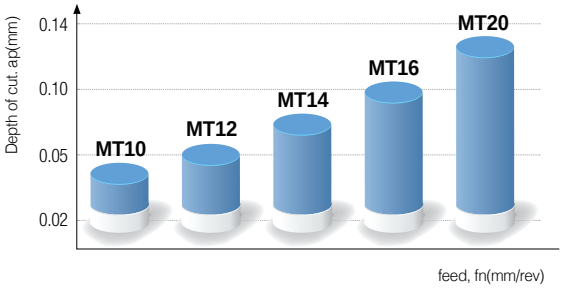
Appication ranges of facing



Drilling

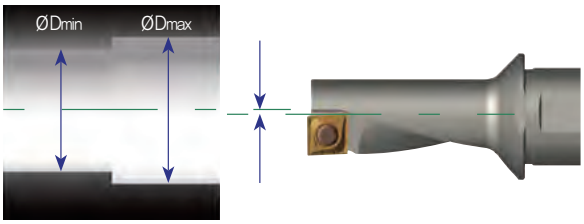


Drilling feed range by designation



Offset (Diameter compensation)

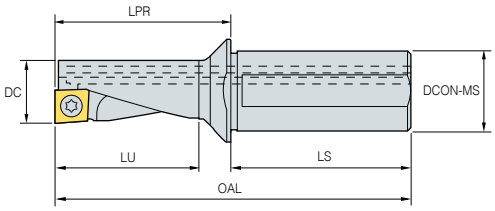
Disignation	Machined diameter (mm)	ØDmin(mm)	ØDmax(mm)
MT10R/L-2.25D	10	9.85	10.35
MT12R/L-2.25D	12	11.85	12.35
MT14R/L-2.25D	14	13.85	14.35
MT16R/L-2.25D	16	15.85	16.35
MT20R/L-2.25D	20	19.85	20.35
MT25R/L-2.25D	25	24.85	25.35
MT32R/L-2.25D	32	31.85	32.35



Drill diameter is adjustable by the offset compensation

MT(Multi-Turn)





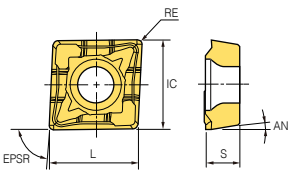
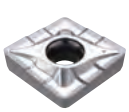
(mm)

Designation		Stock R	Stock L	DC	DCON-MS	LU	OAL	LPR	LS	Applicable insert	Screw	Wrench
MT	10R/L-2.25D	●	●	10	12	22.5	69.5	27.5	42	QC□T050204	FTNA0204S	TW06P
	12R/L-2.25D	●	●	12	16	27	78	33	45	QC□T060204	FTNA02205S	TW06P
	14R/L-2.25D	●		14	16	31.5	83.5	38.5	45	QC□T070304	FTKA02555	TW07P
	16R/L-2.25D	●	●	16	20	36	94	44	50	QC□T080304	FTNA0306	TW09P
	20R/L-2.25D	●	●	20	25	45	111	55	56	QC□T10T304	FTNA03508	TW15P
	25R/L-2.25D	●		25	32	56.25	130	69	61	QC□T130408	FTNC04509	TW20S
	32R/L-2.25D	●		32	40	72	160	86	74	QC□T170508	FTNC04511	TW20S

Applicable inserts **D87**

● : Stock Item

Applicable insert

Picture	Designation		Coated NC3120	Coated NC3225	Coated NC6315	Coated PC5300	Uncoated H01	Uncoated H05	IC	L	S	RE	EPSR	Configuration
	QCMT	050204-CM		●	●	●			5.4	5	2.10	0.4	87	
		060204-CM		●	●	●			6.4	6	2.38	0.4	87	
		070304-CM		●	●	●			7.4	7	3.18	0.4	87	
		080304-CM		●	●	●			8.4	8	3.18	0.4	87	
		10T304-CM		●		●			10.4	10	3.97	0.4	87	
		130408-CM		●		●			13.5	13	4.76	0.8	87	
		170508-CM		●	●	●			17.5	17	5.56	0.8	87	
	QCGT	050204-CA					●		5.4	5	2.10	0.4	87	
		060204-CA					●		6.4	6	2.38	0.4	87	
		070304-CA					●		7.4	7	3.18	0.4	87	
		080304-CA					●		8.4	8	3.18	0.4	87	
		10T304-CA					●		10.4	10	3.97	0.4	87	
		130408-CA					●		13.5	13	4.76	0.8	87	
		170508-CA					●		17.5	17	5.56	0.8	87	

Applicable holders **D87**

● : Stock Item

Mass production and High performance

Indexable Reamers

- Suitable for mass production and high performance
- Using PCD or coated insert for high speed machining
- Excellent high accuracy and adjustable machining hole
- Using accuracy chucking system (Hydraulic, rotating type arbor)
- Using inner coolant type machine to evacuate chips
- Using suitable holder and insert
- As insert setting, using setting fixture (KIRSD-210)

Code system

• Insert

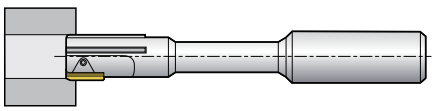
RI	16	-	B	06
Reamer Insert	**Insert size**		**Insert lead type**	**Angle of C/B**
	15 : 15.0×3.0 16 : 16.0×3.5 17 : 17.0×4.5 22 : 22.0×6.5		A : Excellent surface finish, low cutting condition B : General surface finish, high cutting condition C : Aluminum and copper alloy D : Blind hole, low feed	00 : 0°, Cast iron 06 : 6°, General steel 12 : 12°, Stainless, Al

• Holder

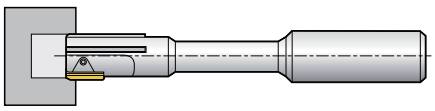
IR	T	12.000	-	16	135	-	16
Indexable Reamer	**Application**	**Reamer diameter**		**Shank diameter**	**length**		**Insert size**
	T : Through hole machining B : Blind hole machining	12.000 : Ø12.0 mm		16 : Ø16 mm	135 : 135		15 : 15.0×3.0 16 : 16.0×3.5 17 : 17.0×4.5 22 : 22.0×6.5

Application

Through hole machining (IRT type)



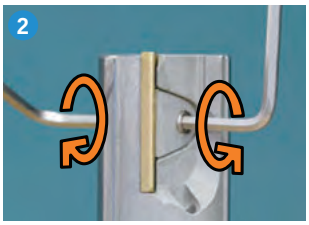
Blind hole machining (IRB type)



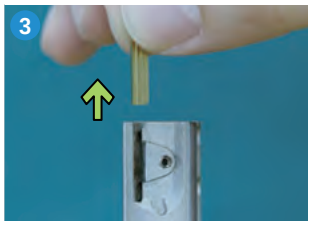
How to set an insert



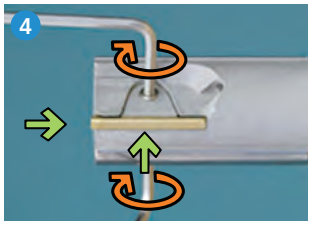
1. Screw the wedge screw counter clockwise with the exclusive wrench



2. Screw the clamp screw
   ① Top side: counter clockwise
   ② Lower side: clockwise



3. Remove the insert and clean the pocket



4. Put the insert up to the edge stopper and clamp the insert
   ① Top side: clockwise
   ② Lower side: counterclockwise

Exclusive fixture

- Designation: KIRSD-210
- Maximum diameter of reamer: Ø60 × 210 mm
- The fixture is also available for setting special reamer and mono tool
- Special reamers (out of maximum setting range) are available quotation



How to set an insert with fixture



1. Adjust the gauge to '0'



2. Rotate the reamer for the insert to touch the gauge



3. Set the back taper and adjust the insert height with screw the wedge screw
   ① Top side of insert: +0.015~ +0.020 mm
   ② Bottom side of insert: +0.005~ +0.010 mm
   ③ Back taper: 0.010~0.015 mm

Back taper

- Ensures low cutting load and excellent surface finish with good chip evacuation
- Inaccurate back taper could cause unstable machining with wear of insert
- The size of back taper of insert down side should be less to 0.010~0.015 mm than one of insert upper side

Insert setting with a micrometer





- Lathe with both centers or bench center are also available

Notice: The setting with a micrometer is not recommended due to chipping on the cutting edge

Recommended cutting conditions

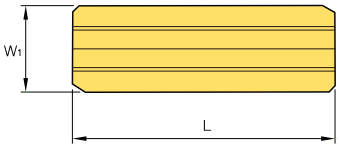
Workpiece	Insert type		Feed rate (mm/rev) per drill dia. (mm)	Cutting speed vc (m/min)	
	Rake angle	Lead type		Coated	Uncoated
Carbon steel General steel	6	A	0.1~0.4	60~80	40~60
		B	0.1~0.3	80~120	60~80
		D	0.05~0.2		
Mild steel Alloy steel	6	A	0.1~0.4	40~60	20~40
		B	0.1~0.3	80~120	60~80
		D	0.05~0.2		
High alloy steel Tool steel	6	A	0.1~0.4	20~60	20~40
		B	0.1~0.3	40~80	40~60
		D	0.05~0.2		
Stainless steel	12	A	0.1~0.3	40~60	20~40
		B	0.1~0.2	60~80	40~60
		D	0.05~0.2		
Cast iron	0.6	A	0.1~0.3	60~100	40~60
		B	0.1~0.25	80~120	60~80
		D	0.05~0.2		
Alloyed aluminum	12	B	0.1~0.3		160~200
		C	0.15~0.3		150~250
		D	0.05~0.2		110~200
Alloyed copper	0	B	0.1~0.2		80~100
		D	0.05~0.2		
Non-ferrous alloy	0	B	0.1~0.3		10~70

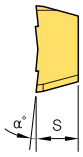
Parts

Reamer size	Clamp 	Wedge 	Clamp Screw 	Wedge Screw  (NYLOK)	Clamp Wrench 	Wedge Wrench 
10.0~11.9	CV 15	AW2430	DHA0308	HSO306	HW15L	HW15L
12.0~17.9	CV 16	AW2435				
18.0~27.9	CV 17	AW3240	DHA0409	HS0406	HW20L	HW20L
28.0~31.9	CV 22	AW3260				

Available insert







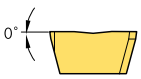
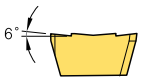
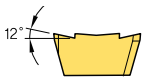
(mm)

Designation		Grade			Dimensions			Lead type	Rake angle (α°)
		K10 (Uncoated)	BPK110 (TiAlN)	BPK210 (TiN)	L	W1	S		
RI	15-A06			O	15	3.0	1.5	A	6˚
	15-A12	O			15	3.0	1.5	A	12˚
	15-B06		O	O	15	3.0	1.5	B	6˚
	15-B12		O		15	3.0	1.5	B	12˚
	16-A06			O	16	3.5	1.5	A	6˚
	16-A12	O			16	3.5	1.5	A	12˚
	16-B06		O	O	16	3.5	1.5	B	6˚
	16-B12		O		16	3.5	1.5	B	12˚
	17-A06			O	17	4.5	2.0	A	6˚
	17-A12	O			17	4.5	2.0	A	12˚
	17-B06		O	O	17	4.5	2.0	B	6˚
	17-B12		O		17	4.5	2.0	B	12˚
	22-A06			O	22	6.5	3.0	A	6˚
	22-A12	O			22	6.5	3.0	A	12˚
	22-B06		O	O	22	6.5	3.0	B	6˚
	22-B12		O		22	6.5	3.0	B	12˚

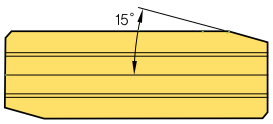
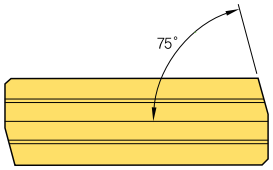
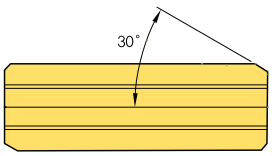
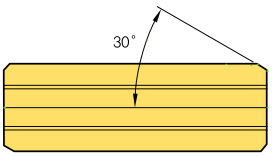
Applicable holders **D92 ~ D93**

※ ○This is recommended grade as for insert type

Angle of chip breaker

Division	00	06	12
Shape			
Application	For cast iron machining	For general machining	For stainless and aluminum machining

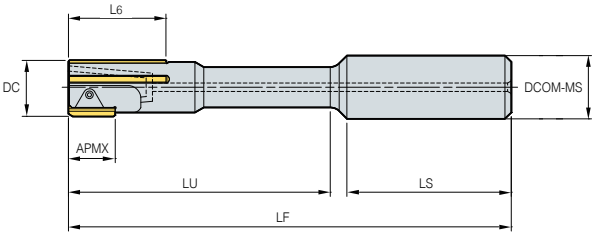
Insert lead type

Type	Shape	Working condition	Type	Shape	Working condition
A		For excellent surface, low cutting condition	C		For aluminum and copper alloy machining
B		For general application, high cutting condition	D		For blind hole machining, low feed

IRT

Throughout hole





(mm)

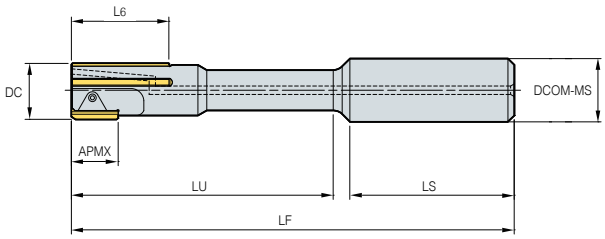
Designation		DC	APMX	L6	LU	LS	LF	DCOM-MS	Applicable insert
IRT	10.000-16125-15	10	15	30	75	45	125	16	RI 15
	11.000-16125-15	11	15	30	75	45	125	16	RI 15
	12.000-16135-16	12	16	30	85	45	135	16	RI 16
	13.000-16135-16	13	16	30	85	45	135	16	RI 16
	14.000-16135-16	14	16	30	85	45	135	16	RI 16
	15.000-16135-16	15	16	30	85	45	135	16	RI 16
	16.000-20155-16	16	16	30	100	50	155	20	RI 16
	17.000-20155-16	17	16	30	100	50	155	20	RI 16
	18.000-20155-17	18	17	30	100	50	155	20	RI 17
	19.000-20155-17	19	17	30	100	50	155	20	RI 17
	20.000-25165-17	20	17	30	110	56	165	25	RI 17
	21.000-25165-17	21	17	30	110	56	165	25	RI 17
	22.000-25165-17	22	17	30	110	56	165	25	RI 17
	23.000-25165-17	23	17	30	110	56	165	25	RI 17
	24.000-25165-17	24	17	30	110	56	165	25	RI 17
	25.000-25165-17	25	17	30	110	56	165	25	RI 17
	26.000-25165-17	26	17	30	110	56	165	25	RI 17
	27.000-25165-17	27	17	30	110	56	165	25	RI 17
	28.000-32165-22	28	22	30	110	56	165	32	RI 22
	29.000-32165-22	29	22	30	110	56	165	32	RI 22
	30.000-32165-22	30	22	30	110	56	165	32	RI 22
	31.000-32165-22	31	22	30	110	56	165	32	RI 22

Applicable inserts **D91**

IRB

Stuffed hole





(mm)

Designation		DC	APMX	L6	LU	LS	LF	DCOM-MS	Applicable insert
IRB	10.000-16125-15	10	15	30	75	45	125	16	RI 15
	11.000-16125-15	11	15	30	75	45	125	16	RI 15
	12.000-16135-16	12	16	30	85	45	135	16	RI 16
	13.000-16135-16	13	16	30	85	45	135	16	RI 16
	14.000-16135-16	14	16	30	85	45	135	16	RI 16
	15.000-16135-16	15	16	30	85	45	135	16	RI 16
	16.000-20155-16	16	16	30	100	50	155	20	RI 16
	17.000-20155-16	17	16	30	100	50	155	20	RI 16
	18.000-20155-17	18	17	30	100	50	155	20	RI 17
	19.000-20155-17	19	17	30	100	50	155	20	RI 17
	20.000-25165-17	20	17	30	110	56	165	25	RI 17
	21.000-25165-17	21	17	30	110	56	165	25	RI 17
	22.000-25165-17	22	17	30	110	56	165	25	RI 17
	23.000-25165-17	23	17	30	110	56	165	25	RI 17
	24.000-25165-17	24	17	30	110	56	165	25	RI 17
	25.000-25165-17	25	17	30	110	56	165	25	RI 17
	26.000-25165-17	26	17	30	110	56	165	25	RI 17
	27.000-25165-17	27	17	30	110	56	165	25	RI 17
	28.000-32165-22	28	22	30	110	56	165	32	RI 22
	29.000-32165-22	29	22	30	110	56	165	32	RI 22
	30.000-32165-22	30	22	30	110	56	165	32	RI 22
	31.000-32165-22	31	22	30	110	56	165	32	RI 22

Applicable inserts **D91**

BROTECH

PART

TOOLING SYSTEM

We will strive to contribute to the development of the automotive, aerospace, electronics, machinery, and plant industries by supplying high-quality products to our customers, and we will make every effort to promote the excellence of Korean tools worldwide through exports to various countries.



Technical Information for TOOLING SYSTEM

E2	Tooling System Index	**E94**	FMA
E4	DINOX MAP	**E96**	FMC
E8	DHE	**E99**	MD
E15	DHE/S	**E105**	EXT/RDC
E18	DHE/G	**E106**	FBH/B
E20	DHC/DHJ Collet	**E112**	FBH
E22	DZC	**E113**	FBH/D
E24	DSC	**E117**	DBCA
E33	NPM	**E121**	DBC
E39	DCL	**E123**	SMB
E40	DCJ	**E125**	KMB
E44	SDC/P	**E127**	SMH
E53	SDC/PL	**E129**	BKA
E56	GERC	**E131**	FZ UNIT
E60	ER Collet	**E132**	Angular head
E64	ER/L	**E134**	KAH
E65	RTJW	**E136**	KHU
E67	DSK	**E138**	KAG
E70	GSK	**E140**	HRAG
E74	HC Collet	**E142**	MAH
E78	DTN	**E144**	KAC
E81	TCA Tap Adapter	**E146**	SAH
E82	DST	**E148**	POSITIONING BLOCK
E85	TER Tap Collet	**E150**	ATM
E86	THE	**E153**	ATM(U) SPARE PART
E88	STER PAT.	**E154**	ATU
E89	OFH	**E156**	Damping Pro
E90	SLA	**E163**	Pull Stud Bolt
E93	MTA/TMTA	**E164**	HT

DHE

E8

DHE/S

E15

DHE/G

E18

DHC/DHJ

E20

DZC

E22

DSC

E24

NPM

E33

DCL

E39

DJC

E40

SDC/P

E44

SDC/PL

E53

GETC

E56

ER COLLET

E60

ER/L

E64

RTJW

E65

DSK

E67

GSK

E70

HC COLLET

E74

DTN

E78

TCA

E81

DST

E82

TER

E85

TEH

E86

STER PAT.

E88

OFH

E89

SLA

E90

MTA/TMTA

E93

FMA

E94

FMC

E96

MD

E101

EXT

E105

RDC

E105

FBH/B

E106

FBH

E112

FBH/D

E113

DBCA

E117

DBC

E121

SMB

E123

KMB

E125

SMH

E127

BKA

E129

FZ UNIT

E131

KAH

E134

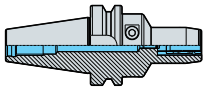
FMA

E158

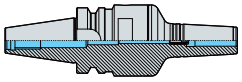
FMC

E159

1. Hydraulic Expansion Chuck



DHE C
Hydraulic expansion chuck



DHE/S C
Slim hydraulic expansion chuck



DHC C
DHC collet(General type)



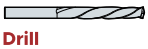
DHC[P] C
DHC collet(Waterproof type)



DHJ C
Jet coolant collet



DZC C
Zero fit collet



Drill



Endmill

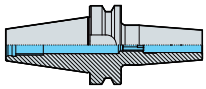


Reamer

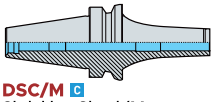


Burnishing Drill

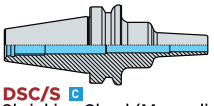
2. Shrinking Chuck



DSC C
Shrinking Chuck



DSC/M C
Shrinking Chuck(Mono curve type)



DSC/S C
Shrinking Chuck(Mono slim type)



S-FBH/B C
Micro boring bar

Drill



Endmill

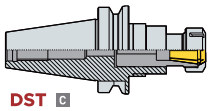


Reamer



Burnishing Drill

3. Tapping Holder



DST C
High speed synchro tapping chuck



TER C ER
TER Collet
ER Collet



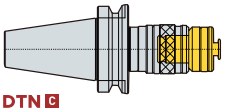
TEH C
Tap extension holder



Tap



Tap

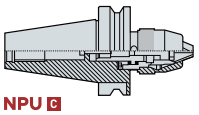


DTN C
Tapping holder



TCA C
Tap adapter

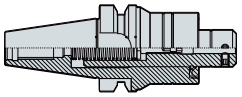
4. Drill Chuck



NPU C
Drill chuck

Drill

5. Floating Holder for Brush



OFH C
Floating holder for brush

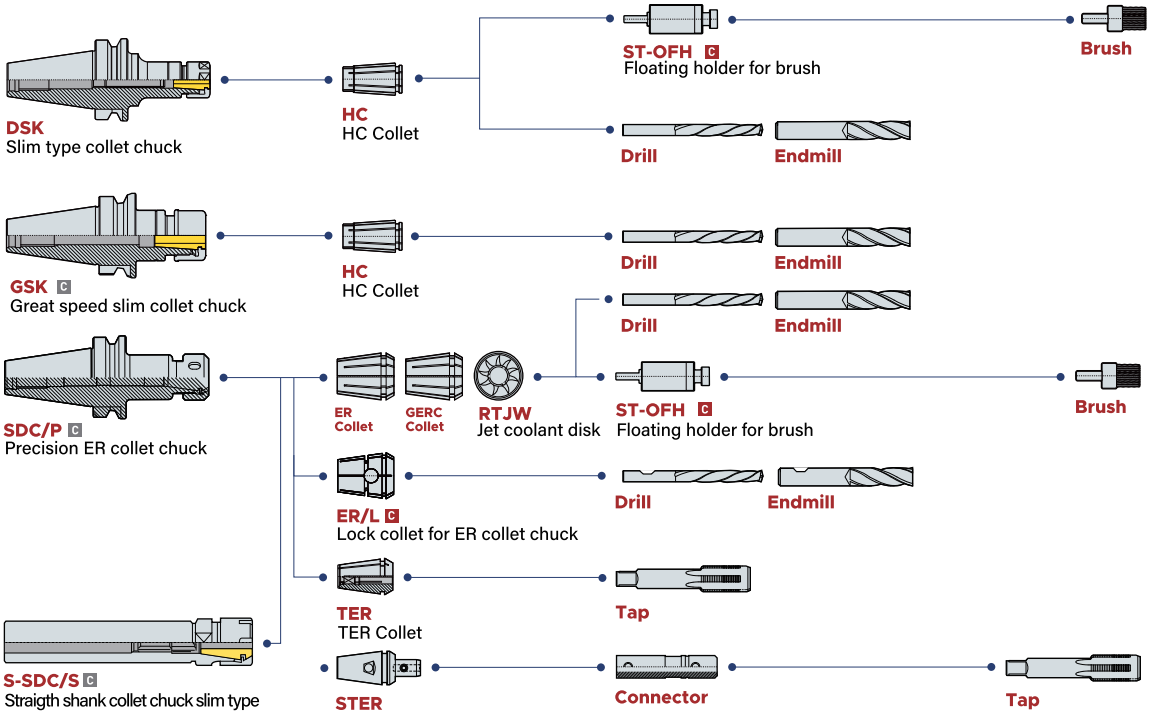


ST-OFH C
Floating holder for brush

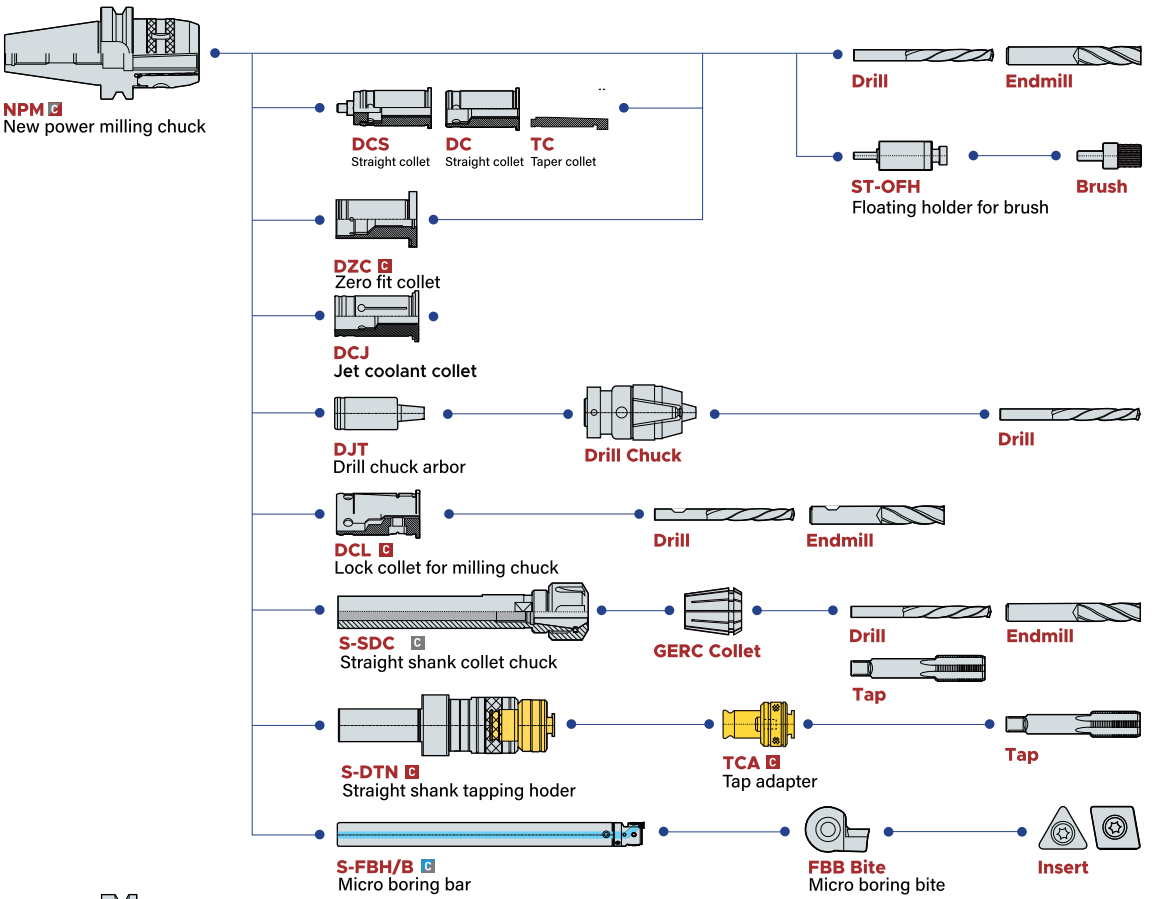


Brush

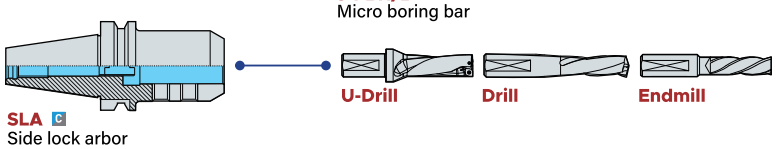
6. Collet Chuck



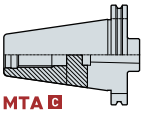
7. Milling Chuck



8. Side Lock Arbor



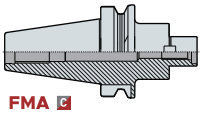
9. Morse Taper Arbor



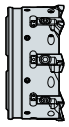
MTA C
Morse taper arbor



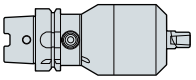
10. Face mill Arbor



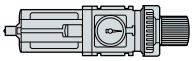
FMA C
Face mill arbor



11. Air Spindle



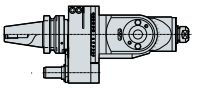
ATM C
Air turbine machine



Air regulator

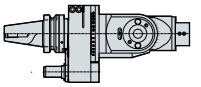


12. Angular Head



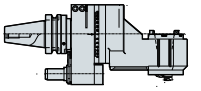
KHU C
0~90° Tilting type



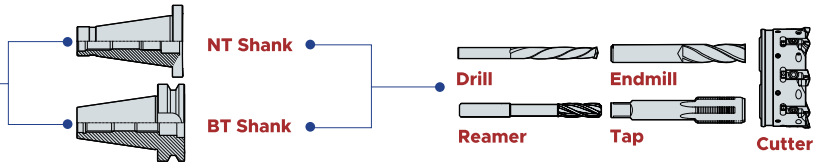


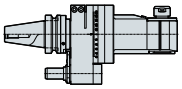
MAH C
0~90° Tilting type





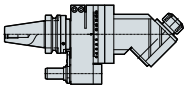
HRAG / KAG C
Attachment type





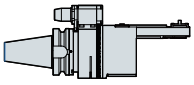
KAH C
90° Angle type





KAC C
45° Angle type

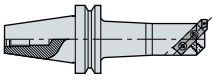




SAH C
Slim type

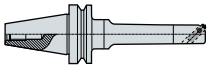


13. Boring Series

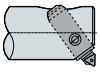


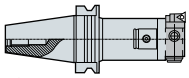
BSA C
Square boring bar



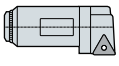


BKA C
FZ Micro boring bar

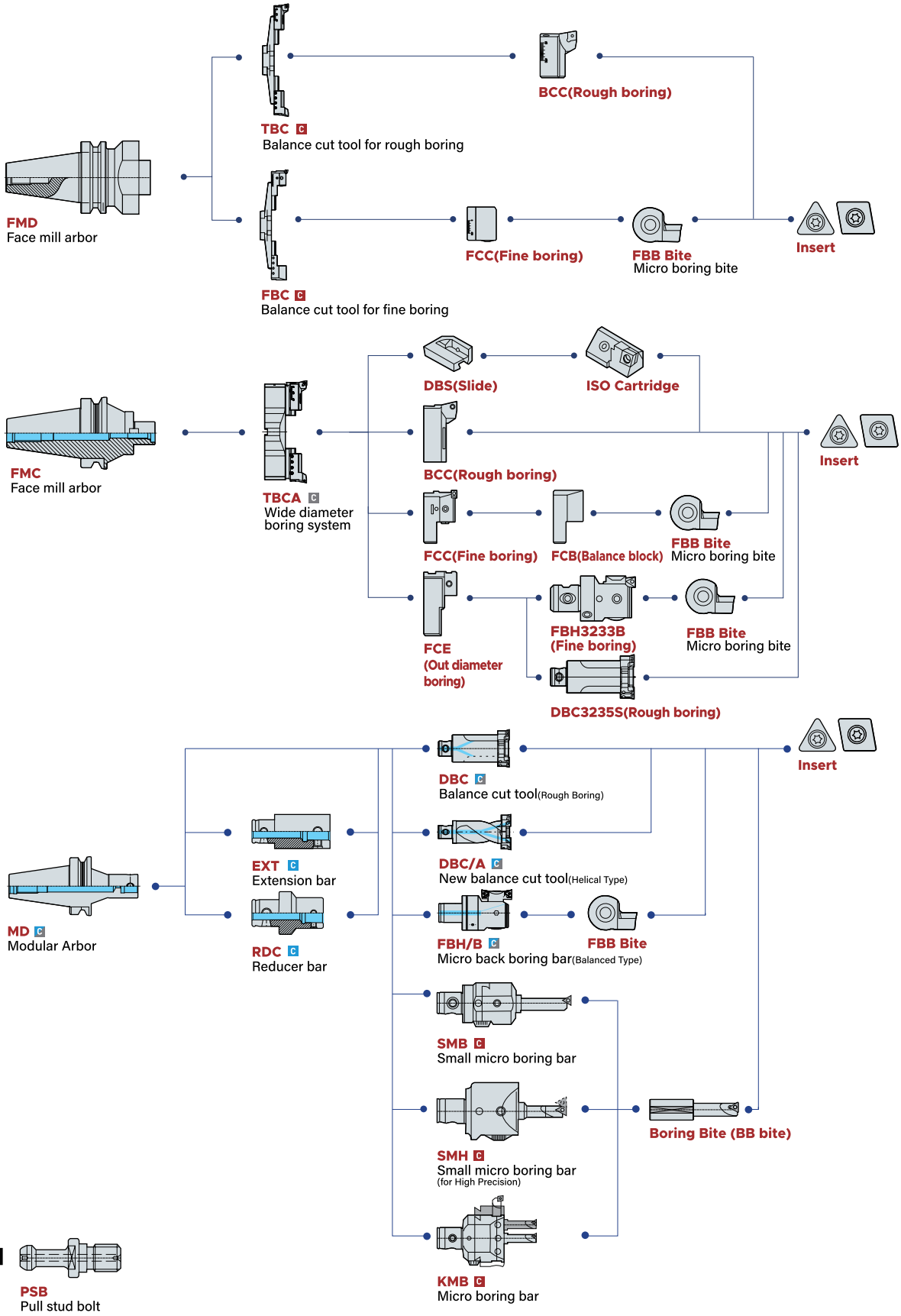




BCF C
Micro boring bar



13. Boring Series



14. Pull Stud Bolt

PSB
Pull stud bolt

Hydraulic expansion chuck

DHE



- Ideal for mold making and machining automobile components & precise parts due to high precision machining
- Improved surface roughness due to vibration proof by hydraulic chamber
- Reduced replacement time and tiredness of worker with the use of T wrench for removal
- Applicable shank diameter: Ø4~32

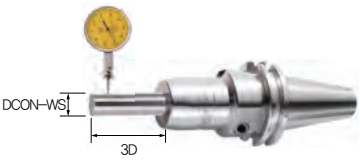
Code system

BT40	-	DHE	20	-	140
Spindle		Hydraulic expansion chuck	Max. Chucking diameter		Length

Features

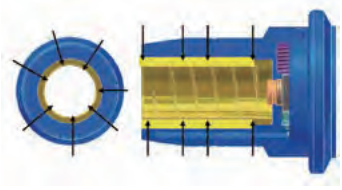
High accuracy provides long tool life due to reduced wear and hydraulic room enhances a surface roughness by lessening vibrations

- Run-out: under 5 μm
- L = 3 x ØD
- Shank: Tolerance of ØD: h6



Internal sealing structure (Durability)

- Internal sealing system protects the chuck against dust, cutting oil, lubricant and chips getting into it
  - Maintaining clamping force and accuracy for a long time

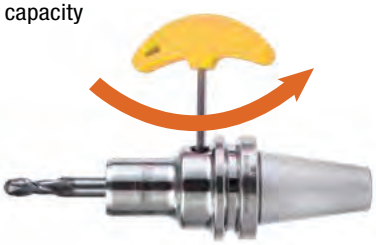


Shank	Grade	RPMX
BT50, HSK100A	G6.3	15,000
BT40, HSK63A		20,000
BT30, HSK50A		25,000



With simple T-wrench, very easy to change a tool

- Clamping structure for easy operation (Convenience)
  - Decrease of worker's fatigue
  - Improving machine capacity



Stable clamping

The clearance between holder and tool is fixed by hydraulic pressure



DBT-DHE



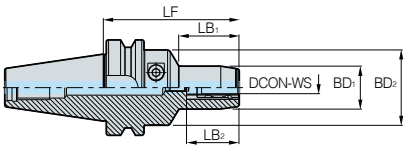


Fig. 1

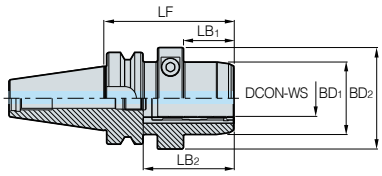


Fig. 2

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	ADJ	RPMX	Fig.	kg
DBT30-	DHE6-65	6	65	29	46	33	30~40	M5	25,000	1	0.7
	DHE8-65	8	65	31	46	33	30~40	M5	25,000	1	0.7
	DHE10-65	10	65	32	46	34	35~45	M5	25,000	1	0.7
	DHE12-70	12	70	35	46	34	41~51	M5	25,000	1	0.8
	DHE14-90	14	90	36	46	40	43~53	M5	25,000	1	1
	DHE16-90	16	90	40	46	45	46~56	M5	25,000	1	1
	DHE18-90	18	90	42	46	40	49~59	M5	25,000	1	1.1
	DHE20-90	20	90	44	46	45	49~59	M5	25,000	1	1.1
DBT40-	DHE6-90	6	90	29	50	40	30~40	M5	20,000	1	1.4
	DHE6-140	6	140	29	50	40	30~40	M5	20,000	1	2.2
	DHE8-90	8	90	31	50	40	30~40	M5	20,000	1	1.4
	DHE8-140	8	140	31	50	40	30~40	M5	20,000	1	2.2
	DHE10-90	10	90	33	50	40	35~45	M5	20,000	1	1.5
	DHE10-140	10	140	33	50	40	35~45	M5	20,000	1	2.2
	DHE12-90	12	90	35	50	40	41~51	M10	20,000	1	1.5
	DHE12-140	12	140	35	50	40	41~51	M10	20,000	1	2.3
	DHE14-90	14	90	36	50	40	43~53	M10	20,000	1	1.5
	DHE14-140	14	140	36	50	40	43~53	M10	20,000	1	2.2
	DHE16-90	16	90	40	50	45	46~56	M10	20,000	1	1.5
	DHE16-140	16	140	40	50	45	46~56	M10	20,000	1	2.2
	DHE18-90	18	90	42	50	45	49~59	M10	20,000	1	1.5
	DHE18-140	18	140	42	50	45	49~59	M10	20,000	1	2.2
	DHE20-90	20	90	44	50	47	49~59	M10	20,000	1	1.5
	DHE20-140	20	140	44	50	50	49~59	M10	20,000	1	2.3
	DHE25-90	25	90	50	50	35	58~68	M16	20,000	2	2
	DHE32-90	32	90	63	50	35	58~68	M16	20,000	2	2.3
DBT50-	DHE6-90	6	90	29	50	34	30~40	M5	15,000	1	3.9
	DHE6-140	6	140	29	50	40	30~40	M5	15,000	1	4.5
	DHE8-90	8	90	31	50	34	30~40	M5	15,000	1	4.2
	DHE8-140	8	140	31	50	40	30~40	M5	15,000	1	4.6
	DHE10-90	10	90	33	50	34	35~45	M5	15,000	1	3.9
	DHE10-140	10	140	33	50	34	35~45	M5	15,000	1	4.5
	DHE12-90	12	90	35	50	34	41~51	M10	15,000	1	4
	DHE12-140	12	140	35	50	34	41~51	M10	15,000	1	4.6
	DHE14-90	14	90	36	50	34	43~53	M10	15,000	1	3.9
	DHE14-140	14	140	36	50	34	43~53	M10	15,000	1	4.5
	DHE16-90	16	90	40	50	34	46~56	M10	15,000	1	4.1
	DHE16-140	16	140	40	50	34	46~56	M10	15,000	1	4.7
	DHE18-90	18	90	42	50	40	49~59	M10	15,000	1	4
	DHE18-140	18	140	42	50	45	49~59	M10	15,000	1	4.5
	DHE20-90	20	90	44	50	34	49~59	M10	15,000	1	4.2
	DHE20-140	20	140	44	50	47	49~59	M10	15,000	1	4.5
	DHE25-90	25	90	66	-	52	58~68	M16	15,000	2	4.7
	DHE32-90	32	90	72	-	52	58~68	M16	15,000	2	4.8

Spare Part **E13**

• LB_2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

BT-DHE



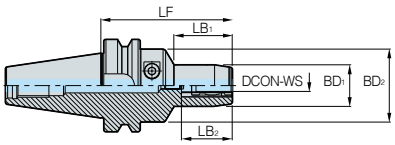


Fig. 1

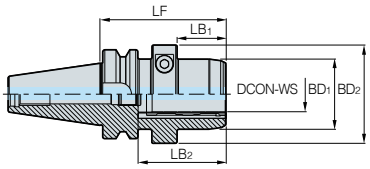


Fig. 2

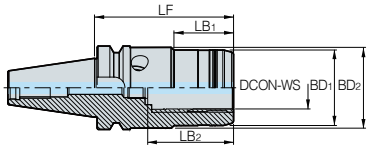


Fig. 3

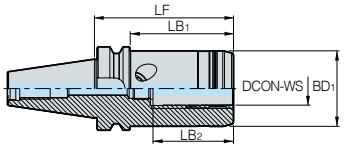


Fig. 4

(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	ADJ	RPMX	Fig.	kg
BT30-	DHE4-65	4	65	29	46	33	40	-	25,000	1	0.7
	DHE5-65	5	65	29	46	33	40	-	25,000	1	0.7
	DHE6-65	6	65	29	46	33	30~40	M5	25,000	1	0.7
	DHE8-65	8	65	31	46	33	30~40	M5	25,000	1	0.7
	DHE10-65	10	65	32	46	34	35~45	M5	25,000	1	0.7
	DHE12-70	12	70	35	46	34	36~46	M5	25,000	1	0.8
	DHE14-90	14	90	36	46	40	43~53	M5	25,000	1	1
	DHE16-90	16	90	40	46	45	46~56	M5	25,000	1	1
	DHE18-90	18	90	42	46	40	49~59	M5	25,000	1	1.1
	DHE20-90	20	90	44	46	45	49~59	M5	25,000	1	1.1
BT40-	DHE4-90	4	90	29	50	40	40	-	20,000	1	1.4
	DHE5-90	5	90	29	50	40	40	-	20,000	1	1.4
	DHE6-90	6	90	29	50	40	30~40	M5	20,000	1	1.4
	DHE6-140	6	140	29	50	40	30~40	M5	20,000	1	2.2
	DHE8-90	8	90	31	50	40	30~40	M5	20,000	1	1.4
	DHE8-140	8	140	31	50	40	30~40	M5	20,000	1	2.2
	DHE10-90	10	90	33	50	40	35~45	M5	20,000	1	1.5
	DHE10-140	10	140	33	50	40	35~45	M5	20,000	1	2.2
	DHE12-90	12	90	35	50	40	41~51	M10	20,000	1	1.5
	DHE12-140	12	140	35	50	40	41~51	M10	20,000	1	2.3
	DHE14-90	14	90	36	50	40	43~53	M10	20,000	1	1.5
	DHE14-140	14	140	36	50	40	43~53	M10	20,000	1	2.2
	DHE16-90	16	90	40	50	45	46~56	M10	20,000	1	1.5
	DHE16-140	16	140	40	50	45	46~56	M10	20,000	1	2.2
	DHE18-90	18	90	42	50	45	49~59	M10	20,000	1	1.5
	DHE18-140	18	140	42	50	45	49~59	M10	20,000	1	2.2
	DHE20-90	20	90	44	50	47	49~59	M10	20,000	1	1.5
	DHE20-140	20	140	44	50	50	49~59	M10	20,000	1	2.3
	DHE25-90	25	90	50	70	35	58~68	M16	20,000	2	2
	DHE25-105	25	105	57	-	78	51~61	M16	20,000	4	2
	DHE25-140	25	140	57	-	113	51~61	M16	20,000	4	2.6
	DHE32-90	32	90	63	75	35	58~68	M16	20,000	2	2.3
	DHE32-105	32	105	57	61	45	55~65	M16	20,000	3	2.4
	DHE32-140	32	140	57	61	45	55~65	M16	20,000	3	3

Spare Part **E13**

• LB2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

BT-DHE



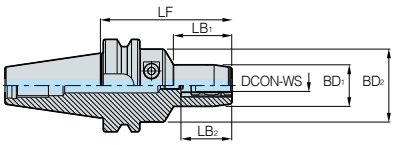


Fig. 1

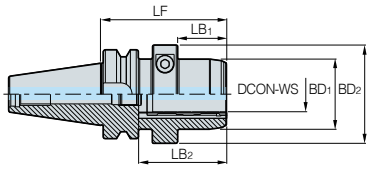


Fig. 2

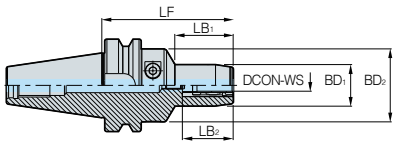


Fig. 3

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	ADJ	RPMX	Fig.	kg
BT50-	DHE4-90	4	90	29	50	34	40	-	15,000	1	3.9
	DHE5-90	5	90	29	50	34	40	-	15,000	1	3.9
	DHE6-90	6	90	29	50	34	30~40	M5	15,000	1	3.9
	DHE6-140	6	140	29	50	40	30~40	M5	15,000	1	4.4
	DHE8-90	8	90	31	50	34	30~40	M5	15,000	1	4.2
	DHE8-140	8	140	31	50	40	30~40	M5	15,000	1	4.6
	DHE10-90	10	90	33	50	34	35~45	M5	15,000	1	3.9
	DHE10-140	10	140	33	50	34	35~45	M5	15,000	1	4.5
	DHE12-90	12	90	35	50	34	41~51	M10	15,000	1	4
	DHE12-140	12	140	35	50	34	41~51	M10	15,000	1	4.6
	DHE14-90	14	90	36	50	34	43~53	M10	15,000	1	3.9
	DHE14-140	14	140	36	50	34	43~53	M10	15,000	1	4.5
	DHE16-90	16	90	40	50	34	46~56	M10	15,000	1	4.1
	DHE16-140	16	140	40	50	34	46~56	M10	15,000	1	4.7
	DHE18-90	18	90	42	50	40	49~59	M10	15,000	1	4
	DHE18-140	18	140	42	50	45	49~59	M10	15,000	1	4.5
	DHE20-90	20	90	44	50	34	49~59	M10	15,000	1	4
	DHE20-140	20	140	44	50	47	49~59	M10	15,000	1	4.5
	DHE25-90	25	90	66	-	52	58~68	M16	15,000	2	4.7
	DHE25-150	25	150	57	-	112	51~61	M16	15,000	3	4.5
	DHE32-90	32	90	72	-	52	58~68	M16	15,000	2	5.8

Spare Part **E13**

• LB_2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

HSK-DHE



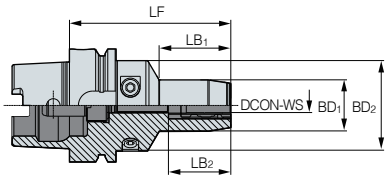


Fig. 1

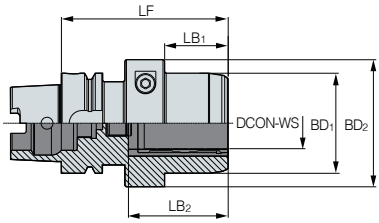


Fig. 2

(mm)

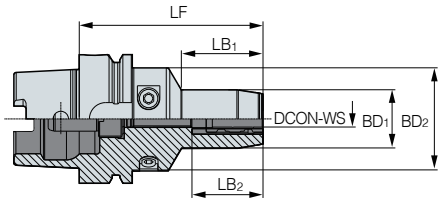
Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	ADJ	RPMX	Fig.	kg
HSK50A-	DHE6-70	6	70	29	40	28	30~40	M5	20,000	1	0.7
	DHE8-70	8	70	31	40	28	30~40	M5	20,000	1	0.7
	DHE10-80	10	80	33	40	35	35~45	M5	20,000	1	0.8
	DHE12-90	12	90	35	40	40	41~51	M5	20,000	1	0.8
	DHE14-95	14	95	36	53	28	43~53	M10	20,000	2	0.8
	DHE16-95	16	95	40	53	28	46~56	M10	20,000	2	0.9
	DHE18-100	18	100	42	60	28	49~59	M10	20,000	2	0.9
	DHE20-100	20	100	44	60	28	49~59	M10	20,000	2	0.9
HSK63A-	DHE4-75	4	75	29	50	34	40	-	20,000	1	1
	DHE5-75	5	75	29	50	34	40	-	20,000	1	1
	DHE6-75	6	75	29	50	34	30~40	M5	20,000	1	1
	DHE6-150	6	150	29	50	34	30~40	M5	20,000	1	2.2
	DHE8-75	8	75	31	50	34	30~40	M5	20,000	1	1
	DHE8-150	8	150	31	50	34	30~40	M5	20,000	1	2.2
	DHE10-85	10	85	33	50	34	35~45	M5	20,000	1	1.2
	DHE10-150	10	150	33	51	34	35~45	M5	20,000	1	2.2
	DHE12-90	12	90	35	51	40	41~51	M10	20,000	1	1.2
	DHE12-150	12	150	35	51	40	41~51	M10	20,000	1	2.2
	DHE14-95	14	95	36	52	40	42~53	M10	20,000	1	1.3
	DHE14-150	14	150	36	52	40	43~53	M10	20,000	1	2.2
	DHE16-95	16	95	40	52	45	46~56	M10	20,000	1	1.3
	DHE16-150	16	150	40	53	45	46~56	M10	20,000	1	2.2
	DHE18-100	18	100	42	53	45	49~59	M10	20,000	1	1.4
	DHE18-150	18	150	42	53	45	49~59	M10	20,000	1	2.2
	DHE20-100	20	100	44	50	50	49~59	M10	20,000	1	1.4
	DHE20-150	20	150	44	50	50	49~59	M10	20,000	1	2.2
	DHE25-110	25	110	50	70	48	56~68	M16	20,000	2	1.9
	DHE32-110	32	110	63	80	48	56~68	M16	20,000	2	2.3

Spare Part **E13**

• LB_2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

HSK-DHE





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	ADJ	RPMX	kg
HSK100A-	DHE6-80	6	80	29	50	34	30~40	M5	15,000	2.4
	DHE6-150	6	150	29	50	34	30~40	M5	15,000	2.8
	DHE8-80	8	80	31	50	34	30~40	M5	15,000	2.4
	DHE8-150	8	150	31	50	34	30~40	M5	15,000	2.8
	DHE10-90	10	90	33	50	34	35~45	M5	15,000	2.5
	DHE10-150	10	150	33	50	34	35~45	M5	15,000	3
	DHE12-95	12	95	35	50	34	41~51	M10	15,000	2.5
	DHE12-150	12	150	35	50	34	41~52	M10	15,000	3
	DHE14-100	14	100	36	50	40	43~53	M10	15,000	2.6
	DHE14-150	14	150	36	50	40	43~54	M10	15,000	3.1
	DHE16-100	16	100	40	50	45	46~56	M10	15,000	2.6
	DHE16-150	16	150	40	50	45	46~56	M10	15,000	3.1
	DHE18-100	18	100	42	50	45	49~59	M10	15,000	2.7
	DHE18-150	18	150	42	50	45	49~59	M10	15,000	3.2
	DHE20-105	20	105	44	50	50	49~59	M10	15,000	2.8
	DHE20-150	20	150	44	50	50	49~59	M10	15,000	3.4
	DHE25-115	25	115	50	63	62	58~68	M16	15,000	3.3
	DHE32-115	32	115	63	75	62	58~68	M16	15,000	3.8

Spare Part **E13**

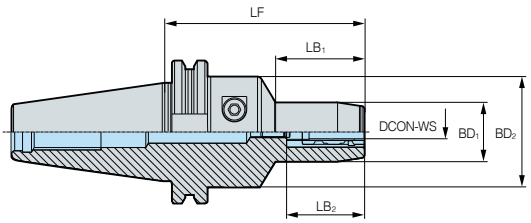
• LB_2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

Parts

Basic					
Division		Clamp bolt	Wrench	Division	Adjust screw
Designation \ Parts				Designation \ Parts	
BT30/SK30/HSK50A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 6, 8, 10	DHE-M5 (ADJ)
BT40/BT50/SK40/ SK50/HSK63A/ HSK100A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 12, 14, 16, 18, 20	DHE-M10 (ADJ)
	DHE 25, 32	BTF1212-1.5	DHETW-6	DHE 25, 32	DHE-M16 (ADJ)

SK-DHE





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	ADJ	RPMX	kg
SK40-	DHE6-90	6	90	29	50	40	30-40	M5	20,000	1.4
	DHE8-90	8	90	31	50	40	30-40	M5	20,000	1.4
	DHE10-90	10	90	33	50	40	35-45	M5	20,000	1.5
	DHE12-90	12	90	35	50	40	41~51	M10	20,000	1.5
	DHE12-140	12	140	35	50	40	41~51	M10	20,000	2.1
	DHE14-90	14	90	36	50	40	43~53	M10	20,000	1.4
	DHE16-90	16	90	40	50	45	46~56	M5	20,000	1.5
	DHE18-90	18	90	42	50	45	49~59	M5	20,000	1.5
	DHE20-90	20	90	44	50	50	49~59	M10	20,000	1.5
	DHE20-140	20	140	44	50	50	49~59	M10	20,000	2.1
SK50-	DHE12-90	12	90	35	50	40	41~51	M10	15,000	3.2
	DHE14-90	14	90	36	50	40	43~53	M10	15,000	3.2
	DHE16-90	16	90	40	50	45	46~56	M10	15,000	3.3
	DHE18-90	18	90	42	50	40	49~59	M10	15,000	3.2
	DHE20-90	20	90	44	50	47	49~59	M10	15,000	3.2

Spare Part **E14**

• LB_2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

Parts

Basic					
Division		Clamp bolt	Wrench	Division	Adjust screw
Designation \ Parts				Designation \ Parts	
BT30/SK30/HSK50A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 6, 8, 10	DHE-M5 (ADJ)
BT40/BT50/SK40/ SK50/HSK63A/ HSK100A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 12, 14, 16, 18, 20	DHE-M10 (ADJ)
	DHE 25, 32	BTF1212-1.5	DHETW-6	DHE 25, 32	DHE-M16 (ADJ)

※ DBT30, BT30, HSK50A is Exception

Slim hydraulic expansion chuck

DHE/S

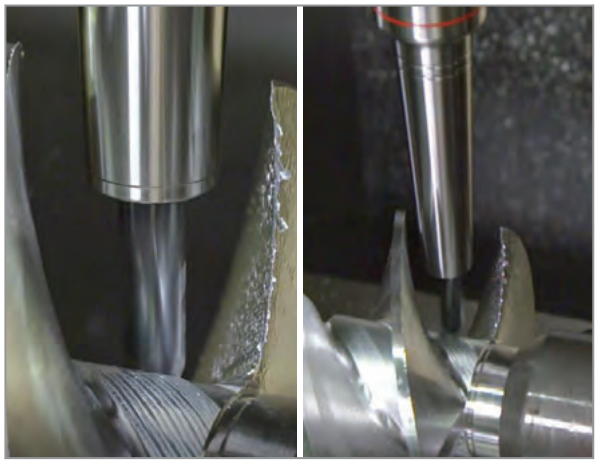


- Optimized chuck for machining that requires high-quality surface roughness and accuracy
- Suitable for challenging mold and automotive parts machining that involves complicated shapes and a lot of interferences
- Ideal for metal impeller machining, which requires deep penetration
- Enables easy tool connection without any additional connecting device
- Easy to perform fine boring operations (0.02-0.2 mm)
- Application scope: milling, drilling, reaming

Code system

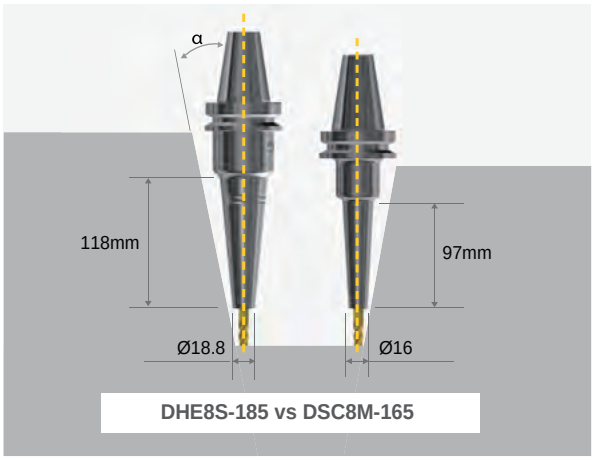
BT30	-	DHE	8	S	-	115
Spindle		Hydraulic expansion chuck	Tool diameter	Type S: Slim		Length

Recommended Machining Works



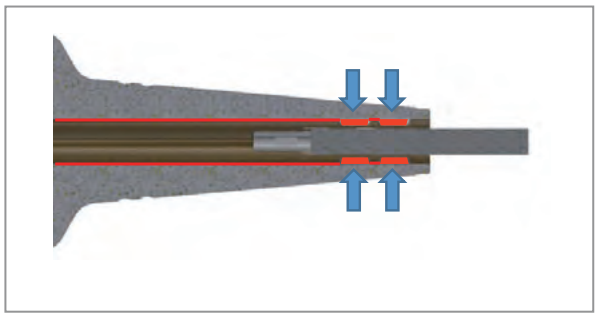
- Optimized for machining that requires high precision
- Enables challenging narrow and deep machining
- Products that require fine boring operations

Product Comparison



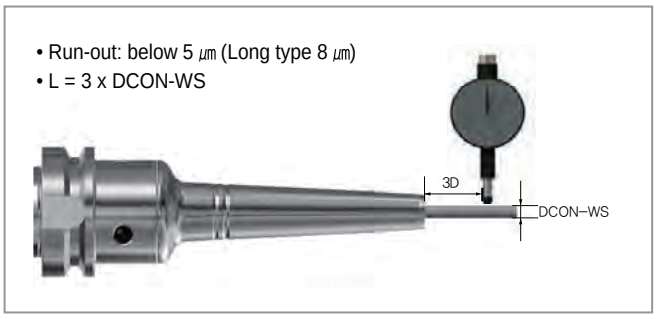
- Length and thickness are the same as those of DSC/M Type (if the tool projection length is 40 mm, difference of α= around 2°)
- Longer gauge line and higher rigidity (versus the DSC/M Type)
- Ideal for mold machining due to its 3-degree taper shape

Stable Clamping Force



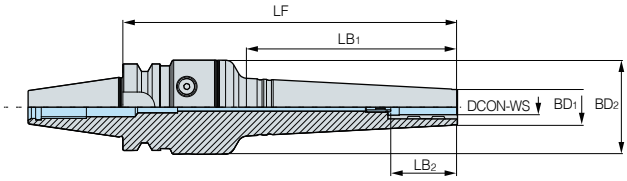
- Maintains high clamping force and good accuracy by holding the tool at two points

High-Precision



BT-DHE/S





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	RPMX	Run-out	kg
BT30-	DHE4S-115	4	115	16.8	50	50	19	25,000	5㎛	1.1
	DHE5S-115	5	115	16.8	50	50	19	25,000	5㎛	1.1
	DHE6S-115	6	115	17	50	50	23	25,000	5㎛	1.1
	DHE6S-180	6	180	17	50	115	23	25,000	8㎛	1.4
	DHE8S-115	8	115	19	50	50	31	25,000	5㎛	1.1
	DHE8S-180	8	180	19	50	115	31	25,000	8㎛	1.4
	DHE10S-120	10	120	21	50	55	36	25,000	5㎛	1.4
	DHE10S-180	10	180	21	50	115	36	25,000	8㎛	1.9
	DHE12S-130	12	130	23	50	65	38	25,000	5㎛	1.2
	DHE12S-180	12	180	23	50	115	38	25,000	8㎛	1.6
BT40-	DHE4S-120	4	120	16.8	50	50	19	20,000	5㎛	1.7
	DHE5S-120	5	120	16.8	50	50	19	20,000	5㎛	1.7
	DHE6S-120	6	120	17	50	50	23	20,000	5㎛	1.7
	DHE6S-185	6	185	17	50	115	23	20,000	8㎛	2.0
	DHE8S-120	8	120	19	50	50	31	20,000	5㎛	2.0
	DHE8S-185	8	185	19	50	115	31	20,000	8㎛	2.0
	DHE10S-125	10	125	21	50	55	36	20,000	5㎛	1.6
	DHE10S-185	10	185	21	50	115	36	20,000	8㎛	2.0
	DHE12S-135	12	135	23	50	65	38	20,000	5㎛	1.8
	DHE12S-185	12	185	23	50	115	38	20,000	8㎛	2.2
	DHE16S-190	16	190	26.8	50	115	41	20,000	8㎛	2.3
	DHE20S-190	20	190	30.8	50	115	44	20,000	8㎛	2.4
BT50-	DHE6S-200	6	200	16.8	50	115	22	15,000	8㎛	4.6
	DHE8S-200	8	200	18.8	50	115	30	15,000	8㎛	4.6
	DHE10S-200	10	200	20.8	50	115	35	15,000	8㎛	4.8
	DHE12S-200	12	200	22.8	50	115	37	15,000	8㎛	4.9
	DHE16S-200	16	200	26.8	50	115	41	15,000	8㎛	5.0
	DHE20S-200	20	200	30.8	50	115	44	15,000	8㎛	5.0

Spare Part **E16**

• LB_2: Insertion depth of tool (Min.) Through coolant system is installed

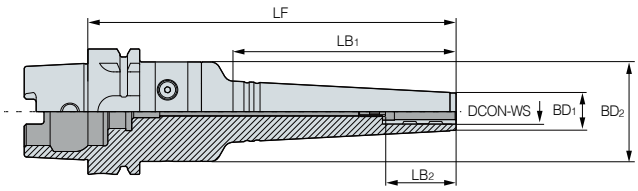
Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

HSK-DHE/S





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	RPMX	Run-out	kg
HSK63A-	DHE4S-120	4	120	16.8	50	50	19	20,000	5㎛	1.4
	DHE5S-120	5	120	16.8	50	50	19	20,000	5㎛	1.4
	DHE6S-120	6	120	17	50	50	23	20,000	5㎛	1.4
	DHE6S-185	6	185	17	50	115	23	20,000	8㎛	1.7
	DHE8S-120	8	120	19	50	50	31	20,000	5㎛	1.4
	DHE8S-185	8	185	19	50	115	31	20,000	8㎛	1.8
	DHE10S-125	10	125	21	50	55	36	20,000	5㎛	1.5
	DHE10S-185	10	185	21	50	115	36	20,000	8㎛	1.8
	DHE12S-135	12	135	23	50	65	38	20,000	5㎛	1.8
	DHE12S-185	12	185	23	50	115	38	20,000	8㎛	1.8
	DHE16S-190	16	190	26.8	50	115	41	20,000	8㎛	2.2
	DHE20S-190	20	190	30.8	50	115	44	20,000	8㎛	2.3
HSK100A-	DHE16S-190	16	190	26.8	50	115	41	15,000	8㎛	3.1
	DHE20S-190	20	190	30.8	50	115	44	15,000	8㎛	3.3

Spare Part **E17**

• LB_2: Insertion depth of tool (Min.) Through coolant system is installed

Parts

Basic					
Division		Clamp bolt	Wrench	Division	Adjust screw
Designation \ Parts				Designation \ Parts	
BT30	DHE/S 4, 5, 6, 8, 10, 12	BTF1010	DHETW-5	DHE/S 6, 8, 10, 12	DHE-M5 (ADJ)
BT40	DHE/S 4, 5, 6, 8, 10, 12, 16, 20	BTF1010	DHETW-5	DHE/S 16, 20	DHE-M10 (ADJ)
BT50	DHE/S 6, 8, 10, 12, 16, 20	BTF1010	DHETW-5		
HSK63A	DHE/S 4, 5, 6, 8, 10, 12, 16, 20	BTF1010	DHETW-5		
HSK100A	DHE/S 16, 20	BTF1010	DHETW-5		

Hydraulic expansion chuck for tool grinding

DHE/G

- Minimized wheel interference thanks to the application of 25 degrees to the entrance unit
- Stable run-out within 3μm in 3xØD
- Stable clamping force with 2-point clamping

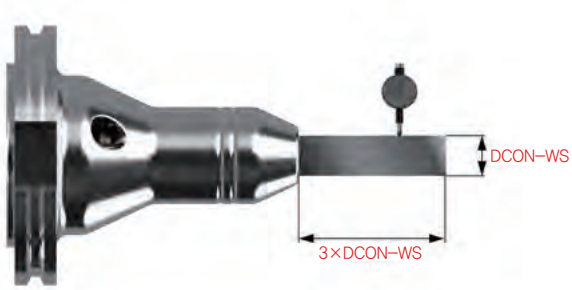


Code system

SK50	DHE	12	G	-	110
Spindle	Hydraulic Expansion Chuck	Tool diameter	Grinding		Length

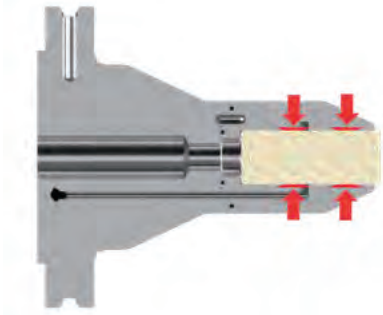
High Precision

- Run-out within 3μm in 3xDCON-WS achieved by the application of high-precision.



Stable Clamping

- Achieve high-precision due to the stable clamping of 2 points on the upper side and the lower side. application of high-precision.





Minimized Wheel Interference

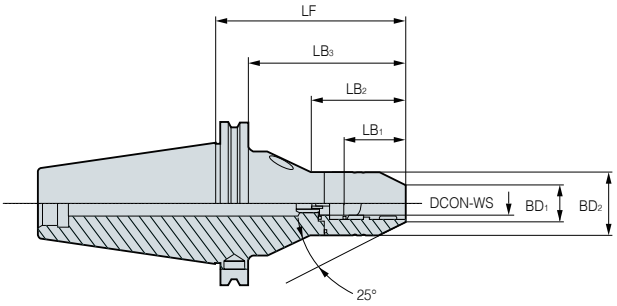
- The front-end unit employs 25° of angle and minimizes wheel interference during machining.

Hydraulic Chuck for Grinding Tools

- Used as a jig for fixing an end tool when grinding the tools.

DHE/G





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	LB_3	ADJ	kg
SK50-	DHE6G-110	6	110	15	32	25	55	90.9	M5	3.2
	DHE8G-110	8	110	17	33.5	25	55	90.9	M5	3.4
	DHE10G-110	10	110	19	35	30	55	90.9	M5	3.4
	DHE12G-110	12	110	21.5	36.5	36	55	90.9	M10	3.6
	DHE14G-110	14	110	23.5	38	38	60	90.9	M10	3.6
	DHE16G-110	16	110	25.5	39.5	41	60	90.9	M10	3.7
	DHE18G-110	18	110	27.5	41	44	60	90.9	M10	3.8
	DHE20G-110	20	110	28	42	44	47	90.9	M10	3.8
	DHE25G-110	25	110	33	47	53	49	90.9	M16	4
	DHE32G-110	32	110	40	54	53	63	90.9	M16	4.2

Spare Part **E19**

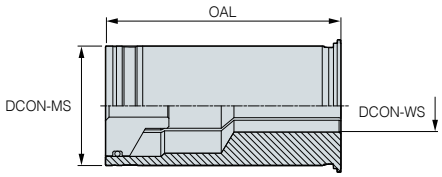
Parts

Basic					
Division		Clamp bolt	Wrench	Division	Adjust screw
Designation \ Parts				Designation \ Parts	
SK50	DHE6,8,10,12,14,16,18,20	BTF1010	DHETW-5	DHE 6,8,10	DHE-M5 (ADJ)
	DHE25,32	BTF1212-1.5	DHETW-6	DHE 12,14,16,18,20	DHE-M10 (ADJ)
				DHE 25,32	DHE-M16 (ADJ)

DHC Collet

General type





(mm)

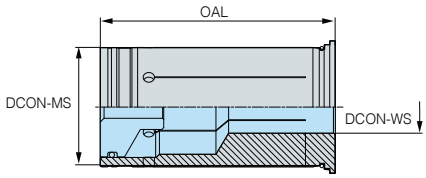
Designation		DCON-WS	OAL	DCON-MS	kg
DHC12-	3	3	47	12	0.06~0.08
	4	4	47	12	0.06~0.08
	5	5	47	12	0.06~0.08
	6	6	47	12	0.06~0.08
	8	8	47	12	0.06~0.08
DHC20-	3	3	52	20	0.04~0.06
	4	4	52	20	0.04~0.06
	5	5	52	20	0.04~0.06
	6	6	52	20	0.04~0.06
	7	7	52	20	0.04~0.06
	8	8	52	20	0.04~0.06
	9	9	52	20	0.04~0.06
	10	10	52	20	0.04~0.06
	11	11	52	20	0.04~0.06
	12	12	52	20	0.04~0.06
	14	14	52	20	0.04~0.06
	16	16	52	20	0.04~0.06
DHC32-	6	6	63	32	0.2~0.5
	8	8	63	32	0.2~0.5
	10	10	63	32	0.2~0.5
	12	12	63	32	0.2~0.5
	14	14	63	32	0.2~0.5
	16	16	63	32	0.2~0.5
	18	18	63	32	0.2~0.5
	19	19	63	32	0.2~0.5
	20	20	63	32	0.2~0.5
	25	25	63	32	0.2~0.5

• Through coolant system is not available

DHC-(P) Collet

Sealed type





(mm)

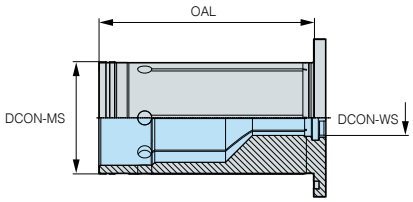
Designation		DCON-WS	OAL	DCON-MS	kg
DHC12-	3(P)	3	47	12	0.04
	4(P)	4	47	12	0.04
	5(P)	5	47	12	0.04
	6(P)	6	47	12	0.04
	8(P)	8	47	12	0.04
DHC20-	3(P)	3	52	20	0.06~0.1
	4(P)	4	52	20	0.06~0.1
	5(P)	5	52	20	0.06~0.1
	6(P)	6	52	20	0.06~0.1
	7(P)	7	52	20	0.06~0.1
	8(P)	8	52	20	0.06~0.1
	9(P)	9	52	20	0.06~0.1
	10(P)	10	52	20	0.06~0.1
	11(P)	11	52	20	0.06~0.1
	12(P)	12	52	20	0.06~0.1
	14(P)	14	52	20	0.06~0.1
	16(P)	16	52	20	0.06~0.1
DHC32-	6(P)	6	63	32	0.2~0.3
	8(P)	8	63	32	0.2~0.3
	10(P)	10	63	32	0.2~0.3
	12(P)	12	63	32	0.2~0.3
	14(P)	14	63	32	0.2~0.3
	16(P)	16	63	32	0.2~0.3
	18(P)	18	63	32	0.2~0.3
	19(P)	19	63	32	0.2~0.3
	20(P)	20	63	32	0.2~0.3
	25(P)	25	63	32	0.2~0.3

• Through coolant system is installed

DHJ Collet

Jet coolant





(mm)

Designation		DCON-WS	OAL	DCON-MS	kg
DHJ20-	6	6	50	20	0.1
	8	8	50	20	0.1
	10	10	50	20	0.1
	12	12	50	20	0.1
	14	14	50	20	0.08
	16	16	50	20	0.08

• Through coolant system is installed

Zero fit collet

DZC



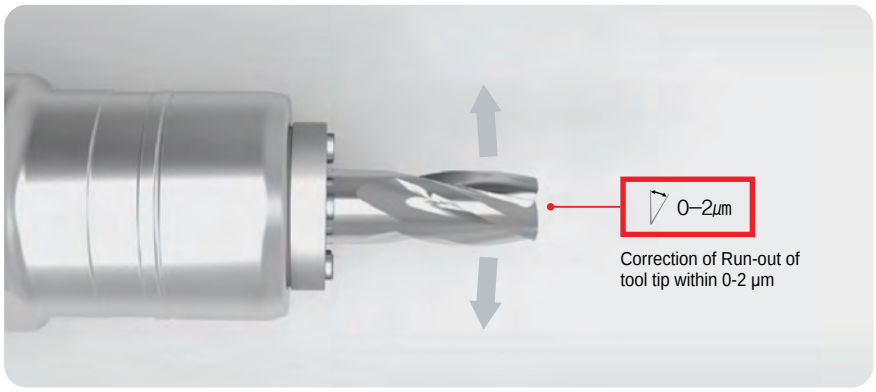
Correcting 10 - 20 μm Run-out generated at tool tip to 0-2 μm

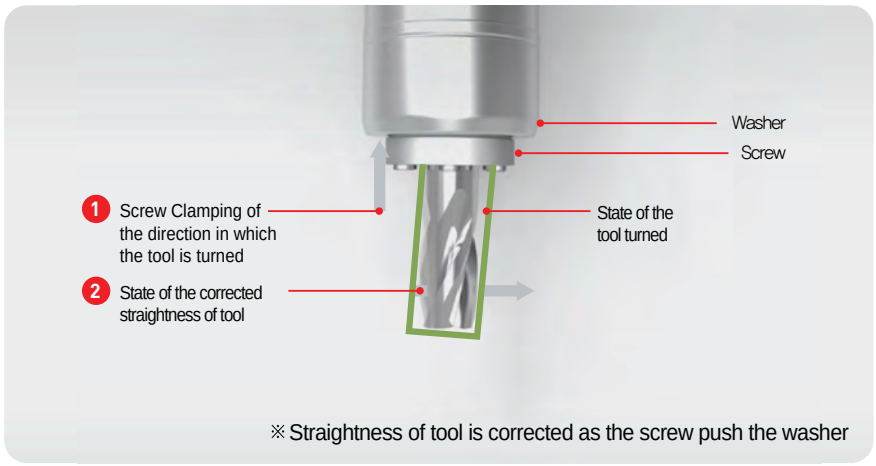
- Improves the Run-out and straightness of end tools
- Improves the surface roughness and quality of the machining area
- Improves the accuracy of boring hole dimension
- Improves the tool life of end tools

Code system

DZC	20	-	10
Zero fit collet	Collet size		Tool diameter

Features

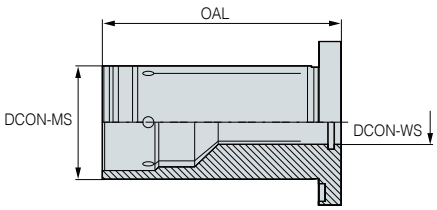




※ Straightness of tool is corrected as the screw push the washer

DZC





(mm)

Designation		DCON-WS	OAL	DCON-MS
DZC20-	6	6	57	20
	8	8	57	20
	10	10	57	20
	12	12	57	20
	14	14	57	20
	16	16	57	20
DZC32-	6	6	68	32
	8	8	68	32
	10	10	68	32
	12	12	68	32
	16	16	68	32
	20	20	68	32
	25	25	68	32

• Through coolant system is not available

Precautions

- Run-out can be adjusted with small force.
- Excessive clamping of the adjustment screw may result in deformation of the product.
  (suggested clamping torque : less than 600cN•M)
- If the run-out adjustment screw is clamped using excessive force, all six screws must be completely unclamped and adjusted again.

Shrinking Chuck

DSC

- Use of specially heat-treated steel
- High precision machining and clamping
- Increased precision and longer tool life due to minimized overhang when machining deep grooves
- Applicable shank diameter: Ø3~20



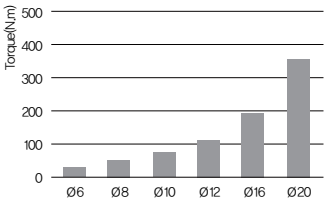
Code system

BT50 - DSC 6 - S - 16S - S

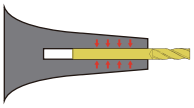
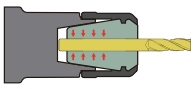
Shank type	Holder type	Tool diameter	Type	Length	Special
	DSC : Shrinking chuck SLK : 2-piece holder Collet		S : Silm M : Middle None : General		S : Curve type None : General

High Clamping Force

- Increase of 30% clamping force versus hydraulic expansion chuck
- Definite power transmission
- Run-out(≤0.003mm)



Symmetric design


Shrinking chuck	Collet chuck
Fix the clearance between holder and tool by heat shrinking	Fix the tool by elasticity of collet
	
Thermal expansion ▶ Thermal shrinking	Elastic deformation
Highly strong clamping	Strong clamping

Slim type series

Straight type

Used by combining with various holders such as hydraulic expansion chuck, milling chuck, and collet chuck etc.



Mono type

Used with high precision as integral types



Tool tightening tolerance

(mm)

Tool Shank	Tool Shank Tolerance(h6)	Tool Shank	Tool Shank Tolerance(h6)	Tool Shank	Tool Shank Tolerance(h6)	Tool Shank	Tool Shank Tolerance(h6)
Ø3	0~-0.008	Ø6	0~-0.008	Ø12	0~-0.011	Ø25	0~-0.013
Ø4	0~-0.009	Ø8	0~-0.009	Ø16	0~-0.011	Ø32	0~-0.016
Ø5	0~-0.011	Ø10	0~-0.011	Ø20	0~-0.013		

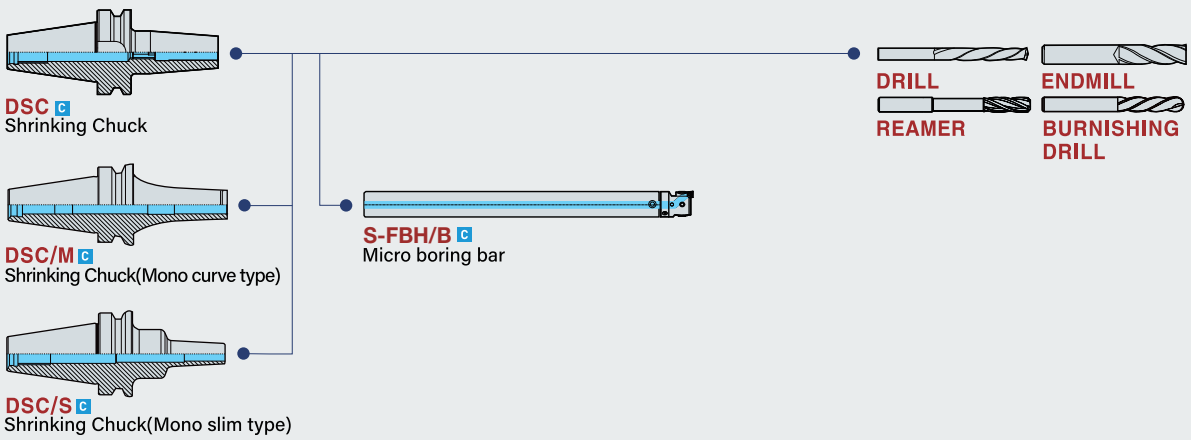
Min. tool insertion depth

(mm)

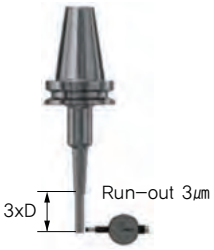
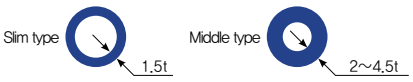
Inner Diameter	Type	Ø6	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Min. tool insertion depth	Slim	18	24	30	30	-	-	-	-
	Medium	18	24	30	30	32	40	-	-
	General	26	26	32	37	37	40	42	52

DSC MAP

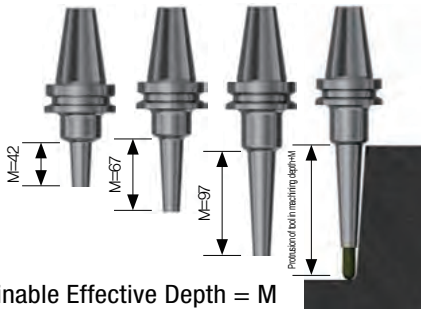
Shrinking Chuck



Mono type

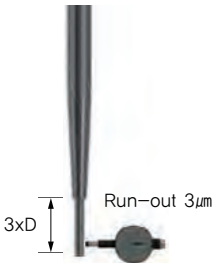
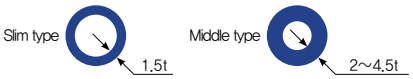
Figure	Accuracy	Type
		

- Ensures good rigidity by using special steel instead of general steel and maintains high-precision due to its excellent thermal resistance even when it is used moer than 5,000 times
- Enables stable cutting and good surface roughness due to its high rigidity
- Provides a long tool life due to its high-precision



Machinable Effective Depth = M

Straight Type

Figure	Accuracy	Type
		

Collet Chuck | Hydraulic Expansion Chuck | Milling Chuck

Used by combining with various holders such as hydraulic expansion chuck, milling chuck, and collet chuck, etc.

- Straight types used by combining with various holders such as hydraulic expansion chuck and collet chuck, etc. maintain high-precision and help enable various machining operations at an affordable price
- There are more than 20 types of shanks that can be used according to work situations

Examples



Ø6~Ø12 tools can be tightened
Various lengths and shank sizes

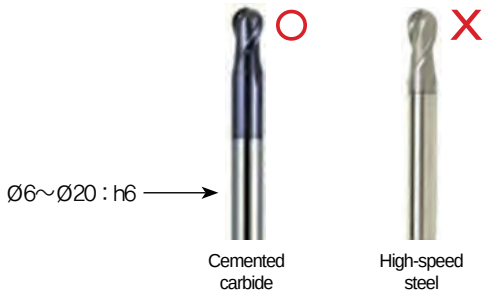


Lengths can be adjusted and used according to machining situations

Precautions in Use

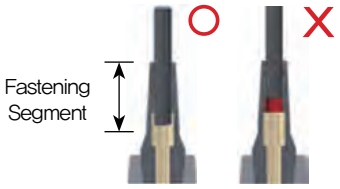
Tools to Use

- Use cemented carbide tools
- High-speed steel may not be disassembled
- Using an excessive tolerance tool affects clamping force, causing an accident



Precautions for Fastening Tools

- Maintain clean state by removing rust, dust, cutting oil, etc. generated by corrosion of the inner diameter of the chuck before tool tightening
- When tightening a tool, tighten it under the tightening section
- Tool tightening in the middle of the tightening section affects accuracy and durability
- When tightening a tool, touching the bottom surface affects accuracy



High-frequency Heating-related Precautions

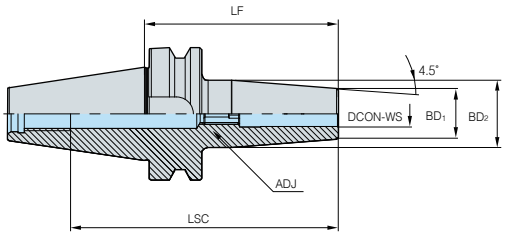
- When tightening/disassembling a tool, it is recommended that slim-type programmed shrink fit devices be used
- Using devices with no slim-type program may cause overheating.(Overheating may affect the product durability, service life, and accuracy.)

Storage Method

- When the shrink fit chuck is not used, the tool should be separated from the chuck. (Long-time connection may affect the service life of the product.)
- After using the shrink fit chuck, be sure to remove moisture and use inhibited oil and rust-preventing spray to prevent rust from occurring. (Less rust occurs compared to general steel as special steel is used; however, long-time non-use may cause rust occurrence.)

BT-DSC





(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC	ADJ	RPMX	kg
BT30-	DSC3-60	3	60	11	18.5	82	-	25,000	0.4
	DSC4-60	4	60	13	20.5	82	-	25,000	0.4
BT40-	DSC6-90	6	90	21	27	36	M5	20,000	1.1
	DSC6-120	6	120	21	27	36	M5	20,000	1.2
	DSC6-160	6	160	21	27	36	M5	20,000	1.4
	DSC8-90	8	90	21	27	36	M5	20,000	1.1
	DSC8-120	8	120	21	27	36	M5	20,000	1.2
	DSC8-160	8	160	21	27	36	M5	20,000	1.4
	DSC10-90	10	90	24	32	42	M8	20,000	1.1
	DSC10-120	10	120	24	32	42	M8	20,000	1.3
	DSC10-160	10	160	24	32	42	M8	20,000	1.6
	DSC12-90	12	90	24	32	47	M8	20,000	1.1
	DSC12-120	12	120	24	32	47	M8	20,000	1.3
	DSC12-160	12	160	24	32	47	M8	20,000	1.6
	DSC16-90	16	90	27	34	50	M12	20,000	1.2
	DSC16-120	16	120	27	34	50	M12	20,000	1.3
	DSC16-160	16	160	27	34	50	M12	20,000	1.7
	DSC20-90	20	90	33	42	52	M12	20,000	1.3
	DSC20-120	20	120	33	42	52	M12	20,000	1.5
	DSC20-160	20	160	33	42	52	M12	20,000	2.0

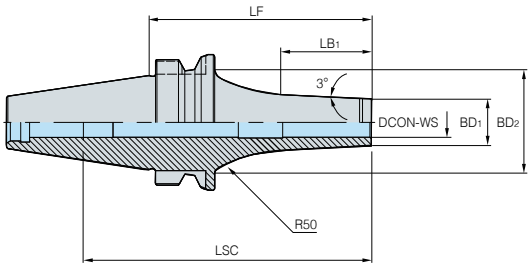
Spare Part E32

• LSC : Insertion depth of tool • Through coolant system is installed

BT-DSC/M

Mono Curve type





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LSC	RPMX	kg
BT30-	DSC3M-75S	3	75	8	25	30	97	25,000	0.4
	DSC4M-75S	4	75	10	25	32	97	25,000	0.4
	DSC6M-75S	6	75	12	30	29	97	25,000	0.5
	DSC8M-75S	8	75	14	32	29	97	25,000	0.5
	DSC10M-75S	10	75	16	32	31	45	25,000	0.5
	DSC12M-75S	12	75	19	32	34	45	25,000	0.5

• LSC : Insertion depth of tool • Through coolant system is installed

BT-DSC/M

Mono type



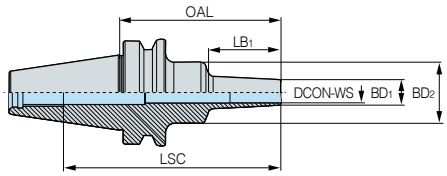


Fig. 1

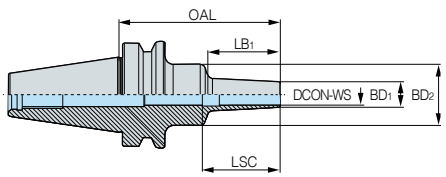


Fig. 2

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LSC	RPMX	Fig.	kg
BT40-	DSC3M-95	3	95	8	26	42	128	20,000	1	1.1
	DSC4M-95	4	95	8	26	42	128	20,000	1	1.1
	DSC6M-95	6	95	10	26	42	128	20,000	1	1.0
	DSC6M-120	6	120	10	26	67	153	20,000	1	1.0
	DSC6M-160	6	160	10	36	97	193	20,000	1	1.2
	DSC8M-95	8	95	13	36	42	128	20,000	1	1.3
	DSC8M-120	8	120	13	36	67	153	20,000	1	1.3
	DSC8M-160	8	160	13	36	97	193	20,000	1	1.3
	DSC10M-95	10	95	16	36	42	128	20,000	1	1.1
	DSC10M-120	10	120	16	36	67	153	20,000	1	1.1
	DSC10M-160	10	160	16	36	97	193	20,000	1	1.3
	DSC12M-95	12	95	19	36	42	128	20,000	1	1.1
	DSC12M-120	12	120	19	36	67	153	20,000	1	1.2
	DSC12M-160	12	160	19	36	97	193	20,000	1	1.4
	DSC16M-95	16	95	24	50	42	47	20,000	2	1.3
	DSC16M-120	16	120	24	50	67	47	20,000	2	1.4
	DSC16M-160	16	160	24	50	97	47	20,000	2	1.7
	DSC20M-95	20	95	29	50	42	55	20,000	2	1.3
	DSC20M-120	20	120	29	50	67	55	20,000	2	1.5
	DSC20M-160	20	160	29	50	97	55	20,000	2	1.9
BT50-	DSC6M-110	6	110	10	26	42	163	15,000	1	3.5
	DSC6M-160	6	160	10	36	97	213	15,000	1	3.6
	DSC8M-110	8	110	13	36	42	163	15,000	1	3.7
	DSC8M-160	8	160	13	36	97	213	15,000	1	3.7
	DSC10M-110	10	110	16	36	42	163	15,000	1	3.7
	DSC10M-160	10	160	16	36	97	213	15,000	1	3.7
	DSC12M-110	12	110	19	36	42	163	15,000	1	3.7
	DSC12M-160	12	160	19	50	97	213	15,000	1	4.0
	DSC16M-110	16	110	24	50	42	163	15,000	1	3.9
	DSC16M-160	16	160	24	50	97	213	15,000	1	4.1
	DSC20M-110	20	110	29	50	42	55	15,000	2	3.9
	DSC20M-160	20	160	29	50	97	55	15,000	2	4.2

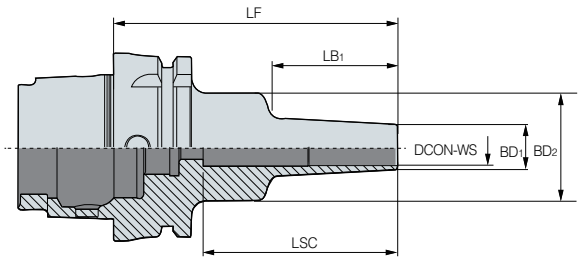
Spare Part **E32**

• LSC : Insertion depth of tool • Through coolant system is installed

HSK-DSC/M

Mono type





(mm)

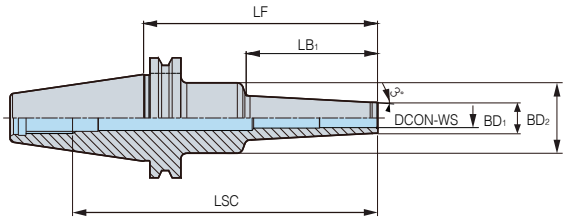
Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LSC	RPMX	kg
HSK63A-	DSC6M-95	6	95	10	26	42	73	20,000	0.7
	DSC8M-95	8	95	13	36	42	39	20,000	0.8
	DSC10M-120	10	120	16	36	67	45	20,000	0.8
	DSC12M-120	12	120	19	36	67	45	20,000	0.9
	DSC16M-120	16	120	24	50	67	47	20,000	1.1

• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

SK-DSC/M

Mono type





(mm)

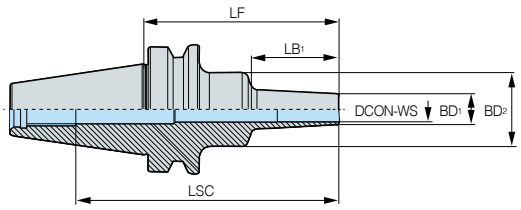
Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LSC	RPMX	kg
SK40-	DSC6M-95	6	95	10	26	42	131	20,000	0.8
	DSC6M-120	6	120	10	26	67	156	20,000	1.0
	DSC8M-95	8	95	13	36	42	131	20,000	1.4
	DSC8M-120	8	120	13	36	67	156	20,000	1.0
	DSC10M-95	10	95	16	36	42	131	20,000	1.0
	DSC10M-120	10	120	16	36	67	156	20,000	1.0
	DSC12M-95	12	95	19	36	42	131	20,000	1.0
	DSC12M-120	12	120	19	36	67	156	20,000	1.1
	DSC16M-95	16	95	24	50	42	47	20,000	1.3
	DSC16M-120	16	120	24	50	67	47	20,000	1.4
	DSC20M-95	20	95	29	50	42	55	20,000	1.3
	DSC20M-120	20	120	29	50	67	55	20,000	1.4

• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

BT-DSC/S

Mono Slim type





(mm)

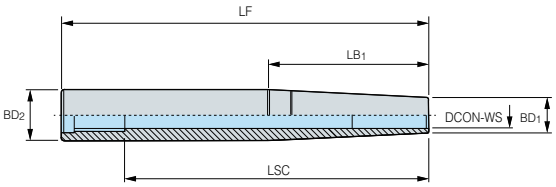
Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LSC	RPMX	kg
BT30-	DSC6S-60	6	60	9	20	22	82	25,000	0.4
	DSC6S-80	6	80	9	20	42	102	25,000	0.5
	DSC6S-120	6	120	9	25	67	142	25,000	0.5
BT40-	DSC6S-95	6	95	9	26	42	128	20,000	1.0
	DSC6S-120	6	120	9	26	67	153	20,000	1.0
	DSC6S-160	6	160	9	36	97	193	20,000	1.2
	DSC8S-95	8	95	11	36	42	128	20,000	1.1
	DSC8S-120	8	120	11	36	67	153	20,000	1.1
	DSC8S-160	8	160	11	36	97	193	20,000	1.2
	DSC10S-95	10	95	13	36	42	128	20,000	1.0
	DSC10S-120	10	120	13	36	67	153	20,000	1.1
	DSC10S-160	10	160	13	36	97	193	20,000	1.2
	DSC12S-95	12	95	15	36	42	128	20,000	1.1
	DSC12S-120	12	120	15	36	67	153	20,000	1.1
	DSC12S-160	12	160	15	36	97	193	20,000	1.2
BT50-	DSC6S-110	6	110	9	26	42	166	15,000	3.5
	DSC6S-160	6	160	9	36	97	216	15,000	3.6
	DSC8S-110	8	110	11	36	42	166	15,000	3.6
	DSC8S-160	8	160	11	36	97	216	15,000	3.6
	DSC10S-110	10	110	13	36	42	166	15,000	3.6
	DSC10S-160	10	160	13	36	97	216	15,000	3.6
	DSC12S-110	12	110	15	36	42	166	15,000	3.6
	DSC12S-160	12	160	15	36	97	216	15,000	3.7

• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

ST-DSC/M

Straight Shank Shrinking Chuck





(mm)

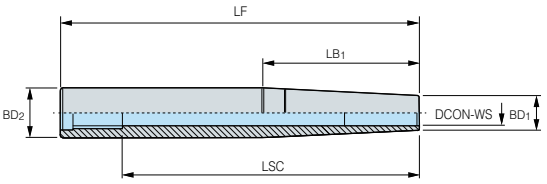
Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LSC	kg
ST16-	DSC6M-115	6	115	10	16	50	95	0.1
	DSC6M-140	6	140	10	16	60	120	0.1
ST20-	DSC6M-175	6	175	10	20	95	155	0.2
	DSC8M-145	8	145	13	20	70	125	0.2
	DSC10M-120	10	120	16	20	50	45	0.2
ST25-	DSC8M-175	8	175	13	25	105	155	0.4
	DSC10M-145	10	145	16	25	75	45	0.4
	DSC10M-175	10	175	16	25	105	45	0.4
	DSC12M-120	12	120	19	25	50	45	0.3
	DSC12M-150	12	150	19	25	80	45	0.4
	DSC16M-175	16	175	24	25	50	47	0.5
ST32-	DSC20M-175	20	175	29	32	50	55	0.8

• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

ST-DSC/S

Straight Shank Shrinking Chuck





(mm)

De		DCON-WS	LF	BD_1	BD_2	LB_1	LSC	kg
ST16-	DSC6S-115	6	115	9	16	55	95	0.1
	DSC6S-140	6	140	9	16	70	120	0.1
	DSC8S-115	8	115	11	16	50	95	0.1
ST20-	DSC6S-175	6	175	9	20	105	155	0.2
	DSC8S-175	8	175	11	20	85	155	0.2
	DSC10S-145	10	145	13	20	75	77	0.2
	DSC12S-120	12	120	15	20	50	52	0.2
ST32-	DSC12S-315	12	315	15	32	185	295	1.2

• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

Parts

Basic											
Type		DSC6	DSC8	DSC10	DSC12	DSC14	DSC16	DSC18	DSC20	DSC25	DSC32
Adjust screw		M520C		M820C		M1230C					

New power milling chuck

NPM

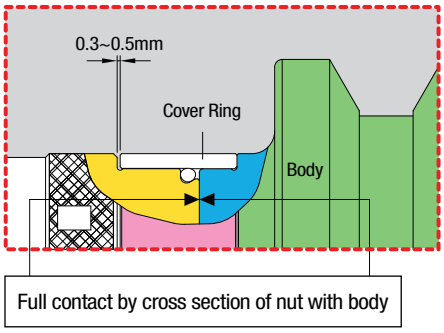
- Strong clamping over 500kgf·m (on NPM42 basis)
- DUST BLOCK functions for blocking foreign substance
- Jet coolant available
- High precision within 15 at L/D = 3
- Boring range: Ø20~42



Code system

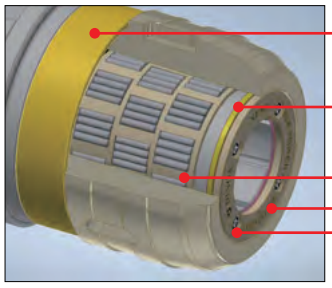
BT40	-	NPM	32	-	110
Spindle		New Power Milling Chuck	Tool diameter		Length

Improvement of durability by preventing minute dust, chips and coolant

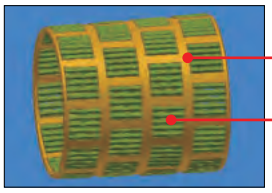


Adopted Stop Ring on Head parts
- Preventing minute dust by Shim & O-Ring

NPM Structural Features



· Needle Roller Bearing 〈NPM20〉

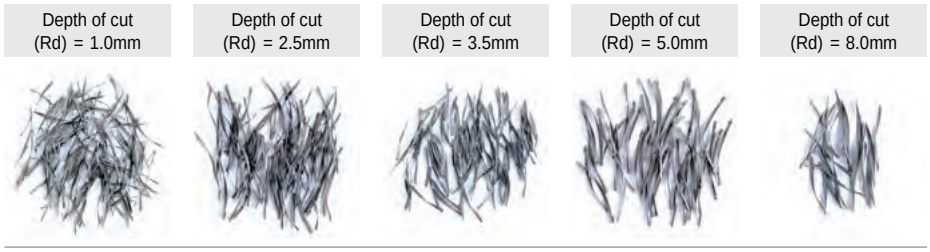


- Specially designed Steel Bearing for prevention of damage
- Strong clamping by spreading the force

Stable machining from heavy to fine

• Perfect face contact and Powerful clamping force strengthen both Cutting force and Absorption of vibration.

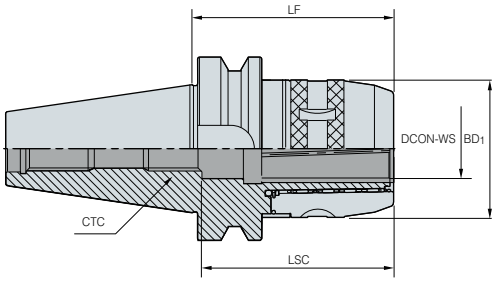




Possible machining from heavy milling to fine finishing

DBT-NPM





(mm)

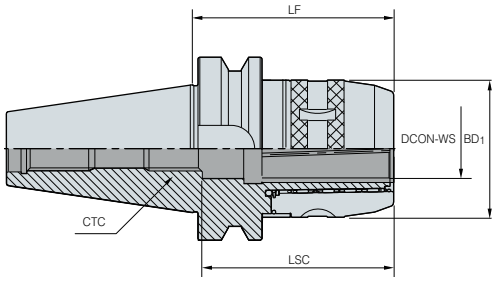
Designation		DCON-WS	LF	BD1	LSC	CTC	COLLET	kg
DBT30-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	1.1
DBT40-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	2.3
	NPM20-100	20	100	54	85	M16	DC20, DSC20, DCJ20	2.4
	NPM20-135	20	135	54	85	M16	DC20, DSC20, DCJ20	2.5
	NPM25-85	25	85	61	83	M16	DC25,DCS25	1.8
	NPM32-90	32	90	75	85	M16	DC32, DCS32, DCJ32	2.4
	NPM32-110	32	110	75	95	M16	DC32, DCS32, DCJ32	2.9
	NPM32-120	32	120	75	95	M16	DC32, DCS32, DCJ32	3.1
	NPM32-135	32	135	75	95	M16	DC32, DCS32, DCJ32	3.4
DBT50-	NPM20-95	20	95	54	85	M16	DC20, DCS20, DCJ20	4.3
	NPM20-105	20	105	54	85	M16	DC20, DCS20, DCJ20	4.5
	NPM20-125	20	125	54	85	M16	DC20, DCS20, DCJ20	4.8
	NPM20-165	20	165	54	85	M16	DC20, DCS20, DCJ20	5.3
	NPM25-95	25	95	61	83	M16	DC25,DCS25	4.6
	NPM32-90	32	90	75	93	M24	DC32, DCS32, DCJ32	4.9
	NPM32-110	32	110	75	93	M24	DC32, DCS32, DCJ32	5
	NPM32-135	32	135	75	105	M24	DC32, DCS32, DCJ32	5.8
	NPM32-165	32	165	75	105	M24	DC32, DCS32, DCJ32	6.9
	NPM42-110	42	110	90	125	M24	DC42, DCS42	5.6
	NPM42-135	42	135	90	125	M24	DC42, DCS42	6.6
	NPM42-165	42	165	90	125	M24	DC42, DCS42	8

Spare Part **E35** Application Collet **E40**

• LSC: Insertion depth of tool • Through coolant system is optional
• In case of L ≤ 90, chucks with over 90mm are recommended for roughing by short cap

BT-NPM





(mm)

Designation		DCON-WS	LF	BD_1	LSC	CTC	COLLET	kg
BT30-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	1.2
BT40-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	2.3
	NPM20-100	20	100	54	85	M16	DC20, DSC20, DCJ20	2.3
	NPM20-135	20	135	54	83	M16	DC20, DSC20, DCJ20	2.4
	NPM25-85	25	85	61	85	M16	DC25, DCS25	1.7
	NPM32-90	32	90	75	87	M16	DC32, DCS32, DCJ32	2.3
	NPM32-110	32	110	75	95	M16	DC32, DCS32, DCJ32	2.8
	NPM32-120	32	120	75	95	M16	DC32, DCS32, DCJ32	3
	NPM32-135	32	135	75	95	M16	DC32, DCS32, DCJ32	3.5
BT50-	NPM20-95	20	95	54	85	M16	DC20, DCS20, DCJ20	4.3
	NPM20-125	20	125	54	85	M16	DC20, DCS20, DCJ20	4.7
	NPM20-165	20	165	54	85	M16	DC20, DCS20, DCJ20	5.2
	NPM25-95	25	95	61	83	M16	DC25,DCS25	4.6
	NPM32-90	32	90	75	93	M24	DC32, DCS32, DCJ32	4.9
	NPM32-110	32	110	75	105	M24	DC32, DCS32, DCJ32	5.0
	NPM32-135	32	135	75	105	M24	DC32, DCS32, DCJ32	5.7
	NPM32-165	32	165	75	105	M24	DC32, DCS32, DCJ32	6.9
	NPM42-110	42	110	90	125	M24	DC42, DCS42	5.4
	NPM42-135	42	135	90	125	M24	DC42, DCS42	6.5
	NPM42-165	42	165	90	125	M24	DC42, DCS42	7.9

Spare Part **E35** Application Collet **E40**

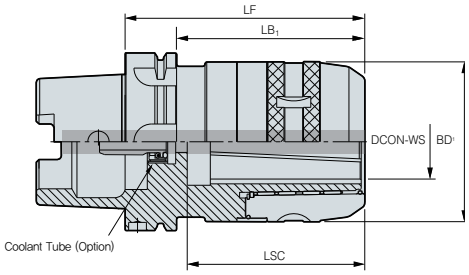
• LSC: Insertion depth of tool • Through coolant system is optional
• In case of L ≤ 90, chucks with over 90mm are recommended for roughing by short cap

Parts

For separate purchase			
Division	Collet	Spanner	Through coolant system
Parts / Designation			
NPM20	DC20, DCS20, DCJ20	57-60	CTC20-□□
NPM32	DC32, DCS32, DCJ32	75-79	CTC32-□□
NPM42	DC42, DCS42	92-96	CTC42-□□

HSK-NPM





(mm)

Designation		DCON-WS	LF	BD_1	LB_1	LSC	COLLET	kg
HSK63A-	NPM20-100	20	100	54	74	75	DC20, DCS20, DCJ20	1.0
	NPM20-100	20	100	54	74	75	DC20, DCS20, DCJ20	1.6
	NPM25-100	25	100	61	74	75	DC25,DCS25	1.9
	NPM32-110	32	110	75	84	82	DC32, DCS32, DCJ32	2.5
	NPM32-120	32	120	75	84	90	DC32, DCS32, DCJ32	2.9
HSK100A-	NPM20-110	20	110	54	81	75	DC20,DCS20,DCJ20	3.0
	NPM25-110	25	110	61	81	75	DC25,DCS25,DCJ25	3.2
	NPM32-115	32	115	75	86	82	DC32,DCS32,DCJ32	4.1
	NPM32-130	32	130	75	101	90	DC32,DCS32,DCJ32	4.0
	NPM42-135	42	135	90	106	100	DC42,DCS42	5.7

Spare Part **E36** Application Collet **E40**

• LSC: Insertion depth of tool • Through coolant system is optional

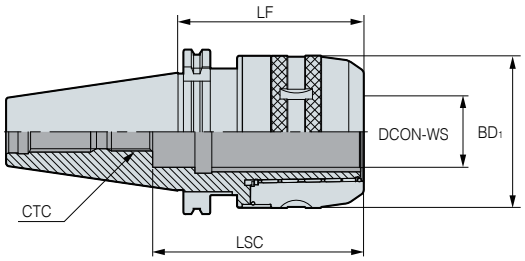
Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

SK-NPM





(mm)

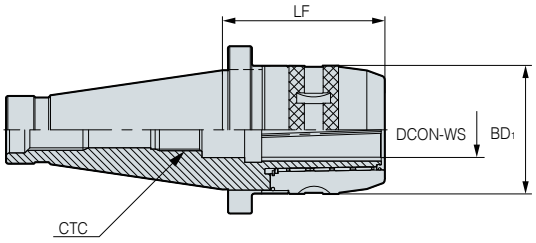
Designation		DCON-WS	LF	BD1	LSC	CTC	COLLET	kg
SK40-	NPM20-95	20	95	54	85	M16	DC20, DCS20, DCJ20	2.4
	NPM32-95	32	95	75	85	M16	DC32, DCS32, DCJ32	2.4
	NPM32-110	32	110	75	95	M16	DC32, DCS32, DCJ32	2.8
	NPM32-135	32	135	75	95	M16	DC32, DCS32, DCJ32	3.2
SK50-	NPM20-100	20	100	54	85	M16	DC20, DCS20, DCJ20	3.6
	NPM32-100	32	100	75	105	M24	DC32, DCS32, DCJ32	4.3
	NPM32-130	32	130	75	105	M24	DC32, DCS32, DCJ32	5.2
	NPM42-110	42	110	90	125	M24	DC42, DCS42	5.2
	NPM42-135	42	135	90	125	M24	DC42, DCS42	6.1

Spare Part **E35** Application Collet **E40**

• LSC: Insertion depth of tool • Through coolant system is optional

NT-NPM





(mm)

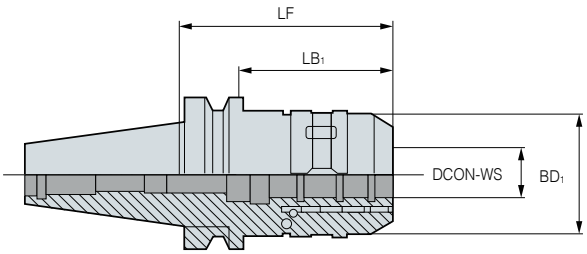
Designation		DCON-WS	LF	BD1	CTC	COLLET	kg
NT40-	NPM32-95	32	95	75	M16	DC32, DCS32, DCJ32	2.7
NT50-	NPM32-95	32	95	75	M24	DC32, DCS32, DCJ32	4.3
	NPM42-95	42	95	90	M24	DC42, DCS42	4.8
NT50M-	NPM32-95	32	95	75	M24	DC32, DCS32, DCJ32	4.4
	NPM42-95	42	95	90	M24	DC42, DCS42	4.9

Spare Part **E35** Application Collet **E40**

• Through coolant system is not available

BT-DMC





(mm)

Designation		DCON-WS	LF	BD_1	LB_1	COLLET	kg
BT30-	DMC20-80	20	80	54	80	DC20, DCS20	1
BT40-	DMC20-90	20	90	54	80	DC20, DCS20	2.3
	DMC32-105	32	105	75	95	DC32, DCS32	2.9
BT50-	DMC32-105	32	105	75	95	DC32, DCS32	4.9
	DMC32-165	32	165	75	95	DC32, DCS32	6.7
	DMC42-105	42	105	90	125	DC42, DCS42	5.2
	DMC42-165	42	165	90	125	DC42, DCS42	8

Spare Part **E38** Application Collet **E40**

• Through coolant system is optional

Parts

Division	For separate purchase
Spanner	

Classification by shank	
DMC 20	57-60
DMC 32	75-79
DMC 42	92-96

Lock collet for milling chuck

DCL



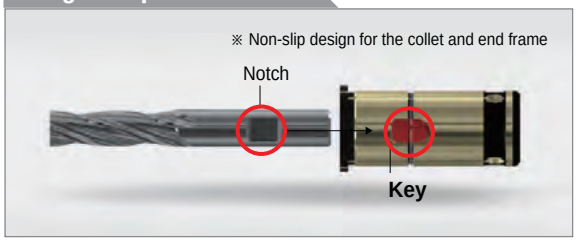
- The mechanical fastening method enables the prevention of tool deviation
- Stable tool fastening force even under extreme machining conditions

Code system

DCL	32	-	20
DINE lock-collet	Collet size		Tool diameter

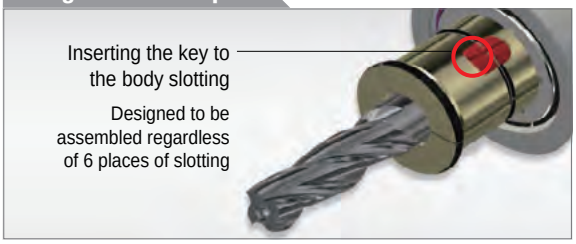
Features

Designed to prevent fallout



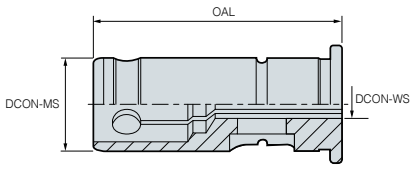
- Designed especially for extreme machining with a lot of mechanical actions, prevents the tool from deviating or falling out
- Weldon flat (DIN 6535HB) end mill used

Designed as non-slip



- Closely adhered to the grooves of the milling chuck - No slip occurring even under high torque

Detailed Specifications



Designation	DCON-WS	OAL	DCON-MS
DCL20-6	6	53	20
DCL20-8	8	53	20
DCL20-10	10	53	20
DCL20-12	12	53	20
DCL20-14	14	53	20
DCL20-16	16	53	20
DCL32-6	6	65	32
DCL32-8	8	65	32

Designation	DCON-WS	OAL	DCON-MS
DCL32-10	10	65	32
DCL32-12	12	65	32
DCL32-14	14	65	32
DCL32-16	16	65	32
DCL32-18	18	65	32
DCL32-20	20	65	32
DCL32-25	25	65	32

Parts

Basic		
Division	Key	C-Grip
Parts / Designation		
DCL20-6	DCL20-6K	DCL-CG20
DCL20-8	DCL20-8K	DCL-CG20
DCL20-10	DCL20-10K	DCL-CG20
DCL20-12	DCL20-12K	DCL-CG20
DCL20-14	DCL20-14K	DCL-CG20
DCL20-16	DCL20-16K	DCL-CG20
DCL32-6	DCL32-6K	DCL-CG32
DCL32-8	DCL32-8K	DCL-CG32

Basic		
Division	Key	C-Grip
Parts / Designation		
DCL32-10	DCL32-10K	DCL-CG32
DCL32-12	DCL32-12K	DCL-CG32
DCL32-14	DCL32-14K	DCL-CG32
DCL32-16	DCL32-16K	DCL-CG32
DCL32-18	DCL32-18K	DCL-CG32
DCL32-20	DCL32-20K	DCL-CG32
DCL32-25	DCL32-25K	DCL-CG32

Jetcoolant collet (for milling chuck)

DCJ

- Ensures a longer tool life of cutting tools by preventing chips from adhering to tools
- Improveds chip breakability/breaking strong jet injection
- Maintains the performance of the conventional milling chuck
- Enables a fast change of the inside jet coolant by collet replacement
- Available an ultrahigh-pressure inside coolant



Designation		Ø6	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
NPM	20	●	●	●	●	●			
	32	●	●	●	●	●	●	●	
	42	●	●	●	●	●	●	●	●

• Can be used for an ultrahigh–pressure inside coolant

NPM + Jet coolant Collet

Cutting

Chip discharge

Quick cooling effect

Increased tool service life

Easy assembly



※ Can be used by only combining a collet with the conventional chuck (NPM)

Coolant type

• Jet coolant



• Inside coolant



Chip evacuation





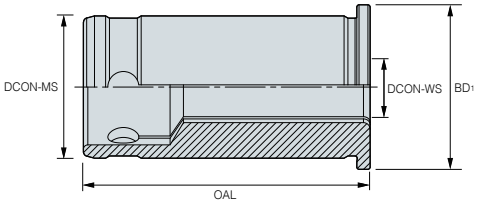
Coolant type

Designation	
DCJ20	DCJ20-6
	DCJ20-8
	DCJ20-10
	DCJ20-12
	DCJ20-16
DCJ32	DCJ32-6
	DCJ32-8
	DCJ32-10
	DCJ32-12
	DCJ32-16
	DCJ32-20
	DCJ32-25

DC Collet

Straight Collet





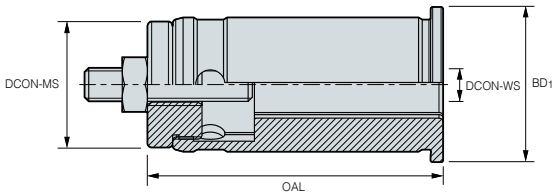
(mm)

Designation		DCON-WS	OAL	DCON-MS	BD_1	kg
DC	20-6	6	53	20	25	0.1
	20-8	8	53	20	25	0.1
	20-10	10	53	20	25	0.1
	20-12	12	53	20	25	0.1
	20-14	14	53	20	25	0.1
	20-16	16	53	20	25	0.1
	25-6	6	62	25	29	0.2
	25-8	8	62	25	29	0.2
	25-10	10	62	25	29	0.2
	25-12	12	62	25	29	0.2
	25-16	16	62	25	29	0.2
	32-6	6	65	32	37	0.2
	32-8	8	65	32	37	0.2
	32-10	10	65	32	37	0.2
	32-12	12	65	32	37	0.2
	32-14	14	65	32	37	0.2
	32-16	16	65	32	37	0.2
	32-19	19	65	32	37	0.2
	32-20	20	65	32	37	0.2
	32-25	25	65	32	37	0.2
	42-6	6	73	42	47	0.5
	42-8	8	73	42	47	0.5
	42-10	10	73	42	47	0.5
	42-12	12	73	42	47	0.5
	42-16	16	73	42	47	0.5
	42-20	20	73	42	47	0.5
	42-25	25	73	42	47	0.5
	42-32	32	73	42	47	0.5

DCS Collet

Straight Collet





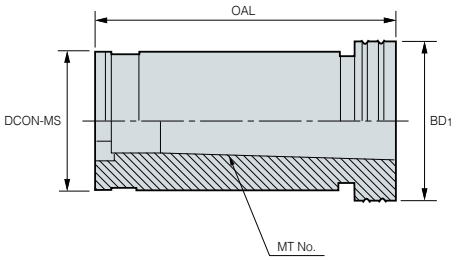
(mm)

Designation		DCON-WS	OAL	DCON-MS	BD_1	kg
DCS	20-6	6	57	20	25	0.1
	20-8	8	57	20	25	0.1
	20-10	10	57	20	25	0.1
	20-12	12	57	20	25	0.1
	20-16	16	57	20	25	0.1
	32-6	6	70.5	32	37	0.2
	32-8	8	70.5	32	37	0.2
	32-10	10	70.5	32	37	0.2
	32-12	12	70.5	32	37	0.2
	32-14	14	70.5	32	37	0.2
	32-16	16	70.5	32	37	0.2
	32-19	19	70.5	32	37	0.2
	32-20	20	70.5	32	37	0.2
	32-25	25	70.5	32	37	0.2
	42-6	6	80	42	47	0.5
	42-8	8	80	42	47	0.5
	42-10	10	80	42	47	0.5
	42-12	12	80	42	47	0.5
	42-16	16	80	42	47	0.5
	42-20	20	80	42	47	0.5
	42-25	25	80	42	47	0.5
	42-32	32	80	42	47	0.5

TC Collet

Taper Collet





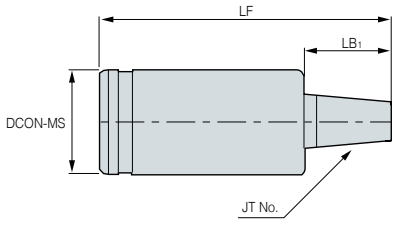
(mm)

Designation		MT No.	OAL	BD1	DCON-MS	kg
TC	20-1	MT1	60	26	20	0.1
	20-2	MT2	72	26	20	0.1
	25-1	MT1	60	32	25	0.2
	25-2	MT2	72	32	25	0.2
	32-1	MT1	60	38	32	0.4
	32-2	MT2	72	38	32	0.4
	32-3	MT3	90	38	32	0.4
	42-1	MT1	60	48	42	0.6
	42-2	MT2	72	48	42	0.7
	42-3	MT3	90	48	42	0.8
	42-4	MT4	113	48	42	0.9

DJT

Drill Chuck Arbor





(mm)

Designation		JT No.	LF	DCON-MS	LB1	kg
DJT	20-6	JT6	83	20	28	0.2
	32-6	JT6	93	32	28	0.5
	42-6	JT6	103	42	28	0.9

Precision collet chuck for multi purpose machining

SDC/P



- Superior efficiency for general machining due to affordable pricing and stable performance
- The sleeve nuts allows stable run-out when compared to other companies
- Wide fastening range applicable
- Various machining available just by replacing the collet
- Chucking range : Ø1~Ø26

Code system

BT30	-	SDC	10	-	P	100
Spindle		Collet chuck	Tool diameter		Precision	Length

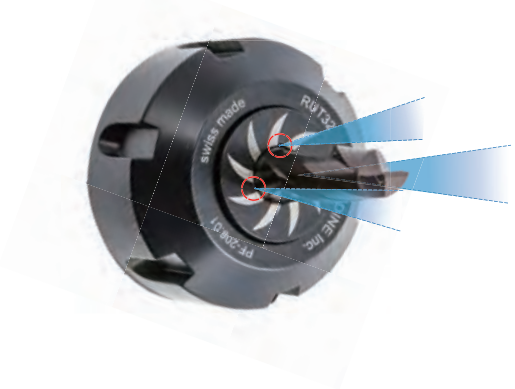
Bearing nuts designed for improved precision (SWISS Made)

- Soft sleeve bearing RN Nut

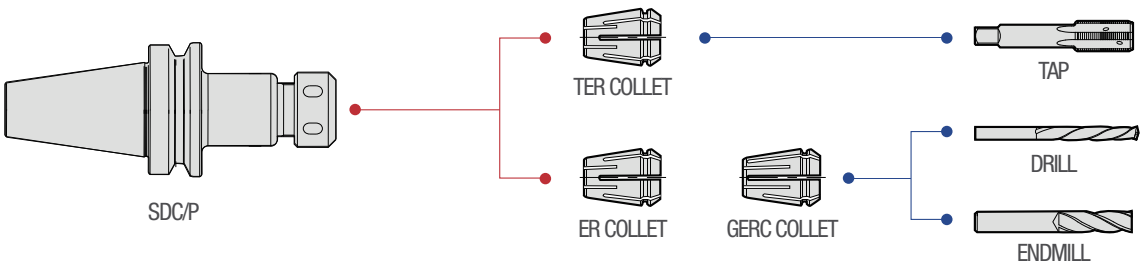


Jet coolant disk Applicable

- After replacing with RT/RUT nut, connect RTJW to use jet coolant - internal coolant



SDC/P Application



DBT-SDC/P



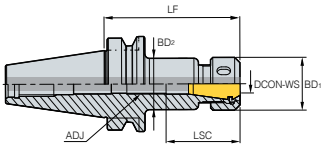


Fig. 1

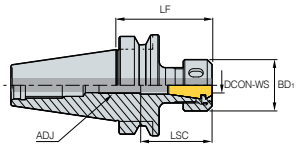


Fig. 2

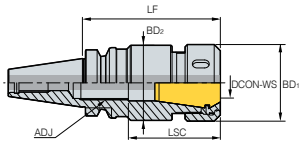


Fig. 3

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	Collet/ STEP	ADJ	Fig.	kg
DBT30-	**SDC7P-70**	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.5
	SDC7P-100	1.0~7.0	100	18	17	33	GERC11/0.5	M7	1	0.5
	SDC10P-50	1.0~10.0	50	32	-	44.5	GERC16/1.0	M10	2	0.5
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	0.6
	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	0.7
	SDC13P-50	1.0~13.0	50	35	-	49	GERC20/1.0	M13	2	0.5
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	0.6
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	0.8
	SDC16P-50	2.0~16.0	50	42	-	50	GERC25/1.0	M18	2	0.5
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	0.7
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	1.0
	SDC20P-60	2.0~20.0	60	50	-	60	GERC32/1.0	M22	2	0.6
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	3	1.0
	SDC20P-120	2.0~20.0	120	50	49	60	GERC32/1.0	M22	3	1.4
DBT40-	**SDC7P-70**	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-90	1.0~7.0	90	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-130	1.0~7.0	130	18	17	33	GERC11/0.5	M7	1	1.0
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	1.0
	SDC10P-90	1.0~10.0	90	32	31	44.5	GERC16/1.0	M10	1	1.2
	SDC10P-130	1.0~10.0	130	32	31	44.5	GERC16/1.0	M10	2	1.4
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	1.1
	SDC13P-90	1.0~13.0	90	35	34	49	GERC20/1.0	M13	1	1.2
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	1.4
	SDC13P-150	1.0~13.0	150	35	34	49	GERC20/1.0	M13	1	1.6
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	1.1
	SDC16P-90	2.0~16.0	90	42	41	50	GERC25/1.0	M18	1	1.3
	SDC16P-130	2.0~16.0	130	42	41	50	GERC25/1.0	M18	1	1.7
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.1
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	1	1.4
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	1.9
	SDC20P-150	2.0~20.0	150	50	49	60	GERC32/1.0	M22	1	2.2
	SDC26P-90	4.0~26.0	90	63	62	71	GERC40/1.0	M28	1	1.7

Spare Part **E46** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

DBT-SDC/P



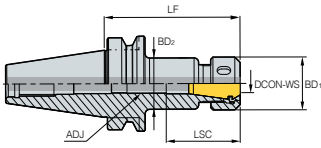


Fig. 1

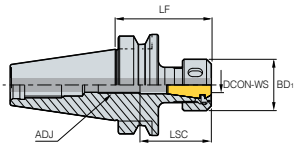


Fig. 2

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	Collet/ STEP	ADJ	Fig.	kg
DBT50-	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-120	1.0~10.0	120	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-160	1.0~10.0	160	32	31	44.5	GERC16/1.0	M10	1	3.8
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-160	1.0~13.0	160	35	34	49	GERC20/1.0	M13	1	4.1
	SDC13P-180	1.0~13.0	180	35	34	49	GERC20/1.0	M13	1	4.2
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	3.9
	SDC16P-160	2.0~16.0	160	42	41	50	GERC25/1.0	M18	1	4.3
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.7
	SDC20P-100	2.0~20.0	100	50	49	60	GERC32/1.0	M22	1	4.0
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	4.3
	SDC20P-160	2.0~20.0	160	50	49	60	GERC32/1.0	M22	1	4.7
	SDC20P-180	2.0~20.0	180	50	49	60	GERC32/1.0	M22	1	5.0
	SDC26P-160	4.0~26.0	160	63	62	71	GERC40/1.0	M28	1	5.5

Spare Part **E46** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

Parts

Basic			For separate purchase	
Division	Sleeve bearing nut	Adjust screw	Spanner	Collet
Parts / Designation				
SDC7P	RN11	BN0716F	20-22	GERC/ER 11-ØD
SDC10P	RN16	BN1025F	32-35	GERC/ER 16-ØD
SDC13P	RN20	BN1325F	35-38	GERC/ER 20-ØD
SDC16P	RN25	BN1830F	42-46	GERC/ER 25-ØD
SDC20P	RN32	BN2230F	48-52	GERC/ER 32-ØD
SDC26P	RN40	BN2838F	62-65	GERC/ER 40-ØD

BT30–SDC13P–50/HSK63A–SDC13P–100 is applide with BN0716F screw.

BT-SDC/P



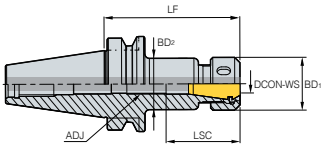


Fig. 1

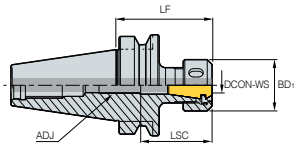


Fig. 2

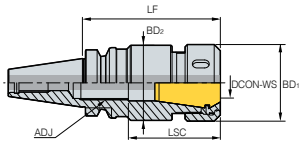


Fig. 3

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	Collet/ STEP	ADJ	Fig.	kg
BT30-	SDC7P-70	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.5
	SDC7P-100	1.0~7.0	100	18	17	33	GERC11/0.5	M7	1	0.5
	SDC10P-50	1.0~10.0	50	32	-	44.5	GERC16/1.0	M10	2	0.5
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	0.6
	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	0.7
	SDC13P-50	1.0~13.0	50	35	-	49	GERC20/1.0	M13	2	0.5
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	0.6
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	0.8
	SDC16P-50	2.0~16.0	50	42	-	50	GERC25/1.0	M18	2	0.5
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	0.7
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	1.0
	SDC20P-60	2.0~20.0	60	50	-	60	GERC32/1.0	M22	2	0.6
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	3	1.0
	SDC20P-120	2.0~20.0	120	50	49	60	GERC32/1.0	M22	3	1.4
BT40-	SDC7P-70	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-90	1.0~7.0	90	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-130	1.0~7.0	130	18	17	33	GERC11/0.5	M7	1	1.0
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	1.0
	SDC10P-90	1.0~10.0	90	32	31	44.5	GERC16/1.0	M10	1	1.2
	SDC10P-130	1.0~10.0	130	32	31	44.5	GERC16/1.0	M10	2	1.4
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	1.1
	SDC13P-90	1.0~13.0	90	35	34	49	GERC20/1.0	M13	1	1.2
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	1.4
	SDC13P-150	1.0~13.0	150	35	34	49	GERC20/1.0	M13	1	1.6
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	1.1
	SDC16P-90	2.0~16.0	90	42	41	50	GERC25/1.0	M18	1	1.3
	SDC16P-130	2.0~16.0	130	42	41	50	GERC25/1.0	M18	1	1.7
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.1
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	1	1.4
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	1.9
	SDC20P-150	2.0~20.0	150	50	49	60	GERC32/1.0	M22	1	2.2
	SDC26P-90	4.0~26.0	90	63	62	71	GERC40/1.0	M28	1	1.7

Spare Part **E48** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

BT-SDC/P



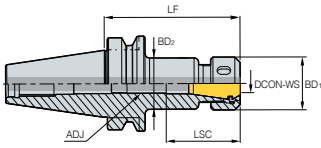


Fig. 1

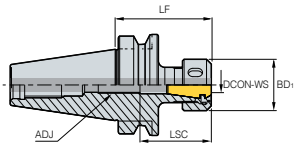


Fig. 2

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	Collet/ STEP	ADJ	Fig.	kg
BT50-	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-120	1.0~10.0	120	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-160	1.0~10.0	160	32	31	44.5	GERC16/1.0	M10	1	3.8
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-160	1.0~13.0	160	35	34	49	GERC20/1.0	M13	1	4.1
	SDC13P-180	1.0~13.0	180	35	34	49	GERC20/1.0	M13	1	4.2
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	3.9
	SDC16P-160	2.0~16.0	160	42	41	50	GERC25/1.0	M18	1	4.3
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.7
	SDC20P-100	2.0~20.0	100	50	49	60	GERC32/1.0	M22	1	4.0
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	4.3
	SDC20P-160	2.0~20.0	160	50	49	60	GERC32/1.0	M22	1	4.7
	SDC20P-180	2.0~20.0	180	50	49	60	GERC32/1.0	M22	1	5.0
	SDC26P-160	4.0~26.0	160	63	62	71	GERC40/1.0	M28	1	5.5

Spare Part **E48** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

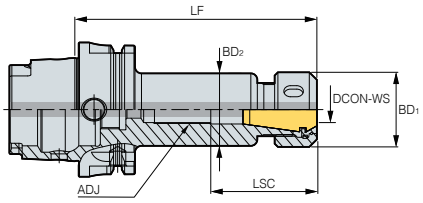
Parts

Basic			For separate purchase	
Division	Sleeve bearing nut	Adjust screw	Spanner	Collet
Parts / Designation				
SDC7P	RN11	BN0716F	20-22	GERC/ER 11-ØD
SDC10P	RN16	BN1025F	32-35	GERC/ER 16-ØD
SDC13P	RN20	BN1325F	35-38	GERC/ER 20-ØD
SDC16P	RN25	BN1830F	42-46	GERC/ER 25-ØD
SDC20P	RN32	BN2230F	48-52	GERC/ER 32-ØD
SDC26P	RN40	BN2838F	62-65	GERC/ER 40-ØD

BT30–SDC13P–50/HSK63A–SDC13P–100 is applide with BN0716F screw.

HSK-SDC/P





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	ADJ	Collet/STEP	kg
HSK63A-	SDC7P-100	1.0~7.0	100	18	17	33	M7	GERC11/0.5	0.9
	SDC7P-120	1.0~7.0	120	18	17	34	M8	GERC11/0.5	0.9
	SDC10P-100	1.0~10.0	100	32	31	44.5	M10	GERC16/1.0	1
	SDC10P-120	1.0~10.0	120	32	31	44.5	M10	GERC16/1.0	1
	SDC13P-100	1.0~13.0	100	35	34	P	M7	GERC20/1.0	1.1
	SDC13P-120	1.0~13.0	120	35	34	49	M7	GERC20/1.0	1.2
	SDC13P-150	1.0~13.0	150	35	34	49	M7	GERC20/1.0	1.2
	SDC16P-100	1.0~16.0	100	42	41	50	M7	GERC25/1.0	1.2
	SDC20P-110	1.0~20.0	110	50	49	60	M7	GERC32/1.0	1.5
	SDC26P-130	4.0~26.0	130	63	62	71	M10	GERC40/1.0	1.6
HSK100A-	SDC7P-100	1.0~7.0	100	18	17	33	M7	GERC11/0.5	2
	SDC10P-100	1.0~10.0	100	32	31	44.5	M10	GERC16/1.0	2.2
	SDC13P-100	1.0~13.0	100	35	34	49	M7	GERC20/1.0	2.4
	SDC16P-110	2.0~16.0	100	42	41	50	M13	GERC25/1.0	2.6
	SDC20P-120	2.0~20.0	120	50	49	60	M10	GERC32/1.0	2.9
	SDC26P-130	4.0~26.0	130	63	62	71	M28	GERC40/1.0	3.8

Spare Part **E49** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

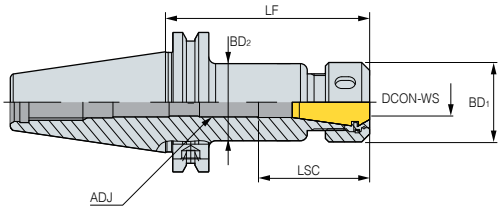
Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

SK-SDC/P





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	ADJ	Collet/STEP	kg
SK40-	SDC10P-90	1.0~10.0	90	32	31	44.5	GERC16/1.0	M10	1.1
	SDC13P-90	1.0~13.0	90	35	34	49	GERC20/1.0	M13	1.2
	SDC13P-120	1.0~13.0	120	35	34	49	GERC20/1.0	M13	1.3
	SDC16P-90	2.0~16.0	90	42	41	50	GERC25/1.0	M18	1.4
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M13	1.5

Spare Part **E50** Application Collet **E56**

• LSC: Insertion depth of tooll • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

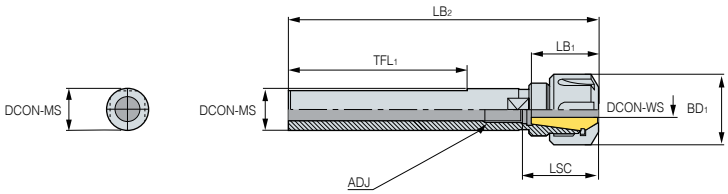
Parts

Basic			For separate purchase	
Division	Sleeve bearing nut	Adjust screw	Spanner	Collet
Parts / Designation				
SDC7P	RN11	BN0716F	20-22	GERC/ER 11-ØD
SDC10P	RN16	BN1025F	32-35	GERC/ER 16-ØD
SDC13P	RN20	BN1325F	35-38	GERC/ER 20-ØD
SDC16P	RN25	BN1830F	42-46	GERC/ER 25-ØD
SDC20P	RN32	BN2230F	48-52	GERC/ER 32-ØD
SDC26P	RN40	BN2838F	62-65	GERC/ER 40-ØD

BT30–SDC13P–50/HSK63A–SDC13P–100 is applide with BN0716F screw.

S-SDC





(mm)

	Designation	DCON-WS	LB2	BD1	DCON-MS	LB1	TFL1	LSC	Collet/STEP	ADJ	kg
S16-	SDC7-120M	1.0~7.0	120	19	16	-	-	33	GERC11/0.5	M7	0.1
	SDC7-120T	1.0~7.0	120	19	16	-	73	33	GERC11/0.5	M7	0.1
	SDC10-150T	1.0~10.0	150	28	16	46.5	83	34.5	GERC16/1.0	M10	0.2
S20-	SDC10-150M	1.0~10.0	150	28	20	26.5	-	34.5	GERC16/1.0	M10	0.3
	SDC10-150T	1.0~10.0	150	28	20	26.5	83	34.5	GERC16/1.0	M10	0.3
	SDC13-150M	1.0~13.0	150	35	20	50	-	49	GERC20/1.0	M13	0.3
	SDC13-150T	1.0~13.0	150	35	20	50	83	49	GERC20/1.0	M13	0.3
S25-	SDC10-150M	1.0~10.0	150	28	25	-	-	34.5	GERC16/1.0	M10	0.4
	SDC10-150T	1.0~10.0	150	28	25	-	83	34.5	GERC16/1.0	M10	0.4
	SDC13-150M	1.0~13.0	150	35	25	-	-	49	GERC20/1.0	M13	0.4
	SDC13-150T	1.0~13.0	150	35	25	-	83	49	GERC20/1.0	M13	0.4
S32-	SDC13-150M	1.0~13.0	150	35	32	-	-	49	GERC20/1.0	M13	0.7
	SDC13-150T	1.0~13.0	150	35	32	-	83	49	GERC20/1.0	M13	0.7
	SDC20-165M	2.0~20.0	165	50	32	-	-	60	GERC32/1.0	M22	0.9
	SDC20-165T	2.0~20.0	165	50	32	-	83	60	GERC32/1.0	M22	0.9

Spare Part **E52** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional

S-SDC/S



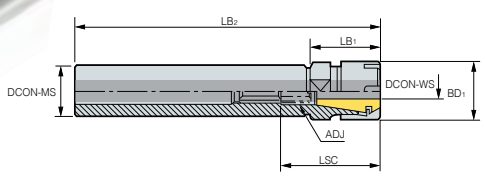


Fig. 1

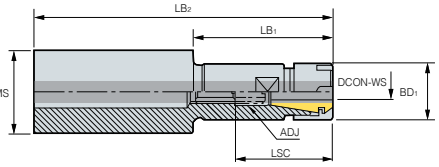


Fig. 2

(mm)

Designation		DCON-WS	LB2	BD1	DCON-MS	LB1	LSC	Collet/STEP	ADJ	Fig.	kg
S16-	SDC7S-100M	1.0~7.0	100	16	16	21	33	GERC11/0.5	M7	1	0.1
	SDC7S-150M	1.0~7.0	150	16	16	21	33	GERC11/0.5	M7	1	0.1
	SDC10S-100M	1.0~10.0	100	22	16	50	44.5	GERC16/1.0	M10	1	0.1
	SDC10S-150M	1.0~10.0	150	22	16	50	44.5	GERC16/1.0	M10	1	0.1
S20-	SDC7S-100M	1.0~7.0	100	16	20	30	35	GERC11/0.5	M7	2	0.1
	SDC7S-150M	1.0~7.0	150	16	20	80	35	GERC11/0.5	M7	2	0.2
	SDC10S-100M	1.0~10.0	100	22	20	50	44.5	GERC16/1.0	M10	1	0.1
	SDC10S-150M	1.0~10.0	150	22	20	50	44.5	GERC16/1.0	M10	1	0.2
	SDC10S-200M	1.0~10.0	200	22	20	50	44.5	GERC16/1.0	M10	1	0.3
	SDC13S-100M	1.0~13.0	100	28	20	50	49	GERC20/1.0	M13	1	0.1
	SDC13S-150M	1.0~13.0	150	28	20	50	49	GERC20/1.0	M13	1	0.2
S25-	SDC7S-100M	1.0~7.0	100	16	25	30	33	GERC11/0.5	M7	2	0.2
	SDC7S-150M	1.0~7.0	150	16	25	80	33	GERC11/0.5	M7	2	0.2
	SDC10S-100M	1.0~10.0	100	22	25	30	44.5	GERC16/1.0	M10	2	0.2
	SDC10S-150M	1.0~10.0	150	22	25	80	44.5	GERC16/1.0	M10	2	0.3
	SDC13S-100M	1.0~13.0	100	28	25	50	49	GERC20/1.0	M13	1	0.2
	SDC13S-150M	1.0~13.0	150	28	25	50	49	GERC20/1.0	M13	1	0.4
	SDC16S-100M	2.0~16.0	100	35	25	50	50	GERC25/1.0	M18	1	0.3
	SDC16S-150M	2.0~16.0	150	35	25	50	50	GERC25/1.0	M18	1	0.4
	SDC16S-200M	2.0~16.0	200	35	25	50	50	GERC25/1.0	M18	1	0.6
S32-	SDC16S-120M	2.0~16.0	120	35	32	50	50	GERC25/1.0	M18	1	0.5
	SDC16S-150M	2.0~16.0	150	35	32	50	50	GERC25/1.0	M18	1	0.6

Spare Part **E52** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional

Parts

Basic		For separate purchase	
Division	Nut	Spanner	Collet
Parts / Designation			
SDC7S	R11M	M11M	GERC/ER 11-ØD
SDC10S	R16M	M16M	GERC/ER 16-ØD
SDC13S	R20M	M20M	GERC/ER 20-ØD
SDC16S	R25M	M25M	GERC/ER 25-ØD

BT30-SDC13P-50/HSK63A-SDC13P-100 is applide with BN0716F screw.

Precision collet chuck(Length adjustment type)

SDC/PL

- Precise tool length adjustment
- Improved production efficiency by reducing tool setup time



Code system

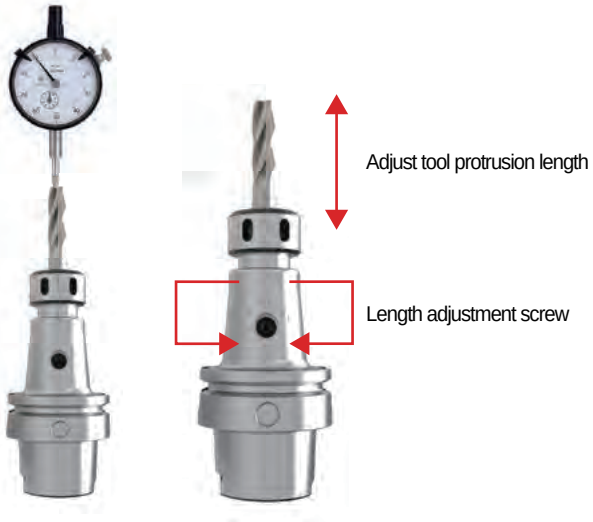
BT30	-	SDC	16	P	L	-	130
Spindle		Collet chuck	Tool diameter	Precision	Length adjustment		Length

What is SDC/PL?

Reduced tool setting time by designing the length to be adjustable from the outside.

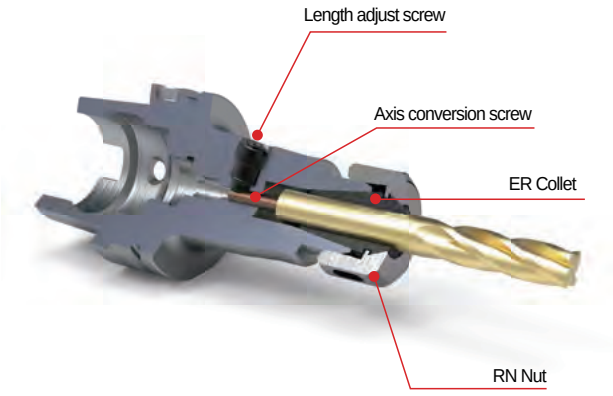
How to adjust length

- Rotate the adjustment screw to adjust the tool length



Part name

- Internal coolant system is Basic



BT-SDC/PL



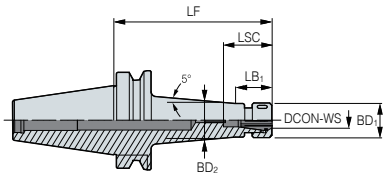


Fig. 1

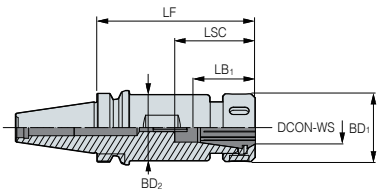


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC		LB1	Collet/STEP	Fig.
BT30-	SDC13PL-100	1.0~13.0	100	35	34	49	39~49	37	GERC20/1.0	1
	SDC16PL-100	2.0~16.0	100	42	41	50	40~50	45	GERC25/1.0	2
	SDC20PL-100	2.0~20.0	120	50	49	60	50~60	55	GERC32/1.0	2
BT40-	SDC13PL-90	1.0~13.0	90	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-130	1.0~13.0	130	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-150	1.0~13.0	150	35	34	49	39~49	37	GERC20/1.0	1
	SDC16PL-90	2.0~16.0	90	42	41	50	40~50	37	GERC25/1.0	1
	SDC16PL-130	2.0~16.0	130	42	41	50	40~50	57	GERC25/1.0	1
	SDC20PL-130	2.0~20.0	130	50	49	60	50~60	58	GERC32/1.0	1
	SDC20PL-150	2.0~20.0	150	50	49	60	50~60	68	GERC32/1.0	1
BT50-	SDC13PL-100	1.0~13.0	100	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-130	1.0~13.0	130	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-160	1.0~13.0	160	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-180	1.0~13.0	180	35	34	49	39~49	37	GERC20/1.0	1
	SDC16PL-100	2.0~16.0	100	42	41	50	40~50	37	GERC25/1.0	1
	SDC16PL-160	2.0~16.0	160	42	41	50	40~50	67	GERC25/1.0	1
	SDC20PL-130	2.0~20.0	130	50	49	60	50~60	52	GERC32/1.0	1
	SDC20PL-160	2.0~20.0	160	50	49	60	50~60	67	GERC32/1.0	1
	SDC20PL-180	2.0~20.0	180	50	49	60	50~60	77	GERC32/1.0	1
	SDC20PL-160	4.0~26.0	160	63	62	71	61~71	68	GERC40/1.0	1

Spare Part **E55** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

HSK-SDC/PL



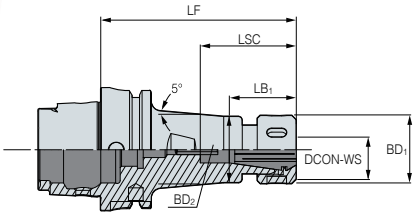


Fig. 1

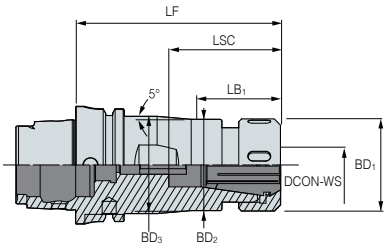


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	BD2	BD3	LSC		LB1	Collet/STEP	Fig.
HSK63A-	SDC13PL-100	1.0~13.0	100	35	34		49	39~49	37	GERC20/1.0	1
	SDC16PL-100	2.0~16.0	100	42	41		50	40~50	43	GERC25/1.0	1
	SDC20PL-110	2.0~20.0	110	50	49	52	60	50~60	48	GERC32/1.0	2
HSK100A-	SDC16PL-110	2.0~16.0	110	42	41		50	40~50	46	GERC25/1.0	1
	SDC20PL-120	2.0~20.0	120	50	49		60	50~60	52	GERC32/1.0	1

Spare Part **E55** Application Collet **E56**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

GER Collet

GERC

- Corrosion resistant collet to micro unit
- High tech coating for long lasting precision
- Longer tool life and higher productivity

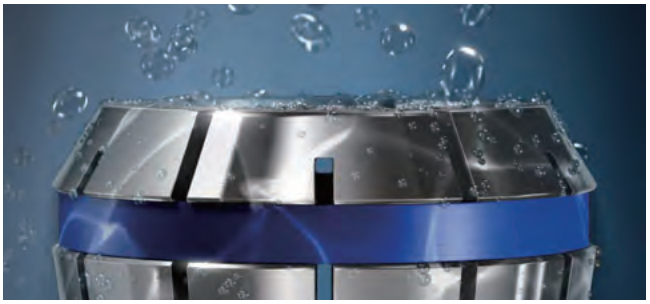


Code system

GREC	-	14	4	-	HP
GERC Collet		Collet Size	Tool diameter		HP : Precision None : General

Special coating technology

Unlike GERC collets, Conventional non-coated collets have the following features:
Non-coated collets are affected by corrosion due to high humidity, cutting fluid, cleaner, salt, gas and many other factors, which in result deteriorates whole quality of machining



When a collet gets rusty, the tool life is shortened and precision considerably decreases. To prevent this problem, surface treatment by micro unit was applied to GERC collets for effective protection and long lasting precision



GERC



Competitor

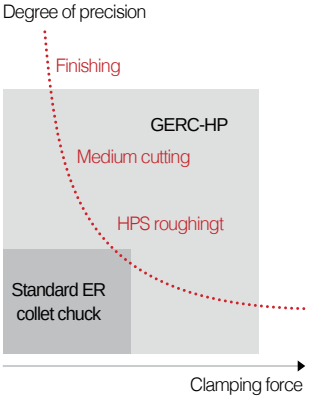
Two samples of collets after 4 months of use:
Left: GERC collet, Right: Non-coated

GERC-HP

A precision type collet chuck is expensive than standard one, but still it has more advantages in long term cost and efficiency. Using GERC-HP can minimize pricy reworking due to smaller tolerance with maximum precision

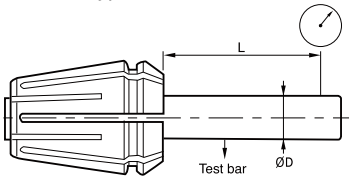


Precision type collet 2 ㎛



Precision (L/D = 3)

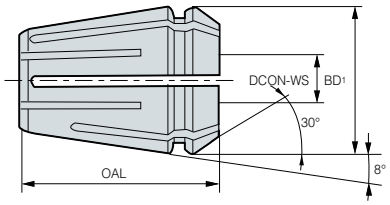
Standard type = 5 ㎛
Precision type = 2 ㎛



GERC Collet

General type





(mm)

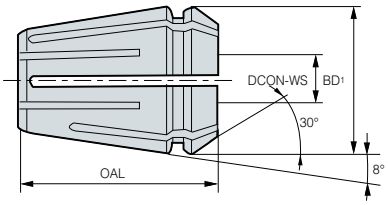
Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC11-	1.0	11	1.0	18.0	11.5	5μm
	1.5	11	1.5	18.0	11.5	5μm
	2.0	11	2.0	18.0	11.5	5μm
	2.5	11	2.5	18.0	11.5	5μm
	3.0	11	3.0	18.0	11.5	5μm
	3.5	11	3.5	18.0	11.5	5μm
	4.0	11	4.0	18.0	11.5	5μm
	4.5	11	4.5	18.0	11.5	5μm
	5.0	11	5.0	18.0	11.5	5μm
	5.5	11	5.5	18.0	11.5	5μm
	6.0	11	6.0	18.0	11.5	5μm
	6.5	11	6.5	18.0	11.5	5μm
	7.0	11	7.0	18.0	11.5	5μm
GERC16-	1.0	16	1.0	27.5	17.0	5μm
	2.0	16	2.0	27.5	17.0	5μm
	3.0	16	3.0	27.5	17.0	5μm
	4.0	16	4.0	27.5	17.0	5μm
	4.5	16	4.5	27.5	17.0	5μm
	5.0	16	5.0	27.5	17.0	5μm
	6.0	16	6.0	27.5	17.0	5μm
	7.0	16	7.0	27.5	17.0	5μm
	8.0	16	8.0	27.5	17.0	5μm
	9.0	16	9.0	27.5	17.0	5μm
	10.0	16	10.0	27.5	17.0	5μm
GERC20-	1.0	20	1.0	31.5	21.0	5μm
	2.0	20	2.0	31.5	21.0	5μm
	3.0	20	3.0	31.5	21.0	5μm
	4.0	20	4.0	31.5	21.0	5μm
	5.0	20	5.0	31.5	21.0	5μm
	6.0	20	6.0	31.5	21.0	5μm
	7.0	20	7.0	31.5	21.0	5μm
	8.0	20	8.0	31.5	21.0	5μm
	9.0	20	9.0	31.5	21.0	5μm
	10.0	20	10.0	31.5	21.0	5μm
	11.0	20	11.0	31.5	21.0	5μm
	12.0	20	12.0	31.5	21.0	5μm
	13.0	20	13.0	31.5	21.0	5μm

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC25-	2.0	25	2.0	34.0	26.0	5μm
	3.0	25	3.0	34.0	26.0	5μm
	4.0	25	4.0	34.0	26.0	5μm
	5.0	25	5.0	34.0	26.0	5μm
	6.0	25	6.0	34.0	26.0	5μm
	7.0	25	7.0	34.0	26.0	5μm
	8.0	25	8.0	34.0	26.0	5μm
	9.0	25	9.0	34.0	26.0	5μm
	10.0	25	10.0	34.0	26.0	5μm
	11.0	25	11.0	34.0	26.0	5μm
	12.0	25	12.0	34.0	26.0	5μm
	13.0	25	13.0	34.0	26.0	5μm
	14.0	25	14.0	34.0	26.0	5μm
	15.0	25	15.0	34.0	26.0	5μm
	16.0	25	16.0	34.0	26.0	5μm
GERC32-	2.0	32	2.0	40.0	33.0	5μm
	3.0	32	3.0	40.0	33.0	5μm
	4.0	32	4.0	40.0	33.0	5μm
	5.0	32	5.0	40.0	33.0	5μm
	6.0	32	6.0	40.0	33.0	5μm
	7.0	32	7.0	40.0	33.0	5μm
	8.0	32	8.0	40.0	33.0	5μm
	9.0	32	9.0	40.0	33.0	5μm
	10.0	32	10.0	40.0	33.0	5μm
	11.0	32	11.0	40.0	33.0	5μm
	12.0	32	12.0	40.0	33.0	5μm
	13.0	32	13.0	40.0	33.0	5μm
	14.0	32	14.0	40.0	33.0	5μm
	15.0	32	15.0	40.0	33.0	5μm
	16.0	32	16.0	40.0	33.0	5μm
	17.0	32	17.0	40.0	33.0	5μm
	18.0	32	18.0	40.0	33.0	5μm
	19.0	32	19.0	40.0	33.0	5μm
	20.0	32	20.0	40.0	33.0	5μm
GERC40-	16.0	40	16.0	46.0	41.0	5μm
	20.0	40	20.0	46.0	41.0	5μm
	25.0	40	25.0	46.0	41.0	5μm

GERC Collet

Precision type





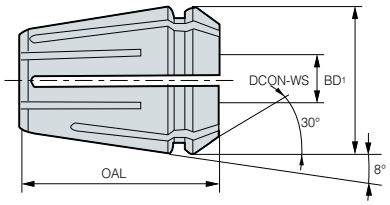
(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC11-	3.0HP	11.0	3.0	18.0	11.5	2μm
	4.0HP	11.0	4.0	18.0	11.5	2μm
	5.0HP	11.0	5.0	18.0	11.5	2μm
	6.0HP	11.0	6.0	18.0	11.5	2μm
GERC16-	3.0HP	16.0	3.0	27.5	17.0	2μm
	4.0HP	16.0	4.0	27.5	17.0	2μm
	5.0HP	16.0	5.0	27.5	17.0	2μm
	6.0HP	16.0	6.0	27.5	17.0	2μm
	7.0HP	16.0	7.0	27.5	17.0	2μm
	8.0HP	16.0	8.0	27.5	17.0	2μm
	9.0HP	16.0	9.0	27.5	17.0	2μm
	10.0HP	16.0	10.0	27.5	17.0	2μm
GERC20-	3.0HP	20.0	3.0	31.5	21.0	2μm
	4.0HP	20.0	4.0	31.5	21.0	2μm
	5.0HP	20.0	5.0	31.5	21.0	2μm
	6.0HP	20.0	6.0	31.5	21.0	2μm
	8.0HP	20.0	8.0	31.5	21.0	2μm
	9.0HP	20.0	9.0	31.5	21.0	2μm
	10.0HP	20.0	10.0	31.5	21.0	2μm
	11.0HP	20.0	11.0	31.5	21.0	2μm
	12.0HP	20.0	12.0	31.5	21.0	2μm
	13.0HP	20.0	13.0	31.5	21.0	2μm
GERC25-	6.0HP	25.0	6.0	34.0	26.0	2μm
	10.0HP	25.0	10.0	34.0	26.0	2μm
	12.0HP	25.0	12.0	34.0	26.0	2μm
	14.0HP	25.0	14.0	34.0	26.0	2μm
	16.0HP	25.0	16.0	34.0	26.0	2μm
GERC32-	6.0HP	32.0	6.0	40.0	33.0	2μm
	10.0HP	32.0	10.0	40.0	33.0	2μm
	12.0HP	32.0	12.0	40.0	33.0	2μm
	16.0HP	32.0	16.0	40.0	33.0	2μm
	18.0HP	32.0	18.0	40.0	33.0	2μm
	20.0HP	32.0	20.0	40.0	33.0	2μm

GERC Collet

General Sealed type





(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC16-	5.0C	16	5.0	27.5	17.0	5μm
	6.0C	16	6.0	27.5	17.0	5μm
	8.0C	16	8.0	27.5	17.0	5μm
	10.0C	16	10.0	27.5	17.0	5μm
GERC20-	6.0C	20	6.0	31.5	21.0	5μm
	8.0C	20	8.0	31.5	21.0	5μm
	10.0C	20	10.0	31.5	21.0	5μm
	12.0C	20	12.0	31.5	21.0	5μm
GERC25-	6.0C	25	6.0	34.0	26.0	5μm
	8.0C	25	8.0	34.0	26.0	5μm
	10.0C	25	10.0	34.0	26.0	5μm
	12.0C	25	12.0	34.0	26.0	5μm
	14.0C	25	14.0	34.0	26.0	5μm
	16.0C	25	16.0	34.0	26.0	5μm

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC32-	8.0C	32	8.0	40.0	33.0	5μm
	9.0C	32	9.0	40.0	33.0	5μm
	10.0C	32	10.0	40.0	33.0	5μm
	11.0C	32	11.0	40.0	33.0	5μm
	12.0C	32	12.0	40.0	33.0	5μm
	13.0C	32	13.0	40.0	33.0	5μm
	14.0C	32	14.0	40.0	33.0	5μm
	15.0C	32	15.0	40.0	33.0	5μm
	16.0C	32	16.0	40.0	33.0	5μm
	18.0C	32	18.0	40.0	33.0	5μm
	20.0C	32	20.0	40.0	33.0	5μm

GERC Collet set

General type



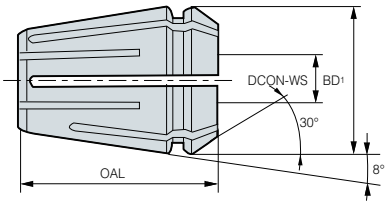
(mm)

Designation		DCON-WS	Distance	Collet amount	Accuracy	kg
GERC	11 (SET)	1.0-7.0	0.5	13pcs	5μm	0.1
	16 (SET)	1.0-10.0	1.0	10pcs	5μm	0.2
	20 (SET)	2.0-13.0	1.0	12pcs	5μm	0.5
	25 (SET)	2.0-16.0	1.0	15pcs	5μm	1.1
	32 (SET)	3.0-20.0	1.0	18pcs	5μm	2.6
	40 (SET)	4.0-26.0	1.0	23pcs	5μm	5.8

ER Collet

General type





(mm)

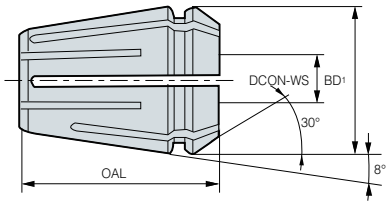
Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER11-	1.0	11	1.0	18.0	11.5	10μm
	1.5	11	1.5	18.0	11.5	10μm
	2.0	11	2.0	18.0	11.5	10μm
	2.5	11	2.5	18.0	11.5	10μm
	3.0	11	3.0	18.0	11.5	10μm
	3.5	11	3.5	18.0	11.5	10μm
	4.0	11	4.0	18.0	11.5	10μm
	4.5	11	4.5	18.0	11.5	10μm
	5.0	11	5.0	18.0	11.5	10μm
	5.5	11	5.5	18.0	11.5	10μm
	6.0	11	6.0	18.0	11.5	10μm
	6.5	11	6.5	18.0	11.5	10μm
	7.0	11	7.0	18.0	11.5	10μm
ER16-	1.0	16	1.0	27.5	17.0	10μm
	2.0	16	2.0	27.5	17.0	10μm
	3.0	16	3.0	27.5	17.0	10μm
	4.0	16	4.0	27.5	17.0	10μm
	5.0	16	5.0	27.5	17.0	10μm
	6.0	16	6.0	27.5	17.0	10μm
	7.0	16	7.0	27.5	17.0	10μm
	8.0	16	8.0	27.5	17.0	10μm
	9.0	16	9.0	27.5	17.0	10μm
	10.0	16	10.0	27.5	17.0	10μm
ER20-	1.0	20	1.0	31.5	21.0	10μm
	2.0	20	2.0	31.5	21.0	10μm
	3.0	20	3.0	31.5	21.0	10μm
	4.0	20	4.0	31.5	21.0	10μm
	5.0	20	5.0	31.5	21.0	10μm
	6.0	20	6.0	31.5	21.0	10μm
	7.0	20	7.0	31.5	21.0	10μm
	8.0	20	8.0	31.5	21.0	10μm
	9.0	20	9.0	31.5	21.0	10μm
	10.0	20	10.0	31.5	21.0	10μm
	11.0	20	11.0	31.5	21.0	10μm
	12.0	20	12.0	31.5	21.0	10μm
	13.0	20	13.0	31.5	21.0	10μm

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER25-	2.0	25	2.0	34.0	26.0	10μm
	3.0	25	3.0	34.0	26.0	10μm
	4.0	25	4.0	34.0	26.0	10μm
	5.0	25	5.0	34.0	26.0	10μm
	6.0	25	6.0	34.0	26.0	10μm
	7.0	25	7.0	34.0	26.0	10μm
	8.0	25	8.0	34.0	26.0	10μm
	9.0	25	9.0	34.0	26.0	10μm
	10.0	25	10.0	34.0	26.0	10μm
	11.0	25	11.0	34.0	26.0	10μm
	12.0	25	12.0	34.0	26.0	10μm
	13.0	25	13.0	34.0	26.0	10μm
	14.0	25	14.0	34.0	26.0	10μm
	15.0	25	15.0	34.0	26.0	10μm
	16.0	25	16.0	34.0	26.0	10μm
ER32-	2.0	32	2.0	40.0	33.0	10μm
	3.0	32	3.0	40.0	33.0	10μm
	4.0	32	4.0	40.0	33.0	10μm
	5.0	32	5.0	40.0	33.0	10μm
	6.0	32	6.0	40.0	33.0	10μm
	7.0	32	7.0	40.0	33.0	10μm
	8.0	32	8.0	40.0	33.0	10μm
	9.0	32	9.0	40.0	33.0	10μm
	10.0	32	10.0	40.0	33.0	10μm
	11.0	32	11.0	40.0	33.0	10μm
	12.0	32	12.0	40.0	33.0	10μm
	13.0	32	13.0	40.0	33.0	10μm
	14.0	32	14.0	40.0	33.0	10μm
	15.0	32	15.0	40.0	33.0	10μm
	16.0	32	16.0	40.0	33.0	10μm
	17.0	32	17.0	40.0	33.0	10μm
	18.0	32	18.0	40.0	33.0	10μm
	19.0	32	19.0	40.0	33.0	10μm
	20.0	32	20.0	40.0	33.0	10μm

ER Collet

Precision type





(mm)

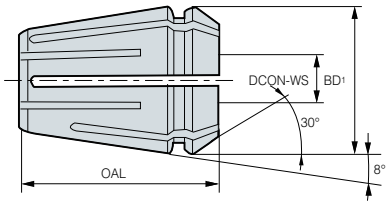
Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER11-	2.0P	11	2.0	18.0	11.3	5μm
	3.0P	11	3.0	18.0	11.3	5μm
	4.0P	11	4.0	18.0	11.3	5μm
	5.0P	11	5.0	18.0	11.3	5μm
	6.0P	11	6.0	18.0	11.3	5μm
	7.0P	11	7.0	18.0	11.3	5μm
ER16-	2.0P	16	2.0	27.5	16.7	5μm
	3.0P	16	3.0	27.5	16.7	5μm
	4.0P	16	4.0	27.5	16.7	5μm
	5.0P	16	5.0	27.5	16.7	5μm
	6.0P	16	6.0	27.5	16.7	5μm
	7.0P	16	7.0	27.5	16.7	5μm
	8.0P	16	8.0	27.5	16.7	5μm
	9.0P	16	9.0	27.5	16.7	5μm
	10.0P	16	10.0	27.5	16.7	5μm
ER20-	2.0P	20	2.0	31.5	20.7	5μm
	3.0P	20	3.0	31.5	20.7	5μm
	4.0P	20	4.0	31.5	20.7	5μm
	5.0P	20	5.0	31.5	20.7	5μm
	6.0P	20	6.0	31.5	20.7	5μm
	7.0P	20	7.0	31.5	20.7	5μm
	8.0P	20	8.0	31.5	20.7	5μm
	9.0P	20	9.0	31.5	20.7	5μm
	10.0P	20	10.0	31.5	20.7	5μm
	11.0P	20	11.0	31.5	20.7	5μm
	12.0P	20	12.0	31.5	20.7	5μm
	13.0P	20	13.0	31.5	20.7	5μm

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER25-	2.0P	25	2.0	34.0	25.8	5μm
	3.0P	25	3.0	34.0	25.8	5μm
	4.0P	25	4.0	34.0	25.8	5μm
	5.0P	25	5.0	34.0	25.8	5μm
	6.0P	25	6.0	34.0	25.8	5μm
	7.0P	25	7.0	34.0	25.8	5μm
	8.0P	25	8.0	34.0	25.8	5μm
	9.0P	25	9.0	34.0	25.8	5μm
	10.0P	25	10.0	34.0	25.8	5μm
	11.0P	25	11.0	34.0	25.8	5μm
	12.0P	25	12.0	34.0	25.8	5μm
	13.0P	25	13.0	34.0	25.8	5μm
	14.0P	25	14.0	34.0	25.8	5μm
	15.0P	25	15.0	34.0	25.8	5μm
	16.0P	25	16.0	34.0	25.8	5μm
ER32-	2.0P	32	2.0	40.0	32.8	5μm
	3.0P	32	3.0	40.0	32.8	5μm
	4.0P	32	4.0	40.0	32.8	5μm
	5.0P	32	5.0	40.0	32.8	5μm
	6.0P	32	6.0	40.0	32.8	5μm
	7.0P	32	7.0	40.0	32.8	5μm
	8.0P	32	8.0	40.0	32.8	5μm
	9.0P	32	9.0	40.0	32.8	5μm
	10.0P	32	10.0	40.0	32.8	5μm
	11.0P	32	11.0	40.0	32.8	5μm
	12.0P	32	12.0	40.0	32.8	5μm
	13.0P	32	13.0	40.0	32.8	5μm
	14.0P	32	14.0	40.0	32.8	5μm
	15.0P	32	15.0	40.0	32.8	5μm
	16.0P	32	16.0	40.0	32.8	5μm
	17.0P	32	17.0	40.0	32.8	5μm
	18.0P	32	18.0	40.0	32.8	5μm
	19.0P	32	19.0	40.0	32.8	5μm
	20.0P	32	20.0	40.0	32.8	5μm

ER Collet

General Sealed type





(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER16-	5.0C	16	5.0	27.5	17.0	10μm
	6.0C	16	6.0	27.5	17.0	10μm
	8.0C	16	8.0	27.5	17.0	10μm
	10.0C	16	10.0	27.5	17.0	10μm
ER20-	6.0C	20	6.0	31.5	21.0	10μm
	8.0C	20	8.0	31.5	21.0	10μm
	10.0C	20	10.0	31.5	21.0	10μm
	12.0C	20	12.0	31.5	21.0	10μm
ER25-	6.0C	25	6.0	34.0	26.0	10μm
	8.0C	25	8.0	34.0	26.0	10μm
	10.0C	25	10.0	34.0	26.0	10μm
	12.0C	25	12.0	34.0	26.0	10μm
	14.0C	25	14.0	34.0	26.0	10μm
	16.0C	25	16.0	34.0	26.0	10μm
ER32-	8.0C	32	8.0	40.0	33.0	10μm
	9.0C	32	9.0	40.0	33.0	10μm
	10.0C	32	10.0	40.0	33.0	10μm
	11.0C	32	11.0	40.0	33.0	10μm
	12.0C	32	12.0	40.0	33.0	10μm
	13.0C	32	13.0	40.0	33.0	10μm
	14.0C	32	14.0	40.0	33.0	10μm
	15.0C	32	15.0	40.0	33.0	10μm
	16.0C	32	16.0	40.0	33.0	10μm
	18.0C	32	18.0	40.0	33.0	10μm
	20.0C	32	20.0	40.0	33.0	10μm

ER Collet set

General type



(mm)

Designation		DCON-WS	Distance	Collet amount	Accuracy	kg
ER	11 (SET)	1.0-7.0	0.5	13pcs	10㎛	0.1
	16 (SET)	1.0-10.0	1.0	10pcs	10㎛	0.1
	20 (SET)	2.0-13.0	1.0	12pcs	10㎛	0.4
	25 (SET)	2.0-16.0	1.0	15pcs	10㎛	1.1
	32 (SET)	3.0-20.0	1.0	18pcs	10㎛	2.6

Lock collet for ER collet chuck

ER/L

- Designed to prevent the end mill from falling out
- Prevents tool fallout, slipping, or idle running
- Uses the Weldon flat (DIN 6535HB) end mill without any special endmill
- Useful for machining large-sized mold or difficult-to-cut materials



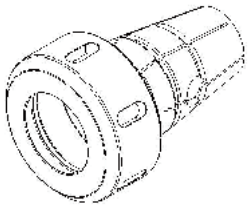
Code system

ER	-	20	12	-	L
ER Collet		Collet Size	Tool diameter		Lock

How to use

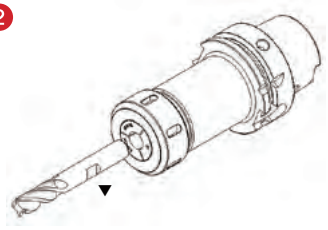
- Assemble the collet with nut (same for general ER collet in use)
- Assemble the end tool (in the direction of assembling notch with key)
- Tighten the nut with the body

❶



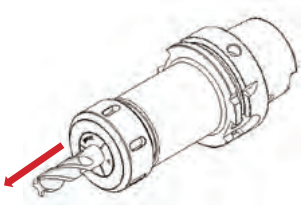
Combine the non-slip ER collet with nut

❷



Clamp the nut after inserting no. ❶into the collet chuck. After that, insert the end mill notch to be aligned with the part ▼ (steel ball position)

❸



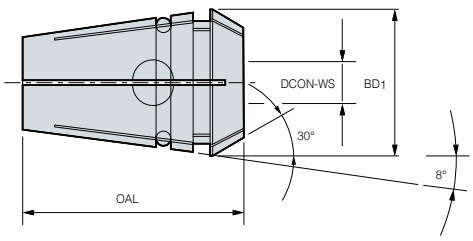
After checking that the steel ball in the collet is caught in the notched part, completely clamp the nut by pulling the end mill in the axial direction (arrow direction)

Note If an auto clamp device is used, skip step❸ (Endmill rotation may cause injury)

ER/L Collet

Lock collet for ER collet chuck





(mm)

Designation		ER size	DCON-WS	OAL	BD_1	BD_2
ER	20-6L	20	6	31.5	20.7	20
	20-8L	20	8	31.5	20.7	20
	20-10L	20	10	31.5	20.7	20
	20-12L	20	12	31.5	20.7	20
	32-12L	32	12	40.0	32.7	32
	32-16L	32	16	40.0	32.7	32
	32-20L	32	20	40.0	32.7	32

Jet coolant disk

RTJW

- Provides a longer cutting tool service life by preventing chips from adhering to the tool
- Improveds chip breakability/breaking strong jet injection
- Reduces equipment non-operation time as nozzle position change is not necessary

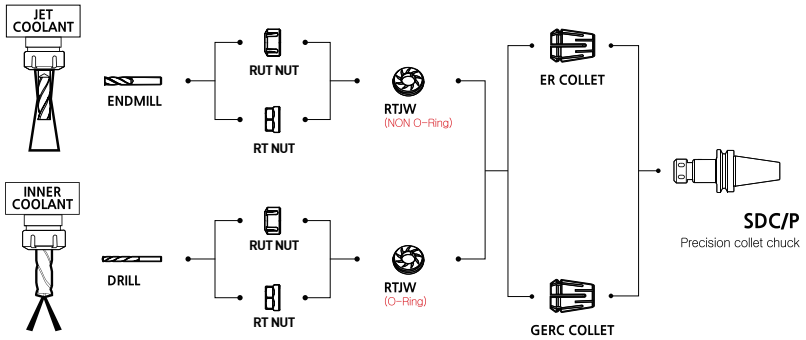


Code system

RTJW	16	-	6
Jet Coolant Disk	ER Collet Size		Tool diameter

Application

- With one waterproof type (RT, RUT) NUT, the inside jet coolant is simultaneously used
- Enables a fast change of the inside jet coolant only by disk replacement
- Strong jet injection with no scattering even in the high-speed rotation



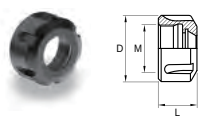
RT NUT

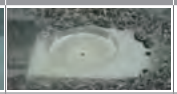
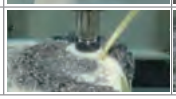
Type	M	D	L
RT16	M22x1.50	28.0	22.5



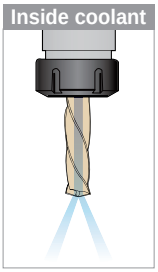
RUT NUT

Type	M	D	L
RUT20	M25x1.50	35.0	24.0
RUT25	M32x1.50	42.0	25.0
RUT32	M40x1.50	50.0	27.5
RUT40	M50x1.50	63.0	30.5

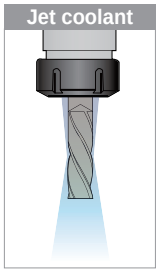


	Pocket machining	After	Remarks
Jet coolant			▶ The chips in the pocket are completely removed by a strong jet injection
Outside coolant			▶ The chips in the pocket are not removed ▶ Chips are accumulated in the collet and nut

Inside coolant

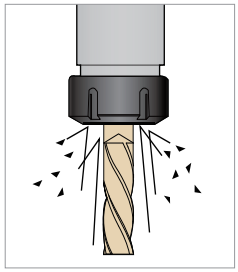


Jet coolant



Coolant method

According to use, inside coolant and jet coolant refueling can be used



Mixing prevention

Effective for vibration proof by preventing mixing of cutting chips by using RTJW

RTJW





(mm)

Designation		ER size	Inner Dia.
RTJW16-	6	16	6
	7	16	7
	8	16	8
RTJW20-	6	20	6
	7	20	7
	8	20	8
	9	20	9
	10	20	10
RTJW25-	6	25	6
	7	25	7
	8	25	8
	9	25	9
	10	25	10
	11	25	11
	12	25	12
	13	25	13
	14	25	14
	15	25	15
	16	25	16

Designation		ER size	Inner Dia.
RTJW32-	6	32	6
	7	32	7
	8	32	8
	9	32	9
	10	32	10
	11	32	11
	12	32	12
	13	32	13
	14	32	14
	15	32	15
	16	32	16
	17	32	17
	18	32	18
	20	32	20
RTJW40-	18	40	18
	19	40	19
	20	40	20
	21	40	21
	22	40	22
	24	40	24

Clamping items: **E45~E50**

• Less than Ø5 cannot be used for production

Slim type collet chuck

DSK

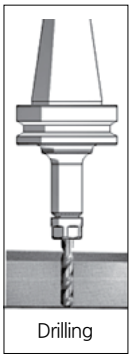


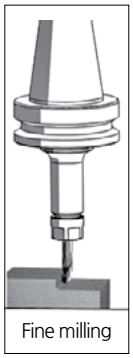
- Available for machining at max.15,000 RPM and balancing of G6.3
- Minimized tool vibration during operation by using collet 8°
- Swiss made high precision nut enhances stability
- Tool clamping range: Ø2~25

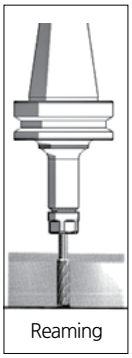
Code system

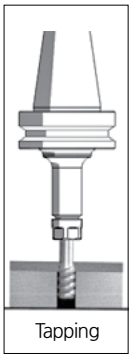
BT30	-	DSK	10	-	90
Spindle		Tapping holder	Tool diameter		Length

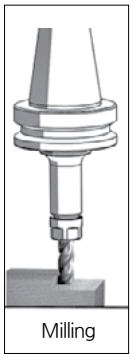
Multipurpose operation

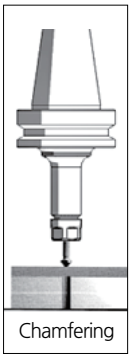

Drilling


Fine milling


Reaming


Tapping


Milling


Chamfering

Collet

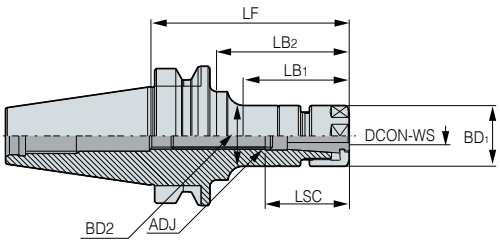
Standard type & Precision type	Designation	Max Chacking	Run-out
	**HC6 - ØD**	6.0	**Standard type** 5 µm **Precision type** 3 µm
	HC10 - ØD	10.0	
	HC13 - ØD	13.0	
	HC16 - ØD	16.0	
	HC20 - ØD	20.0	
	HC25 - ØD	25.0	

8˚ HC Collet

Minimized tool vibration during operation

BT-DSK





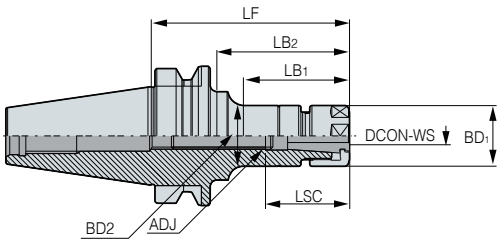
(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	kg
BT30-	DSK6-60	3.0~6.0	60	20	20	33	33	31	HC6	M8	15,000	0.4
	DSK6-90	3.0~6.0	90	20	32	56	65	31	HC6	M8	15,000	0.5
	DSK10-60	2.0~10.0	60	28	28	35	35	38	HC10	M12	15,000	0.5
	DSK10-90	2.0~10.0	90	28	28	65	65	38	HC10	M12	15,000	0.6
	DSK10-120	2.0~10.0	120	28	28	95	95	38	HC10	M12	15,000	1.1
	DSK13-60	3.0~13.0	60	33	33	36	36	43	HC13	M12	15,000	0.5
	DSK16-60	3.0~16.0	60	40	40	37	37	52	HC16	M12	15,000	0.6
	DSK16-90	3.0~16.0	90	40	40	67	67	52	HC16	M18	15,000	0.8
	DSK16-120	3.0~16.0	120	40	40	97	97	60	HC16	M18	15,000	1.1
	DSK20-75	4.0~20.0	75	48	48	52	52	70	HC20	M12	15,000	1.1
	DSK20-90	4.0~20.0	90	48	48	52	52	70	HC20	M18	15,000	1.2
	DSK25-90	16.0~25.0	90	55	55	67.5	67.5	63.5	HC25	M12	15,000	0.9
BT40-	DSK6-60	3.0~6.0	60	20	20	30	30	35	HC6	M8	10,000	1.0
	DSK6-90	3.0~6.0	90	19.5	32	51	61	31	HC6	M8	10,000	1.1
	DSK6-120	3.0~6.0	120	19.5	32	60	90	31	HC6	M8	10,000	1.1
	DSK6-150	3.0~6.0	150	19.5	25	60	120	31	HC6	M8	10,000	1.1
	DSK10-60	2.0~10.0	60	28	28	32	32	50	HC10	M12	10,000	1.1
	DSK10-90	2.0~10.0	90	27.5	40	48	60	38	HC10	M12	10,000	1.2
	DSK10-120	2.0~10.0	120	27.5	40	73	90	38	HC10	M12	10,000	1.2
	DSK10-150	2.0~10.0	150	27.5	34.5	73	118	38	HC10	M12	10,000	1.4
	DSK10-180	2.0~10.0	180	28	39	73	148	50	HC10	M12	10,000	1.4
	DSK13-90	3.0~13.0	90	33	33	59	59	43	HC13	M15	10,000	1.3
	DSK16-60	3.0~16.0	90	40	40	58	58	52	HC16	M18	10,000	1.3
	DSK16-90	3.0~16.0	90	40	40	58	58	52	HC16	M18	10,000	1.3
	DSK16-120	3.0~16.0	120	40	40	88	88	52	HC16	M18	10,000	1.5
	DSK16-150	3.0~16.0	150	40	40	118	118	52	HC16	M18	10,000	1.9
	DSK16-180	3.0~16.0	180	40	40	148	148	60	HC16	M18	10,000	1.9
	DSK20-60	4.0~20.0	60	48	48	32	32	70	HC20	M22	10,000	1.5
	DSK20-90	4.0~20.0	90	48.5	48.5	60	60	60	HC20	M22	10,000	1.5
	DSK20-120	4.0~20.0	120	48.5	48.5	90	90	60	HC20	M22	10,000	1.8
	DSK25-90	16.0~25.0	90	55	55	61	61	63.5	HC25	M28	10,000	1.6
	DSK25-120	16.0~25.0	120	55	55	91	91	85	HC25	M28	10,000	2.0

Spare Part **E69** Application Collet **E74**

BT-DSK





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	kg
BT50-	DSK6-105	3.0~6.0	105	19.5	32	55	64	31	HC6	M8	8,000	3.6
	DSK6-135	3.0~6.0	135	19.5	32	60	92	31	HC6	M8	8,000	3.7
	DSK6-165	3.0~6.0	165	19.5	32	60	114	31	HC6	M8	8,000	4.1
	DSK10-105	2.0~10.0	105	27.5	27.5	57	57	38	HC10	M12	8,000	3.8
	DSK10-135	2.0~10.0	135	27.5	32	70	92	38	HC10	M12	8,000	3.9
	DSK10-165	2.0~10.0	165	27.5	36	75	114	38	HC10	M12	8,000	4.1
	DSK10-195	2.0~10.0	195	28	36	75	146	38	HC10	M12	8,000	4.5
	DSK13-135	3.0~13.0	135	33	33	92	92	43	HC13	M15	8,000	3.8
	DSK16-105	3.0~16.0	105	40	40	62	62	52	HC16	M18	8,000	4.0
	DSK16-135	3.0~16.0	135	40	40	92	92	52	HC16	M18	8,000	4.2
	DSK16-165	3.0~16.0	165	40	50	40	122	52	HC16	M18	8,000	4.6
	DSK16-195	3.0~16.0	195	40	52	40	152	60	HC16	M18	8,000	4.6
	DSK20-105	4.0~20.0	105	48	40	62	62	60	HC20	M22	8,000	4.2
	DSK20-135	4.0~20.0	135	48	40	92	92	60	HC20	M22	8,000	4.5
	DSK20-165	4.0~20.0	165	48	40	122	122	60	HC20	M22	8,000	4.9
	DSK25-105	16.0~25.0	105	55	55	62	62	63.5	HC25	M28	8,000	4.4
	DSK25-135	16.0~25.0	135	55	55	92	92	63.5	HC25	M28	8,000	4.5
	DSK25-165	16.0~25.0	165	55	55	122	122	63.5	HC25	M28	8,000	5.2

Spare Part **E69** Application Collet **E74**

Parts

Basic				For separate purchase
Division	Nut	Adjust screw	Collet Extractor	Spanner
Parts / Designation				
DSK6	DN6	BN0825F	DSK-6CE	DSS-6
DSK10	DN10	BN1225F	DSK-10CE	DSS-10
DSK13	DN13	BN1230(BT30)/BN1524F(etc.)	DSK-13CE	DSS-13
DSK16	DN16	BN1830F	DSK-16CE	DSS-16
DSK20	DN20	BN2230F	DSK-20CE	DSS-20
DSK25	DN25	BN2838F	DSK-25CE	DSS-25

Great speed slim collet chuck

GSK

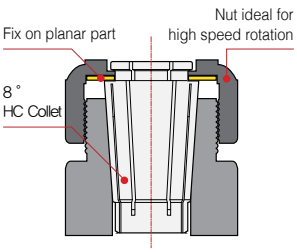
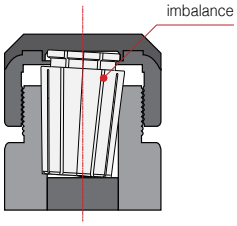
- Available for machining at max.25,000 RPM and balancing of G6.3
- Increased productivity due to high speed machining
- Minimized tool vibration during operation by using collet 8°
- Swiss made high precision nut enhances stability by pressing collet uniformly
- Tool clamping range: Ø2~25



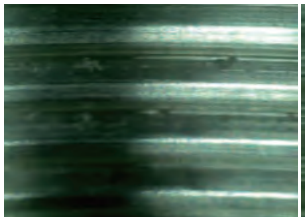
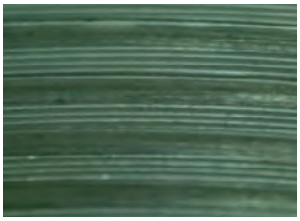
Code system

BT40	-	GSK	10	-	90
Spindle		Tapping holder	Tool diameter		Length

Original design

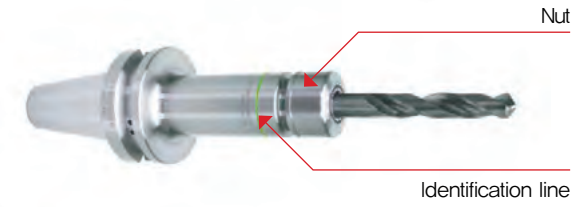
GSK	Competitor
	
Strong clamping by 8° collet and stable fixing with the use of planar part fixing	Imbalance due to centrifugal force during high speed rotation

Comparison of screw polishing points of nut tighetned

GSK	Competitor
	
Provides excellent reproduction precision through screw grinding	Unstable precision due to turning operation

Special design

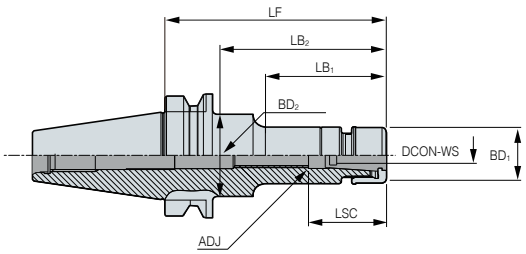
Optimized for great-speed collet chucks and uniquely designed to enable easy run-out measurement by designating the test area to the product



○ Internal coolant system is optional

BT-GSK



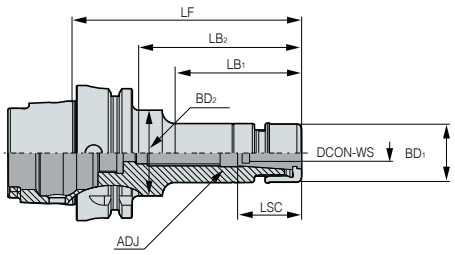


(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	kg
BT30-	GSK6-60	3.0~6.0	60	19.5	19.5	33	33	31	HC6	M8	25,000	0.4
	GSK6-90	3.0~6.0	90	19.5	32	56	65	31	HC6	M8	25,000	0.5
	GSK10-60	2.0~10.0	60	27	27	35	35	38	HC10	M12	25,000	0.5
	GSK10-90	2.0~10.0	90	27	27	65	65	38	HC10	M12	25,000	0.6
	GSK13-60	3.0~13.0	60	35	35	36	36	43	HC13	M12	25,000	0.6
	GSK16-60	3.0~16.0	60	40	40	37	37	52	HC16	M12	25,000	0.6
	GSK16-90	3.0~16.0	90	40	40	67	67	52	HC16	M18	25,000	0.8
	GSK25-90	16.0~25.0	90	55	55	67.5	67.5	64	HC25	M12	25,000	1.0
BT40-	GSK6-90	3.0~6.0	90	20	32	51	61	31	HC6	M8	20,000	1.0
	GSK6-120	3.0~6.0	120	20	32	60	90	31	HC6	M8	20,000	1.2
	GSK6-150	3.0~6.0	150	20	25	60	120	31	HC6	M8	20,000	1.2
	GSK10-90	2.0~10.0	90	27	40	48	60	38	HC10	M12	20,000	1.1
	GSK10-120	2.0~10.0	120	27	40	73	90	38	HC10	M12	20,000	1.3
	GSK10-150	2.0~10.0	150	27	35	73	118	38	HC10	M12	20,000	1.4
	GSK13-90	3.0~13.0	90	35	35	59	59	43	HC13	M15	20,000	1.2
	GSK16-90	3.0~16.0	90	40	40	58	58	52	HC16	M18	20,000	1.3
	GSK16-120	3.0~16.0	120	40	40	88	88	52	HC16	M18	20,000	1.5
	GSK16-150	3.0~16.0	150	40	40	118	118	52	HC16	M18	20,000	1.8
	GSK20-90	4.0~20.0	90	48	48	60	60	60	HC20	M22	20,000	1.4
	GSK20-120	4.0~20.0	120	48	48	90	90	60	HC20	M22	20,000	1.8
	GSK25-90	16.0~25.0	90	55	55	61	61	64	HC25	M28	20,000	1.6
	GSK25-120	16.0~25.0	120	55	55	91	91	64	HC25	M28	20,000	2.0
BT50-	GSK6-105	3.0~6.0	105	20	32	55	64	31	HC6	M8	15,000	3.6
	GSK6-135	3.0~6.0	135	20	32	60	92	31	HC6	M8	15,000	3.6
	GSK6-165	3.0~6.0	165	20	32	60	114	31	HC6	M8	15,000	3.9
	GSK10-105	2.0~10.0	105	27	27	57	57	38	HC10	M12	15,000	3.7
	GSK10-135	2.0~10.0	135	27	32	70	92	38	HC10	M12	15,000	3.7
	GSK10-165	2.0~10.0	165	27	36	75	114	38	HC10	M12	15,000	4.0
	GSK13-135	3.0~13.0	135	35	35	92	92	43	HC13	M15	15,000	3.9
	GSK16-105	3.0~16.0	105	40	40	62	62	52	HC16	M18	15,000	3.9
	GSK16-135	3.0~16.0	135	40	40	92	92	52	HC16	M18	15,000	4.1
	GSK16-165	3.0~16.0	165	40	50	40	122	52	HC16	M18	15,000	4.3
	GSK20-105	4.0~20.0	105	48	-	-	62	60	HC20	M22	15,000	4.1
	GSK20-135	4.0~20.0	135	48	-	-	92	60	HC20	M22	15,000	4.4
	GSK20-165	4.0~20.0	165	48	-	-	122	60	HC20	M22	15,000	4.9
	GSK25-105	16.0~25.0	105	55	55	62	62	64	HC25	M28	15,000	4.2
	GSK25-135	16.0~25.0	135	55	55	92	92	64	HC25	M28	15,000	4.6
	GSK25-165	16.0~25.0	165	55	55	122	122	64	HC25	M28	15,000	5.1

HSK-GSK





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	kg
HSK63A-	GSK6-100	3.0~6.0	100	20	32	51	71	31	HC6	M8	20,000	0.8
	GSK10-105	2.0~10.0	105	27	35	60	76	38	HC10	M12	20,000	0.9
	GSK16-120	3.0~16.0	120	40	40	90	-	52	HC16	M18	20,000	1.3
	GSK20-120	4.0~20.0	120	48	48	92	-	60	HC20	M22	20,000	1.6
HSK100A-	GSK6-120	3.0~6.0	120	19.5	32	70	88	31	HC6	M8	15,000	2.2
	GSK10-120	2.0~10.0	120	27	27	70	88	38	HC10	M12	15,000	2.3
	GSK16-140	3.0~16.0	140	40	40	105	-	52	HC16	M18	15,000	2.8
	GSK25-155	16.0~25.0	155	55	55	120	-	64	HC25	M28	15,000	3.6

SK-GSK



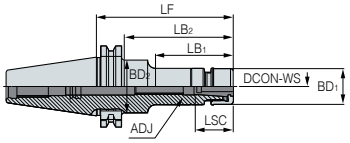


Fig. 1

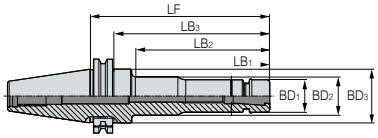


Fig. 2

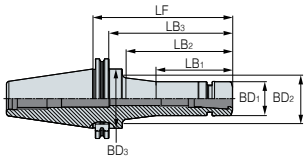


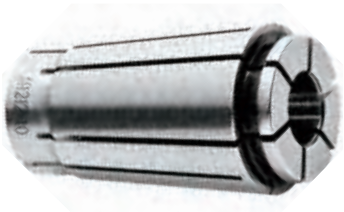
Fig. 3

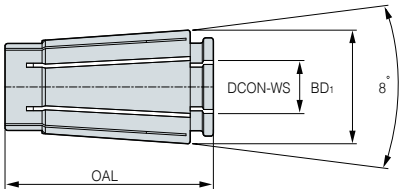
(mm)

Designation		DCON-WS	LF	BD1	BD2	BD3	LB1	LB2	LB3	LSC	COLLET	ADJ	RPMX	Fig.	kg
SK40-	GSK6-60	3.0~6.0	60	20	-	-	41	-	-	31	HC6	M8	20,000	1	0.8
	GSK6-90	3.0~6.0	90	20	45	-	48	71	-	31	HC6	M8	20,000	1	1.0
	GSK10-90	2.0~10.0	90	27	45	-	50	71	-	38	HC10	M12	20,000	1	1.1
	GSK10-150	2.0~10.0	150	27	32	45	70	112	131	38	HC10	M12	20,000	2	1.3
	GSK16-90	3.0~16.0	90	40	-	-	68	-	-	52	HC16	M18	20,000	1	1.2
	GSK16-150	3.0~16.0	150	40	45	-	114	118	-	52	HC16	M18	20,000	1	1.7
	GSK20-90	4.0~20.0	90	48	-	-	71	-	-	60	HC20	M22	20,000	1	1.3
	GSK25-90	16.0~25.0	90	55	-	-	71	-	-	64	HC25	M28	20,000	1	1.3
SK50-	GSK6-105	3.0~6.0	105	20	70	-	60	86	-	31	HC6	M8	15,000	1	3.1
	GSK6-165	3.0~6.0	165	20	32	70	60	120	15	31	HC6	M8	15,000	2	3.3
	GSK10-105	2.0~10.0	105	27	70	-	65	86	-	38	HC10	M12	15,000	1	3.2
	GSK10-165	2.0~10.0	165	27	32	70	75	120	15	38	HC10	M12	15,000	2	3.4
	GSK16-105	3.0~16.0	105	40	70	-	65	86	-	52	HC16	M18	15,000	1	3.4
	GSK16-165	3.0~16.0	165	40	50	70	90	126	15	52	HC16	M18	15,000	3	3.9
	GSK20-105	4.0~20.0	105	48	70	-	65	86	-	60	HC20	M22	15,000	1	3.6
	GSK20-165	4.0~20.0	165	48	70	-	125	146	-	60	HC20	M22	15,000	1	4.3
	GSK25-105	16.0~25.0	105	55	70	-	65	86	-	64	HC25	M28	15,000	1	3.7
	GSK25-165	16.0~25.0	165	55	70	-	125	146	-	64	HC25	M28	15,000	1	4.6

HC Collet

General type





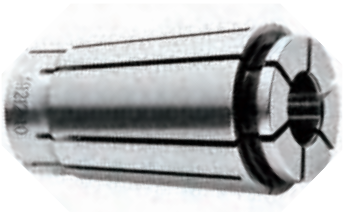
(mm)

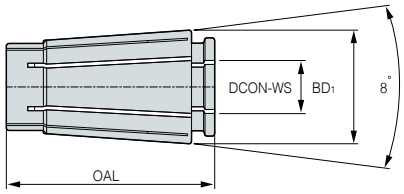
Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC6-	3.0	3.0	25.0	10.5	1.0	5μm
	4.0	4.0	25.0	10.5	1.0	5μm
	5.0	5.0	25.0	10.5	1.0	5μm
	6.0	6.0	25.0	10.5	1.0	5μm
HC10-	2.0	2.0	30.5	15.6	1.0	5μm
	3.0	3.0	30.5	15.6	1.0	5μm
	4.0	4.0	30.5	15.6	1.0	5μm
	5.0	5.0	30.5	15.6	1.0	5μm
	6.0	6.0	30.5	15.6	1.0	5μm
	7.0	7.0	30.5	15.6	1.0	5μm
	8.0	8.0	30.5	15.6	1.0	5μm
	9.0	9.0	30.5	15.6	1.0	5μm
	10.0	10.0	30.5	15.6	1.0	5μm
HC13-	3.0	3.0	39.0	20.1	1.0	5μm
	4.0	4.0	39.0	20.1	1.0	5μm
	5.0	5.0	39.0	20.1	1.0	5μm
	6.0	6.0	39.0	20.1	1.0	5μm
	7.0	7.0	39.0	20.1	1.0	5μm
	8.0	8.0	39.0	20.1	1.0	5μm
	9.0	9.0	39.0	20.1	1.0	5μm
	10.0	10.0	39.0	20.1	1.0	5μm
	11.0	11.0	39.0	20.1	1.0	5μm
	12.0	12.0	39.0	20.1	1.0	5μm
	13.0	13.0	39.0	20.1	1.0	5μm
HC16-	3.0	3.0	45.0	24.6	1.0	5μm
	4.0	4.0	45.0	24.6	1.0	5μm
	5.0	5.0	45.0	24.6	1.0	5μm
	6.0	6.0	45.0	24.6	1.0	5μm
	7.0	7.0	45.0	24.6	1.0	5μm
	8.0	8.0	45.0	24.6	1.0	5μm
	9.0	9.0	45.0	24.6	1.0	5μm
	10.0	10.0	45.0	24.6	1.0	5μm
	11.0	11.0	45.0	24.6	1.0	5μm
	12.0	12.0	45.0	24.6	1.0	5μm
	13.0	13.0	45.0	24.6	1.0	5μm
	14.0	14.0	45.0	24.6	1.0	5μm
	15.0	15.0	45.0	24.6	1.0	5μm
	16.0	16.0	45.0	24.6	1.0	5μm

Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC20-	4.0	4.0	54.3	29.2	2.0	5μm
	6.0	6.0	54.3	29.2	2.0	5μm
	8.0	8.0	54.3	29.2	2.0	5μm
	10.0	10.0	54.3	29.2	2.0	5μm
	12.0	12.0	54.3	29.2	2.0	5μm
	14.0	14.0	54.3	29.2	2.0	5μm
	16.0	16.0	54.3	29.2	2.0	5μm
	18.0	18.0	54.3	29.2	2.0	5μm
	20.0	20.0	54.3	29.2	2.0	5μm
HC25-	16.0	16.0	57.0	35.7	1.0	5μm
	17.0	17.0	57.0	35.7	1.0	5μm
	18.0	18.0	57.0	35.7	1.0	5μm
	19.0	19.0	57.0	35.7	1.0	5μm
	20.0	20.0	57.0	35.7	1.0	5μm
	21.0	21.0	57.0	35.7	1.0	5μm
	22.0	22.0	57.0	35.7	1.0	5μm
	23.0	23.0	57.0	35.7	1.0	5μm
	24.0	24.0	57.0	35.7	1.0	5μm
	25.0	25.0	57.0	35.7	1.0	5μm

HC Collet

Precision type





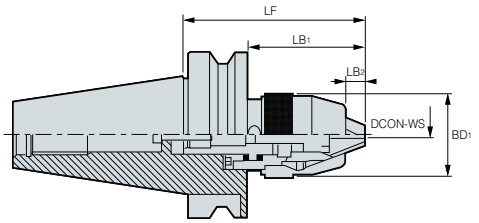
(mm)

Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC6-	3.0P	3.0	25.0	10.5	1.0	3μm
	4.0P	4.0	25.0	10.5	1.0	3μm
	5.0P	5.0	25.0	10.5	1.0	3μm
	6.0P	6.0	25.0	10.5	1.0	3μm
HC10-	2.0P	2.0	30.5	15.6	1.0	3μm
	3.0P	3.0	30.5	15.6	1.0	3μm
	4.0P	4.0	30.5	15.6	1.0	3μm
	5.0P	5.0	30.5	15.6	1.0	3μm
	6.0P	6.0	30.5	15.6	1.0	3μm
	7.0P	7.0	30.5	15.6	1.0	3μm
	8.0P	8.0	30.5	15.6	1.0	3μm
	9.0P	9.0	30.5	15.6	1.0	3μm
	10.0P	10.0	30.5	15.6	1.0	3μm
HC13-	3.0P	3.0	39.0	20.1	1.0	3μm
	4.0P	4.0	39.0	20.1	1.0	3μm
	5.0P	5.0	39.0	20.1	1.0	3μm
	6.0P	6.0	39.0	20.1	1.0	3μm
	7.0P	7.0	39.0	20.1	1.0	3μm
	8.0P	8.0	39.0	20.1	1.0	3μm
	9.0P	9.0	39.0	20.1	1.0	3μm
	10.0P	10.0	39.0	20.1	1.0	3μm
	11.0P	11.0	39.0	20.1	1.0	3μm
	12.0P	12.0	39.0	20.1	1.0	3μm
	13.0P	13.0	39.0	20.1	1.0	3μm
HC16-	3.0P	3.0	45.0	24.6	1.0	3μm
	4.0P	4.0	45.0	24.6	1.0	3μm
	5.0P	5.0	45.0	24.6	1.0	3μm
	6.0P	6.0	45.0	24.6	1.0	3μm
	7.0P	7.0	45.0	24.6	1.0	3μm
	8.0P	8.0	45.0	24.6	1.0	3μm
	9.0P	9.0	45.0	24.6	1.0	3μm
	10.0P	10.0	45.0	24.6	1.0	3μm
	11.0P	11.0	45.0	24.6	1.0	3μm
	12.0P	12.0	45.0	24.6	1.0	3μm
	13.0P	13.0	45.0	24.6	1.0	3μm
	14.0P	14.0	45.0	24.6	1.0	3μm
	15.0P	15.0	45.0	24.6	1.0	3μm
	16.0P	16.0	45.0	24.6	1.0	3μm

Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC20-	4.0P	4.0	54.3	29.2	2.0	3μm
	6.0P	6.0	54.3	29.2	2.0	3μm
	8.0P	8.0	54.3	29.2	2.0	3μm
	10.0P	10.0	54.3	29.2	2.0	3μm
	12.0P	12.0	54.3	29.2	2.0	3μm
	14.0P	14.0	54.3	29.2	2.0	3μm
	16.0P	16.0	54.3	29.2	2.0	3μm
	18.0P	18.0	54.3	29.2	2.0	3μm
	20.0P	20.0	54.3	29.2	2.0	3μm
HC25-	16.0P	16.0	57.0	35.7	1.0	3μm
	17.0P	17.0	57.0	35.7	1.0	3μm
	18.0P	18.0	57.0	35.7	1.0	3μm
	19.0P	19.0	57.0	35.7	1.0	3μm
	20.0P	20.0	57.0	35.7	1.0	3μm
	21.0P	21.0	57.0	35.7	1.0	3μm
	22.0P	22.0	57.0	35.7	1.0	3μm
	23.0P	23.0	57.0	35.7	1.0	3μm
	24.0P	24.0	57.0	35.7	1.0	3μm
	25.0P	25.0	57.0	35.7	1.0	3μm

BT-NPU





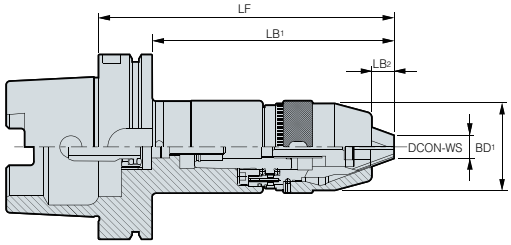
(mm)

Designation		DCON-WS	LF	BD1	LB1	LB2	kg
BT30-	NPU8-97	1~8	97	38	75	8.0	0.8
	NPU13-125	1~13	125	50	103	12.0	1.4
BT40-	NPU8-87	1~8	87	38	60	8.0	1.2
	NPU13-105	1~13	105	50	78	12.0	1.6
	NPU13-130	1~13	130	50	103	12.0	1.9
BT50-	NPU13-130	1~13	130	50	92	12.0	4.5
	NPU13-190	1~13	190	50	152	12.0	5.3

• Through coolant system is not available

HSK-NPU





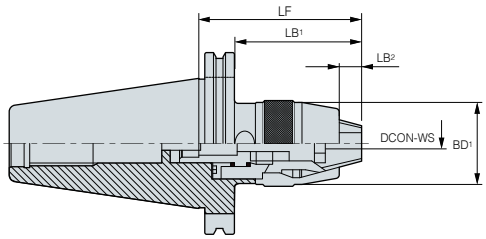
(mm)

Designation		DCON-WS	LF	BD1	LB1	LB2	kg
HSK63A-	NPU13-175	1~13	175	50	149	12.0	2.4
HSK100A-	NPU13-180	1~13	180	50	151	12.0	3.6

• Through coolant system is not available

SK-NPU





(mm)

Designation		DCON-WS	LF	BD_1	LB_1	LB_2	kg
SK40-	NPU13-105	1~13	105	50	78	12.5	1.6
SK50-	NPU13-111	1~13	111	50	84	12.5	3.6

• Through coolant system is not available

Parts

	Basic		For separate purchase
Division	Chuk	Bolt	Spanner
Parts / Designation			
NPU8	NPU08	BX0620	NPU0836
NPU13	NPU13	BX0825	NPU1348

Tapping holder

DTN

- Compact design and slim type
- Improvement of tapping force
- Tapping range: M3~M38

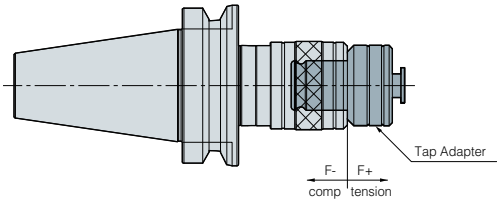


Code system

BT40	-	DTN	22	-	130
Spindle		Tapping holder	Max. chucking diameter		Length

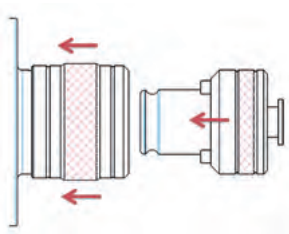
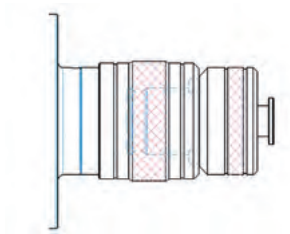
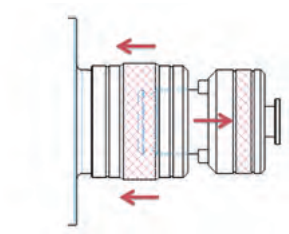
Easy exchange of TCA (Tap adaptor)

Convenient one-touch exchange type for high precision and longer tool life
Contraction of length is possible by axial floating way



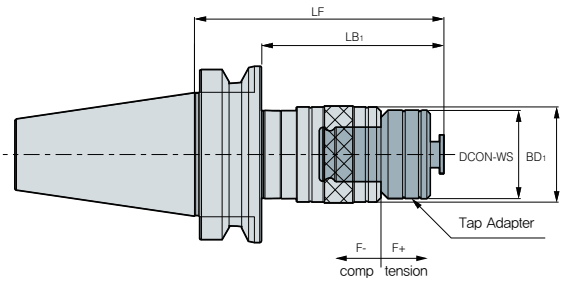


How to clamp TCA and a tap holder

Before installation	After installation	Disassembly
		
1. Insert TCA pushing the cover of tap holder 2. Clamp the TCA in the Key groove and firmly	1. The cover of tap holder is placed correctly	1. Seaparate the TCA pushing the cover of tap holder

BT-DTN





(mm)

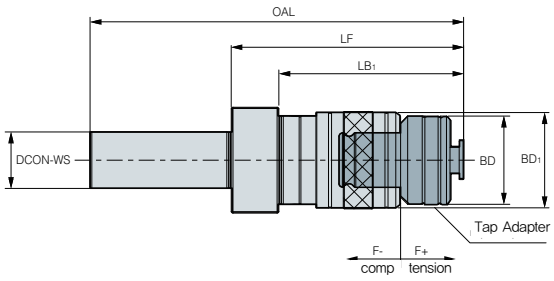
Designation		Tapping range	LF	LB1	DCON-WS	BD1	Adaptor	F-	F +	kg
BT30-	DTN12-85	M3~M12	85	63	32	39	TCA1-M	4	10	0.5
BT40-	DTN12-90	M3~M12	90	63	32	39	TCA1-M	4	10	1.2
	DTN12-120	M3~M12	120	93	32	39	TCA1-M	4	10	1.5
	DTN22-130	M8~M24	130	103	50	56	TCA2-M	12.5	12.5	1.7
	DTN22-160	M8~M24	160	133	50	56	TCA2-M	12.5	12.5	2.2
BT50-	DTN12-100	M3~M12	100	62	32	39	TCA1-M	4	10	3.9
	DTN12-130	M3~M12	130	92	32	39	TCA1-M	4	10	3.9
	DTN22-140	M8~M24	140	102	50	56	TCA2-M	12.5	12.5	4.3
	DTN22-170	M8~M24	170	132	50	56	TCA2-M	12.5	12.5	4.7
	DTN38-185	M16~M38	185	147	72	81	TCA3-M	20	20	5.7
	DTN38-215	M16~M38	215	177	72	81	TCA3-M	20	20	6.7

Tap Adapter (TCA) **E81**

• Through coolant system is not available

S-DTN





(mm)

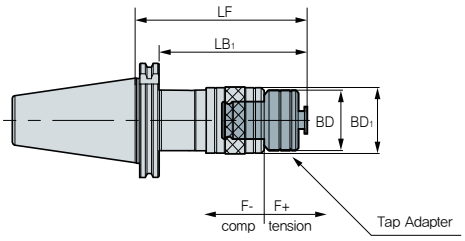
Designation		Tapping range	BD	DCON-WS	OAL	BD1	LF	LB1	Adaptor	F-	F+	kg
S32-	DTN12-90	M3-M12	32	32	170	39	90	63	TCA1	4	10	1.0
	DTN22-130	M8-M24	50	32	210	56	130	103	TCA2	12.5	12.5	1.8

Tap Adapter (TCA) **E81**

• Through coolant system is not available

SK-DTN





(mm)

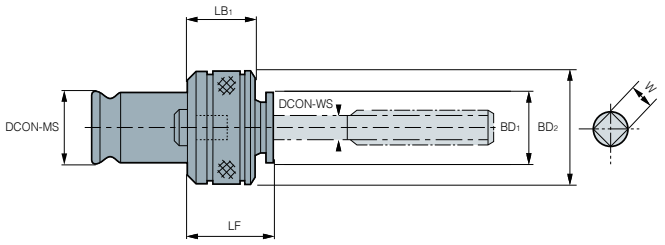
Designation		Tapping range	BD	LF	BD1	LB1	Adaptor	F-	F+	kg
SK40-	DTN12-90	M3~M12	32	90	39	70.9	TCA1-M	4	10	1.0
	DTN22-130	M8~M22	50	130	56	110.9	TCA2-M	12.5	12.5	1.6
SK50-	DTN12-100	M3~M12	32	100	39	80.9	TCA1-M	4	10	2.9
	DTN22-140	M8~M22	50	140	56	120.9	TCA2-M	12.5	12.5	3.5

Tap Adapter (TCA) **E81**

• Through coolant system is not available

TCA Tap Adapter





(mm)

Designation		DCON-WS	LF	DCON-MS	LB1	BD1	BD2	W	kg
TCA1-	M3	4	27	19	25	19	32	3	0.2
	M4	5	27	19	25	19	32	4	0.2
	M5	6	27	19	25	19	32	4	0.2
	M6	6	27	19	25	19	32	4	0.2
	M8	6.2	27	19	25	19	32	5	0.2
	M10	7	27	19	25	19	32	6	0.2
	M11	8	27	19	25	19	32	6	0.2
	M12	9	27	19	25	19	32	7	0.2
TCA2-	M8	6.2	34	31	31	29	50	5	0.5
	M10	7	34	31	31	29	50	6	0.5
	M12	8.5	34	31	31	29	50	7	0.5
	M14	11	34	31	31	29	50	8	0.5
	P1/4	11	34	31	31	29	50	9	0.5
	M16	13	34	31	31	29	50	10	0.5
	M18	14	34	31	31	29	50	11	0.5
	M20	15	34	31	31	29	50	12	0.5
	M22	17	34	31	31	29	50	13	0.5
	P1/2	18	34	31	31	29	50	14	0.5
	M24	19	34	31	31	29	50	15	0.5
TCA3-	M16	13	45	48	41	44	72	10	1.4
	M18	14	45	48	41	44	72	11	1.4
	M20	15	45	48	41	44	72	12	1.4
	M22	17	45	48	41	44	72	13	1.4
	M24	19	45	48	41	44	72	15	1.4
	M27	20	45	48	41	44	72	15	1.4
	M30	23	45	48	41	44	72	17	1.4
	M33	25	45	48	41	44	72	19	1.4
	M36	28	45	48	41	44	72	21	1.4

• Through coolant system is not available

High speed synchro tapping chuck

DST

- Tapping chuck for high speed machining
- Specially designed structure for absorbing thrust load and preventing damage on the tap
- Through coolant system available
- Applicable range: M1~M22

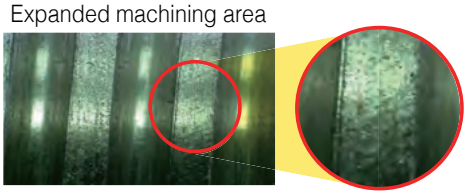


Code system

BT40	-	DST	22	-	110
Spindle		Tapping holder	Max. Chucking diameter		Length

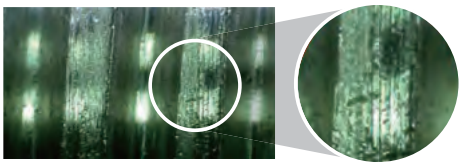
Excellent performance, precise machining

Expanded machining area



DST22
(vc = 100 m/min)

Excellent cutting face

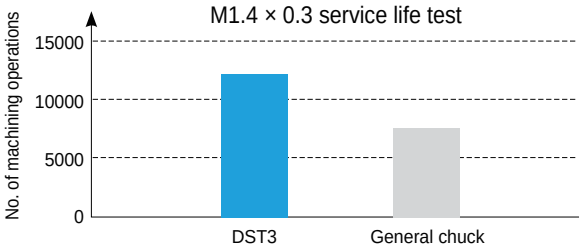


Conventional one



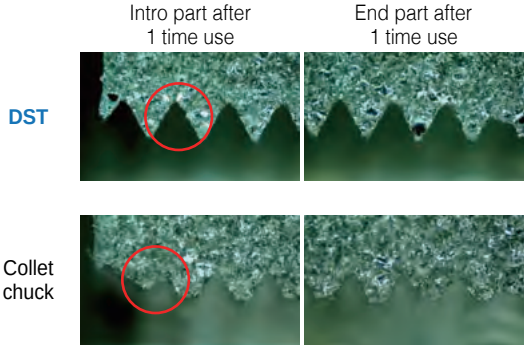
Exclusive collet for tapping

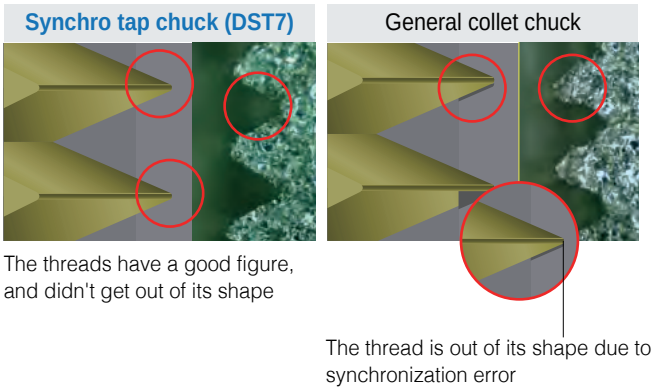
- At tapping work use of TER collet
- DST3: Use of ER11 collet



Increased tool service life versus collet chuck use

Comparison of thread figures



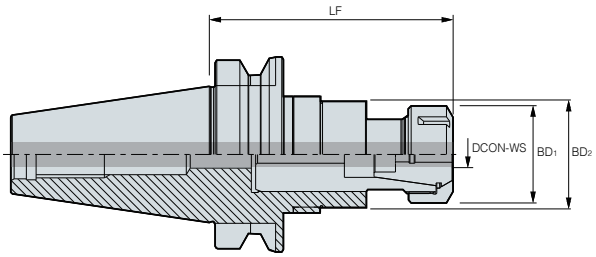


The threads have a good figure, and didn't get out of its shape

The thread is out of its shape due to synchronization error

BT-DST





(mm)

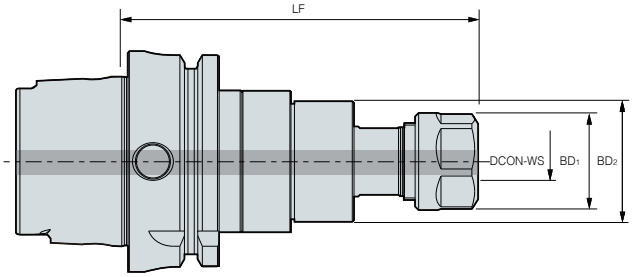
Designation		DCON-WS	LF	BD1	BD2	Collet	F-	F+	kg
BT30-	DST3-70	M1~M3	70	20	19	ER11	0.5	0.5	0.5
	DST10-100	M3~M10	100	40.4	28	TER16	0.5	0.5	0.8
BT40-	DST3-70	M1~M3	70	20	19	ER11	0.5	0.5	1.0
	DST10-100	M3~M10	100	40.4	28	TER16	0.5	0.5	1.3
	DST22-110	M6~M22	110	60	50	TER32	0.7	0.7	1.7
BT50-	DST10-110	M3~M10	110	60	50	TER16	0.5	0.5	3.8
	DST22-130	M6~M22	130	60	50	TER32	0.7	0.7	4.5

Application Collet **E60, E85**

• Through coolant system is optional

HSK-DST





(mm)

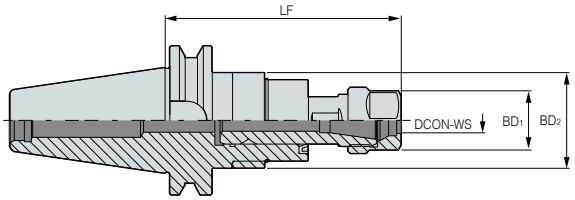
Designation		DCON-WS	LF	BD1	BD2	Collet	F-	F+	kg
HSK63A-	DST3-80	M1~M3	80	19	20	ER11	0.5	0.5	0.7
	DST10-100	M3~M10	100	28	40.4	TER16	0.5	0.5	0.9
	DST22-130	M6~M22	130	49.5	60	TER32	0.7	0.7	1.8

Application Collet **E60, E85**

• Through coolant system is optional

SK-DST





(mm)

Designation		DCON-WS	LF	BD1	BD2	Collet	F-	F+	kg
SK30-	**DST3-70**	M1~M3	70	19	20	ER11	0.2	0.2	0.4
SK40-	**DST3-70**	M1~M3	70	19	20	ER11	0.2	0.2	0.9
	DST10-110	M3~M10	110	28	35	TER16	0.5	0.5	1.2
	DST22-120	M6~M22	120	50	54	TER32	0.7	0.7	1.8
SK50-	**DST10-110**	M3~M10	110	28	35	TER16	0.5	0.5	3.0
	DST22-120	M6~M22	120	50	54	TER32	0.7	0.7	3.7

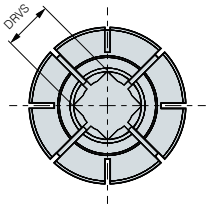
Application Collet **E60, E85**

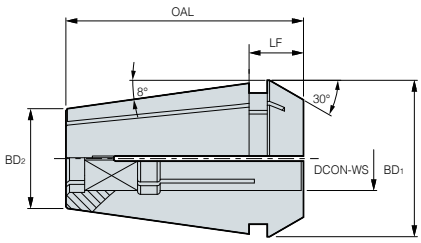
• Through coolant system is optional

TER Collet

Tap Collet







(mm)

Designation		Tapping Range	DCON-WS	OAL	DRVS	BD_1	BD_2	LF	kg
TER16-	**4x3.2**	M3	4	27.5	3.2	16.74	10.1	6.3	0.03
	5x4	M4	5	27.5	4	16.74	10.1	6.3	0.03
	5.5x4.5	M5	5.5	27.5	4.5	16.74	10.1	6.3	0.02
	6x4.5	M6,U1/4	6	27.5	4.5	16.74	10.1	6.3	0.02
	6.2x5	M7, M8	6.2	27.5	5	16.74	10.1	6.3	0.02
	7x5.5	M9, M10, U3/8	7	27.5	5.5	16.74	10.1	6.3	0.02
TER20-	**5x4**	M4	5	31.5	4	20.74	13.2	7.2	0.05
	5.5x4.5	M5	5.5	31.5	4.5	20.74	13.2	7.2	0.05
	6x4.5	M6,U1/4	6	31.5	4.5	20.74	13.2	7.2	0.05
	6.2x5	M7, M8	6.2	31.5	5	20.74	13.2	7.2	0.04
	7x5.5	M9, M10, U3/8	7	31.5	5.5	20.74	13.2	7.2	0.05
	8x6	M11, U7/16, P1/8	8	31.5	6	20.74	13.2	7.2	0.04
	8.5x6.5	M12	8.5	31.5	6.5	20.74	13.2	7.2	0.04
TER25-	**5x4**	M4	5	34	4	25.74	17.6	7.5	0.9
	5.5x4.5	M5	5.5	34	4.5	25.74	17.6	7.5	0.8
	6x4.5	M6	6	34	4.5	25.74	17.6	7.5	0.8
	6.2x5	M7, M8	6.2	34	5	25.74	17.6	7.5	0.1
	7x5.5	M9, M10, U3/8	7	34	5.5	25.74	17.6	7.5	0.8
	8.5x6.5	M12	8.5	34	6.5	25.74	17.6	7.5	0.8
TER32-	**6x4.5**	M6,U1/4	6.2	40	4.5	32.74	23.1	8.2	0.2
	6.2x5	M7, M8	M8	40	5	32.74	23.1	8.2	0.2
	7x5.5	M9, M10, U3/8	7	40	5.5	32.74	23.1	8.2	0.2
	8X6	M11, U7/16, P1/8	8	40	6	32.74	23.1	8.2	0.2
	8.5x6.5	M12	8.5	40	6.5	32.74	23.1	8.2	0.2
	10.5x8	M14, U9/16	10.5	40	8	32.74	23.1	8.2	0.2
	12.5x10	M16	12.5	40	10	32.74	23.1	8.2	0.2
	14x11	M18, P3/8	14	40	11	32.74	23.1	8.2	0.1
	15x12	M20	15	40	12	32.74	23.1	8.2	0.1
	17x13	M22, U7/8	17	40	13	32.74	23.1	8.2	0.1
	11x9	P1/4	11	40	9	32.74	23.1	8.2	0.2
	12x9	U5/8	12	40	9	32.74	23.1	8.2	0.2
	9x7	U1/2	9	40	7	32.74	23.1	8.2	0.2

• Water proof tapping is possible with the use of RTJW and nuts (limited to the right sizes)

Tap Extension Holder

TEH

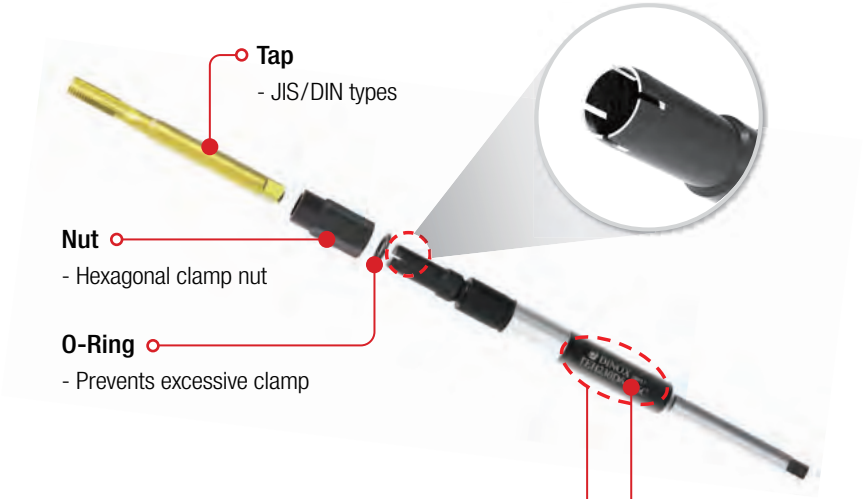
- Length-extending holder exclusive for tap when applying to the interference section
- Tool cost is reduced, and machining performance 1s improved compared to the use of long taps



Code system

TEH	230	D6	J	M6	-	C
Holder	**Length**	**Shank diameter**	J : JIS NON : DIN	**Tap size**		C : Coolant NON : General

Structure



※ TEH230D10-M10

- Tap Extension Holder
- 230 : Full length
- D10 : END TOOL Ø / TEH SHANK Ø
- M10 : Tap size

Holder

- Excellent rigidity/run-out

Processing of deep holes



[TEH]
Processing O

[General long Tap]
Processing X

Full length comparison	TEH	General long tap
M10	230mm	150mm
M22	330mm	200mm

※ Since the full length is longer than that of the general long tap, it is favorable for processing narrow, deep holes.

TEH Setting Method



DST
High speed synchro tapping chuck

TER Collet

TEH
Tap Extension Holder

Tap
(M4~M22)

TEH (JIS)



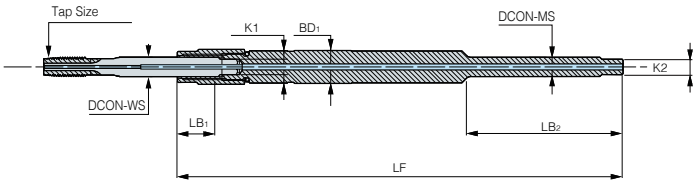


Fig. 1

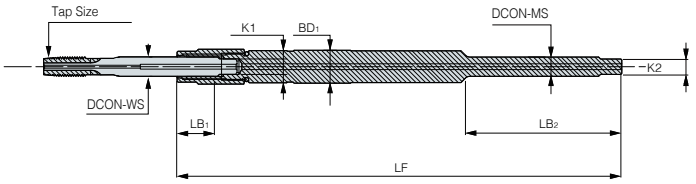


Fig. 2

(mm)

Designation		Tapping range	LB1	LB2	LF	BD1	DCON-WS	DCON-MS	K1	K2	NutØ	Fig.
TEH230	D5J-M4	M4	18	50	230	11	5	6	4	45	12.1	2
	D6J-M6C	M6	18	50	230	12	6	6	4.5	4.5	13.3	1
	D6.2J-M8C	M8	18	65	230	12	6.2	6.2	5	5	13.3	1
	D7J-M10C	M10	18	65	230	13	7	7	5.5	5.5	14.4	1
	D8.5J-M12C	M12	22	65	230	14	8.5	8.5	6.5	65	15.6	1
TEH330	D10.5J-M14C	M14	25	70	330	16	10.5	10.5	8	8	17.9	1
	D12.5J-M16C	M16	25	70	330	18	12.5	12.5	10	10	19.9	1
	D14J-M18C	M18	25	70	330	20	14	14	11	11	21.9	1
	D15J-M20C	M20	25	75	330	21	15	15	12	12	22.9	1
	D17J-M22C	M22	25	75	330	23	17	17	13	13	25.9	1

• Through coolant system is installed (Fig.2 Designation is non-coolant type)

TEH (DIN)



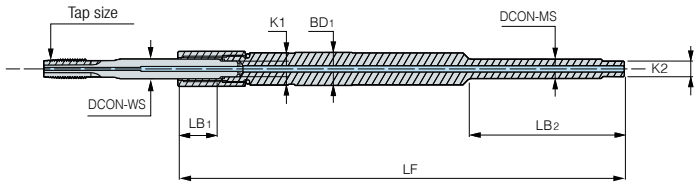


Fig. 1

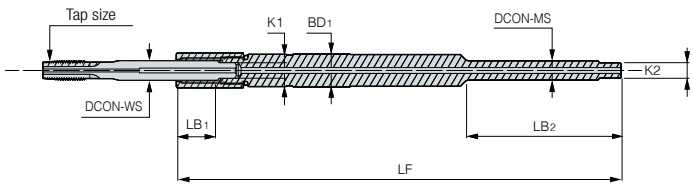


Fig. 2

(mm)

Designation		Tapping range	LB1	LB2	LF	BD1	DCON-WS	DCON-MS	K1	K2	NutØ	Fig.
TEH230	D4.5-M4	M4	18	50	230	10	4.5	6	3.4	4.5	11.1	2
	D6-M6C	M6	20	50	230	12	6	7	4.9	5.5	13.3	1
	D8-M8C	M8	23	65	230	14	8	8	6.3	6.2	15.6	1
	D10-M10C	M10	24	65	230	16	10	10	8	8	17.9	1
	D9-M12C	M12	23	65	230	15	9	9	7	7	16.8	1
TEH330	D11-M14C	M14	26	70	330	17	11	11	9	9	19.1	1
	D12-M16C	M16	26	70	330	18	12	12	9	9	19.9	1
	D14-M18C	M18	28	70	330	20	14	14	11	11	21.9	1
	D16-M20C	M20	28	75	330	22	16	16	12	12	23.9	1
	D18-M22C	M22	28	75	330	24	18	18	14.5	14.5	25.9	1

• Through coolant system is installed (Fig.2 Designation is non-coolant type)

DINE Synchro Tapping ER Collet

STER PAT.

- Floating function applicable for tap machining just by fastening the ER collet chuck
- Tap size can be converted just by replacing the connector
- Tap : M6~M16



Code system

ST	ER	32C	M6
Synchronizing Tapping Collet	Collet	Collet size	Tool diameter

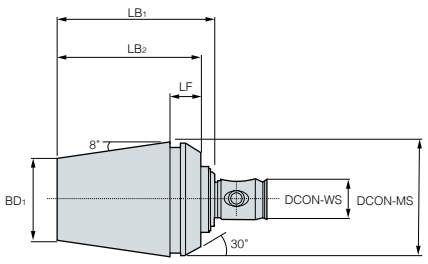
Details

STER32



Detailed specifications

COLLET



CONNECTOR

Fig. 1

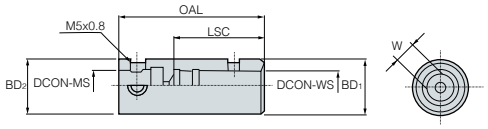
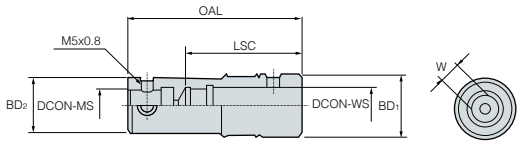


Fig. 2



※COLLET

Designation	DCON-MS	BD1	DCON-WS	LB1	LB2	LF	Fig.
STER32	32	23.1	11	44	40	8.2	1

※CONNECTOR

Designation	BD1	BD2	DCON-WS	DCON-MS	OAL	LSC	W	Fig.
STER32C-M6	19	21	6	11	50	29.5	4.5	2
STER32C-M8	19	21	6.2	11	50	30	5	2
STER32C-M10	19	21	7	11	50	29	5.5	2
STER32C-M12	19	21	8.5	11	50	30.5	6.5	2
STER32C-M14	19	21	10.5	11	50	31	8	2
STER32C-M16	19	21	12.5	11	50	40.5	10	2

PART

BTT0506F



BT0504



PART

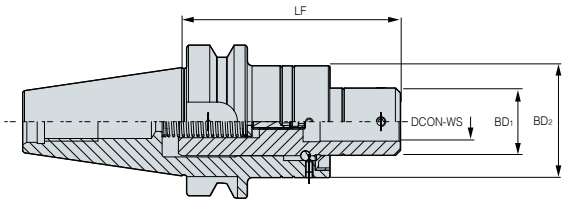
LW-2.5



BT-OFH

Floating holder





(mm)

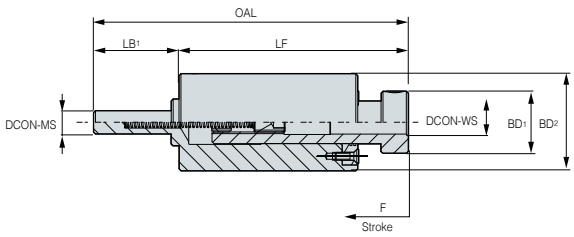
Designation	DCON-WS	LF	BD1	BD2	Sleeve stroke(F)	RPMX
BT30-OFH6-75	6	75	19.7	38	6	15,000

• Through coolant system is not available

ST-OFH

Floating holder





(mm)

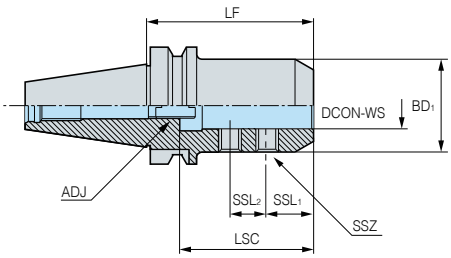
Designation	DCON-WS	OAL	BD1	BD2	DCON–MS	LB1	LF	Sleeve stroke(F)	RPMX
ST06-OFH6-60	6	81	16	25	6	59	22	6	15,000

• Through coolant system is not available

BT-SLA

Side Lock Arbor





(mm)

Designation		DCON-WS	LF	BD1	LSC	SSL1	SSL2	SSZ	ADJ	kg
BT30-	SLA16-90	16	90	40	72	25	20	M10	M12	0.9
	SLA20-90	20	90	50	72	25	20	M12	M12	1.2
	SLA25-90	25	90	50	72	25	20	M12	M12	1.1
BT40-	SLA16-90	16	90	40	72	25	20	M10	M12	1.4
	SLA20-90	20	90	50	72	25	20	M12	M12	1.8
	SLA25-90	25	90	50	72	25	20	M12	M12	1.6
	SLA32-90	32	90	60	82	25	25	M14	M12	1.8
	SLA32-105	32	105	60	82	25	25	M14	M12	2.0
	SLA40-105	40	105	80	82	25	25	M16	M12	2.9
BT50-	SLA16-90	16	90	40	72	25	20	M10	M12	4
	SLA20-105	20	105	50	72	25	20	M12	M12	4.4
	SLA25-105	25	105	50	72	25	20	M12	M12	4.3
	SLA25-135	25	135	50	72	25	20	M12	M12	4.6
	SLA25-165	25	165	50	82	25	20	M12	M12	5.2
	SLA32-105	32	105	60	82	25	25	M14	M12	4.5
	SLA32-135	32	135	60	82	25	25	M14	M12	5.1
	SLA32-165	32	165	60	82	25	25	M14	M12	5.7
	SLA40-105	40	105	90	82	25	20	M16	M12	6.1
	SLA40-150	40	150	90	82	25	25	M16	M12	8.1
	SLA42-105	42	105	90	82	25	25	M16	M12	5.9

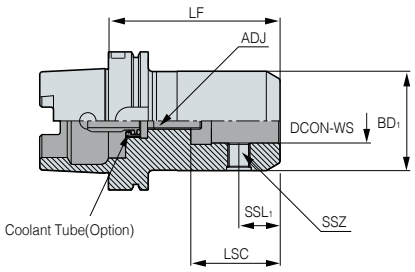
Spare Part **E91**

• Through coolant system is installed

HSK-SLA

Side Lock Arbor





(mm)

Designation		DCON-WS	LF	BD1	LSC	SSL1	SSZ	ADJ	kg
HSK30A-	SLA20-100	20	100	52	51	25	M8	M12	1.6
	SLA25-105	25	105	65	59	25	M8	M12	2.1
	SLA32-105	32	105	72	63	30	M5	M12	2.3
HSK100A-	SLA20-105	20	105	52	51	25	M16	M12	3.1
	SLA25-110	25	110	65	59	25	M18	M12	3.8
	SLA32-125	32	125	72	63	30	M20	M12	4.4
	SLA40-135	40	135	80	73	32	M20	M12	5.2

Spare Part **E91**

• Through coolant system is installed

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

SK-SLA

Side Lock Arbor



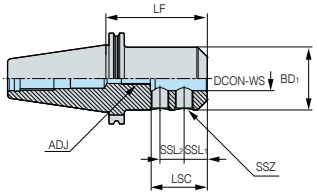


Fig. 1

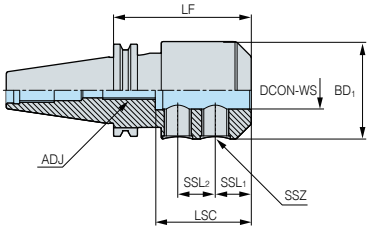


Fig. 2

(mm)

Designation		DCON-WS	LF	BD_1	LSC	SSL_1	SSL_2	SSZ	ADJ	Fig.	kg
SK40-	SLA16-75	16	75	48	49	24	-	M14	M12	1	1.4
	SLA20-75	20	75	52	51	25	-	M16	M12	1	1.5
	SLA25-95	25	95	65	59	24	25	M18	M12	2	2.1
	SLA32-105	32	105	72	63	24	28	M20	M12	2	2.8
SK50-	SLA16-90	16	90	48	49	24	-	M14	M12	1	3.5
	SLA20-90	20	90	52	51	25	-	M16	M12	1	3.6
	SLA25-105	25	105	65	59	24	25	M18	M12	1	4.5
	SLA32-120	32	120	72	63	24	28	M20	M12	1	5.2
	SLA40-120	40	120	80	73	30	32	M20	M12	1	5.6

Spare Part **E92**

• Through coolant system is not available

Parts

Basic				For separate purchase	
Division	Set screw		Adjust screw	Wrench	
Parts / Designation					
	BT Type	HSK Type		BT Type	HSK Type
SLA16	BTF1010	BTF1414-1.5	M1230C	LW-5	LW-6
SLA20	BTF1212-1.5	BTF1616-1.5		LW-6	LW-8
SLA25	BTF1212-1.5	BTF1818-1.5		LW-6	LW-8
SLA32	BTF1414-1.5	BTF2020-1.5		LW-6	LW-10
SLA40	BTF1624-1.5	BTF2020-1.5		LW-8	LW-10
SLA42	BTF1624-1.5	BTF2020-1.5		LW-8	LW-10

SK-MTA

Morse Taper Arbor



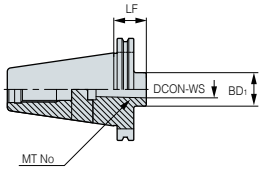


Fig. 1

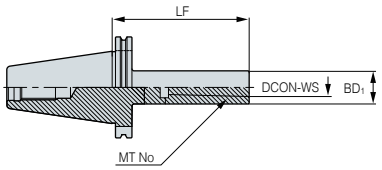


Fig. 2

(mm)

Designation		MT No.	LF	DCON-WS	BD_1	Fig.	kg
SK50-	MTA3-45	3	45	23.825	40	1	2.7
	MTA3-150	3	150	23.825	40	2	3.6
	MTA4-75	4	75	31.267	50	1	2.9

• Through coolant system is not available

BT-FMA

Face Mill Arbor



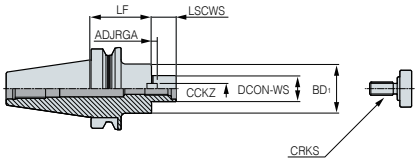


Fig. 1

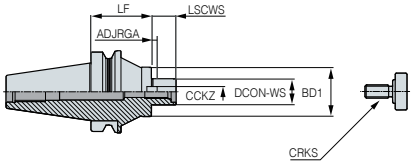


Fig. 2

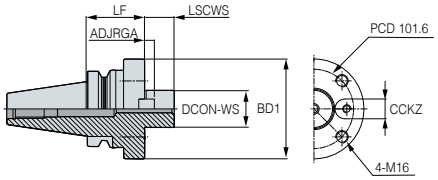


Fig. 3

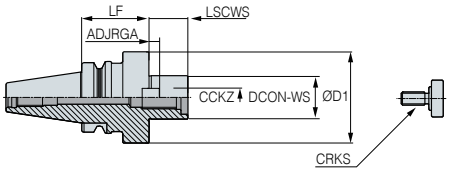


Fig. 4

(mm)

Designation		DCX	DCON-WS	LF	BD1	LSCWS	CCKZ	ADJRGA	CRKS/MBCB	Fig.	kg
BT30-	**FMA25.4-45**	80	25.4	45	50	22	9.5	5	M12	4	1.0
BT40-	**FMA25.4-45**	80	25.4	45	50	22	9.5	5	M12	1	1.4
	FMA25.4-90	80	25.4	90	50	22	9.5	5	M12	1	2.2
	FMA31.75-45	100	31.75	45	60	30	12.7	7	M16	1	1.6
	FMA31.75-75	100	31.75	75	60	30	12.7	7	M16	1	2.2
	FMA31.75-90	100	31.75	90	60	30	12.7	7	M16	1	2.5
	FMA38.1-60	125	38.1	60	80	34	15.87	9	M20	4	2.6
BT50-	**FMA25.4-45**	80	25.4	45	50	22	9.5	5	M12	1	4.0
	FMA25.4-90	80	25.4	90	50	22	9.5	5	M12	1	4.7
	FMA25.4-150	80	25.4	150	50	22	9.5	5	M12	2	6.4
	FMA31.75-45	100	31.75	45	60	30	12.7	7	M16	1	4.1
	FMA31.75-75	100	31.75	75	60	30	12.7	7	M16	1	4.8
	FMA31.75-105	100	31.75	105	60	30	12.7	7	M16	2	5.6
	FMA38.1-45	125	38.1	45	80	34	15.87	9	M20	1	4.4
	FMA38.1-75	125	38.1	75	80	34	15.87	9	M20	1	5.6
	FMA50.8-45	160	50.8	45	100	36	19.05	10	M24	1	4.9
	FMA50.8-75	160	50.8	75	100	36	19.05	10	M24	1	6.8
	FMA47.625-75	200	47.625	75	128	38	25.4	12.5	-	3	8.3

Spare Part **E95**

• Through coolant system is not available

NT-FMA

Face Mill Arbor



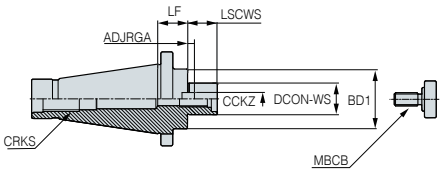


Fig. 1

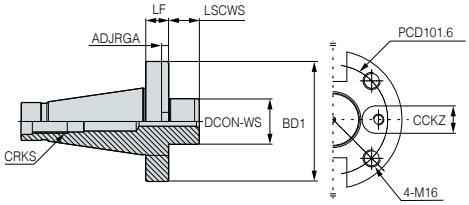


Fig. 1

(mm)

Designation		DCX	DCON-WS	LF	BD_1	LSCWS	MBCB	CCKZ	ADJRGA	CRKS	Fig.	kg
NT40-	FMA25.4-25	80	25.4	25	50	22	M12	9.5	5	M16	1	1.1
	FMA31.75-25	100	31.75	25	60	30	M16	12.7	7	M16	1	1.3
	FMA38.1-25	125	38.1	25	80	34	M20	15.87	9	M16	1	1.8
	FMA50.8-25	160	50.8	25	100	36	M24	19.05	10	M16	1	2.8
NT50-	FMA25.4-25	80	25.4	23.2	50	22	M12	9.5	5	M24	1	3.1
	FMA31.75-30	100	31.75	26.2	60	30	M16	12.7	7	M24	1	3.3
	FMA38.1-30	125	38.1	25.2	80	34	M20	15.87	9	M24	1	3.6
	FMA50.8-30	160	50.8	27.2	100	36	M24	19.05	10	M24	1	4.2
	FMA47.625-25	200	47.625	27.2	128	38	-	25.4	12.5	M24	2	5.3

Spare Part **E95**

• Through coolant system is not available

Parts

	Basic				For separate purchase
Division	Key	Key Bolt	Mount Bolt	Clamp Bolt	Wrench
Parts / Designation					
FMA25.4	K9.5	BX0412	MBA-M12	BX1230	LW-10
FMA31.75	K12.7	BX0515	MBA-M16	-	LW-14
FMA38.1	K15.87	BX0616	MBA-M20	-	LW-17
FMA50.8	K19.05	BX0820	MBA-M24	-	
FMA47.625	K25.4	BX1020	-	BX1645	

BT-FMC

Face Mill Arbor



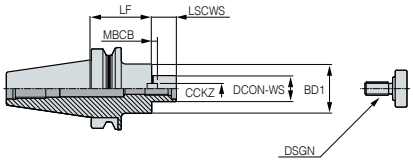


Fig 1

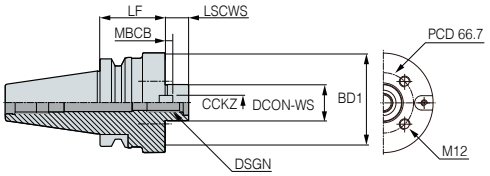


Fig 2

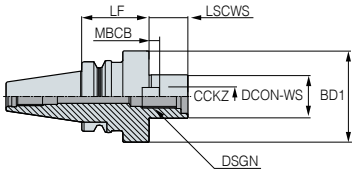


Fig 3

(mm)

Designation		DCX	DCON-WS	LF	BD_1	LSCWS	CCKZ	MBCB	DSGN	Fig.	kg
BT30-	**FMC16-45**	40	16	45	38	17	8	5.0	M8	1	0.7
	FMC22-45	50/63	22	45	48	19	10	5.6	M10	2	0.8
	FMC27-50	80	27	50	60	21	12	6.3	M12	2	1.0
BT40-	**FMC16-60**	40	16	60	38	17	8	5.0	M8	1	1.3
	FMC22-45	50/63	22	45	48	19	10	5.6	M10	1	1.3
	FMC22-90	50/63	22	90	48	19	10	5.6	M10	1	1.9
	FMC27-60	80	27	60	60	21	12	6.3	M12	1	1.8
	FMC27-90	80	27	90	60	21	12	6.3	M12	1	2.4
	FMC32-60	100	32	60	78	24	14	7.0	M16	2	2.1
	FMC40-50	125/160	40	50	89	27	15.87	8.0	M20	3	2.3
BT50-	**FMC16-60**	40	16	60	38	17	8	5.0	M8	1	3.9
	FMC22-60	50/63	22	60	48	19	10	5.6	M10	1	4.1
	FMC27-40	80	27	40	60	21	12	6.3	M12	1	3.8
	FMC27-90	80	27	90	60	21	12	6.3	M12	1	4.8
	FMC27-150	80	27	150	60	21	12	6.3	M12	1	6.1
	FMC32-45	100	32	45	78	24	14	7.0	M16	1	4.1
	FMC32-75	100	32	75	78	24	14	7.0	M16	1	5.2
	FMC32-105	100	32	105	78	24	14	7.0	M16	1	6.3
	FMC40-50	125/160	40	50	89	27	15.87	8.0	M20	2	4.6

Spare Part **E98**

• Through coolant system is not available

HSK-FMC

Face Mill Arbor



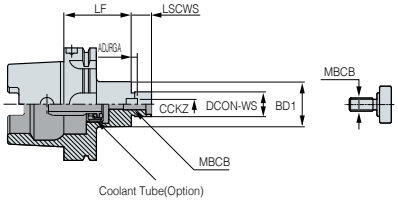


Fig 1

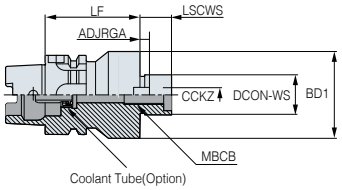


Fig 2

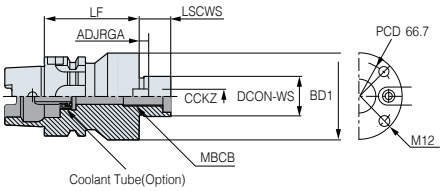


Fig 3

(mm)

Designation		DCX	DCON-WS	LF	BD_1	LSCWS	CCKZ	ADJRGA	MBCB	Fig.	kg
HSK50A-	**FMC16-40**	40	16	40	38	17	8	5.0	M8	1	0.4
	FMC22-50	50/63	22	50	48	19	10	5.6	M10	1	0.8
HSK63A-	**FMC16-50**	40	16	50	38	17	8	5.0	M8	1	0.9
	FMC22-50	50/63	22	50	48	19	10	5.6	M10	1	1.1
	FMC27-60	80	27	60	60	21	12	6.3	M12	1	1.4
	FMC32-60	100	32	60	78	24	14	7.0	M16	2	1.7
	FMC40-60	125/160	40	60	89	27	15.87	8.0	M20	3	2.5

Spare Part **E98**

• Internal coolant system is optional

SK-FMC

Face Mill Arbor



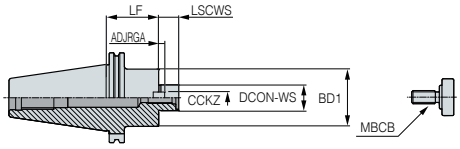


Fig 1

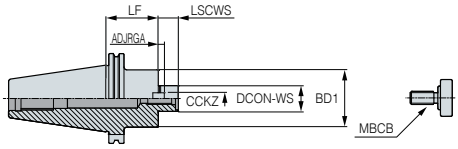


Fig 2

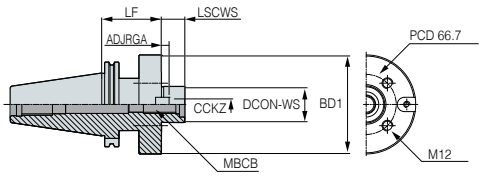


Fig 3

(mm)

Designation		DCX	DCON-WS	LF	BD_1	LSCWS	CCKZ	ADJRGA	MBCB	Fig.	kg
SK30-	FMC16-60	40	16	60	38	17	8	5	M8	1	0.8
	FMC22-50	50/63	22	50	48	19	10	5.6	M10	2	0.8
	FMC27-55	80	27	55	60	21	12	6.3	M12	2	1.1
SK40-	FMC16-55	40	16	55	38	17	8	5	M8	1	1.2
	FMC22-55	50/63	22	55	48	19	10	5.6	M10	1	1.4
	FMC27-60	80	27	60	60	21	12	6.3	M12	2	1.6
	FMC32-60	100	32	60	78	24	14	7	M16	2	2.2
	FMC40-50	125/160	40	50	89	27	15.87	8	M20	3	2.3
SK50-	FMC16-60	40	16	60	38	17	8	5	M8	1	2.9
	FMC22-60	50/63	22	60	48	19	10	5.6	M10	1	3.2
	FMC27-40	80	27	40	60	21	12	6.3	M12	1	3.2
	FMC32-45	100	32	45	78	24	14	7	M16	1	3.7
	FMC40-50	125/160	40	50	89	27	15.87	8	M20	3	4.2

Spare Part **E98**

• Through coolant system is not available

Parts

Basic				
Division	Key	Key Bolt	Mount Bolt	Clamp Bolt
Parts / Designation				
FMC16	K8.0	BX0310	-	BX0830
FMC22	K10.0	BX0412	-	BX1030
FMC27	K12.0	BX0516	MBA-M12	BX1230
FMC32	K14.0	BX0616	MBA-M16	-
FMC40	K15.87	BX0616	MBA-M20	BX1230

For separate purchase				
Division	Wrench	Division	Coolant Tube for HSK	Wrench
Parts / Designation		Parts / Designation		
FMC16	LW-6	HSK50A	HSK50A-CNS	HSK50-WRENCH(C)
FMC22	LW-8	HSK63A	HSK63A-CNS	HSK63-WRENCH(C)
FMC27	LW-10			
FMC32	LW-14			
FMC40	LW-17			

DBT-MD

Modular Arbor

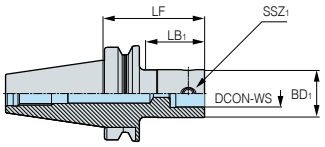


Fig. 1

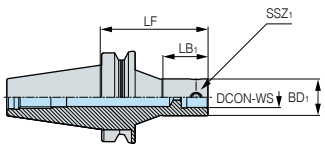


Fig. 2

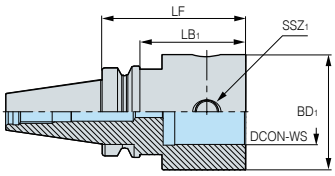


Fig. 3

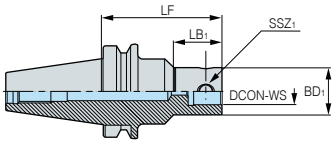


Fig. 4

(mm)

Designation		DCON-WS	LF	BD_1	LB_1	SSZ_1	Fig.	kg
DBT30-	**MD19F-70R**	11	70	19	27	M5	4	0.5
	MD25F-90R	14	90	25	43	M6	4	0.6
	MD32F-80R	18	80	32	39	M8	4	0.7
	MD40F-45	22	45	40	23	M10	1	0.5
	MD40F-80R	22	80	40	49	M10	4	0.8
	MD50F-70	28	70	50	40	M12	3	0.9
DBT40-	**MD19F-70**	11	70	19	43	M5	1	1.0
	MD25F-95	14	95	25	68	M6	1	1.1
	MD25F-105R	14	105	25	40	M6	2	1.2
	MD32F-100	18	100	32	73	M8	1	1.2
	MD32F-115R	18	115	32	45	M8	2	1.5
	MD40F-50	22	50	40	23	M10	1	1.2
	MD40F-110R	22	110	40	60	M10	2	1.6
	MD40F-115	22	115	40	88	M10	1	1.6
	MD50F-100R	28	100	50	60	M12	2	1.8
	MD50F-105	28	105	50	78	M12	1	1.9
	MD63F-64	36	64	63	37	M16	3	1.5
	MD63F-90	36	90	63	63	M16	3	2.1
	MD63F-110	36	110	63	83	M16	3	2.5
	MD80F-100	45	100	80	73	M16	3	2.9

• Through coolant system is installed

DBT-MD

Modular Arbor

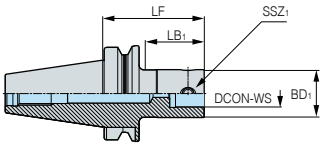


Fig. 1

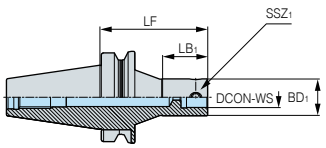


Fig. 2

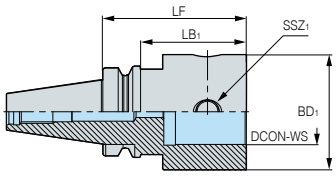


Fig. 3

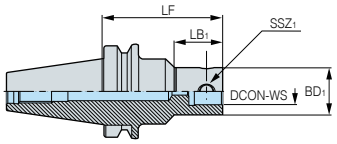


Fig. 4

(mm)

Designation		DCON-WS	LF	BD_1	LB_1	SSZ_1	Fig.	kg
DBT50-	MD19F-85	11	85	19	45	M5	1	3.7
	MD19F-100	11	100	19	60	M5	1	3.8
	MD25F-105	14	105	25	64	M6	1	3.9
	MD25F-120R	14	120	25	40	M6	2	4.0
	MD32F-110	18	110	32	67	M8	1	4.1
	MD32F-115R	18	115	32	45	M8	2	4.2
	MD32F-235R	18	235	32	115	M8	2	5.5
	MD40F-60	22	60	40	22	M10	1	3.7
	MD40F-125R	22	125	40	59	M10	2	4.3
	MD40F-145	22	145	40	102	M10	1	4.5
	MD40F-195R	22	195	40	83	M10	4	4.8
	MD40F-230R	22	230	40	180	M10	2	5.0
	MD50F-125	28	125	50	82	M12	1	4.6
	MD50F-160R	28	160	50	61	M12	2	5.8
	MD50F-225R	28	225	50	125	M12	4	6.0
	MD50F-250R	28	250	50	81	M12	2	7.0
	MD63F-75	36	75	63	35	M16	1	4.2
	MD63F-130	36	130	63	87	M16	1	5.3
	MD63F-140	36	140	63	97	M16	1	5.5
	MD63F-140R	36	140	63	70	M16	2	5.7
	MD63F-195R	36	195	63	120	M16	4	6.8
	MD63F-230R	36	230	63	149	M16	4	7.5
	MD63F-240R	36	240	63	190	M16	2	7.8
	MD80F-75	45	75	80	36	M16	1	4.4
	MD80F-110	45	110	80	69	M16	1	5.8
	MD80F-160	45	160	80	119	M16	1	8.0
	MD90F-75	45	75	90	37	M16	1	4.8
	MD90F-145	45	145	90	107	M16	1	7.4

• Through coolant system is installed

BT-MD

Modular Arbor



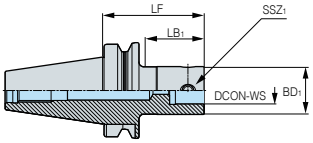


Fig. 1

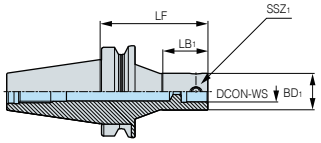


Fig. 2

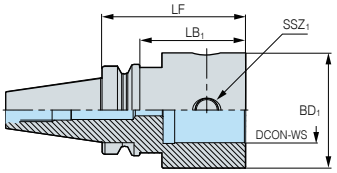


Fig. 3

(mm)

Designation		DCON-WS	LF	BD_1	LB_1	SSZ_1	Fig.	kg
BT30-	**MD19F-70**	11	70	19	45	M5	1	0.5
	MD25F-90	14	90	25	63	M6	1	0.6
	MD32F-80	18	80	32	55	M8	1	0.7
	MD40F-45	22	45	40	22	M10	1	0.5
	MD40F-60	22	60	40	36	M10	1	0.7
	MD40F-80	22	80	40	56	M10	1	0.9
	MD50F-70	28	70	50	48	M12	3	0.9
BT40-	**MD19F-70**	11	70	19	40	M5	1	1.0
	MD25F-95	14	95	25	63	M6	1	1.1
	MD25F-105R	14	105	25	40	M6	2	1.2
	MD32F-100	18	100	32	70	M8	1	1.2
	MD32F-115R	18	115	32	45	M8	2	1.5
	MD40F-60	22	60	40	31	M10	1	1.1
	MD40F-110R	22	110	40	60	M10	2	1.6
	MD40F-115	22	115	40	83	M10	1	1.6
	MD50F-60	28	60	50	33	M12	1	1.3
	MD50F-100R	28	100	50	50	M12	2	1.8
	MD50F-105	28	105	50	73	M12	1	1.8
	MD63F-64	36	64	63	37	M16	3	1.5
	MD63F-90	36	90	63	63	M16	3	2.0
	MD63F-110	36	110	63	83	M16	3	2.4
	MD63F-135	36	135	63	108	M16	3	3.0
	MD80F-100	45	100	80	73	M16	3	2.9

• Through coolant system is installed

BT-MD

Modular Arbor



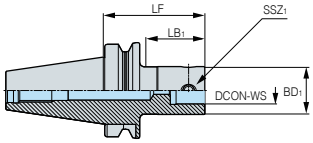


Fig. 1

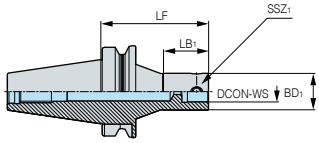


Fig. 2

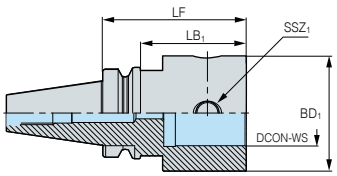


Fig. 3

(mm)

Designation		DCON-WS	LF	BD1	LB1	SSZ1	Fig.	kg
BT50-	MD19F-85	11	85	19	44	M5	1	3.7
	MD19F-100	11	100	19	62	M5	1	3.7
	MD25F-105	14	105	25	62	M6	1	3.8
	MD25F-120R	14	120	25	40	M6	2	3.8
	MD32F-110	18	110	32	67	M8	1	4.0
	MD32F-115R	18	115	32	45	M8	2	4.1
	MD32F-235R	18	235	32	115	M8	2	5.5
	MD40F-60	22	60	40	22	M10	1	3.7
	MD40F-125R	22	125	40	59	M10	2	3.8
	MD40F-145	22	145	40	107	M10	1	4.3
	MD40F-195	22	195	40	152	M10	1	4.8
	MD40F-230R	22	230	40	180	M10	2	5.0
	MD50F-125	28	125	50	82	M12	1	4.6
	MD50F-160R	28	160	50	61	M12	2	5.7
	MD50F-225	28	225	50	182	M12	1	6.0
	MD50F-250R	28	250	50	81	M12	2	7.0
	MD63F-75	36	75	63	35	M16	1	4.2
	MD63F-130	36	130	63	87	M16	1	5.3
	MD63F-140	36	140	63	92	M16	1	5.5
	MD63F-140R	36	140	63	80	M16	2	5.7
	MD63F-195	36	195	63	152	M16	1	6.8
	MD63F-230	36	230	63	187	M16	1	7.5
	MD63F-240R	36	240	63	190	M16	2	7.8
	MD80F-75	45	75	80	36	M16	1	4.3
	MD80F-110	45	110	80	69	M16	1	5.7
	MD80F-175	45	175	80	134	M16	1	8.0
	MD90F-75	45	75	90	36	M16	1	4.8
	MD90F-145	45	145	90	104	M16	1	7.4
	MD90F-195	45	195	90	154	M16	1	9.4

• Through coolant system is installed

HSK-MD

Modular Arbor



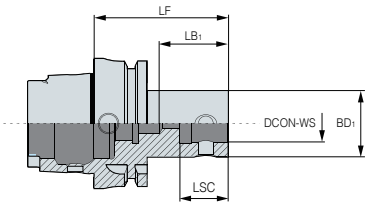


Fig. 1

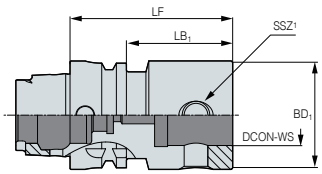


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	LB1	LSC	SSZ1	Fig.	kg
HSK63A-	MD19F-60	11	60	19	31	15.5	M5	1	0.7
	MD25F-60	14	60	25	31	18.5	M6	1	0.7
	MD32F-65	18	65	32	36	23.5	M8	1	0.8
	MD40F-70	22	70	40	41	29	M10	1	0.9
	MD50F-85	28	85	50	58	36	M12	1	1.3
	MD63F-95	36	95	63	69	46	M16	2	1.7
HSK100A-	MD19F-60	11	60	19	19	15.5	M5	1	2.1
	MD25F-60	14	60	25	20	18.5	M6	1	2.1
	MD32F-65	18	65	32	26	23.5	M8	1	2.1
	MD40F-70	22	70	40	38	29	M10	1	2.3
	MD50F-80	28	80	50	48	36	M12	1	2.6
	MD63F-90	36	90	63	58	46	M16	1	3
	MD80F-105	45	105	80	73	57	M16	1	4.2
	MD90F-105	45	105	90	76	57	M16	1	4.7

• Through coolant system installed

Parts

For separate purchase		
Division	Clamp bolt	Wrench
Designation \ Parts		
HSK63A	HSK63A-CNS	HSK63-WRENCHI(C)
HSK100A	HSK100A-CNS	HSK100-WRENCHI(C)

SK-MD

Modular Arbor



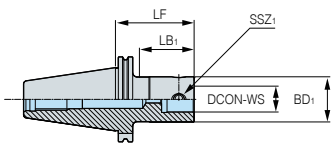


Fig. 1

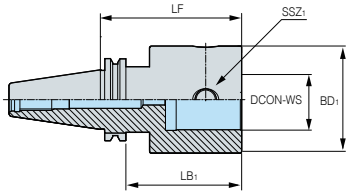


Fig. 2

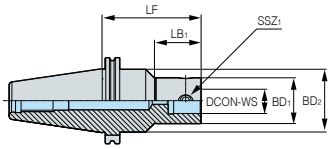


Fig. 3

(mm)

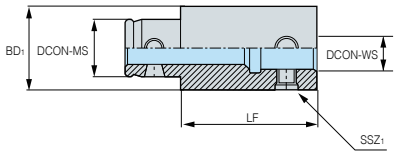
Designation		DCON-WS	LF	BD_1	BD_2	LB_1	SSZ_1	Fig.	kg
SK40-	MD19F-80R	11	80	19	30	12	M5	3	1.0
	MD25F-80R	14	80	25	35	22	M6	3	1.1
	MD32F-115R	18	115	32	42	36	M8	3	1.5
	MD40F-60	22	60	40	-	40	M10	1	1.1
	MD40F-100	22	100	40	-	79	M10	1	1.4
	MD50F-75	28	75	50	-	55	M10	1	1.5
	MD50F-100	28	100	50	-	80	M12	1	1.8
	MD63F-70	36	70	63	-	50	M16	2	1.4
SK50-	MD19F-85R	11	85	19	40	12	M5	3	3.0
	MD25F-80R	14	80	25	44	22	M6	3	3.1
	MD25F-105R	14	105	25	44	22	M6	3	3.3
	MD32F-110	18	110	32	-	87	M8	1	3
	MD32F-110R	18	110	32	50	36	M8	3	3.5
	MD40F-100	22	100	40	-	75	M10	1	3.2
	MD40F-145	22	145	40	-	120	M10	1	3.5
	MD40F-220R	22	220	40	60	83	M10	3	5.6
	MD50F-125R	28	125	50	65	60	M12	3	4.3
	MD50F-240R	28	240	50	65	125	M12	3	6.6
	MD63F-75	36	75	63	-	52	M16	1	3.6
	MD63F-130	36	130	63	-	107	M16	1	4.7
	MD63F-230R	36	230	63	80	149	M16	3	7.9
	MD80F-95	45	95	80	-	75	M16	1	4.8
	MD80F-150	45	150	80	-	130	M16	1	6.8
	MD90F-115	45	115	90	-	95	M16	2	6.3
	MD90F-165	45	165	90	-	145	M16	2	8.1

• Through coolant system installed

EXT

Extension Bar





(mm)

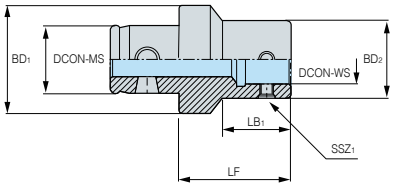
Designation		DCON-MS	LF	BD1	DCON-WS	SSZ1	kg
EXT	1930F	11	30	19	11	M5	0.1
	1950F	11	50	19	11	M5	0.1
	2530F	14	30	25	14	M6	0.1
	2550F	14	50	25	14	M6	0.2
	3235F	18	35	32	18	M8	0.2
	3260F	18	60	32	18	M8	0.4
	4040F	22	40	40	22	M10	0.4
	4090F	22	90	40	22	M10	0.9
	5050F	28	50	50	28	M12	0.7
	50100F	28	100	50	28	M12	1.4
	6360F	36	60	63	36	M16	1.4
	63120F	36	120	63	36	M16	2.9
	8070F	45	70	80	45	M16	2.5
	80120F	45	120	80	45	M16	4.5
	9080F	45	80	90	45	M16	3.8
	90130F	45	130	90	45	M16	6.4

• Through coolant system is installed

RDC

Reducer Bar





(mm)

Designation		DCON-MS	LF	BD1	DCON-WS	BD2	LB1	SSZ1	kg
RDC	3225F	18	30	32	14	25	17.25	M6	0.1
	4025F	22	30	40	14	25	16.53	M6	0.3
	4032F	22	30	40	18	32	18.55	M8	0.2
	5025F	28	30	50	14	25	16.36	M6	0.3
	5032F	28	40	50	18	32	21.75	M8	0.3
	5040F	28	40	50	22	40	24.75	M10	0.5
	6325F	36	30	63	14	25	15.84	M6	0.6
	6332F	36	40	63	18	32	29.62	M8	0.6
	6340F	36	40	63	22	40	26.85	M10	0.7
	6350F	36	45	63	28	50	33.19	M12	0.9
	8040F	45	40	80	22	40	24.57	M10	1.2
	8050F	45	45	80	28	50	30.91	M12	1.3
	8063F	45	50	80	36	63	34.66	M16	1.6

• Through coolant system is installed

FBH back boring & balanced type

FBH/B

- Capable of high-speed boring and backboring
- High precision balancing machining: G2.5, Head G6.3
- Minimum adjustment range: 2㎛



Code system

FBH	32	-	33	B
Fine boring head	MD Arbor Size		Boring Range (Min)	Balance Type

Back Boring Range Calculation



- A: Boring range (Ø)
- B: FBH/B body size (Ø)
- C: Diameter for pass (Ø)

Designation	Min.Diameter for Pass(Ø) 'C'
FBH1920B	Ø24above
FBH2526B	Ø30.5above
FBH3233B	Ø35above
FBH4042B	Ø44above
FBH5053B	Ø54above
FBH6368B	Ø71.5above
FBH6398B	Ø100above
FBH8098B	Ø100above

A	Max. Range of Back Boring (Ø)	A Max. Value = [2xC]-B
B	Max. FBH Body Size (Ø)	B Max. Value = [2xC]-A
C	Min. Diameter for Pass (Ø)	C Min. Value = [A+B]/2

Vernier Scale Adjustment Method

- Fine Adjustment : 2μm Boring Range
- Can be adjusted at a rate of 2μm by using the main scale and vernier scale

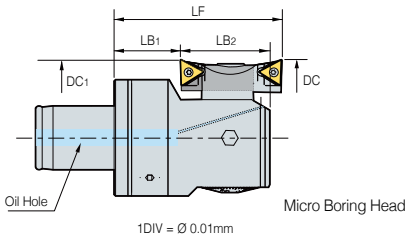


Initial Location | 0.002 Adjustment Location | 0.004 Adjustment Location



0.006 Adjustment Location | 0.008 Adjustment Location | 0.010 Adjustment Location

Boring Range



Designation	Boring Range(DC)			Backboring Range(DC1)			
	Min.	Max.	LF	Min.	Max.	LB1	LB2
FBH1920B	20	26(30)	35.3	29	30	13.1	18.6
FBH2526B	26	34(40)	40.9	36	40	15.1	21.9
FBH3233B	33	43(50)	40.9	38	46(50)	13.1	24.9
FBH4042B	42	54(62)	50.4	48	54(62)	15.2	31.4
FBH5053B	53	70(82)	58.4	58	70(82)	15.7	38.4
FBH6368B	68	100(122)	80.6	78	100(122)	27.4	48.6
FBH6398B	98	150(172)	100.6	106	150(172)	47.4	48.6
FBH8098B	98	150(172)	100.6	106	150(172)	47.4	48.6

BT-FBH/B

Micro Boring Bar(Balanced Type)



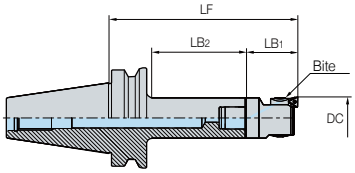


Fig. 1

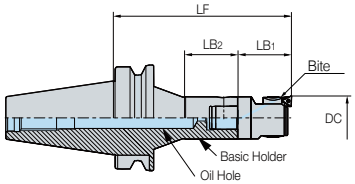


Fig. 2

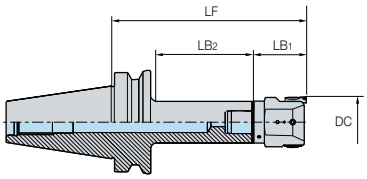
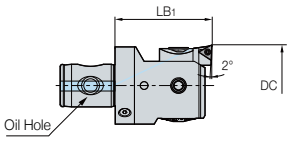


Fig. 3



Head

(mm)

Designation			Boring Range(DC)		DC	LF	LB_1	LB_2	kg	Fig.
Head Designation	Bite Designation	Arbor Designation	Min.	Max.						
FBH1920B	FBB20N-□-□□	BT30-MD19F-70	20(24)	26(30)	19	105	35	45	0.2	1
FBH2526B	FBB26N-□-□□	BT30-MD25F-90	26(32)	34(40)	25	131	41	63	0.2	1
FBH3233B	FBB33N-□-□□	BT30-MD32F-80	33(40)	43(50)	32	121	41	55	0.3	1
FBH4042B	FBB42N-□-□□	BT30-MD40F-45	42(50)	54(62)	40	95	50	22	0.5	1
FBH4042B	FBB42N-□-□□	BT30-MD40F-60	42(50)	54(62)	40	110	50	36	0.5	1
FBH4042B	FBB42N-□-□□	BT30-MD40F-80	42(50)	54(62)	40	130	50	56	0.5	1
FBH5053B	FBB53N-□-□□	BT30-MD50F-70	53(65)	70(82)	50	128	58	47	0.8	1
FBH1920B	FBB20N-□-□□	BT40-MD19F-70	20(24)	26(30)	19	105	35	40	0.2	1
FBH2526B	FBB26N-□-□□	BT40-MD25F-95	26(32)	34(40)	25	136	41	63	0.2	1
FBH2526B	FBB26N-□-□□	BT40-MD25F-105R	26(32)	34(40)	25	146	41	40	0.2	2
FBH3233B	FBB33N-□-□□	BT40-MD32F-100	33(40)	43(50)	32	141	41	70	0.3	1
FBH3233B	FBB33N-□-□□	BT40-MD32F-115R	33(40)	43(50)	32	156	41	45	0.3	2
FBH4042B	FBB42N-□-□□	BT40-MD40F-60	42(50)	54(62)	40	110	50	31	0.5	1
FBH4042B	FBB42N-□-□□	BT40-MD40F-110R	42(50)	54(62)	40	160	50	60	0.5	2
FBH4042B	FBB42N-□-□□	BT40-MD40F-115	42(50)	54(62)	40	165	50	83	0.5	1
FBH5053B	FBB53N-□-□□	BT40-MD50F-105	53(65)	70(82)	50	163	58	73	0.8	1
FBH6368B	FBB68N-□-□□	BT40-MD63F-64	68(90)	100(122)	63	145	81	37	2.1	3
FBH6368B	FBB68N-□-□□	BT40-MD63F-110	68(90)	100(122)	63	191	81	83	2.1	3
FBH6368B	FBB68N-□-□□	BT40-MD63F-135	68(90)	100(122)	63	216	81	108	2.1	3
FBH6398B	FBB68N-□-□□	BT40-MD63F-64	98(120)	150(172)	63	165	101	37	3.6	3
FBH6398B	FBB68N-□-□□	BT40-MD63F-110	98(120)	150(172)	63	211	101	83	3.6	3
FBH6398B	FBB68N-□-□□	BT40-MD63F-135	98(120)	150(172)	63	236	101	108	3.6	3
FBH8098B	FBB68N-□-□□	BT40-MD80F-100	98(120)	150(172)	80	201	101	73	4.8	3

Spare Part **E109** FBB bite **E116**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

BT-FBH/B

Micro Boring Bar(Balanced Type)



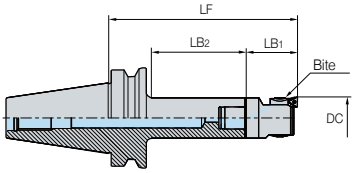


Fig. 1

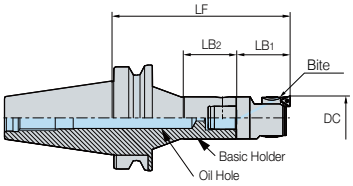


Fig. 2

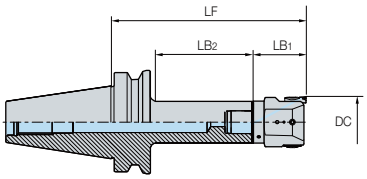
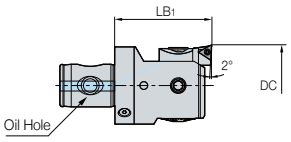


Fig. 3



Head

(mm)

Designation			Boring Range(DC)		DC	DC1	LF	LB1	LB2	kg	Fig.
Head Designation	Bite Designation	Arbor Designation	Min.	Max.							
FBH1920B	FBB20N-□-□□	BT50-MD19F-85	20(24)	26(30)	19	11	120.2	35.2	44	0.2	1
FBH2526B	FBB26N-□-□□	BT50-MD25F-105	26(32)	34(40)	25	14	146	41	62	0.2	1
FBH2526B	FBB26N-□-□□	BT50-MD25F-120R	26(32)	34(40)	25	14	161	41	40	0.2	2
FBH3233B	FBB33N-□-□□	BT50-MD32F-110	33(40)	43(50)	32	18	151	41	67	0.3	1
FBH3233B	FBB33N-□-□□	BT50-MD32F-115R	33(40)	43(50)	32	18	156	41	45	0.3	2
FBH3233B	FBB33N-□-□□	BT50-MD32F-235R	33(40)	43(50)	32	18	276	41	115	0.3	2
FBH4042B	FBB42N-□-□□	BT50-MD40F-60	42(50)	54(62)	32	18	110.5	50.5	22	0.5	1
FBH4042B	FBB42N-□-□□	BT50-MD40F-195	42(50)	54(62)	40	22	245.5	50.5	152	0.5	1
FBH4042B	FBB42N-□-□□	BT50-MD40F-230R	42(50)	54(62)	40	22	280.5	50.5	180	0.5	2
FBH5053B	FBB53N-□-□□	BT50-MD50F-125	53(65)	70(82)	40	22	183.5	58.5	82	0.8	1
FBH5053B	FBB53N-□-□□	BT50-MD50F-225	53(65)	70(82)	50	28	283.5	58.5	182	0.8	1
FBH5053B	FBB53N-□-□□	BT50-MD50F-205R	53(65)	70(82)	50	28	263.5	58.5	81	0.8	2
FBH6368B	FBB68N-□-□□	BT50-MD63F-75	68(90)	100(122)	63	36	145.6	80.6	35	2.1	1
FBH6368B	FBB68N-□-□□	BT50-MD63F-130	68(90)	100(122)	63	36	210.6	80.6	87	2.1	1
FBH6368B	FBB68N-□-□□	BT50-MD63F-195	68(90)	100(122)	63	36	275.6	80.6	152	2.1	1
FBH6368B	FBB68N-□-□□	BT50-MD63F-230	68(90)	100(122)	63	36	310.6	80.6	187	2.1	1
FBH6398B	FBB68N-□-□□	BT50-MD63F-75	98(120)	150(172)	63	36	175.6	100.6	35	3.6	3
FBH6398B	FBB68N-□-□□	BT50-MD63F-130	98(120)	150(172)	63	36	230.6	100.6	87	3.6	3
FBH6398B	FBB68N-□-□□	BT50-MD63F-95	98(120)	150(172)	63	36	295.6	100.6	152	3.6	3
FBH6398B	FBB68N-□-□□	BT50-MD63F-230	98(120)	150(172)	63	36	330.6	100.6	187	3.6	3
FBH8098B	FBB68N-□-□□	BT50-MD80F-75	98(120)	150(172)	80	45	175.6	100.6	36	4.8	3
FBH8098B	FBB68N-□-□□	BT50-MD80F-110	98(120)	150(172)	80	45	215.6	100.6	69	4.8	3
FBH8098B	FBB68N-□-□□	BT50-MD80F-175	98(120)	150(172)	80	45	275.6	100.6	134	4.8	3

Spare Part **E109** FBB bite **E116**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

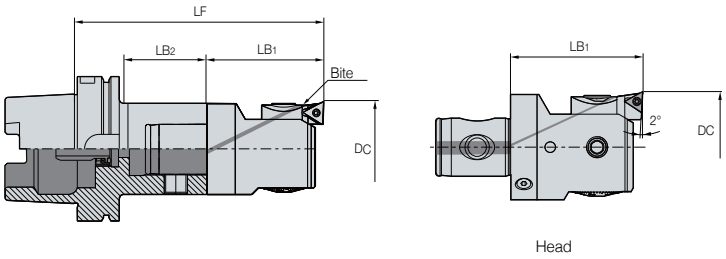
* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

HSK-FBH/B

Micro Boring Bar(Balanced Type)





(mm)

Designation			Boring Range(DC)		DC	DC1	LF	LB1	LB2	kg
Head Designation	Bite Designation	Arbor Designation	Min.	Max.						
FBH1920B	**FBB20N-□-□□**	**HSK63A-MD19F 60**	20(24)	26(30)	19	11	95.2	35.2	31	0.2
FBH2526B	**FBB26N-□-□□**	**HSK63A-MD25F 60**	26(32)	34(40)	25	14	101	41	31	0.2
FBH3233B	**FBB33N-□-□□**	**HSK63A-MD32F 65**	33(40)	43(50)	32	18	106	41	36	0.3
FBH4042B	**FBB42N-□-□□**	**HSK63A-MD40F 70**	42(50)	54(62)	40	22	120.5	50.5	41	0.5
FBH5053B	**FBB53N-□-□□**	**HSK63A-MD50F 85**	53(65)	70(82)	50	28	143.5	58.5	58	0.9
FBH6368B	**FBB68N-□-□□**	**HSK63A-MD63F 95**	68(90)	100(122)	63	36	175.6	80.6	69	2.3
FBH6398B	**FBB68N-□-□□**	**HSK63A-MD63F 95**	98(120)	150(172)	63	36	195.6	100.6	69	3.8

Spare Part **E109** FBB bite **E116**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

SK-FBH/B

Micro Boring Bar(Balanced Type)



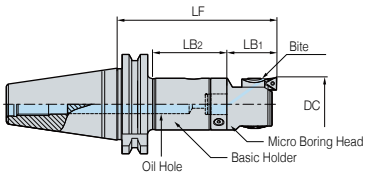


Fig. 1

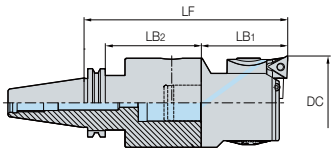


Fig. 2

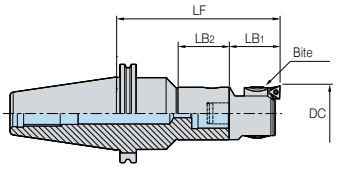
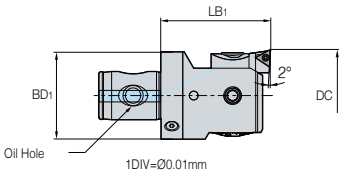


Fig. 3



Head

(mm)

Designation			Boring Range(DC)		DC	LF	LB1	LB2	kg	Fig.
Head Designation	Bite Designation	Arbor Designation	Min.	Max.						
FBH2526B	FBB26N-□-□□	SK40-MD25F-80R	26(32)	34(40)	25	121	41	22	0.2	3
FBH3233B	FBB33N-□-□□	SK40-MD32F-115R	33(40)	43(50)	32	156	41	36	0.3	3
FBH4042B	FBB42N-□-□□	SK40-MD40F-100	42(50)	54(62)	40	150	50	80	0.5	1
FBH5053B	FBB53N-□-□□	SK40-MD50F-100	53(65)	70(82)	50	158	58	80	0.9	1
FBH6368B	FBB68N-□-□□	SK40-MD63F-70	68(90)	100(122)	63	151	81	50	2.3	2
FBH6398B	FBB68N-□-□□	SK40-MD63F-70	98(120)	150(172)	63	171	101	50	3.8	2
FBH2526B	FBB26N-□-□□	SK50-MD25F-105R	26(32)	34(40)	25	146	41	22	0.2	3
FBH3233B	FBB33N-□-□□	SK50-MD32F-110	33(40)	43(50)	32	151	41	87	0.3	1
FBH4042B	FBB42N-□-□□	SK50-MD40F-145	42(50)	54(62)	40	195	50	120	0.5	1
FBH5053B	FBB53N-□-□□	SK50-MD50F-240R	53(65)	70(82)	50	298	58	125	0.9	3
FBH6368B	FBB68N-□-□□	SK50-MD63F-130	68(90)	100(122)	63	211	81	107	2.3	1
FBH6398B	FBB68N-□-□□	SK50-MD63F-130	98(120)	150(172)	63	231	101	107	3.8	1
FBH8098B	FBB68N-□-□□	SK50-MD80F-150	98(120)	150(172)	80	251	101	130	5.1	1

Spare Part **E110** FBB bite **E116**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

Parts

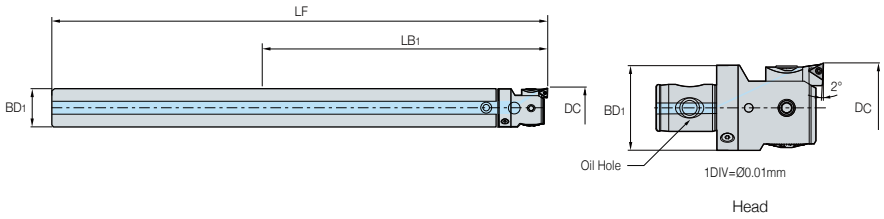
Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

S-FBH/B

Micro Boring Bar(Balanced Type)





(mm)

Designation	Boring Range(DC)		BD1	LF	LB1	Main Component			kg
	Min.	Max.				Shank	Boring Head	Bite	
S19W-FBH20B-120	20	26	19	192.35	120	S19W-MD19F-157	FBH1920B	FBB20N	0.6
S19W-FBH20B-140	20	26	19	212.35	140	S19W-MD19F-177	FBH1920B	FBB20N	0.7
S19W-FBH20B-160	20	26	19	232.35	160	S19W-MD19F-197	FBH1920B	FBB20N	0.8
S25W-FBH26B-150	26	34	25	238.35	150	S25W-MD25F-197.5	FBH2526B	FBB26N	1.4
S25W-FBH26B-175	26	34	25	263.35	175	S25W-MD25F-222.5	FBH2526B	FBB26N	1.6
S25W-FBH26B-200	26	34	25	288.35	200	S25W-MD25F-247.5	FBH2526B	FBB26N	1.8
S32W-FBH33B-180	33	43	32	279.9	180	S32W-MD32F-239	FBH3233B	FBB33N	2.7
S32W-FBH33B-240	33	43	32	339.9	240	S32W-MD32F-299	FBH3233B	FBB33N	3.4
S19-FBH20B-40	20	26	19	112.35	40	S19-MD19F-77	FBH1920B	FBB20N	0.2
S19-FBH20B-80	20	26	19	152.35	80	S19-MD19F-117	FBH1920B	FBB20N	0.2
S25-FBH26B-50	26	34	25	138.35	50	S25-MD25F-97.5	FBH2526B	FBB26N	0.4
S25-FBH26B-100	26	34	25	188.35	100	S25-MD25F-147.5	FBH2526B	FBB26N	0.6
S32-FBH33B-90	33	43	32	189.9	90	S32-MD32F-149	FBH3233B	FBB33N	1.1
S32-FBH33B-120	33	43	32	219.9	120	S32-MD32F-179	FBH3233B	FBB33N	1.2

Spare Part **E111** FBB bite **E116**

• S□□W : Cemented carbide shank, S□□ : Steel shank • Through coolant system is installed

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

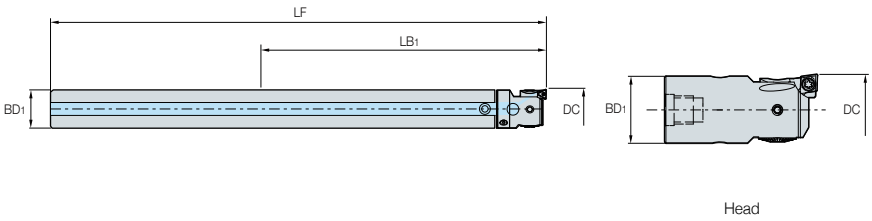
Parts

Main Component			
Type(FBH/B)	Lock Screw	Clamp Screw	Wrench
			
FBH1920B	BTF0404	BXC0304	LW-2
FBH2526B	BTF0505	BXC0405	LW-2.5
FBH3233B	BTF0606	BXC0506	LW-3
FBH4042B	BTF0808	BXC0610	LW-4
FBH5053B	BTF0812	BXC0610	LW-4
FBH6368B	BTF1016	BXC0810	LW-5
FBH6398B	BTF1012	BXC0810	LW-5
FBH8098B	BTF1014	BXC0810	LW-5

S-FBH

Small Micro boring bar with Carbide/Steel





(mm)

Designation	Boring Range(DC)		BD1	LF	LB1	Main Component			kg
	Min.	Max.				Shank	Boring Head	Bite	
S14W-FBH15-85	15	18	14	155	85	S14W-M6-123	FBH15	FBB15-C	0.3
S14W-FBH15-110	15	18	14	180	110	S14W-M6-148	FBH15	FBB15-C	0.3
S16W-FBH18-95	18	22	16	165	95	S16W-M8-128	FBH18	FBB15-C	0.4
S16W-FBH18-125	18	22	16	195	125	S16W-M8-158	FBH18	FBB15-C	0.5
S14-FBH15-40	15	18	14	110	40	S14-M6-78	FBH15	FBB15-C	0.1
S16-FBH18-45	18	22	16	115	45	S16-M8-78	FBH18	FBB15-C	0.1

Spare Part **E112** FBB bite **E116**

• S□□W : Cemented carbide shank, S□□ : Steel shank • Through coolant system is installed

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

Parts

Main Component			
Type(FBH)	Lock Screw	FBB	Clamp Screw
			
FBH15	BT02503	FBB15-C	BFTX02505N
FBH18	BT02503	FBB15-C	BFTX02505N

Micro boring bar(damping type)

FBH/D

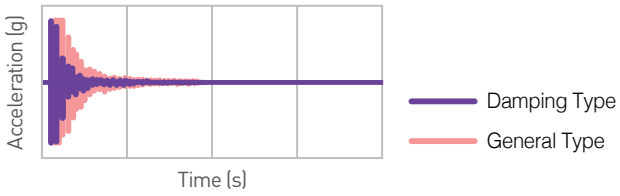


- Stable use on the deep holes is possible through the damping system (Max. 6D)
- Minimum diameter (ø26)-based 6D processing (Max. i nsertion depth L= 160mm)
- Tool life and the ability to bore difficult materials can be increased by reducing impact due to the damping effect
- Both internal and external coolants are available

Code system

FBH	25	-	26	D
Fine boring head	MD Arbo Size		Boring Range (Min)	D : Damping

Vibration Waveform Comparison



- 제품 내부에 방진 기구를 내장하여 떨림을 최소화 함

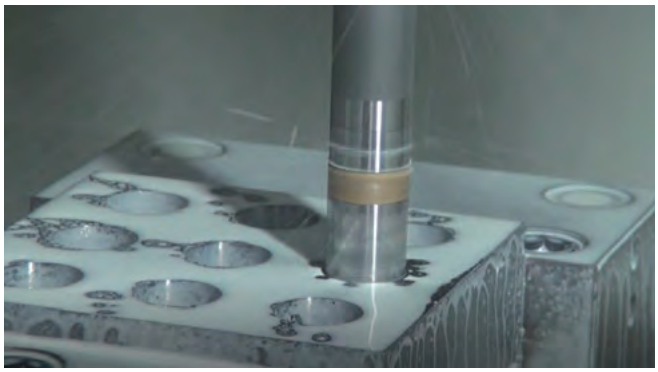
Precautions

- Performance may vary depending on conditions, so it is required to perform the work under the recommended conditions as much as possible.
- Inner oil supply Max. 60 bar
- Performance may decrease by arbitrary disassembly or impact.

※ The head and holder are integrated, so they cannot be disassembled.

Machining Conditions

Cutting Speed Vc (m/min)	150~200
Feed (mm/rev)	0.06~0.1
Depth of Cut (mm)	0.1 (One side)



General Boring Tool

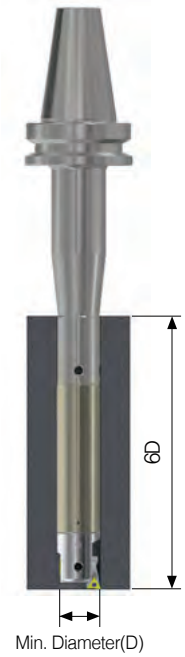


Insert damage or Severe shaking

Damping Boring Tool



Fine machining without vibration



BT-FBH/D

Micro boring bar(Damping type)

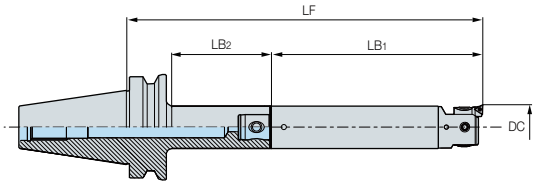


Fig. 1

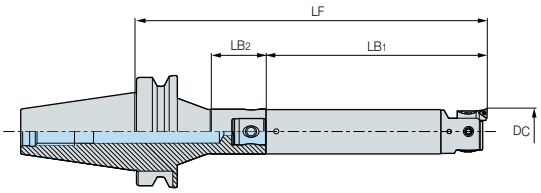
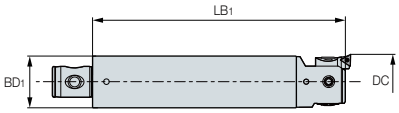


Fig. 2



Head

(mm)

Head Designation		Bite Designation	Arbor Designation	Boring Range(DC)		LF	LB1	LB2	BD1	Fig.	kg
				Min.	Max.						
BT40	FBH2526D	FBB26N-□-□□	BT40-MD25F-95	26(32)	34(40)	215	120	63	25	1	0.5
	FBH2526D	FBB26N-□-□□	BT40-MD25F-105R	26(32)	34(40)	225	120	40	25	2	0.5
BT50	FBH2526D	FBB26N-□-□□	BT50-MD25F-105	26(32)	34(40)	225	120	62	25	1	0.5
	FBH2526D	FBB26N-□-□□	BT50-MD25F-120R	26(32)	34(40)	240	120	40	25	2	0.5
	FBH2526D	FBB26N-□-□□	BT50-MD25F-165	26(32)	34(40)	285	120	122	25	1	0.5

Spare Part **E111** FBB bite **E116**

• Through coolant system is installed ※ Head : Main component, Bite/Arbor : For separate purchase

HSK-FBH/D

Micro boring bar(Damping type)

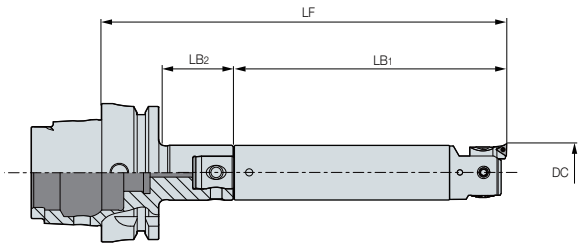


Fig. 1



Head

(mm)

Head Designation		Bite Designation	Arbor Designation	Boring Range(DC)		LF	LB1	LB2	BD1	Fig.	kg
				Min.	Max.						
HSK63A	FBH2526D	FBB26N-□-□□	HSK63A-MD25F-60	26(32)	34(40)	180	120	31	25	1	0.5

Spare Part **E111** FBB bite **E116**

• S□□ : Steel shank • Through coolant system is installed
※ Head : Main component, Bite/Arbor : For separate purchase

SK-FBH/D

Micro boring bar(Damping type)

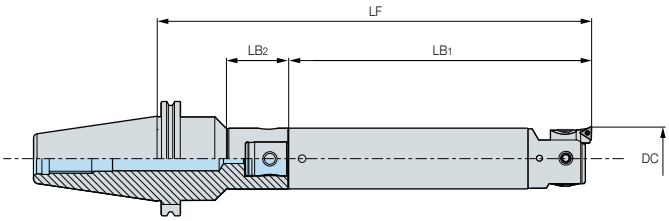


Fig. 1



Head

(mm)

Head Designation		Bite Designation	Arbor Designation	Boring Range(DC)		LF	LB1	LB2	BD1	Fig.	kg
				Min.	Max.						
SK40	FBH2526D	FBB26N-□-□□	SK40-MD25F-80R	26(32)	34(40)	200	120	22	25	1	0.5
SK50	FBH2526D	FBB26N-□-□□	SK40-MD25F-105R	26(32)	34(40)	225	120	22	25	1	0.5

Spare Part **E111** FBB bite **E116**

• Through coolant system is installed ※ Head : Main component, Bite/Arbor : For separate purchase

FBB Bite

Designation	Boring Range(DC)	Insert	Insert Screw	Clamp Bolt
FBB15-C [FBH15]	Ø15~Ø18mm	CCET0301□□L	BFTX01604N	BFTX02505N
FBB15-C [FBH18]	Ø18~Ø22mm	CCET0301□□L	BFTX01604N	BFTX02505N
FBB20N	Ø20~Ø26mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0304
FBB20N-C	Ø20~Ø26mm	CCET0401□□L	FTNA0238	BXC0304
FBB20N-1	Ø24~Ø30mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0304
FBB20N-1-C	Ø24~Ø30mm	CCET0401□□L	FTNA0238	BXC0304
FBB26N	Ø26~Ø34mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0405
FBB26N-C	Ø26~Ø34mm	CCET0401□□L	FTNA0238	BXC0405
FBB26N-1	Ø32~Ø40mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0405
FBB26N-1-C	Ø32~Ø40mm	CCET0401□□L	FTNA0238	BXC0405
FBB33N	Ø33~Ø43mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0506
FBB33N-C	Ø33~Ø43mm	CCMT0602□□, CCGT0602□□	BFTX02506N	BXC0506
FBB33N-1	Ø41~Ø50mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0506
FBB33N-1-C	Ø41~Ø50mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0506
FBB42N	Ø42~Ø54mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB42N-C	Ø42~Ø54mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0610
FBB42N-11	Ø42~Ø54mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB42N-1	Ø50~Ø62mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB42N-1-C	Ø50~Ø62mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0610
FBB42N-1-T11	Ø50~Ø62mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB53N	Ø53~Ø70mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB53N-C	Ø53~Ø70mm	CCMT0602□□, CCGT0602□□	BFTX02506N	BXC0610
FBB53N-11	Ø53~Ø70mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB53N-1	Ø65~Ø82mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB53N-1-C	Ø65~Ø82mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0610
FBB53N-1-C09	Ø65~Ø82mm	CCMT09T3□□, CCGT09T3□□L	BFTX0407N	BXC0610
FBB53N-1-T11	Ø65~Ø82mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB68N	Ø68~Ø100mm/Ø98~Ø150mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0810
FBB68N-C	Ø68~Ø100mm/Ø98~Ø150mm	CCMT09T3□□, CCGT09T3□□L	BFTX0407N	BXC0810
FBB68N-11	Ø68~Ø100mm/Ø98~Ø150mm	TPGT1103□□L	BFTX0307A	BXC0810
FBB68N-1	Ø90~Ø122mm/Ø120~Ø172mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0810
FBB68N-1-C09	Ø90~Ø122mm/Ø120~Ø172mm	CCMT09T3□□, CCGT09T3□□L	BFTX0407N	BXC0810
FBB68N-1-T11	Ø90~Ø122mm/Ø120~Ø172mm	TPGT1103□□L	BFTX0307A	BXC0810

New balance cut tool

DBCA

- Bidirectional simultaneous diameter adjustment is available due to the twin control structure
- Machining rigidity is reinforced due to the cartridge assist design
- Broader machining area than the existing products
- Boring range : Ø28-Ø130(mm)

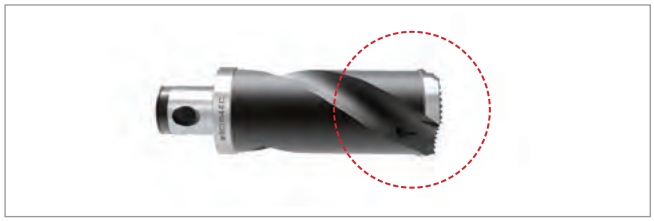


Code system

DBCA	32	33	S	32
New balance cut tool	MD Arbor Size	Min. Boring diameter	Bcc Cartridge Set	H : Helical Type Non : Straight Type

Features

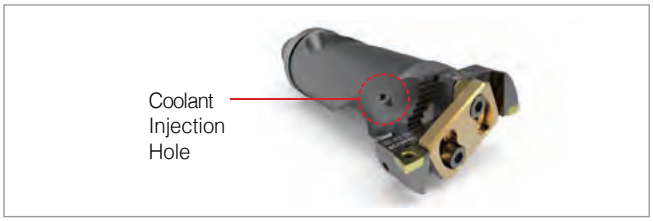
Helical Type



- Improved capacity to discharge chips from deep holes
- Minimized damage to tools and insert due to chip clogging

Extended Head Length	Deep hole machining implemented
Helical Type	Improved capacity to discharge chips from deep holes

Boring Area Optimization



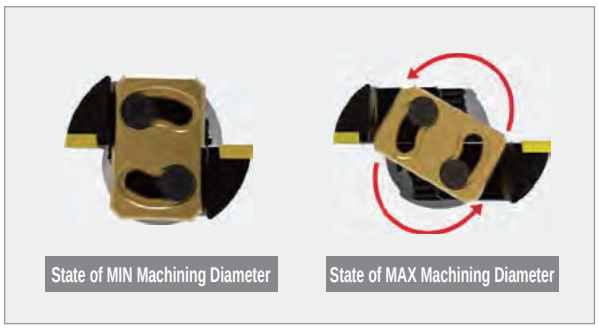
- Max. diameter expanded owing to reinforced rigidity
- Boring range expanded per designation versus conventional boring range of DINE

Coolant Hole **(Direct Injection to Cutting Edge)**	• Improved capacity to discharge chips • Improved capacity of machining

Effect of Improved Rigidity for Cartridge by Cover

- Clamps the top of the cartridge stably, minimizing the vibration of tools and improving the roughness of the working surface





BT-DBCA-H

Helical type



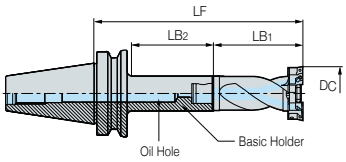


Fig. 1

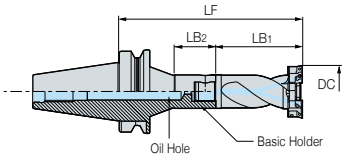


Fig. 2

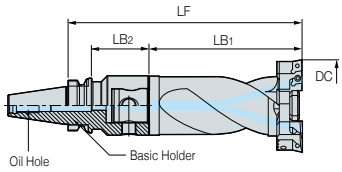
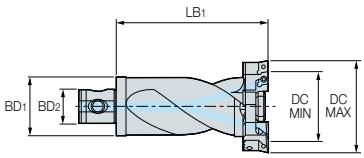


Fig. 3



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	kg	Fig.
Head Designation	Arbor Designation	Min.	Max.							
DBCA2528S-H	BT30-MD25F-90	28	38	14	25	193	103	63	0.3	1
DBCA3238S-H	BT30-MD32F-80	38	54	18	32	190	110	55	0.5	1
DBCA5054S-H	BT30-MD50F-70	54	74	28	50	215	145	48	1.8	3
DBCA2528S-H	BT40-MD25F-95	28	38	14	25	198	103	63	0.3	1
DBCA2528S-H	BT40-MD25F-105R	28	38	14	25	208	103	40	0.3	2
DBCA3238S-H	BT40-MD32F-100	38	54	18	32	210	110	70	0.5	1
DBCA3238S-H	BT40-MD32F-115R	38	54	18	32	225	110	45	0.5	2
DBCA5054S-H	BT40-MD50F-105	54	74	28	50	250	145	73	1.8	1
DBCA6374S-H	BT40-MD63F-64	74	100	36	63	244	180	37	3.3	1
DBCA6374S-H	BT40-MD63F-110	74	100	36	63	290	180	83	3.3	1
DBCA6374S-H	BT40-MD63F-135	74	100	36	63	315	180	108	3.3	1
DBCA80100S-H	BT40-MD80F-100	100	136	45	80	315	215	73	7.3	3
DBCA2528S-H	BT50-MD25F-105	28	38	14	25	208	103	62	0.3	1
DBCA2528S-H	BT50-MD25F-120R	28	38	14	25	223	103	40	0.3	2
DBCA3238S-H	BT50-MD32F-110	38	54	18	32	220	110	67	0.5	1
DBCA3238S-H	BT50-MD32F-115R	38	54	18	32	225	110	45	0.5	2
DBCA3238S-H	BT50-MD32F-235R	38	54	18	32	345	110	115	0.5	2
DBCA5054S-H	BT50-MD50F-125	54	74	28	50	270	145	82	1.8	1
DBCA5054S-H	BT50-MD50F-225	54	74	28	50	370	145	182	1.8	1
DBCA5054S-H	BT50-MD50F-250R	54	74	28	50	395	145	81	1.8	2
DBCA6374S-H	BT50-MD63F-75	74	100	36	63	255	180	35	3.3	1
DBCA6374S-H	BT50-MD63F-130	74	100	36	63	280	180	87	3.3	1
DBCA6374S-H	BT50-MD63F-195	74	100	36	63	375	180	152	3.3	1
DBCA6374S-H	BT50-MD63F-230	74	100	36	63	410	180	187	3.3	1
DBCA80100S-H	BT50-MD80F-75	100	136	45	80	290	215	36	7.3	1
DBCA80100S-H	BT50-MD80F-110	100	136	45	80	325	215	69	7.3	1
DBCA80100S-H	BT50-MD80F-175	100	136	45	80	390	215	134	7.3	1

Spare Part **E119**

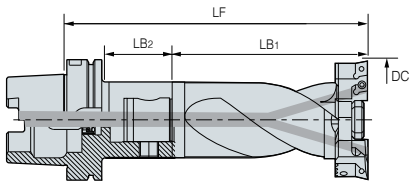
• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

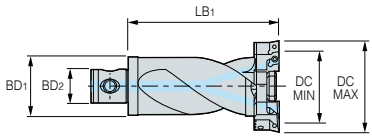
HSK-DBCA-H

Helical type





1DIV. = 0.01mm



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	kg
Head Designation	Arbor Designation	Min.	Max.						
DBCA2528S-H	HSK63A-MD25F-60	38	54	14	25	163	103	31	0.3
DBCA3238S-H	HSK63A-MD32F-65	38	54	18	32	175	110	36	0.5
DBCA5054S-H	HSK63A-MD50F-85	54	74	28	50	230	145	58	1.8
DBCA6374S-H	HSK63A-MD63F-95	74	100	45	80	275	180	69	3.3

Spare Part **E119**

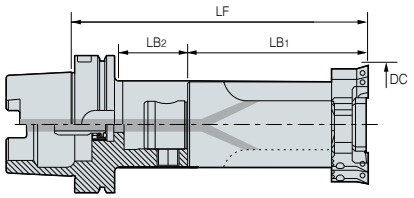
• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

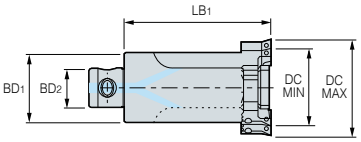
HSK-DBCA-S

Straight type





1DIV. = 0.01mm



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	kg
Head Designation	Arbor Designation	Min.	Max.						
DBCA2528S	HSK63A-MD25F-60	38	54	14	25	122	62	31	0.3
DBCA3238S	HSK63A-MD32F-65	38	54	18	32	134.5	69.5	36	0.5
DBCA5054S	HSK63A-MD50F-85	54	74	28	50	179	94	58	1.8
DBCA6374S	HSK63A-MD63F-95	74	100	45	80	100	106.5	69	3.3

Spare Part **E119**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

BT-DBCA-S

Straight type



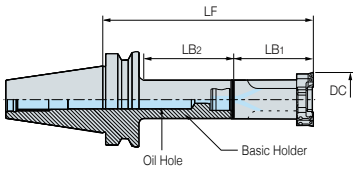


Fig. 1

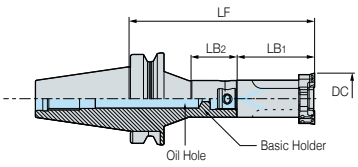


Fig. 2

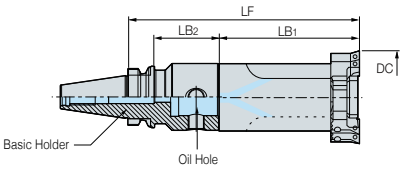
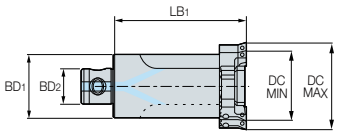


Fig. 3



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	kg	Fig.
Head Designation	Arbor Designation	Min.	Max.							
DBCA2528S	BT30-MD25F-90	28	38	14	25	193	103	63	0.2	1
DBCA3238S	BT30-MD32F-80	38	54	18	32	190	110	55	0.4	1
DBCA5054S	BT30-MD50F-70	54	74	28	50	215	145	48	1.1	3
DBCA2528S	BT40-MD25F-95	28	38	14	25	198	103	63	0.2	1
DBCA2528S	BT40-MD25F-105R	28	38	14	25	208	103	40	0.2	2
DBCA3238S	BT40-MD32F-100	38	54	18	32	210	110	70	0.4	1
DBCA3238S	BT40-MD32F-115R	38	54	18	32	225	110	45	0.4	2
DBCA5054S	BT40-MD50F-105	54	74	28	50	205	145	73	1.1	1
DBCA6374S	BT40-MD63F-64	74	100	36	63	244	180	37	1.9	1
DBCA6374S	BT40-MD63F-135	74	100	36	63	315	180	83	1.9	1
DBCA6374S	BT40-MD80F-100	74	100	36	63	280	180	108	1.9	1
DBCA80100S	BT40-MD80F-100	100	136	45	80	315	215	73	3.7	3
DBCA2528S	BT50-MD25F-105	28	38	14	25	208	103	62	0.2	1
DBCA2528S	BT50-MD25F-120R	28	38	14	25	223	103	40	0.2	2
DBCA3238S	BT50-MD32F-110	38	54	18	32	220	110	67	0.4	1
DBCA3238S	BT50-MD32F-115R	38	54	18	32	225	110	45	0.4	2
DBCA3238S	BT50-MD32F-235R	38	54	18	32	345	110	115	0.4	2
DBCA5054S	BT50-MD50F-125	54	74	28	50	270	145	82	1.1	1
DBCA5054S	BT50-MD50F-225	54	74	28	50	370	145	182	1.1	1
DBCA5054S	BT50-MD50F-250R	54	74	28	50	395	145	81	1.1	2
DBCA6374S	BT50-MD63F-75	74	100	36	63	255	180	35	1.9	1
DBCA6374S	BT50-MD63F-130	74	100	36	63	310	180	87	1.9	1
DBCA6374S	BT50-MD63F-195	74	100	36	63	375	180	152	1.9	1
DBCA6374S	BT50-MD63F-230	74	100	36	63	410	180	187	1.9	1
DBCA80100S	BT50-MD80F-75	100	136	45	80	290	215	36	3.7	1
DBCA80100S	BT50-MD80F-110	100	136	45	80	325	215	69	3.7	1
DBCA80100S	BT50-MD80F-175	100	136	45	80	390	215	134	3.7	1

Spare Part **E122**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

BT-DBC

Straight type



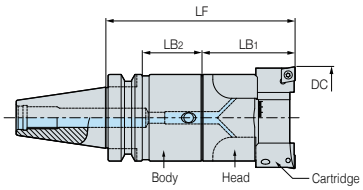


Fig. 1

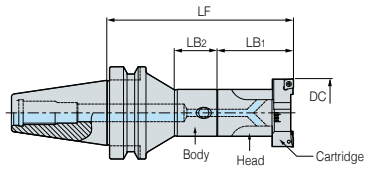


Fig. 2

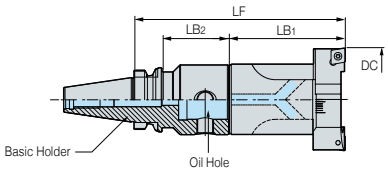
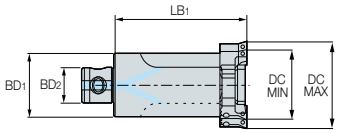


Fig. 3



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	kg	Fig.
Head Designation	Arbor Designation	Min.	Max.							
DBC2528S	BT30-MD25F-90	28	35	14	25	150	60	63	0.3	1
DBC3235S	BT30-MD32F-80	35	46	18	32	145	65	55	0.4	1
DBC4046S	BT30-MD40F-45	46	58	22	40	115	70	22	0.6	1
DBC4046S	BT30-MD40F-60	46	58	22	40	130	70	36	0.6	1
DBC4046S	BT30-MD40F-80	46	58	22	40	140	70	56	0.6	1
DBC5058S	BT30-MD50F-70	58	74	28	50	150	80	48	1.1	3
DBC2528S	BT40-MD25F-95	28	35	14	25	155	60	63	0.3	1
DBC2528S	BT40-MD25F-105R	28	35	14	25	165	60	40	0.3	2
DBC3235S	BT40-MD32F-100	35	46	18	32	165	65	70	0.4	1
DBC3235S	BT40-MD32F-115R	35	46	18	32	180	65	45	0.4	2
DBC4046S	BT40-MD40F-60	46	58	22	40	130	70	31	0.6	1
DBC4046S	BT40-MD40F-110R	46	58	22	40	180	70	60	0.6	2
DBC4046S	BT40-MD40F-115	46	58	22	40	185	70	83	0.6	1
DBC5058S	BT40-MD50F-105	58	74	28	50	185	80	73	1.1	1
DBC6374S	BT40-MD63F-64	74	94	36	63	154	90	37	2.0	1
DBC6374S	BT40-MD63F-110	74	94	36	63	200	90	83	2.0	1
DBC6374S	BT40-MD63F-135	74	94	36	63	225	90	108	2.0	1
DBC8094S	BT40-MD80F-100	94	120	45	80	200	100	73	3.5	3
DBC2528S	BT50-MD25F-105	28	35	14	25	165	60	62	0.3	1
DBC2528S	BT50-MD25F-120R	28	35	14	25	185	60	40	0.3	2
DBC3235S	BT50-MD32F-110	35	46	18	32	175	65	67	0.4	1
DBC3235S	BT50-MD32F-115R	35	46	18	32	180	65	45	0.4	2
DBC3235S	BT50-MD32F-235R	35	46	18	32	300	65	115	0.4	2
DBC4046S	BT50-MD40F-60	46	58	22	40	130	70	22	0.6	1
DBC4046S	BT50-MD40F-195	46	58	22	40	265	70	152	0.6	1
DBC4046S	BT50-MD40F-230R	46	58	22	40	300	70	180	0.6	2
DBC5058S	BT50-MD50F-125	58	74	28	50	205	80	82	1.1	1
DBC5058S	BT50-MD50F-225	58	74	28	50	305	80	182	1.1	1
DBC5058S	BT50-MD50F-250R	58	74	28	50	330	80	81	1.1	2
DBC6374S	BT50-MD63F-75	74	94	36	63	165	90	35	2.0	1
DBC6374S	BT50-MD63F-130	74	94	36	63	220	90	87	2.0	1
DBC6374S	BT50-MD63F-195	74	94	36	63	285	90	152	2.0	1
DBC6374S	BT50-MD63F-230	74	94	36	80	320	90	187	2.0	1
DBC8094S	BT50-MD80F-75	94	120	36	80	175	100	36	3.5	1
DBC8094S	BT50-MD80F-110	94	120	45	80	210	100	69	3.5	1
DBC8094S	BT50-MD80F-175	94	120	45	80	275	100	134	4.5	1
DBC120S	BT50-MD80F-175	120	175	45	80	275	100	134	4.1	1

Spare Part **E122**

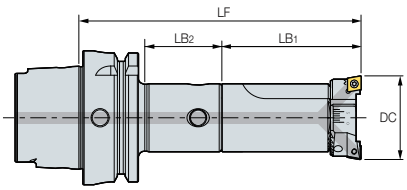
• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

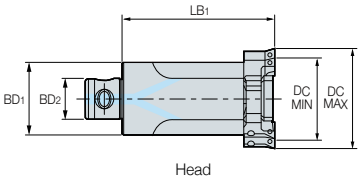
* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

HSK-DBC

Modular type







(mm)

Designation		Boring Range(DC)		BD_2	BD_1	LF	LB_1	LB_2	kg
Head Designation	Arbor Designation	Min.	Max.						
DBC2528S	HSK63A-MD25F-60	28	35	14	25	120	60	31	0.3
DBC3235S	HSK63A-MD32F-65	35	46	18	32	130	65	36	0.4
DBC4046S	HSK63A-MD40F-70	46	58	22	40	140	70	41	0.6
DBC5058S	HSK63A-MD50F-85	58	74	28	50	165	80	58	1.1
DBC6374S	HSK63A-MD63F-95	74	94	36	63	185	90	69	2.0

Spare Part **E122**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

Parts

• DBCA

Basic									
Division	Head	Spring Pin	Wrench Bolt	Wrench	Cartridge	Set Screw	Wrench	Clamp Screw	Torx Wrench
Parts / Designation									
DBCA2528S	DBCA2528	SP0308	BX0420	LW-3	BCC28-EC	BT0308	LW-1.5	BFTX02506N	TRX8
DBCA3238S	DBCA3238	SP0410	BX0525	LW-4	BCC38-EC	BT0310	LW-1.5	BFTX02506M	TRX8
DBCA5054S	DBCA5054	SP0616	BX0630	LW-5	BCC54-EC	BT0414	LW-2	BFTX0407N	TRX15
DBCA6374S	DBCA6374	SP1018	BX0635	LW-5	BCC74-EC	BT0520	LW-2.5	BFTX0511N	TRX20
DBCA80100S	DBCA80100	SP1020	BX0840	LW-6	BCC100-EC	BT0625	LW-3	BFTX0511N	TRX20

• DBC

Basic									
Division	Head	Spring Pin	Wrench Bolt	Wrench	Cartridge	Set Screw	Wrench	Clamp Screw	Torx Wrench
Parts / Designation									
DBC2528S	DBC2528	SP0308	BX0415	LW-3	BCC28	BT0306	LW-1.5	FTKA02565	TRX7
DBC3235S	DBC3235	SP0410	BX0515	LW-4	BCC35	BT0308			
DBC4046S	DBC4046	SP0516	BX0620	LW-5	BCC46	BT0410	LW-2	FTNA0408	TRX15
DBC5058S	DBC5058	SP0616			BCC58	BT0412			
DBC6374S	DBC6374	SP1018	BX0830	LW-6	BCC74	BT0516	LW-2.5	BFTX0511N	TRX20
DBC8094S	DBC8094	SP1020	BX1035	LW-8	BCC94	BT0620	LW-3		
DBC120S	DBC120N	SP1020	BX0830	LW-6	BCC120	BT0830	LW-4	BFTX0511N	TRX20

BT-SMB

Small Micro Boring Bar



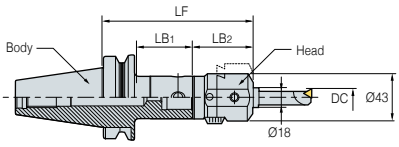


Fig. 1

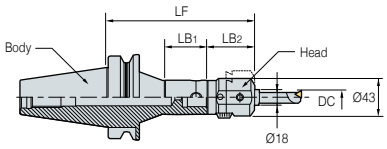
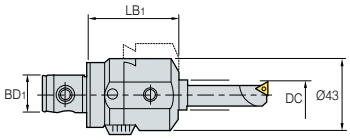


Fig. 2



Head

• 1DIV = Ø0.02mm

(mm)

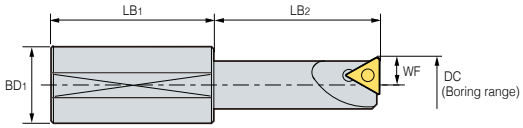
Designation			Boring Range(DC)	LF	LB_1	LB_2	kg	Fig.
Head Designation	Arbor Designation	Bite Designation						
SMB4022	BT30-MD40F-45	BB18-□(S)	Ø6.0~Ø34.0	107.5	22	62.5	0.6	1
SMB4022	BT30-MD40F-60	BB18-□(S)	Ø6.0~Ø34.0	122.5	36	62.5	0.6	1
SMB4022	BT30-MD40F-80	BB18-□(S)	Ø6.0~Ø34.0	142.5	56	62.5	0.6	1
SMB4022	BT40-MD40F-60	BB18-□(S)	Ø6.0~Ø34.0	122.5	31	62.5	0.6	1
SMB4022	BT40-MD40F-110R	BB18-□(S)	Ø6.0~Ø34.0	172.5	60	62.5	0.6	2
SMB4022	BT40-MD40F-115	BB18-□(S)	Ø6.0~Ø34.0	177.5	83	62.5	0.6	1
SMB4022	BT50-MD40F-60	BB18-□(S)	Ø6.0~Ø34.0	122.5	22	62.5	0.6	1
SMB4022	BT50-MD40F-195	BB18-□(S)	Ø6.0~Ø34.0	257.5	152	62.5	0.6	1
SMB4022	BT50-MD40F-230R	BB18-□(S)	Ø6.0~Ø34.0	292.5	180	62.5	0.6	2

* Adjustment Range : 10mm

• Head : Main component, Bite/Arbor : For separate purchase

• Through coolant system is not available

BB Bite(for SMB)



(mm)

Designation		Boring Range(DC)		BD_1	LB_1	LB_2	WF	kg	Insert	Screw
		Min.	Max.							
BB	18-7(S)	7	27	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	29	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	31	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	33	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	35	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	37	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

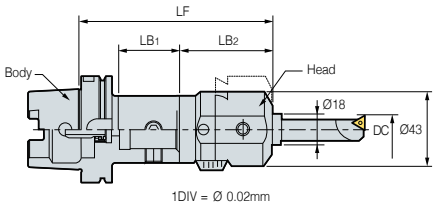
Parts

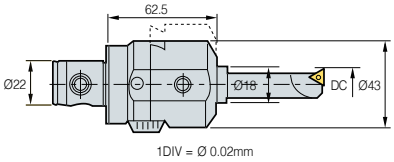
	Basic			For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMB	SMB4022	BTT1013F	LW-2.5	BB18	MD40F

HSK-SMB

Small Micro Boring Bar







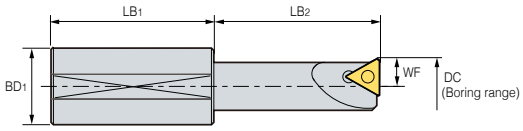
Head

(mm)

Designation			Boring Range(DC)	LF	LB1	LB2	kg
Head Designation	Arbor Designation	Bite Designation					
SMB4022	HSK63A-MD40F - 70	BB18-□(S)	Ø6.0~Ø34.0	132.5	41	62.5	0.6

* Adjustment Range : 10mm • Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

BB Bite(for SMB)



(mm)

Designation		Boring Range(DC)		BD1	LB1	LB2	WF	kg	Insert	Screw
		Min.	Max.							
BB	18-7(S)	7	27	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	29	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	31	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	33	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	35	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	37	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

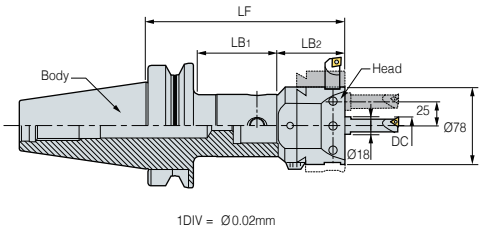
Parts

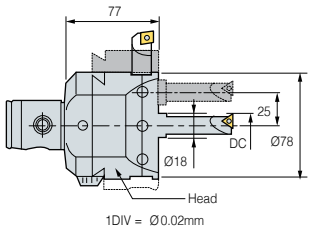
Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMB	SMB4022	BTT1013F	LW-2.5	BB18	MD40F

BT-KMB

Micro Boring







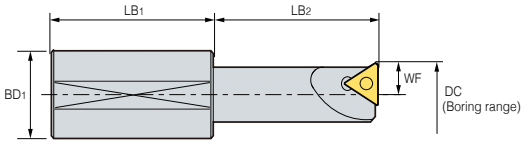
Head

(mm)

Designation			Boring Range(DC)		LF	LB1	LB2	kg
Head Designation	Arbor Designation	Bite Designation						
KMB6336	BT40-MD63F-64	BB18-□(S)	Center Hole	Ø8.0~Ø38.0	141	37	77	2.2
KMB6336	BT40-MD63F-110	BB18-□(S)	Center Hole	Ø8.0~Ø38.0	187	83	77	2.2
KMB6336	BT40-MD63F-135	BB18-□(S)	Eccentric Hole	Ø41.0~101.0	212	108	77	2.2
KMB6336	BT50-MD63F-75	BB18-□(S)	Eccentric Hole	Ø41.0~101.0	152	35	77	2.2
KMB6336	BT50-MD63F-135	BB18-□(S)	Side Hole	Max.Ø165.0	207	87	77	2.2
KMB6336	BT50-MD63F-195	BB18-□(S)	Side Hole	Max.Ø165.0	272	152	77	2.2

* Adjustment Range : 17mm • Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

BB Bite(for KMB)



(mm)

Designation		Boring Range(DC)				BD1	LB1	LB2	WF	kg	Insert	Screw
		Center		Eccentric								
BB	18-7(S)	7	40	27	91	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	42	29	93	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	44	31	95	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	46	33	97	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	48	35	99	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	50	37	101	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

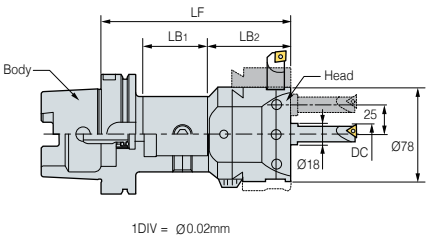
Parts

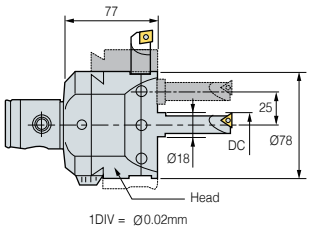
Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
KMB	KMB6336	BTT1620F	LW-4.0	BB18	MD63F

HSK-KMB

Micro Boring







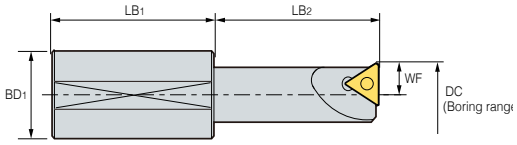
Head

(mm)

Designation			Boring Range(DC)		LF	LB1	LB2	kg
Head Designation	Arbor Designation	Bite Designation						
KMB6336	HSK63A-MD63F-95	BB18-□(S)	Center Hole	Ø8.0~Ø38.0	172	69	77	2.2

* Adjustment Range : 17mm • Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

BB Bite(for KMB)



(mm)

Designation		Boring Range(DC)				BD1	LB1	LB2	WF	kg	Insert	Screw
		Center		Eccentric								
BB	18-7(S)	7	40	27	91	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	42	29	93	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	44	31	95	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	46	33	97	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	48	35	99	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	50	37	101	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

Parts

Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
KMB	KMB6336	BTT1620F	LW-4.0	BB18	MD63F

BT-SMH

Small Micro Boring Bar (Precision type)



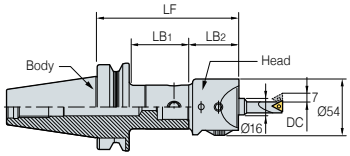


Fig. 1

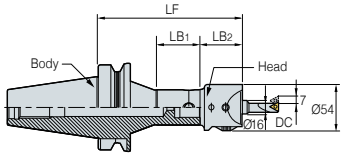
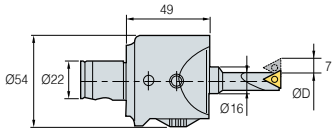


Fig. 2



Head

• 1DIV = Ø0.01mm

(mm)

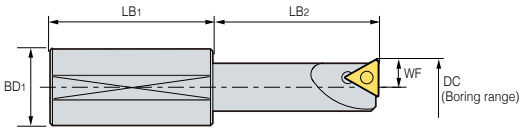
Designation			Boring Range(DC)	LF	LB1	LB2	kg	Fig.
Head Designation	Arbor Designation	Bite Designation						
SMH4022	BT30-MD40F-45	BB16-□(S)	Ø6.0~Ø34.0	94	22	49	0.6	1
SMH4022	BT30-MD40F-60	BB16-□(S)	Ø6.0~Ø34.0	109	36	49	0.6	1
SMH4022	BT30-MD40F-80	BB16-□(S)	Ø6.0~Ø34.0	129	56	49	0.6	1
SMH4022	BT40-MD40F-60	BB16-□(S)	Ø6.0~Ø34.0	109	31	49	0.6	1
SMH4022	BT40-MD40F-110R	BB16-□(S)	Ø6.0~Ø34.0	159	60	49	0.6	2
SMH4022	BT40-MD40F-115	BB16-□(S)	Ø6.0~Ø34.0	164	83	49	0.6	1
SMH4022	BT50-MD40F-60	BB16-□(S)	Ø6.0~Ø34.0	109	22	49	0.6	1
SMH4022	BT50-MD40F-195	BB16-□(S)	Ø6.0~Ø34.0	244	152	49	0.6	1
SMH4022	BT50-MD40F-230R	BB16-□(S)	Ø6.0~Ø34.0	279	180	49	0.6	2

* Adjustment Range : 7mm

• Head : Main component, Bite/Arbor : For separate purchase

• Through coolant system is not available

BB Bite(for SMH)



(mm)

Designation		Boring Range(DC)		BD1	LB1	LB2	WF	Insert	Screw	Wrench
		Min.	Max.							
BB	16-5(S)	5	19	16	34	20	2.75	WBGT0601□□L	BFTX0203A	TRX06
	16-7(S)	7	21	16	34	30	3.5	TBGT0601□□L	BFTX0204A	TRX06
	16-9(S)	9	23	16	34	40	4.5	TPGT0802□□L	BFTX0204A	TRX06
	16-11(S)	11	25	16	34	45	5.5	TPGT1103□□L	BFTX0307A	TRX10
	16-15(S)	15	29	16	34	50	7.5	TPGT1604□□L	BFTX0307A	TRX10
	16-19(S)	19	33	16	34	60	9.5	TPGT1604□□L	BFTX0410A	TRX15

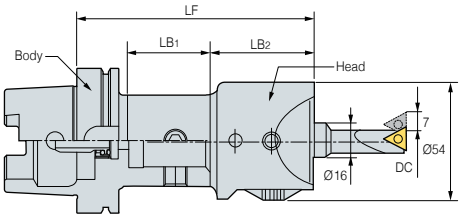
Parts

Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMH	SMH4022	BTT1013F	LW-3.0	BB16	MD40F

HSK-SMH

Small Micro Boring Bar (Precision type)





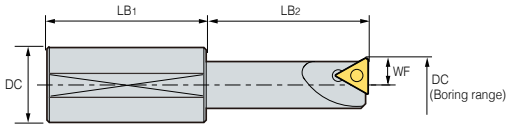
• 1DIV = Ø0.01mm

(mm)

Designation			Boring Range(DC)	LF	LB1	LB2	kg
Head Designation	Arbor Designation	Bite Designation					
SMH4022	HSK63-MD40F-70	BB16-□(S)	Ø6.0~Ø34.0	132.5	41	49	0.6

* Adjustment Range : 7mm • Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

BB Bite(for SMH)



(mm)

Designation		Boring Range(DC)		Insert	Screw	kg
		Min.	Max.			
BB	16-7(S)	8	28	TBGT0601□□L	BFTX0204A	0.1
	16-9(S)	10	30	TPGT0802□□L	BFTX0204A	0.1
	16-11(S)	12	32	TPGT1103□□L	BFTX0307A	0.1
	16-13(S)	14	34	TPGT1103□□L	BFTX0307A	0.1
	16-15(S)	16	36	TPGT1604□□L	BFTX0307A	0.2
	16-17(S)	18	38	TPGT1604□□L	BFTX0307A	0.2

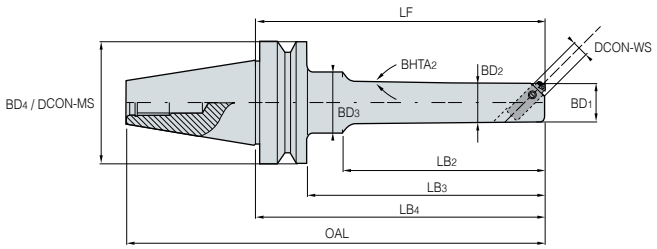
Parts

Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMH	SMH4022	BTT1013F	LW-3.0	BB16	MD40F

BT-BKA

Micro Boring Bar





(mm)

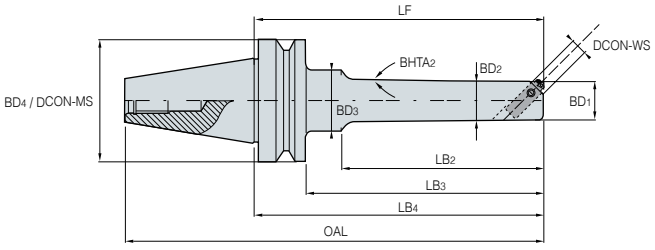
Designation		FZ UNIT	LF	LB1	LB2	BD1	BD2	DCON-WS	SSZ	kg
BT30-	BKA28-150	FZ10-□□-3[S]	150	123	-	25	-	10	M6	0.9
	BKA36-150	FZ12-□□-3[S]	150	125	-	32	-	12	M8	1.2
	BKA45-150	FZ16-□□-3[S]	150	128	-	40	-	16	M10	1.6
BT40-	BKA23-150	FZ8-□□-3[S]	150	95	40	20	22	8	M6	1.6
	BKA23-225	FZ8-□□-3[S]	225	95	40	20	22	8	M6	2.8
	BKA28-165	FZ10-□□-3[S]	165	122	50	25	26	10	M6	1.5
	BKA28-225	FZ10-□□-3[S]	225	125	50	25	26	10	M6	2.6
	BKA36-165	FZ12-□□-3[S]	165	133	60	32	35	12	M8	1.9
	BKA36-225	FZ12-□□-3[S]	225	193	60	32	35	12	M8	2.8
	BKA45-165	FZ16-□□-3[S]	165	133	70	40	44	16	M10	2.3
	BKA45-225	FZ16-□□-3[S]	225	208	70	40	44	16	M10	3
	BKA56-165	FZ20-□□-3[S]	165	-	70	50	54	20	M12	3
	BKA56-240	FZ20-□□-3[S]	240	-	70	50	54	20	M12	4.2
	BKA72-165	FZ25-□□-3[S]	165	-	-	63	-	25	M16	4
	BKA72-240	FZ25-□□-3[S]	240	-	-	63	-	25	M16	5.7
	BKA90-165	FZ32-□□-3[S]	165	-	100	80	-	32	M20	4.9
	BKA90-240	FZ32-□□-3[S]	240	-	100	80	-	32	M20	6.8

• Through coolant system is not available

BT-BKA

Micro Boring Bar





(mm)

Designation		FZ UNIT	LF	LB1	LB2	BD1	BD2	DCON-WS	SSZ	kg
BT50-	BKA23-150	FZ8-□□-3[S]	150	95	40	20	22	8	M6	4.2
	BKA23-225	FZ8-□□-3[S]	225	95	40	20	22	8	M6	5.3
	BKA28-165	FZ10-□□-3[S]	165	122	50	25	26	10	M6	4.1
	BKA28-225	FZ10-□□-3[S]	225	122	50	25	26	10	M6	5.1
	BKA36-165	FZ12-□□-3[S]	165	122	60	32	35	12	M8	4.4
	BKA36-225	FZ12-□□-3[S]	225	182	60	32	35	12	M8	4.9
	BKA45-165	FZ16-□□-3[S]	165	122	70	40	44	16	M10	4.8
	BKA45-225	FZ16-□□-3[S]	225	182	70	40	44	16	M10	5.5
	BKA56-165	FZ20-□□-3[S]	165	122	70	50	54	20	M12	5.5
	BKA56-240	FZ20-□□-3[S]	240	197	70	50	54	20	M12	6.7
	BKA72-165	FZ25-□□-3[S]	165	122	80	63	68	25	M16	6.5
	BKA72-240	FZ25-□□-3[S]	240	197	80	63	68	25	M16	8.5
	BKA90-165	FZ32-□□-3[S]	165	122	90	80	-	32	M20	7.9
	BKA90-240	FZ32-□□-3[S]	240	197	-	80	-	32	M20	10.9
	BKA110-270	FZ32-□□-3[S]	270	-	-	100	-	32	M20	14.8

• Through coolant system is not available

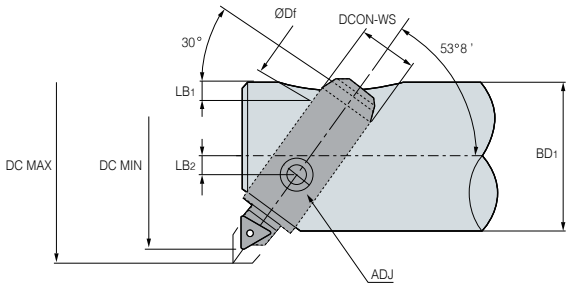
Parts

Basic			For separate purchase		
Division	Set Screw	Division	Unit		Wrench
Parts / Designation		Parts / Designation			
BKA23	BTF0606	BKA23	FZ8-23-3(P10.K10)		LW-3
BKA28	BTF0606	BKA28	FZ10-28-3(S)	FZ10-32-3(S)	LW-3
BKA36	BTF0808	BKA36	FZ12-36-3(S)	FZ12-40-3(S)	LW-4
BKA45	BTF1010	BKA45	FZ16-45-3(S)	FZ16-50-3(S)	LW-5
BKA56	BTF1212	BKA56	FZ20-56-3(S)	FZ20-64-3(S)	LW-4
BKA72	BTF1616	BKA72	FZ25-72-3(S)	FZ25-80-3(S)	LW-8
BKA90	BTF2020	BKA90	FZ32-90-3(S)	FZ32-100-3(S)	LW-10
BKA110	BTF2020	BKA110	FZ32-110-3(S)	FZ32-125-3(S)	LW-10

FZ UNIT

FZ Unit Inclined Mounting type





(mm)

Designation		Boring Range(DC) Min.	Boring Range(DC) Max.	Insert Holder(ISO)	Insert(ISO)	BD1	LB1	ØDf	LB2	ADJ	DCON-MS	kg
FZ8-	23-3(P10,K10)	23	29(32)	8Z3 (Brazed tip)	-	20	3	8	1.5	M6	8	0.04
	26-3(P10,K10)	26	32(34)	8Z3 (Brazed tip)	-	20	3	8	1.5	M6	8	0.04
FZ10-	28-3(S)	28	34(38)	U10Z3S	TBGT0601□□L	25	3.5	8	2	M6	10	0.1
	32-3(S)	32	38(44)	U10Z3S	TBGT0601□□L	25	3.5	8	2	M6	10	0.1
FZ12-	36-3(S)	36	44(48)	U12Z3S	TBGT0601□□L	32	4	10	2.5	M8	12	0.1
	40-3(S)	40	48(55)	U12Z3S	TBGT0601□□L	32	4	10	2.5	M8	12	0.1
FZ16-	45-3(S)	45	54(60)	U16Z3S	TBGT0802□□L	40	6.5	12	3	M10	16	0.1
	50-3(S)	50	59(68)	U16Z3S	TBGT0802□□L	40	6.5	12	3	M10	16	0.1
FZ20-	56-3(S)	56	68(78)	U20Z3S	TBGT0802□□L	50	7	16	5	M12	20	0.2
	64-3(S)	64	76(90)	U20Z3S	TBGT0802□□L	50	7	16	5	M12	20	0.2
FZ25-	72-3(S)	72	88(100)	U25Z3S	TPGT1103□□L	63	8	20	4	M16	25	0.3
	80-3(S)	80	96(114)	U25Z3S	TPGT1103□□L	63	8	20	4	M16	25	0.3
FZ32-	90-3(S)	90	114(126)	U32Z3S	TPGT1103□□L	80	10	25	6	M20	32	0.6
	100-3(S)	100	124(140)	U32Z3S	TPGT1103□□L	80	10	25	6	M20	32	0.6
	110-3(S)	110	134(150)	U32Z3S	TPGT1103□□L	100	10	25	12	M20	32	0.7
	125-3(S)	125	149(175)	U32Z3S	TPGT1103□□L	100	10	25	12	M20	32	0.8

• Through coolant system is not available

Parts

Basic						For separate purchase
Division	Housing Set	Spindle	Insert Screw	Torx Wrench	L-Wrench	Wrench
Parts / Designation						
FZ8-23, 26-3, P10	8-23, 26-3	8Z3(P10)	-	-	LW-1.5	R0/N0
FZ8-23, 26-3, K10	8-23, 26-3	8Z3(K10)	-	-	LW-1.5	R0/N0
FZ10-28, 32-3(S)	10-28, 32-3	U10Z3-TB06	BFTX0204A	TRX6	LW-2.0	R2/N1
FZ12-36, 40-3(S)	12-36, 40-3	U12Z3-TB06	BFTX0204A	TRX6	LW-2.5	R2A/N2
FZ16-45, 50-3(S)	16-45, 50-3	U16Z3-TP08	BFTX0204A	TRX6	LW-3.0	N3
FZ20-56, 64-3(S)	20-56, 64-3	U20Z3-TP08	BFTX0204A	TRX6	LW-4.0	R4/N4
FZ25-72, 80-3(S)	25-72, 80-3	U25Z3-TP11	BFTX0307A	TRX10	LW-4.0	ZV25
FZ32-90, 100, 110, 125-3(S)	32-90, 100-3	U32Z3-TP11	BFTX0307A	TRX10	LW-5.0	R5/N5

ANGULAR HEAD

ANGULAR HEAD

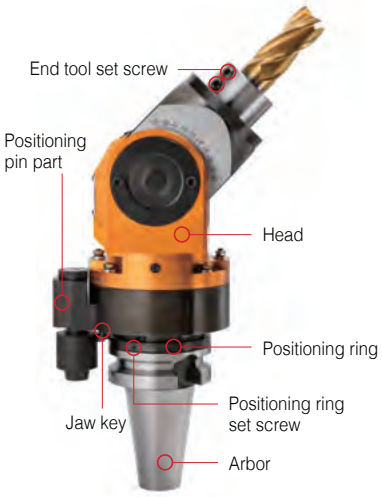


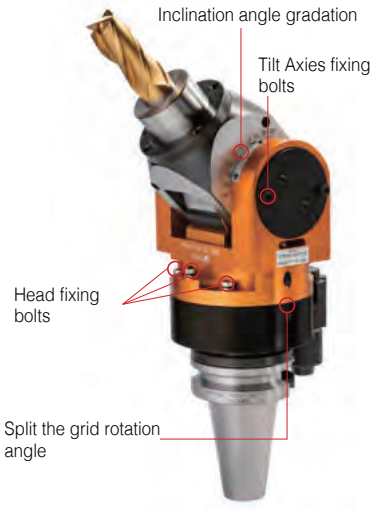
- Doubled effect by one equipment/Available for various angles
- Lighter aluminum body

Code system

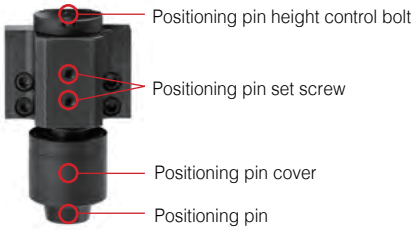
BT50	-	KHU	10	-	195
Spindle		Angular Head	Max. chucking diameter		Length

Name of angular head parts

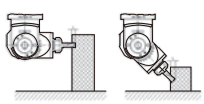
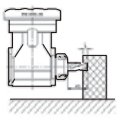
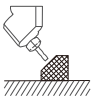
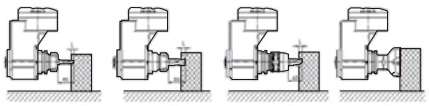




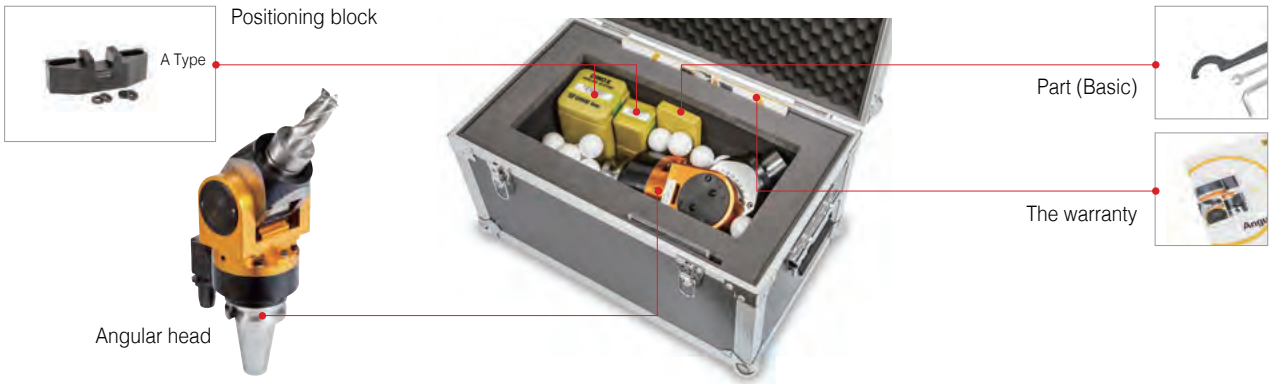
Positioning pin details



Various applications

			
0~90-degree rotating (MAH, KHU)	Fixed 90-degree type (KAH)	Fixed 45-degree type (KAC)	Attachment type (HRAG, KAG)

Components



MAH

Universal type MAH (Reinforced series)

- Reinforced type Better performance by improving existing universal Angular head
  - Stability on large mold machining
  - Can use 32mm Ball Endmill

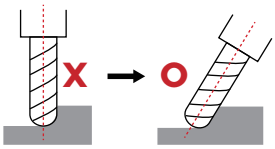


KHU

Universal type KHU (Free angle)

- Adjustable angle-type angular head that enables flexible machining
  - Wide vertical (0˚~90˚) and horizontal (0˚~360˚) machining angle range
  - To use Tap-exclusive collet, please contact us in advance
  - HSK and SK types are customizable





Be sure to give a slope to the cutting edge of a ball end mill when machining it as the ball end mill edge is worn out and the surface roughness of the workpiece becomes defective

HRAG

Attachment type HRAG (Reinforced type)

- HRAG: The reinforced bracket enhanced durability upto 200%
  - Stablility on face milling machining
  - Enhances compatibility with the machining device due to easy bracket disassembly/ assembly even on the BT50 shank
  - Improves product life cycle



KAG

Attachment type KAG

- Free 360° angle adjusting from side to side
  - Possible to use various tools of BT40 and BT30
  - HSK and SK type are order made
  - Coolant types are to be ordered separately



KAH

Modular type KAH (90° type)

- Fixed angle type angular head that enables flexible machining
  - Adjusting angle up to 360˚
  - To use Tap-exclusive Collet, please contact us in advance
  - HSK and SK type are order made

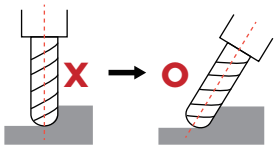


KAC

Modular type KAC (45° type)

- Fixed angle type angular head that enables flexible machining
  - Adjusting angle up to 360˚
  - To use Tap-exclusive Collet, please contact us in advance
  - 45-degree fixed type angular head
  - For BT40 types, please contact us separately





Be sure to give a slope to the cutting edge of a ball end mill when machining it as the ball end mill edge is worn out and the surface roughness of the workpiece becomes defective

KAH(90° type)_Fixed Angle-type Angular Head

BT-KAH



Features

Fixed angle type angular head that enables flexible machining

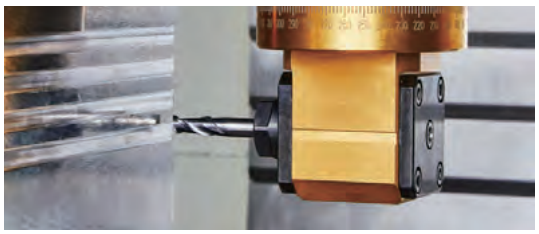
- Adjustable angle up to 360° degree
- HSK and SK types are customizable
- ATC (automatic tool change) available
- Tool rotates in the opposite direction to that of spindle

BT-30 KAH Features

- A small angular head for small equipment (BT30)
- Light weight of 2.6 KG for easy installation
- Available multi-surface processing
- Its processing angle can be freely adjusted by 360° on both sides
- ER11 size collet appllied

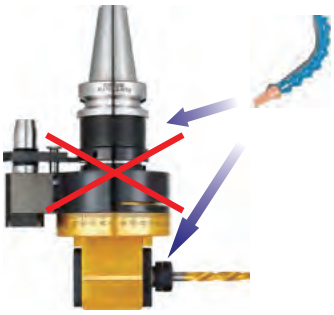
BT-KAH Structure

- Uses spiral bevel gear (with axial angle of 90)
- Reduced vibration and noise
- Small backlash
- Thanks to the use of a 1 : 1 gear ratio, can use without complex calculations
- Reverse-rotation direction compared to spindle (CW:CCW)



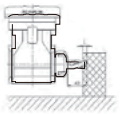
Precautions

- Do not inject cutting oil direct to the Angular Head body.



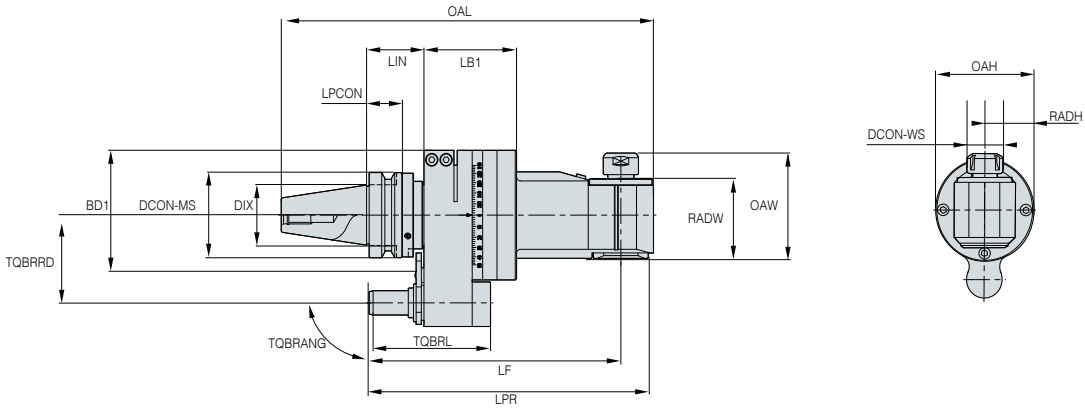
Machining Example

Model : BT50-KAH20-200

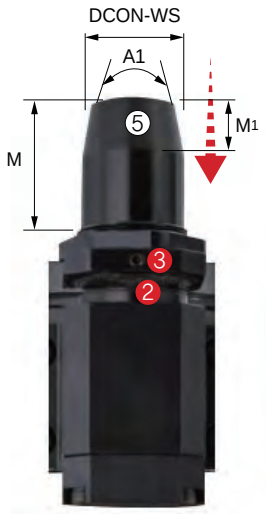
Cutting tool	Workpiece	Depth of cut	RPMX	Feed (mm/min)	Feed (mm/rev)	BT50-KAH20-200
Ø16-2 Flute Endmill(HSS), Over length-40mm	S45C	3	700	98	0.14	
	S45C	4	500	60	0.12	
	Al	7	900	72	0.08	
	Al	4	1800	144	0.08	

Parts

Angular head	Basic		Accessories	Positioning Block
	Nut	Spanner	GERC Collet	
KAH7	R11-AH	S-17	GERC11-ØD	
KHU10	R16-AH(M20)	S-25	GERC16-ØD	
KAH13	RU20-AH	35-38	GERC20-ØD	
KHU20	RU32-AH	48-52	GERC32-ØD	



Positioning Pin



Shank	M	M1	A1	DCON-WS
BT30	Max : 23 Min : 17	8	20°	Ø15
BT40	Max : 32 Min : 26	10	20°	Ø19.6
BT50	Max : 35 Min : 29	15	20°	Ø28

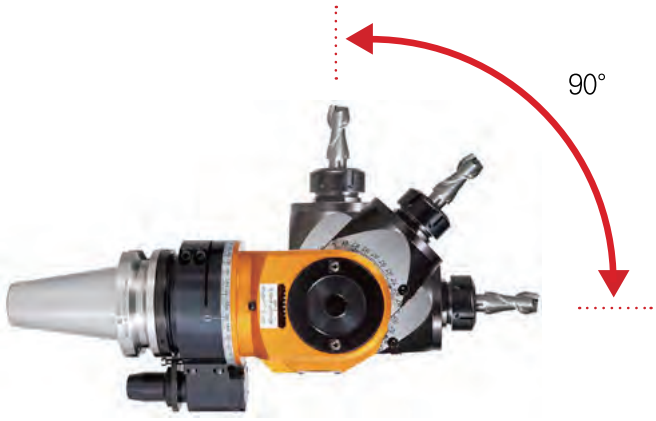
NO	Name
①	Head
②	Rotation Angle Split–gradation (Freely Adjustable for 360 Position
③	Fix Pin Block
④	Jaw Key
⑤	Height Adjusting Wrench Hole

NO	Name	Designation
1	Head angle fix bolt	BX0618
2	Set screw	BT0404
3	Position pin height fix bolt	BX50630

Designation		DCON-MS	DIX	BD1	TQBRRD	OAH	DCON-WS	RADH	LF	LPR	TQBRL	TQBRANG	LPCON	LIN	LB1	OAL	RADW	OAW	Gear ratio	RPMX	Collet	kg
BT30-	KAH7-120	46	42	72	55	40	11	20	120	140	61	90	22	56	39	188.4	24.5	61.5	1:1	5,000	GERC11	2.6
BT40-	KAH7-170	63	50	96	65	40	11	20	170	190	94	90	27	44	71	255.4	24.5	61.5	1:1	5,000	GERC11	5.8
	KAH10-195	63	50	96	65	58	16	29	195	220	94	90	27	44	71	285.4	32	78	1:1	5,000	GERC16	6.2
	KAH13-165	63	50	96	65	60	20	30	165	193	94	90	27	44	71	258.4	35	88	1:1	5,000	GERC20	6.0
	KAH20-180	63	50	96	65	76	32	38	180	218	94	90	27	44	71	283.4	49	120	1:1	3,500	GERC32	7.5
BT50-	KAH07-220	100	87	114	80	40	11	20	220	240	104	90	38	57	54	341.8	24.5	61.5	1:1	3,500	GERC11	10.7
	KAH10-215	100	87	114	80	58	16	29	215	240	104	90	38	57	54	341.8	32	78	1:1	3,500	GERC16	11.0
	KAH10-260	100	87	114	80	58	16	29	260	285	104	90	38	57	54	386.8	32	78	1:1	3,500	GERC16	11.4
	KAH13-260	100	87	114	80	60	20	30	260	288	104	90	38	57	54	389.8	35	88	1:1	3,500	GERC20	12.0
	KAH20-200	100	87	114	80	76	32	38	200	238	104	90	38	57	54	339.8	49	120	1:1	3,500	GERC32	11.6
	KAH20-240	100	87	114	80	76	32	38	240	278	140	90	38	57	54	379.8	49	120	1:1	3,500	GERC32	13.5

KHU(Free angle)_Collet Type Angular Head (0°-90°)

BT-KHU



Features

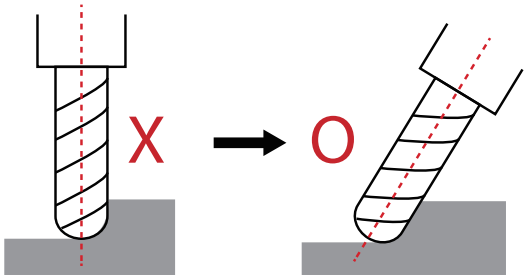
Adjustable angle-type angular head that enables flexible machining

- Wide vertical (0 ° ~90 °) and horizontal (0 ° ~360 °) machining angle range
- HSK and SK types are customizable

Precautions

» Do not inject cutting oil direct to the Angular Head body.





Wear of the ball endmill blade and defective surface roughness of the workpiece can occur, so please slope the edge of the ball endmill when machining

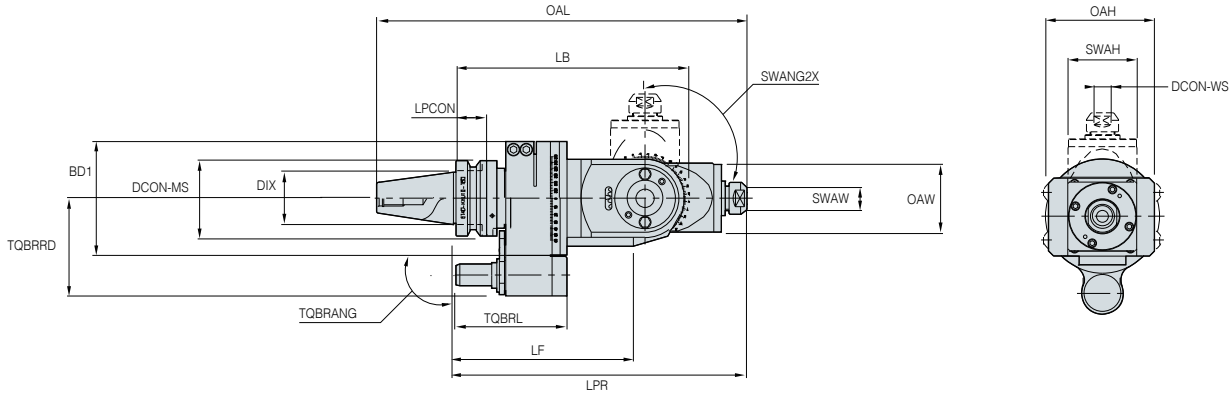
Machining Example

Model : BT50-KHU20-195

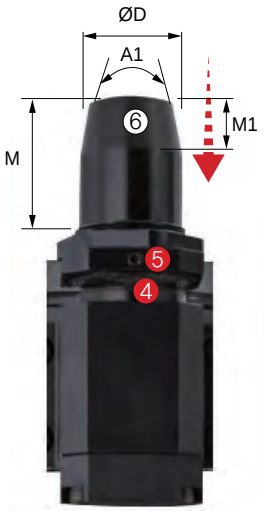
Cutting tool	Workpiece	Depth of cut	RPMX	Feed (mm/min)	Feed (mm/rev)	Cutting angle
Ø16-2 Flute Endmill(HSS), Over length-40mm	S45C	2	600	48	0.08	90˚
	AL	3	1200	168	0.14	90˚
	S45C	3	600	48	0.08	45˚
	AL	5	1200	144	0.12	45˚

Parts

Angular head	Basic		Accessories
	Nut	Spanner	GERC Collet
KHU10	R16-AH	S-25	GERC16-ØD
KHU20	RU32-AH	48-52	GERC32-ØD



Positioning Pin



Shank size	M	M1	A	ØD
BT40	Max : 32 Min : 26	10	20°	Ø19.6
BT50	Max : 35 Min : 29	15	20°	Ø28

NO	Name
①	Head
②	Rotating angle graduation (Free radius position in 360°)
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Tilt Axies fixing bolt	BX0618
2	Set screw	BT0404
3	Fixing bolts	BX50630

Designation		DCON-MS	DIX	BD1	TABBRD	LF	LPR	TQBRL	TQBRANG	LB	OAL	LPCON	SWANG2X	SWAW	OAW	OAH	SWAH	DCON-WS	Torque rate (IN:OUT)	Rotation Direction versus Spindle	RPMX	Collet	kg
BT40-	**KHU10-160**	63	54	96	65	160	247	94	90	193	312.4	27	90	58	66	90	58	16	1:2	Normal rotation	6,000	GERC16	8.3
BT50-	**KHU10-180**	100	87	114	80	180	267	104	90	213	368.8	38	90	58	66	90	58	16	1:2	Normal rotation	6,000	GERC16	11.5
	KHU20-195	100	90	114	80	195	316	104	90	242	417.8	38	90	84	94	128	84	32	1:1	Normal rotation	3,000	GERC32	17.9

Attachmaent type KAG

BT-KAG

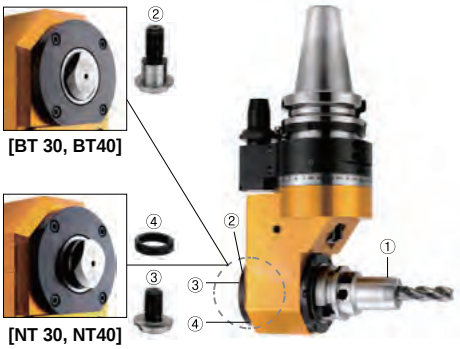


Features

- Horizontal machining angle range from 0° to 360°
- Compatible with various tools for BT40 and BT50
- HSK and SK types are customizable
- Coolant types are to be ordered separately

How to Tighten the Tool

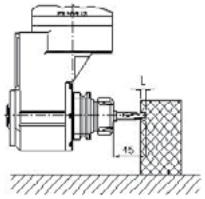
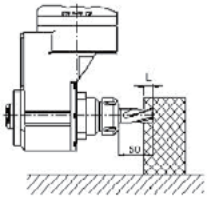
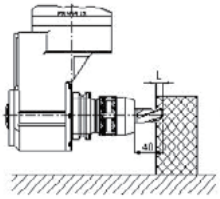
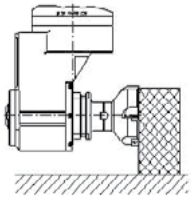
1. Insert the tool ① into the angular head spindle.
2. Tightly secure the tool ① using the fixing bolt ②· (BT type)
3. Tighten the tool ① by putting the ring ④ on the bolt ③. (NT type)

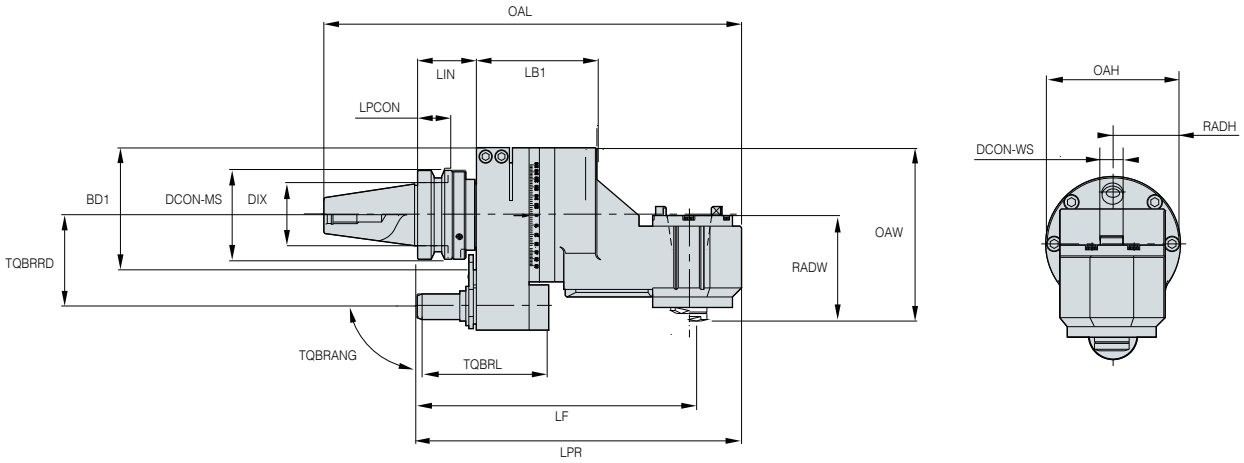


Machining Example

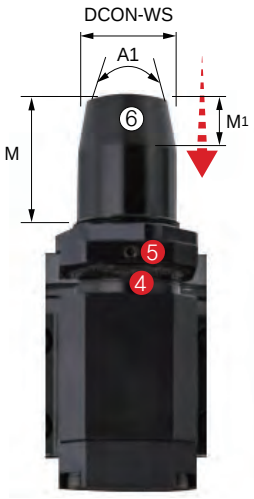
Model : BT50-KAG40-230

Cutting tool	Workpiece	Depth of cut	RPMX	Feed (mm/min)	Feed (mm/rev)
BT40-SDC20-60 Ø12-2 Flute Endmill (HSS)	S45C	3	400	72	0.09
	S45C	3	200	36	0.09
NT40-SDC20-60 Ø20-2 Flute Endmill (HSS)	S45C	4	500	50	0.05
	AL	10	1,000	100	0.05
BT40-NPM20-85 Ø20-2 Flute Endmill (HSS) over hang 40mm	S45C	3	400	72	0.09
	S45C	3	400	36	0.09
	AL	5	400	72	0.09
	AL	5	480	86	0.09
	AL	10	400	72	0.09
	AL	10	320	58	0.09
BT40-FMA25.4-45 Ø80 Shoulder mill (5 Flute-50L)	S45C	2	400	120	-
	S45C	1	200	60	-
	AL	2	600	150	-
	AL	1	600	150	-

BT40-SDC20-60 (Ø12 E/M)	NT40-SDC20-60 (Ø20 E/M)	BT40-NPM20-85 (Ø20 E/M)	BT40-FMA25.4-45 (Ø80 Shoulder Mill)
			



Positioning Pin



Shank size	M	M1	A1	ØD
BT40	Max: 32 Min: 26	10	20°	Ø19.6
BT50	Max: 35 Min: 29	15	20°	Ø28

NO	Name
①	Rotating angle graduation (Free radius position in 360°)
②	Head
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Set screw	BT0404
2	Fixing bolts	BX50630
3	BT / NT Bolt	

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON
BT40- KAG30-195	63	50	96	65	195	232.5	94	90	297.9	44	86	27
	RADW		**OAW**		**OAH**	**DCNWS**	**RADH**	**Gear Ratio**	**Rotation Direction versus Spindle**	**RPMX**	**Holder shank**	kg
	BT	**NT**	**BT**	**NT**								
	70	76.4	118	124.4	75	31.75	37.5	1:1	Normal Rotation	4,000	BT/NT30	7.2

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON
BT50- KAG40-230	100	87	114	80	230	276.5	104	90	378.3	57	88	38
	RADW		**OAW**		**OAH**	**DCNWS**	**RADH**	**Gear Ratio**	**Rotation Direction versus Spindle**	**RPMX**	**Holder shank**	kg
	BT	**NT**	**BT**	**NT**								
	95	102	152	159	93	44.45	46.5	1:1	Normal Rotation	3,000	BT/NT40	15.7

Attachment type HRAG(Reinforced)_Attachment type

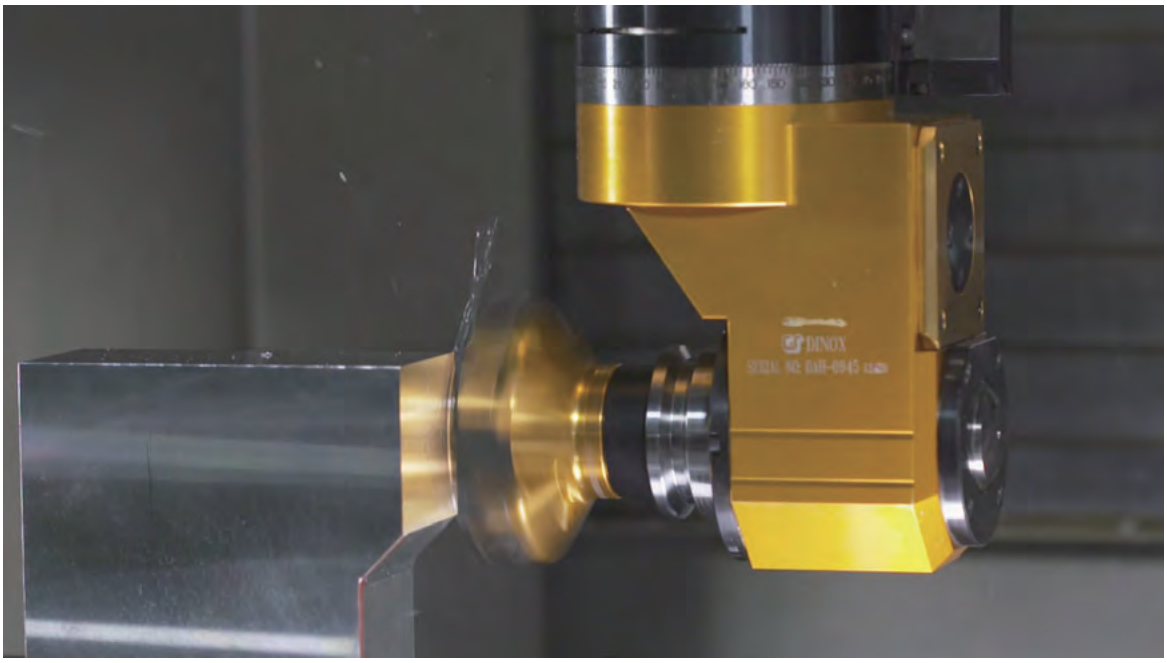
BT-HRAG

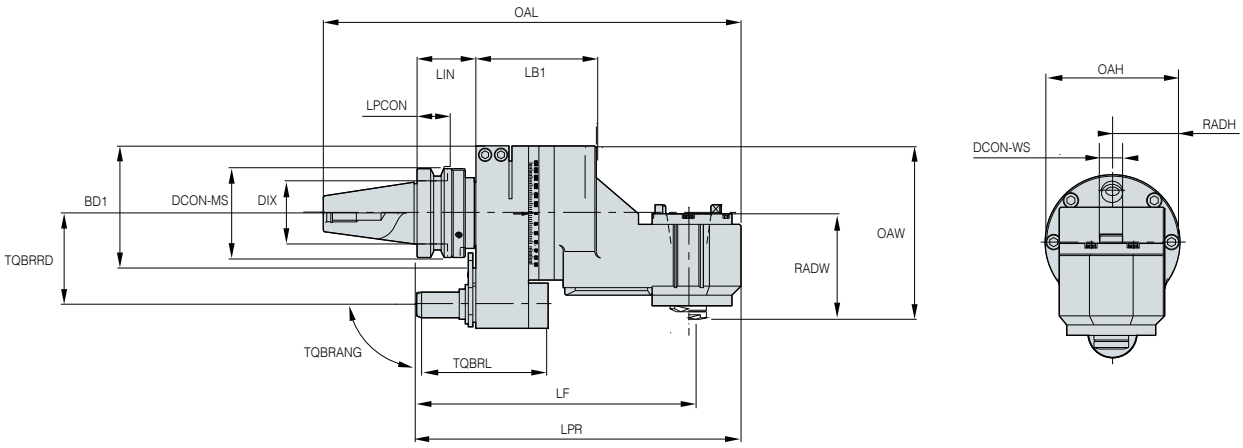


Features

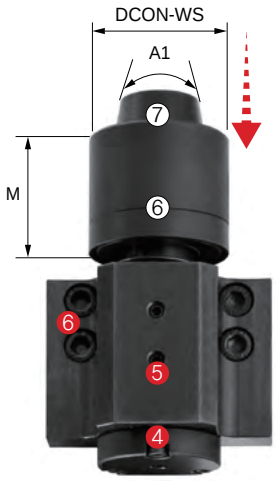
HRAG that improves the rigidity of the attachment-type bracket by 200%

- Provides stable operation of the face mill cutter
- Enhances compatibility with the machining device due to easy bracket disassembly/assembly even on the BT50 shank
- Improves product life cycle





Positioning Pin



Shank size	M	A1	ØD
BT50	56.5	20°	Ø40

NO	Name
①	Rotating angle graduation (Free radius position in 360°)
②	Head
③	Positioning pin part
④	Jaw key
⑤	Positioning ring
⑥	Positioning pin cover
⑦	Positioning pin

NO	Part name	Designation
1	Head fixed bolts	BX0660
2	Positioning ring set screw	MSST5-12
3	Rotating angle graduation screw	BT0648
4	Positioning pin height control bolt	BT0516
5	Positioning pin set screw	BT0512
6	Body position block set screw	BT0516
7	BT/NT Bolt	

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON
BT50- HRAG40-230	100	88	136	80	230	276.5	103	90	378.3	57	88	38
	RADW		**OAW**		**OAH**	**DCNWS**	**RADH**	**RPMX**	**Holder shank**			kg
	BT	**NT**	**BT**	**NT**								
	95	102	163	170	93	44.45	46.5	3000	BT/NT40			18.2

Rigidity-reinforced Side Lock type MAH (reinforced series)/Angle Adjustment

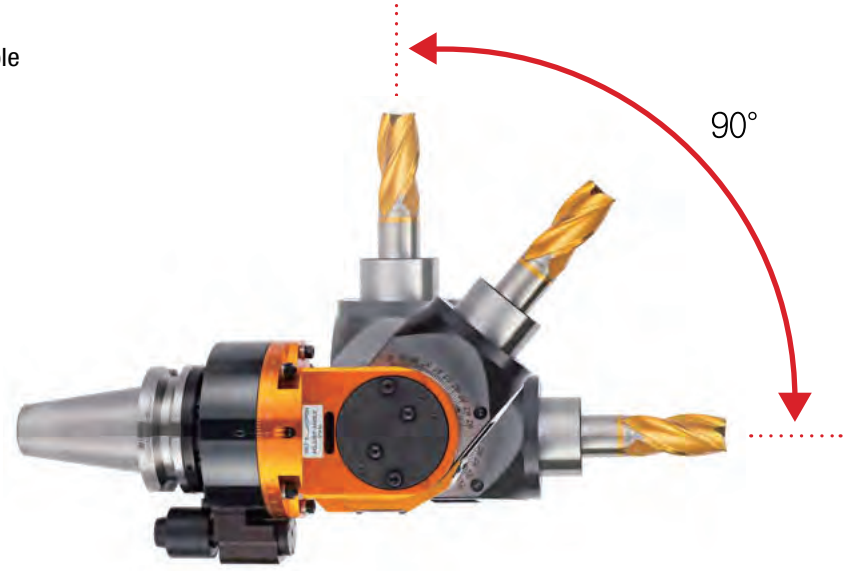
BT-MAH

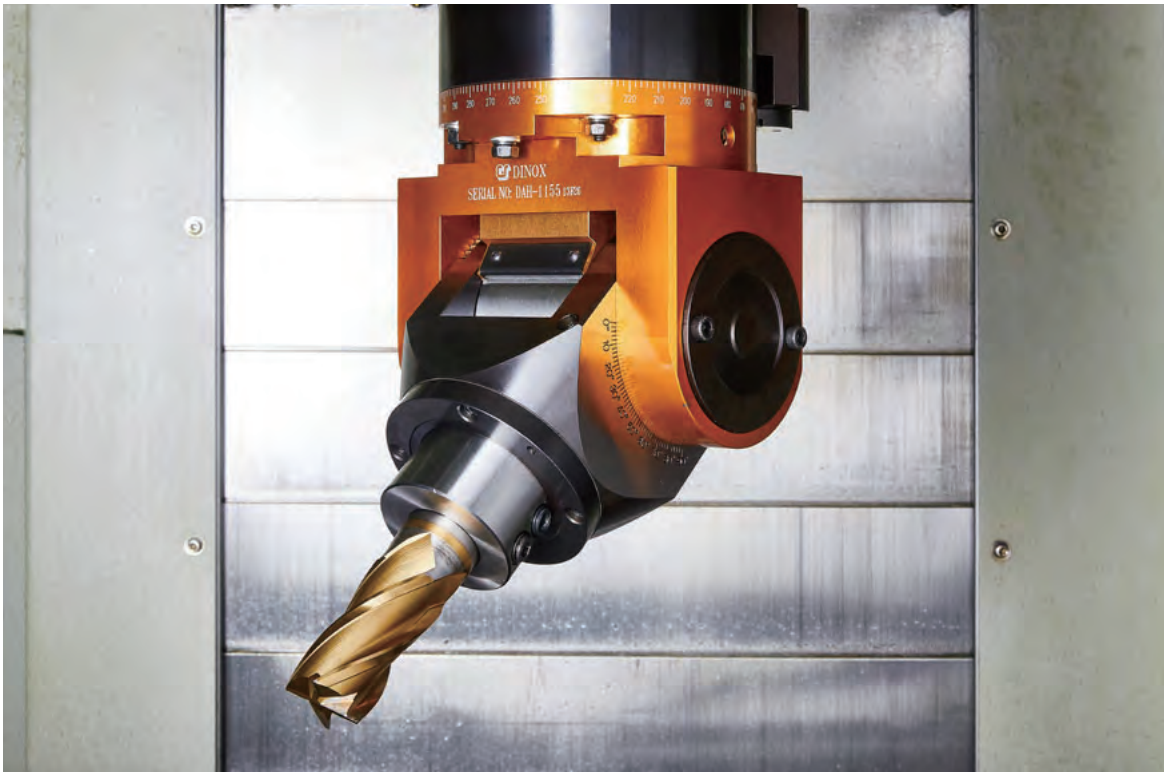
Features

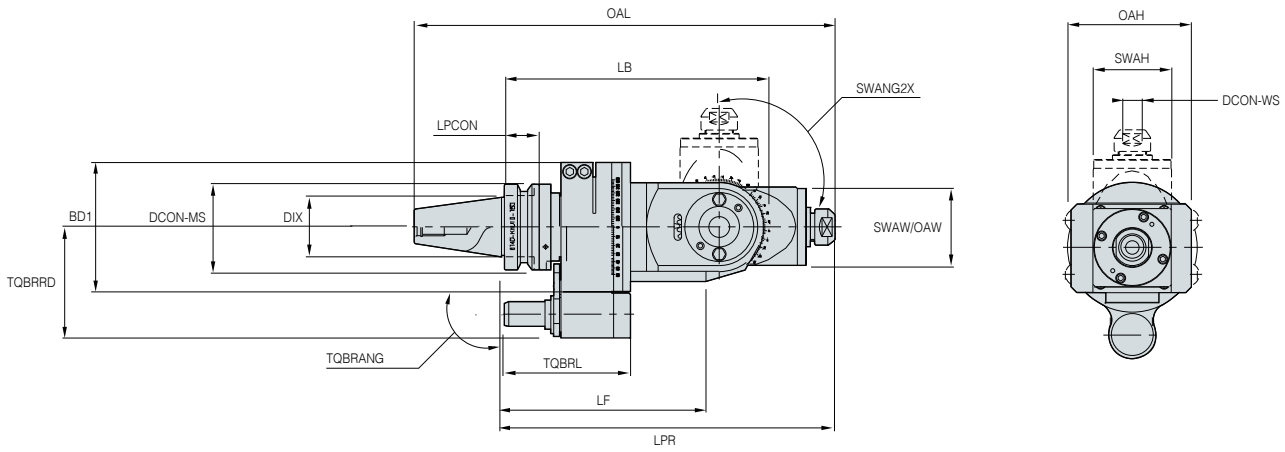
MAH for Mold Machining

MAH ideal for mold machining by improving the performance of conventional universal type products

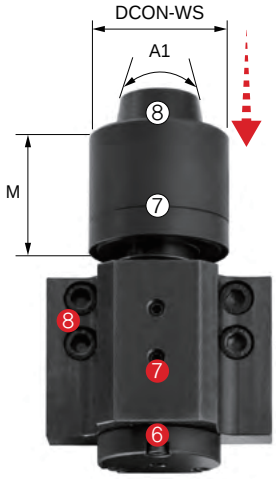
- Stability on large mold machining
- Tool diameter (D) 32mm ball endmill usable







Positioning Pin



Shank	M	A1	ØD
BT50	56.5	20°	Ø40

NO	Name
①	Inclination angle gradation (Axial positioning in 0°~90°)
②	Rotating angle graduation (Free radius position in 360°)
③	Head
④	Positioning pin part
⑤	Jaw key
⑥	Positioning ring
⑦	Positioning pin cover
⑧	Positioning pin

NO	Part name	형 번
1	Inclination angle gradation screw	BT1216
2	Head fixed bolts	BT0645
3	Rotating angle graduation screw	BT0640
4	Positioning ring set screw	MSST5-12
5	Tilt Axies fixing bolt	BH0616
6	Positioning pin height control bolt	BT0516
7	Positioning pin set screw	BT0512
8	Body position block set screw	BX0516

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LB	LPCON
BT50- MAH32-200	100	55	136	80	200	325	103	90	426.8	247	38
	SWANG2X		SWAW / OAW		OAH	SWAH	DCON-WS	RPMX	Install tool		kg
	90		95		154	95	32	3,000	SIDE LOCK		19.6

KAC(45° type)_Fixed Angle-type

BT-KAC



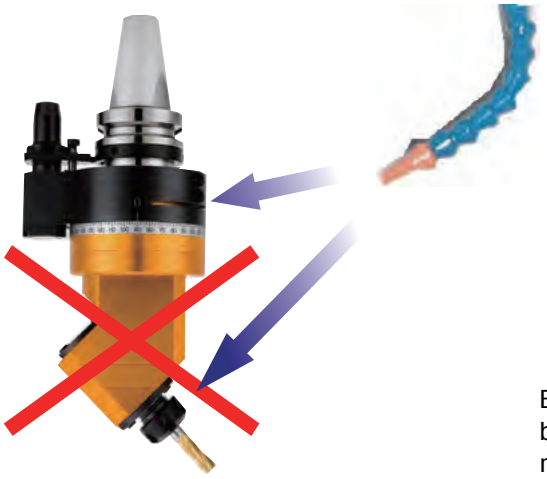
Features

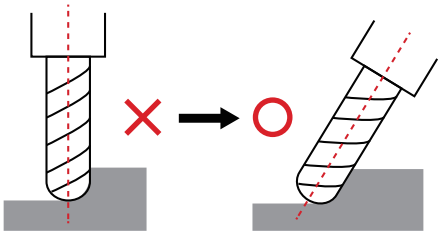
Fixed angle type angular head that enables flexible machining

- Adjustable angle up to 360 degree
- 45-degree fixed type angular head
- For BT40 types, please contact us separately

Precautions

» Do not inject cutting oil direct to the Angular Head body.

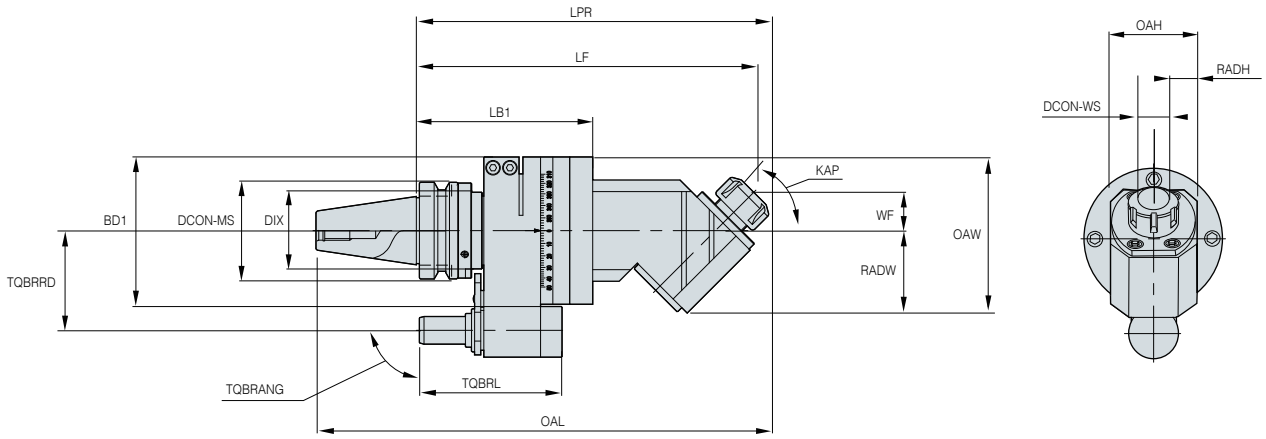




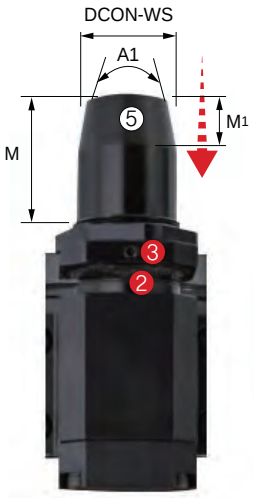
Be sure to give a slope to the cutting edge of a ball end mill when machining it as the ball end mill edge is worn out and the surface roughness of the workpiece becomes defective.

Parts

Angular head	Basic		Accessories
	Nut	Spanner	GERC Collet
KAC10	R16-AH (M20)	S-25	GERC16-ØD
KAC10	RU20-AH	35-38	GERC20-ØD
KAC20	RU32-AH	48-52	GERC32-ØD



Positioning Pin



Shank	M	M1	A	DCON-WS
BT40	Max : 32 Min : 26	10	20°	Ø19.6
BT50	Max : 35 Min : 29	15	20°	Ø28

NO	Name
①	Head
②	Rotating angle graduation (Free radius position in 360°)
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Head fixing bolts	BX0618
2	Set screw	BT0404
3	Fixing bolts	BX0630

Designation		DCON-MS	DIX	BD1	TQBRRD	OAL	TQBRL	TQBRANG	LPR	LF	LB1	OAW	WF	RADW	KAP	OAH	DCON-WS	RADH	RPMXX	Collet	kg
BT50-	**KAC10-240**	100	87	114	80	350.8	104	90	249	240	111	102	25	54	45	**60**	16	30	5,000	GERC16	9.7
	KAC13-240	100	87	114	80	352.8	104	90	251	240	111	102	25	54	45	**60**	20	30	5,000	GERC20	10.7
	KAC20-250	100	87	114	80	367.8	104	90	266	250	111	108	30	60	45	**72**	32	36	3,500	GERC32	11.7

Slim Angular Head

BT-SAH



Code system

B50	-	SAH	6	-	277
Spindle		Slim Angular head	Tool diameter		Length

- Angular head for narrow inside boring (min. inner diameter of workpiece: Ø40, min. boring width: 32 mm)
- MAX 3,500 RPM, Spindle: applied rotation ratio = 1:1.37
- Boring range: Ø3, Ø4, Ø6

Machining Features

Min. Ø40 Hole (except tool projection)	Min.32mm gap (except tool projection)
	

Clamping Force

Division	Measurement	Measured value (N-m)			
Clamp torque	2	2.5	3	3.5	4
Clamping Force	Not measurable	5.5	6.5	7	7

※ The moderate clamp torque of collet is 3.5N-m.

Exclusive collet

Designation	Clamping range	Stock
SAH6-C3	3	•
SAH6-C4	4	•
SAH-C6	6	•

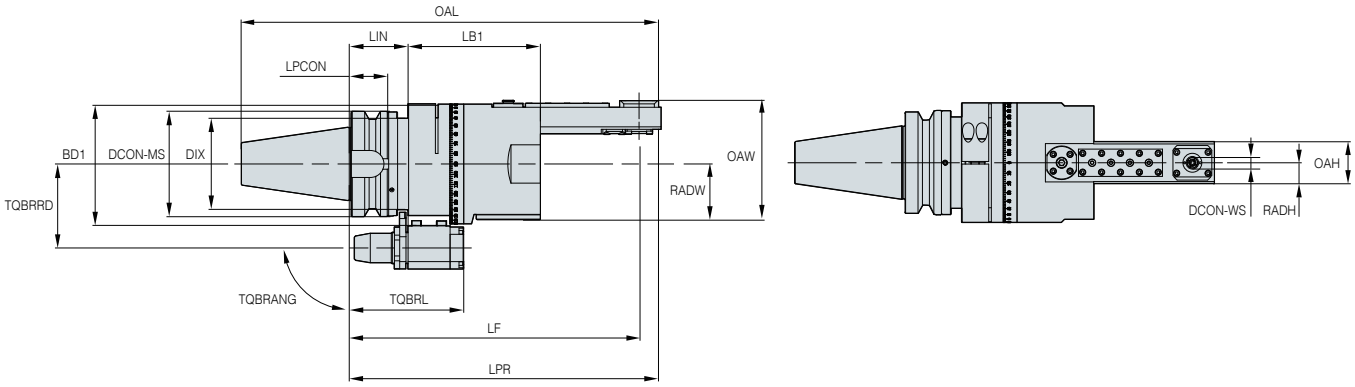


• 표시 : 재고관리품

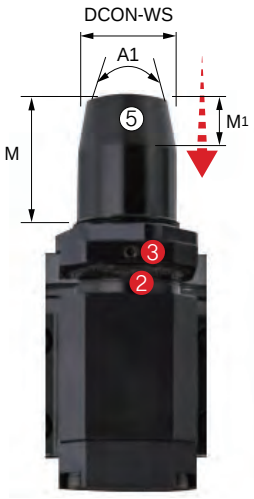
How to clamp



01. Couple the tool with SAH dedicated collet
02. Insert the coupled tool into SAH and fix it with a dedicated tightening jig
03. Turn the bolt using a hexagonal wrench



Positioning Pin



Shank	M	M1	A	DCON-WS
BT50	Max : 35 Min : 29	15	20°	Ø28

NO	Name
①	Head
②	Rotating angle graduation (Free radius position in 360°)
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Head fixing bolts	BX0618
2	Set screw	BT0404
3	Fixing bolts	BX0630

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON	OAW	RADW	OAH	DCON-WS	RADH	Rotation ratio (IN:OUT)	Rotation direction	RPMXX	kg
BT50-SAH6-277	100	87	114	80	277	298	104	90	399.8	57	126	38	113	53	40	10	20	1:1.37	CW:CW	3,500	15.2

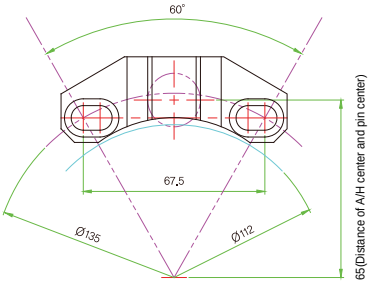
Positioning Block (For BT40)

POSITIONING BLOCK

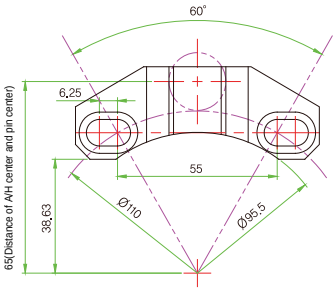
How to install the positioning block on the machine

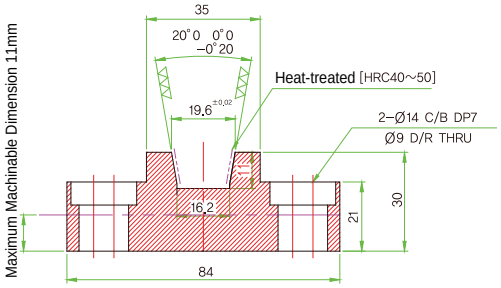
BT40 Customer Standard type - Group A (60° Standard type)

- In case Min. PCD=110mm
- Spindle diameter less than Ø94 available
- Keep the minimum distance 55mm between bolts



- In case Max. PCD=135mm
- Spindle diameter less than Ø112 available
- Keep the minimum distance 67.5mm between bolts

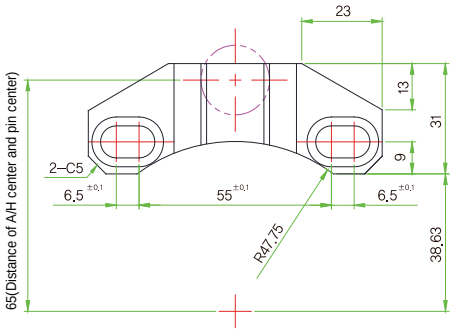


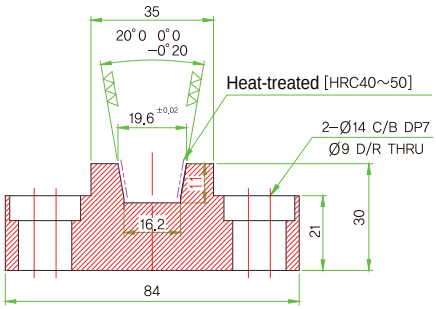


- Semi-finishing : Requires Block Height Machining
- The customer must machine the bottom of the block in person to use after determining the block height

※ Minimum block height : 19mm (based on the upper side)

- Only the taper part to be heat-treated
- Based on M10 in the case of less than M8, washer can be supplied





DINE Inc, provides the positioning block type as default. (Excluding BT30 Angular Head)

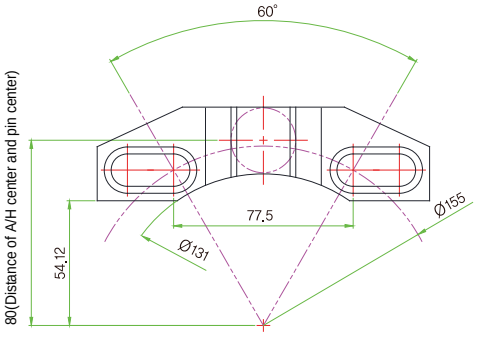
Positioning Block (For BT50)

POSITIONING BLOCK

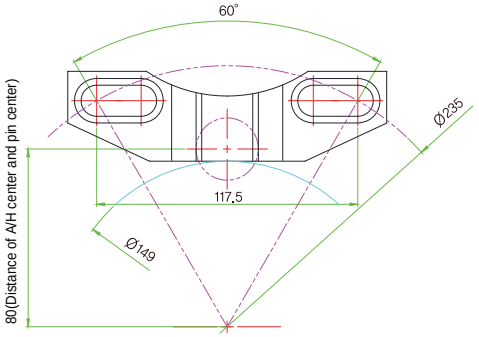
How to install the positioning block on the machine

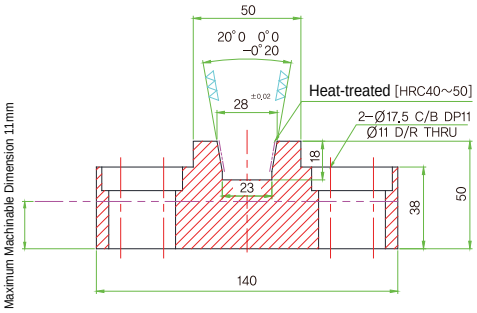
BT50 Customer Standard type - Group A (60° Standard type)

- In case Min. PCD=155mm
- Spindle diameter less than Ø130 available
- Keep the minimum distance 77.5mm between bolts



- In case Max. PCD=235mm
- Spindle diameter less than Ø148 available
- Keep the minimum distance 117.5mm between bolts

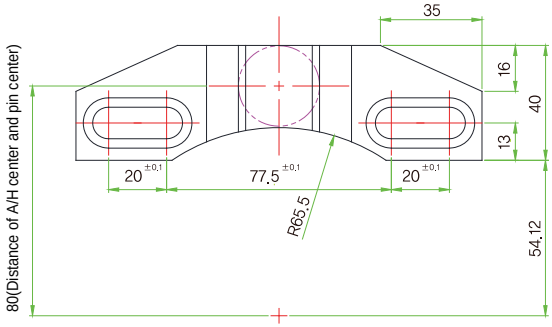


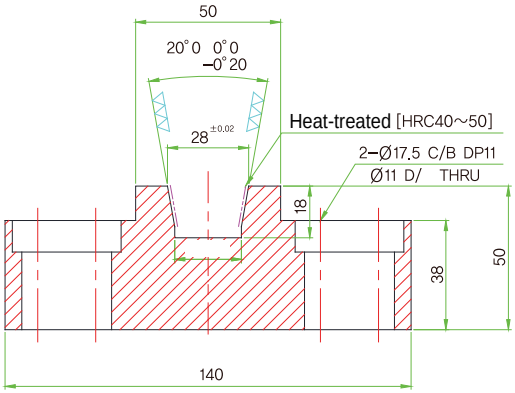


- Semi-finishing : Requires Block Height Machining
- The customer must machine the bottom of the block in person to use after determining the block height

※ Minimum block height : 28mm (based on the upper side)

- Only the taper part to be heat-treated
- Based on M10 in the case of less than M8, washer can be supplied





DINE Inc, provides the positioning block type as default. (Excluding BT30 Angular Head)

Air Turbine Machine

ATM



Code system

BT50	-	ATM	6	228	-	(ATC)
Spindle		Air Turbine Machine	Tool diameter	Length		ATC : Auto Tool Change Type NON : General

Features

- High-speed turbine rotation structure using compressed air (max. 50,000rpm)
- The conventional MCT can be compatible just by supplying high-pressure compressed air
- High-speed/precision machining is available regardless of the machine's age
- Continuous machining is possible for a long time due to rapid heat discharge

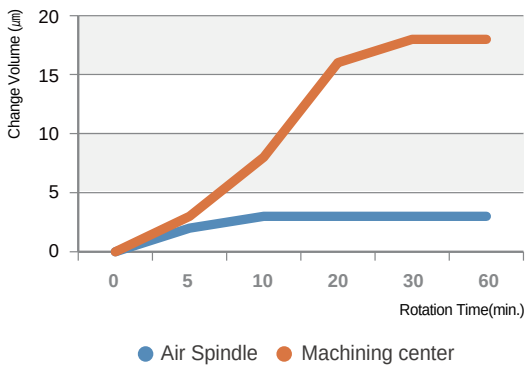
What is Air Spindle?

The air spindle is able to rotate at a high-speed (50,000 RPM) using compressed air, and realize performance the same as that of a high-speed processor even in a standard (conventional) machining center

Thermal Deformation Protection

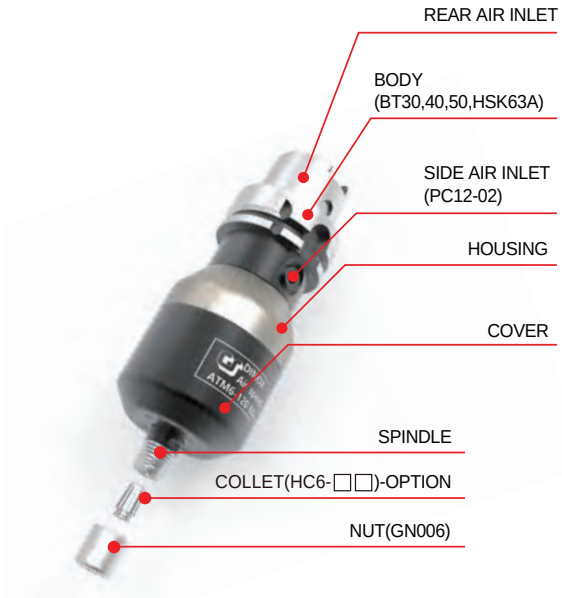
- It prevents an increase in temperature of the spindle using an air blade rotation method
- Prevents the deformation of the Z-axis by thermal deformation of the spindle

Z-axis Change with Rotation Time



Part Name

AIR SPINDLE



General type



How to Use

- Use in an equipment able to spray air on the main axis
- Able to perform ATC as there is no external air hose to be connected

Precautions

- When spraying the air on the main axis, be careful about introduction of foreign



How to Use

- Connect an external air hose
- Connect it directly to the regulator and minimize the introduction of foreign substances

Precautions

- Must separate the hose from the product in case of ATC
- Be careful when the main axis rotates

Auto Tool Change type



How to Use

- It is able to perform ATC and equipment rotation even on equipment with no air main
- The air is supplied on the Positioning Block, so ATC and equipment spindle rotation is possible
- The main axis can rotate at a low-speed, and the tool length can be corrected

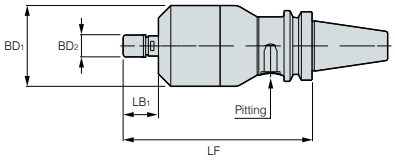
Processing Test

Air spindle has a shank and a body in a prefabricated shape, so the shank (BT30, BT40, BT50, HSK63A) can be easily adapted to different types of equipment

Equipment	Air Spindle <HSK63A-ATM6-170>	Machining center <Hydraulic Chuck>
Materials	SCM440 (HRC40)	SCM440 (HRC40)
RPM	50,000	20,000
Cycle Time	146 min.	276 min.
Axial-directional Displacement	5㎛	21㎛
Surface Roughness		
Note	Improved processing speed and surface roughness	Lowered surface roughness and tool life

BT-ATM

Air Spindle General type

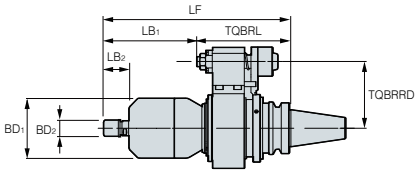


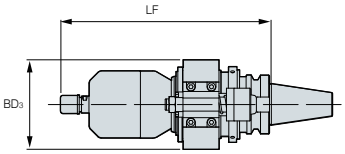
(mm)

Designation		BD1	BD2	LF	LB1	RPM (Based on 2 Bar of Regulator)	Pitting
BT30	ATM6-176	72	19.5	176	31.5	MAX 50,000	PC12-02
BT40	ATM6-171	72	19.5	171	31.5	MAX 50,000	PC12-02
BT50	ATM6-182	72	19.5	182	31.5	MAX 50,000	PC12-02

• This product does not support the internal coolant system

Air Spindle ATC type





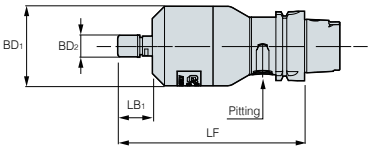
(mm)

Designation		BD1	BD2	BD3	LF	TQBRL	LB1	LB2	TQBRRD	RPM (Based on 2 Bar of Regulator)
BT40	ATM6-227(ATC)	72	19.5	96	227	114	113	32	80	MAX.50,000
BT50	ATM6-228(ATC)	72	19.5	96	228	115	113	32	80	MAX.50,000

• This product does not support the internal coolant system

HSK-ATM

Air Spindle General type

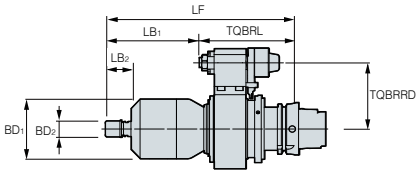


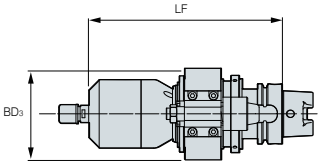
(mm)

Designation		BD1	BD2	LF	LB1	RPM (Based on 2 Bar of Regulator)	Pitting
HSK63A	ATM6-170	72	19.5	170	31.5	MAX 50,000	PC12-02

• This product does not support the internal coolant system

Air Spindle ATC type





(mm)

Designation		BD1	BD2	BD3	LF	TQBRL	LB1	LB2	TQBRRD	RPM (Based on 2 Bar of Regulator)
HSK63A	ATM6-235(ATC)	72	19.5	96	235	122	113	32	80	MAX.50,000

• This product does not support the internal coolant system

Air Spindle Related Parts

ATM(U) SPARE PART

Basic



(ATM)



(ATU)

Parts

Basic					
Images					
Components	Air Spindle	Air Regulator	Fitting	Spanner	Nut
Quantity	1	1	2	1	1

Type	AIR SPINDLE					
Spec	ATM(U)6 (BT30,40,50,HSK63A)				ATM	ATU
ATM components	No	Classification	Name	Designation	Quantity	Quantity
	1	Basic Specifications	ATM(U)6	□□□-ATM(U)6-□□□	1	1
	2		NUT	GN-06	1	1
	3		Regulator	TPC PP3-03BG	1	1
	4		Fitting	PC12-02	1	-
	5			PC12-03	1	2
	6		Spanner	GSK6-SPANNER	1	1
	7			S16 SPANNER	1	1
	8			S17 SPANNER	-	1
	9		Wrench	LW-1.5	-	1
	10			LW-2.5	-	1
	11			LW-3.0	-	1
	12			LW-6.0	-	1

Parts (Accessories)

Designation	Image	ØD1	L	MAX ØD	Distance	Positioning Block
HC6ØD(P)		10.5	25	6	1	

Angle Adjustment Air Spindle_(Universal type)

ATU



Code system

BT50	-	ATU	6	-	155
Spindle		Air Turbine Universal	Tool diameter		Length

Features

- Air spindle is applicable to multi-axis machining by adjusting the angle
- Air injection method can be selected (positioning pin or equipment main axis)
- ATC device is available

Product Structure and Characteristics

1) Angle Control

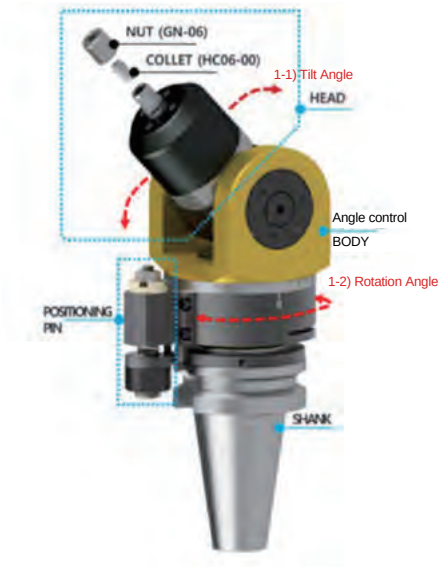
1-1) Tilt Angle: -90° ~ +90°

1-2) Rotation Angle: 0° ~ 360°

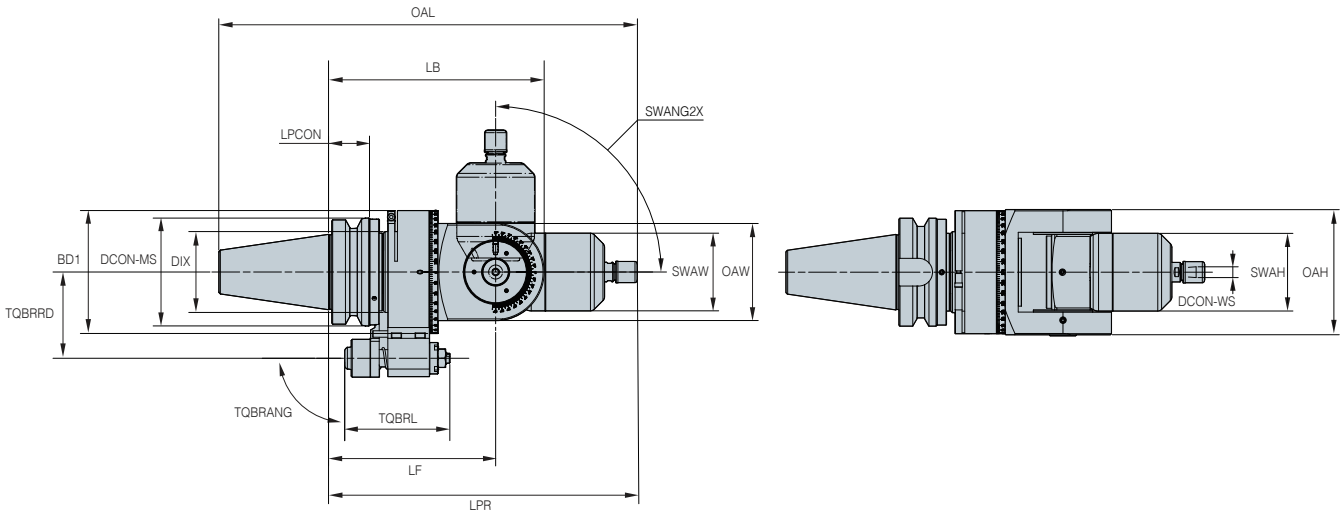
2) Air Injection Method

2-1) External air method

2-2) Equipment main axis method







Designation	DCON-MS	DIX	BD1	TQBBRD	LF	LPR	TQBRL	TQBRANG
BT50-ATU6-155	100	75	114	80	155	286.5	97.5	90
	LB	**OAL**	**LPCON**	**SWANG2X**	**SWAW**	**OAW**	**OAH**	**SWAH**	**DCON-WS**
	200	388.3	38	90	Ø72	90	116	Ø72	10

1. When using it, never rotate the main axis
2. Proper air pressure is based on the Max. RPM and a maximum of 50,000 RPM is available for both external air and main spindle method at approximately 3 bar of pressure
3. ATC is available

KORLOY Anti-Vibration tool

KORLOY Damping Pro

DAMPING PRO
Anti-Vibration Tool

- The application of a special design provides an excellent Anti-Vibration effect and is optimized for Overhang work
- Capable to elevate Feed comparing to standard arbor with stable machining
- Longer tool life and noise decrease
- Provides a solution for Mold, Deep Cavity machining, and Heavy-duty work

Code system

KDP	-	BT50	-	FMA25.4	-	260

KORLOY Damping Pro

Arbor Taper
BT Type
HSK Type
SK Type

FMA : JIS B4113 Face milling
FMB : T-MAX Face milling/Shoulder Cutter
FMC : T-MAX Face milling/Shoulder Cutter

Length of gauge line

Features



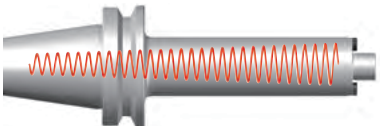
- **Anti-Vibration:** Exclusively designed Anti-Vibration structure
- **Material**: Special alloy steel
- **Anti-Vibration body:** Application of high density damper
- **Overhang:** Capable for 2D~5D
- **Coolant:** Inner coolant is capable

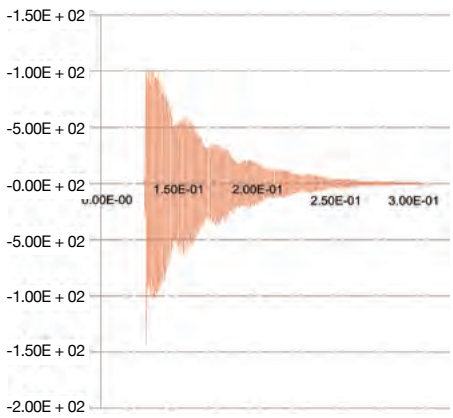
BT type	HSK type	SK type
		

[Various types and sizes are applicable]

Comparison of vibration damping time

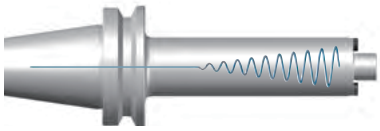
Standard Arbor

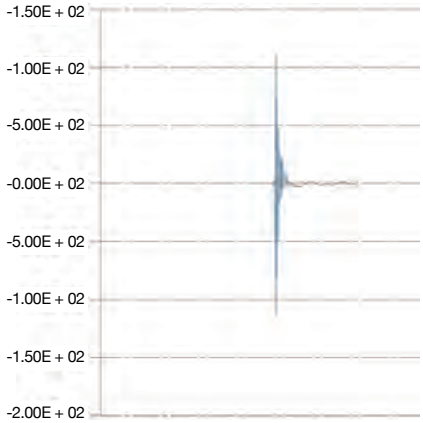




Longer Vibration damping time/
Chattering is caused while Overhang work

KORLOY Damping Pro





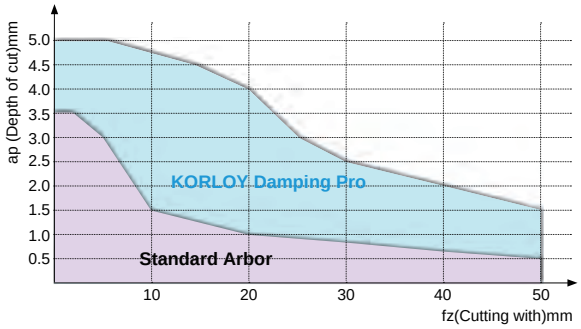
Short Vibration damping time/
Performance is 2~3 times better than standard arbor

Performance evaluation

Cutting condition fz = 0.1(mm/t), vc = 100 m/min

Cutter AMC4063HS, 6flute

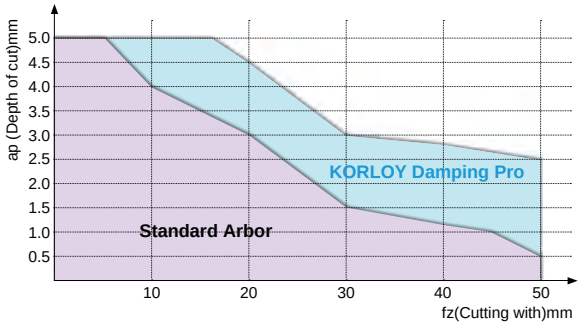
Arbor
- KDP–BT50–FMC22–210(Damping pro)
- BT50–FMC22–210(General arbor)



Cutting condition fz = 0.1(mm/t), vc = 100m/min

Cutter FMRC3063HRD–H, 6flute

Arbor
- KDP–BT50–FMC22–210(Damping pro)
- BT50–FMC22–210(General arbor)

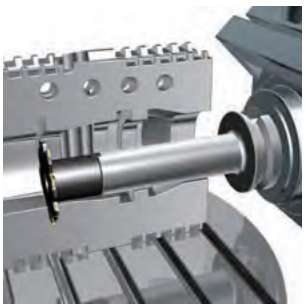


Application examples

Mold machining	Side milling cutter machining	Facing for long depth	Deep-hole Boring machining
			
Better productivity than general arbor	Excellent performance in the deep grooving	Better productivity and surface roughness than general arbor	Better surface roughness and machinability than general arbor

Side milling cutter machining example

- Faulty occurrence on size and surface roughness by the vibration, when use the general arbor
- **Using DAMPING PRO, good size and surface roughness**



General arbor

Cutting condition
vc = 50m/min
fz = 0.1mm/t
ae = 20mm

KORLOY Damping Pro

Cutting condition
vc = 100m/min
fz = 0.1mm/t
ae = 20mm

Big size Crankshaft machining example

- General arbor: ap = 2 mm
- KORLOY DAMPING PRO: ap = 4mm available
- **2 times better productivity**



General arbor

Cutting condition
vc = 100m/min
fz = 0.15mm/t
ap = 2mm

KORLOY Damping Pro

Cutting condition
vc = 100m/min
fz = 0.15mm/t
ap = 4mm

BT-FMA



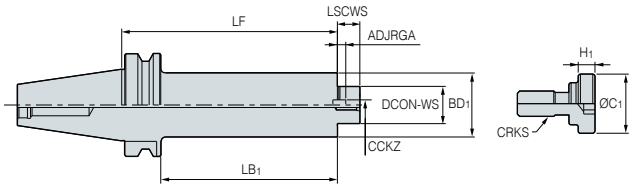


Fig. 1

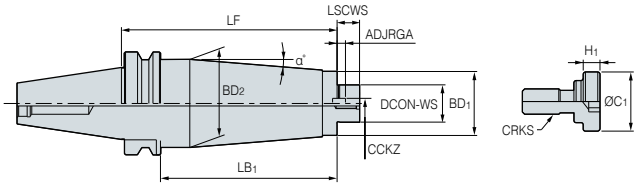


Fig. 2

(mm)

Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	C1	H1	kg	Fig.	α°
KDP-BT40 -	FMA25.4-210	80	25.4	210	183	50	60	22	9.5	5	M12	33	10	5.42	2	1
	FMA25.4-260	80	25.4	260	233	50	60	22	9.5	5	M12	33	10	6.5	2	1.1
	FMA31.75-210	100	31.75	210	183	60	-	30	12.7	7	M16	40	10	5.94	1	-
	FMA31.75-260	100	31.75	260	233	60	-	30	12.7	7	M16	40	10	7.25	1	-
KDP-BT50 -	FMA25.4-210	80	25.4	210	172	50	78	22	9.5	5	M12	33	10	9.63	2	4
	FMA25.4-260	80	25.4	260	222	50	78	22	9.5	5	M12	33	10	11.8	2	3
	FMA31.75-210	100	31.75	210	172	60	85	30	12.7	7	M16	40	10	11.8	2	3
	FMA31.7 -260	100	31.75	260	222	60	85	30	12.7	7	M16	40	10	13.6	2	2.5

- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMA25.4	K9.5 (B)	MBA-M12	BX0412	BX1225	LW-10
FMA31.75	K12.7 (D)	MBA-M16	BX0515	-	LW-14

BT-FMC



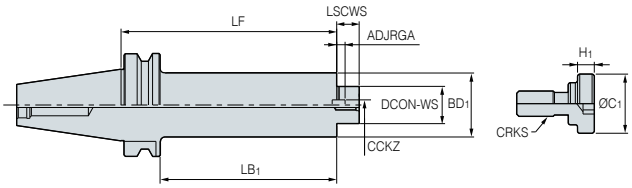


Fig. 1

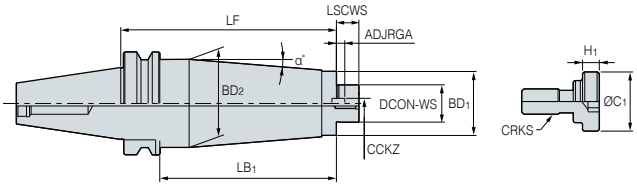


Fig. 2

(mm)

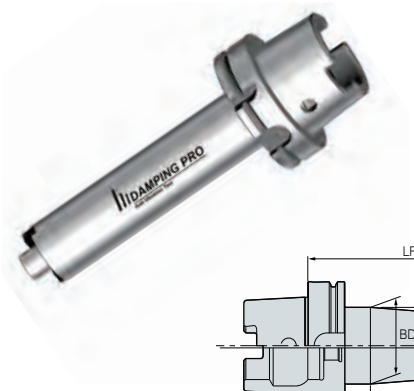
Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	kg	Fig.	α°
KDP-BT40 -	FMC16-160	40	16	160	133	38	-	17	8	5	M8	2.45	1	-
	FMC22-210	50/63	22	210	183	48	4.95	19	10	5.6	M10	4.37	2	0.1
	FMC22-260	50/63	22	260	233	48	60	19	10	5.6	M10	6.3	2	1.5
	FMC27-210	80	27	210	183	60	-	21	12	6.3	M12	6	1	-
	FMC27-260	80	27	260	233	60	-	21	12	6.3	M12	7.25	1	-
KDP-BT50 -	FMC16-171	40	16	171	133	38	-	17	8	5	M8	5.1	1	-
	FMC22-210	50/63	22	210	172	48	49.5	19	10	5.6	M10	7.3	2	0.1
	FMC22-260	50/63	22	260	222	48	62	19	10	5.6	M10	10	2	1
	FMC27-210	80	27	210	172	60	78	21	12	6.3	M12	10.6	2	2.5
	FMC27-260	80	27	260	222	60	78	21	12	6.3	M12	12.6	2	2
	FMC27-320	80	27	320	282	60	78	21	12	6.3	M12	14.8	2	1
	FMC32-210	100	32	210	172	78	-	24	14	7	M16	11.7	1	-
	FMC32-260	100	32	260	222	78	-	24	14	7	M16	14.2	1	-
	FMC32-330	100	32	330	292	78	-	24	14	7	M16	16.6	1	-

- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMC16	K8.0(A)	-	BX0310	BX0820	LW-6
FMC22	K10.0(C)	-	BX0412	BX1030	LW-8
FMC27	K12.0	MBA-M12	BX0616	-	LW-10
FMC32	K14.0	MBA-M16	BX0820	-	LW-14

HSK-FMA



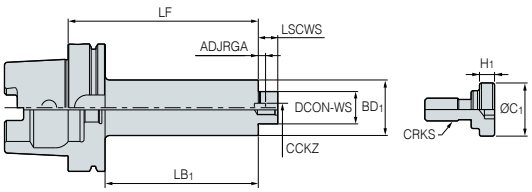


Fig. 1

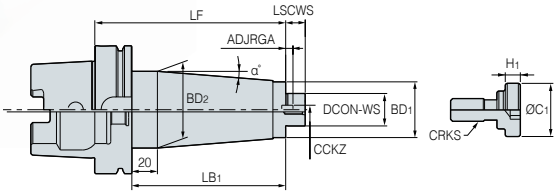


Fig. 2

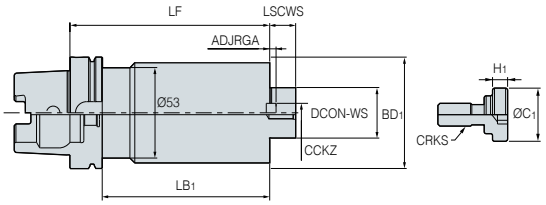


Fig. 3

(mm)

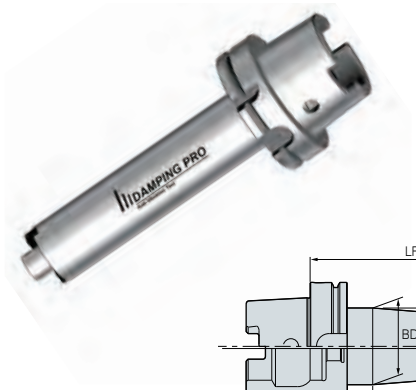
Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	C1	H1	kg	Fig.	α°
KDP-HSK63 -	FMA25.4-210	80	25.4	210	184	50	53	22	9.5	5	M12	33	10	4.55	3	0.1
	FMA25.4-260	80	25.4	260	234	50	53	22	9.5	5	M12	33	10	5.6	3	0.1
	FMA31.75-210	100	31.75	210	184	60	-	30	12.7	7	M16	40	10	5.52	2	-
	FMA31.75-260	100	31.75	260	234	60	-	30	12.7	7	M16	40	10	6.9	2	-
KDP-HSK100 -	FMA25.4-210	80	25.4	210	181	50	78	22	9.5	5	M12	33	10	8.32	3	4
	FMA25.4-260	80	25.4	260	231	50	78	22	9.5	5	M12	33	10	10.5	3	3
	FMA31.75-210	100	31.75	210	181	60	85	30	12.7	7	M16	40	10	10.9	3	3
	FMA31.75-260	100	31.75	260	231	60	85	30	12.7	7	M16	40	10	12.8	3	2.5

- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMA25.4	K9.5(B)	MBA-M12	BX0412	BX1230	LW-10
FMA31.75	K12.7(D)	MBA-M16	BX0515	-	LW-14

HSK-FMC



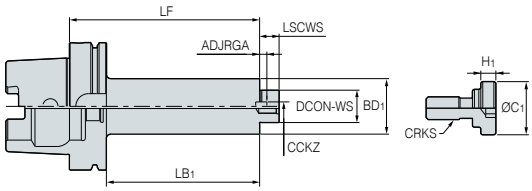


그림 1

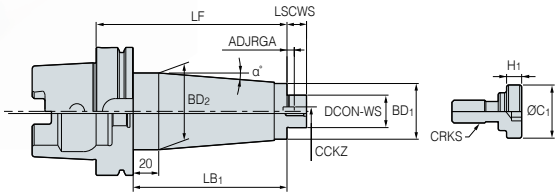


그림 2

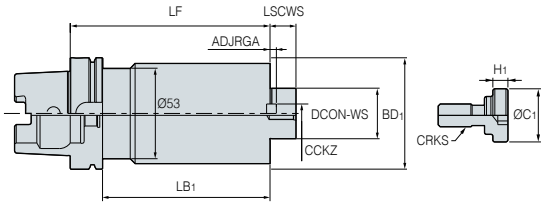


그림 3

(mm)

Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	kg	Fig.	α°
KDP-HSK63 -	FMC16-160	40	16	160	134	38	-	17	8	5	M8	2.10	1	-
	FMC22-210	50/63	22	210	184	48	4.95	19	10	5.6	M10	3.82	1	0.1
	FMC22-260	50/63	22	260	234	48	62	19	10	5.6	M10	6.14	3	1.6
	FMC27-210	80	27	210	184	60	-	21	12	6.3	M12	5.53	2	-
	FMC27-260	80	27	260	234	60	-	21	12	6.3	M12	6.83	2	-
KDP-HSK100 -	FMC16-160	40	16	160	131	38	-	17	8	5	M8	3.45	1	-
	FMC22-210	50/63	22	210	181	48	49.5	19	10	5.6	M10	4.60	3	0.1
	FMC22-260	50/63	22	260	231	48	62	19	10	5.6	M10	8.10	3	1
	FMC27-210	80	27	210	181	60	78	21	12	6.3	M12	8.44	3	2.5
	FMC27-260	80	27	260	231	60	78	21	12	6.3	M12	10.40	3	2
	FMC27-320	80	27	320	291	60	78	21	12	6.3	M12	13.60	3	1
	FMC32-210	100	32	210	181	78	-	24	14	7	M16	10.20	1	-
	FMC32-260	100	32	260	231	78	-	24	14	7	M16	13.00	1	-
	FMC32-330	100	32	330	301	78	-	24	14	7	M16	15.43	1	-

- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMC16	K8.0(A)	-	BX0310	BX0820	LW-6
FMC22	K10.0(C)	-	BX0412	BX1030	LW-8
FMC27	K12.0	MBA-M12	BX0616	-	LW-10
FMC32	K14.0	MBA-M16	BX0820	-	LW-14

SK-FMC



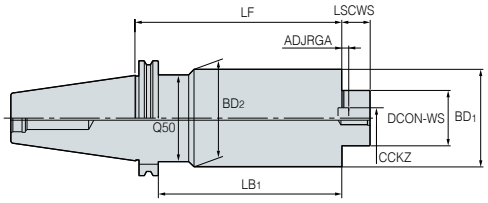


Fig. 1

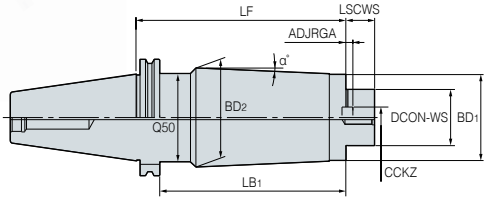


Fig. 2

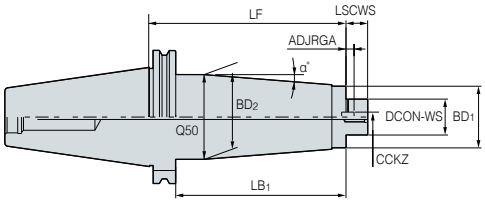


Fig. 3

(mm)

Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	kg	Fig.	α°
KDP-SK40 -	FMC22-210	50/63	22	210	183.0	48	49.5	19	10	4.4	M10	4.4	3	0.1
	FMC22-260	50/63	22	260	233.0	48	60	19	10	5.6	M10	6.2	2	1.4
	FMC27-210	80	27	210	183.0	60	60	21	12	6.3	M12	5.9	1	-
	FMC27-260	80	27	260	233.0	60	60	21	12	6.3	M12	7.2	1	-
KDP-SK50 -	FMC22-210	50/63	22	210	190.9	48	49.5	19	10	5.6	M10	6.4	3	0.1
	FMC22-260	50/63	22	260	240.9	48	62	19	10	5.6	M10	9.1	3	1
	FMC27-210	80	27	210	190.9	60	78	21	12	6.3	M12	9.8	3	2.5
	FMC27-260	80	27	260	240.9	60	78	21	12	6.3	M12	12.4	3	1.8
	FMC27-320	80	27	320	300.9	60	78	21	12	6.3	M12	14.5	3	1.2
	FMC32-210	100	32	210	190.9	78	-	24	14	7	M16	11.5	1	-
	FMC32-260	100	32	260	240.9	78	-	24	14	7	M16	14	1	-
	FMC32-330	100	32	330	310.9	78	-	24	14	7	M16	16.4	1	-

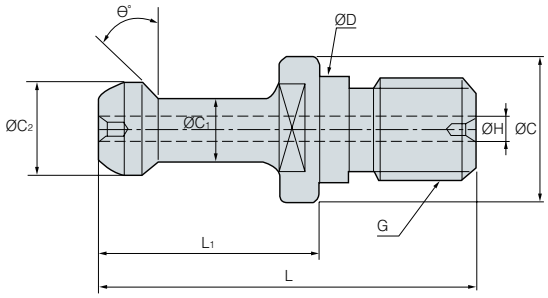
- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMC16	K8.0(A)	-	BX0310	BX0820	LW-6
FMC22	K10.0(C)	-	BX0412	BX1030	LW-8
FMC27	K12.0	MBA-M12	BX0616	-	LW-10
FMC32	K14.0	MBA-M16	BX0820	-	LW-14

Pull Stud Bolt



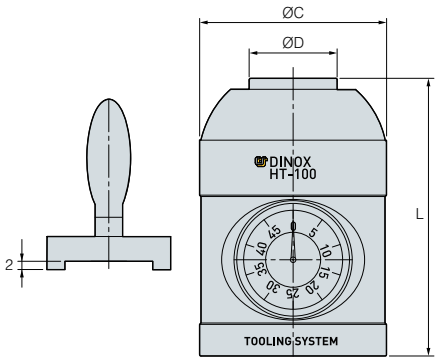


(mm)

Designation	DC	ØC	ØC1	ØC2	L1	L	θ	G	ØH
P20T-1	8.5	12	6	8.5	17.5	31.5	15°	M8	
P30T-1	12.5	16.5	7	11	23	43	45°	M12	
P30T-1(Ø2.5)	12.5	16.5	7	11	23	43	45°	M12	Ø2.5
P30T-2	12.5	16.5	7	11	23	43	30°	M12	
P30T-2(Ø2.5)	12.5	16.5	7	11	23	43	30°	M12	Ø2.5
P40T-1	17	23	10	15	35	60	45°	M16	
P40T-1(3)	17	23	10	15	35	60	45°	M16	Ø3
P40T-2	17	23	10	15	35	60	30°	M16	
PS40-3F	17	23	10	15	35	60	0°	M16	
PS-G51	17	22	12.45	18.8	19.11	44.11	45°	M16	Ø7
DIN69872-A40	17	23	14	19	26	54	15°	M16	Ø7
DIN69872-B40	17	23	14	19	26	54	15°	M16	
JISB6339-A40(PS-806)	17	23	14	19	29	54	15°	M16	Ø7
JISB6339-B40(PS-805)	17	23	14	19	29	54	15°	M16	
P50T-1	25	38	17	23	45	85	45°	M24	
P50T-1(7)	25	38	17	23	45	85	45°	M24	Ø7
P50T-2	25	38	17	23	45	85	30°	M24	
PS50-1F	25	38	17	23	45	85	0°	M24	
PS50-1FH	25	38	17	23	45	85	0°	M24	Ø8
PS-G41	25	37	20.83	28.96	25.2	65.2	45°	M24	Ø10
DIN69872-A50	25	36	21	28	34	74	15°	M24	Ø11.5
P50T-1HS	25	38	17	23	45	85	45°	M24	Ø5.7

HT





(mm)

Designation	ØD	ØC	L
HT-100	32	68	100

- Good for setting the Tool length at CNC machine
- No inturferance between height Touch setter and Tool makes safe work
- Location Accuracy: ±0.003 mm

PART F

TECHNICAL INFORMATION

Technical information for TECHNICAL INFORMATION

Technical Information I

F2 Workpiece Material Grades
F6 Steel, Non-Ferrous Metal Symbol List
F7 SI Unit Conversion Table
F8 Hardness Calculating Table

Technical Information II

F9 Inch
F10 Metric - ISO6462, DIN138
F11 Clamping Part of Milling Cutter (Oil-hole)
F12 Technical Information for Milling
F16 Technical Information for Tapers
F19 The Comparison of Grade for Milling



Workpiece Material Grades

Carbon steel and alloy steel for structural use

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Carbon steel		SM10C	C10	S10C	1010	040A10 045A10 045M10	C10E C10R	XC10	-
		SM15C	C15E4 C15M2	S15C	1015	055M15	C15E C15R	-	-
		SM20C	-	S20C	1020	070M20 C22, C22E C22R	C22 C22E C22R	C22 C22E C22R	-
		SM25C	C25 C25E4 C25M2	S25C	1025	C25 C25E C25R	C25 C25E C25R	C25 C25E C25R	-
		SM30C	C30 C30E4 C30M2	S30C	1030	080A30 080M30 CC30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30Г
		SM35C	C35 C35E4 C35M2	S35C	1035	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35Г
		SM40C	C40 C40E4 C40M2	S40C	1039 1040	080M40 C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40Г
		SM43C	-	S43C	1042 1043	080A42	-	-	40Г
		SM45C	C45 C45E4 C45M2	S45C	1045 1046	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45Г
		SM48C	-	S48C	-	080A47	-	-	45Г
		SM50C	C50 C50E4 C50M2	S50C	1049	080M50 C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50Г
		SM53C	-	S53C	1050 1053	-	-	-	50Г
		SM55C	C55 C55E4 C55M2	S55C	1055	070M55 C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	-
		SM58C	C60 C60E4 C60M2	S58C	1059 1060	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60Г
Alloy steel	Nickel chromium steel	SNC236 SNC415(H) SNC631(H) SNC815(H) SNC836	- - - 15NiCr13 -	SNC236 SNC415(H) SNC631(H) SNC815(H) SNC836	- - - - -	- - - 655M13(655H13) -	- - - 15NiCr13 -	- - - - -	40XH - 30XH3A - -
	Nickel chromium molybdenum steel	SNCM220	20NiCrMo2 20NiCrMoS2	SNCM220	8615 8617(H) 8620(H) 8622(H)	805A20 805M20 805A22 805M22	20NiCrMo2 20NiCrMoS2	20NCD2	-
		SNCM240	41CrNiMo2 41CrNiMoS2	SNCM240	8637 8640	-	-	-	-
		SNCM415 SNCM420(H) SNCM431 SNCM439 SNCM447 SNCM616 SNCM625 SNCM630 SNCM815	- - - - - - - - -	SNCM415 SNCM420(H) SNCM431 SNCM439 SNCM447 SNCM616 SNCM625 SNCM630 SNCM815	- 4320(H) - 4340 - - - - -	- - - - - - - - -	- - - - - - - - -	- - - - - - - - -	- 20XH2M(20XHM) - - - - - - -
	Chromium steel	SCr415(H)	-	SCr415(H)	-	-	17Cr3 17CrS3	-	15X 15XA
		SCr420(H)	20Cr4(H) 20CrS4	SCr420(H)	5120(H)	-	-	-	20X
		SCr430(H)	34Cr4 34CrS4	SCr430(H)	5130(H) 5132(H)	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X
		SCr435(H)	34Cr4 34CrS4 37Cr4 37CrS4	SCr435(H)	5135(H)	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X
		SCr440(H)	37Cr4 37CrS4 41Cr4 41CrS4	SCr440(H)	5140(H)	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
		SCr445(H)		SCr445(H)					45X

*The above Alloy steel can supplied by domestic manufacturing

Carbon steel and alloy steel for structural use

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Alloy steel	Chromium molybdenum steel	SCM415(H)	-	SCM415(H)	-	-	-	-	-
		SCM418(H)	18CrMo4 18CrMoS4	SCM418(H)	-	-	18CrMo4 18CrMoS4	-	20XM
		SCM420(H)	-	SCM420(H)	-	708M20(708H20)	-	-	20XM
		SCM430	-	SCM430	4130	-	-	-	30XM 30XMA
		SCM432	-	SCM432	-	-	-	-	-
		SCM435(H)	34CrMo4 34CrMoS4	SCM435(H)	(4135H) 4137(H)	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM
		SCM440(H)	42CrMo4 42CrMoS4	SCM440(H)	4140(H) 4142(H)	708M70 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	-
		SCM445(H)	-	SCM445(H)	4145(H) 4147(H)	-	-	-	-
	Manganese steel and Manganese chromium steel	SMn420(H)	22Mn6(H)	SMn420(H)	1522(H)	150M19	-	-	-
		SMn433(H)	-	SMn433(H)	1534	150M36	-	-	30Г2 35Г2
		SMn438(H)	36Mn6(H)	SMn438(H)	1541(H)	150M36			35Г2 40Г2
		SMn443(H)	42Mn6(H)	SMn443(H)	1541(H)	-	-	-	40Г2 45Г2
		SMnC420(H)	-	SMnC420(H)	-	-	-	-	-
		SMnC443(H)	-	SMnC443(H)	-	-	-	-	-
	Aluminum chromium molybdenum steel	SACM645	41CrAlMo74	SACM645	-	-	-	-	-

*The above Alloy steel can supplied by domestic manufacturing

Tool steel

Type	Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
	KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
High speed steel	SKH2	HS18-0-1	SKH2	T1				
	SKH3	-	SKH3	T4				
	SKH4	-	SKH4	T5				
	SKH10	-	SKH10	T15	BM 2	S6/5/2	Z 85 WDCV	
	SKH51	HS6-5-2	SKH51	M2				
	SKH52	HS6-6-2	SKH52	M3-1				
	SKH53	HS6-5-3	SKH53	M3-2				
	SKH54	HS6-5-4	SKH54	M4	BM 35	S6/5/2/5	6-5-2-5	
	SKH55	HS6-5-2-5	SKH55	M 35				
	SKH56	-	SKH56	M36				
	SKH57	HS10-4-3-10	SKH57	-		S2/9/2		
	SKH58	HS2-9-2	SKH58	M7				
	SKH59	HS2-9-1-8	SKH59	M42				
Alloy tool steel	STS11	-	SKS11	F2				
	STS2	-	SKS2	-				
	STS21	-	SKS21	-				
	STS5	-	SKS5	-				
	STS51	-	SKS51	L6				
	STS7	-	SKS7	-				
	STS8	-	SKS8	-				
	STS4	-	SKS4	-				
	STS41	-	SKS41	-				
	STS43	105V	SKS43	W2-9 1/				
	STS44	-	SKS44	W2-8 1-2				
	STS3	-	SKS3	-		105WCr6	105WC13	
	STS31	105WCr1	SKS31	-				
	STS93	-	SKS93	-				
	STS94	-	SKS94	-				
	STS95	-	SKS95	-	BD3	X210Cr12	Z200C12	
	STD1	210Cr12	SKD1	D3				
	STD11	-	SKD11	D2	BA2	X100CrMoV5 1	Z100CDV5	
	STD12	100CrMoV5	SKD12	A2				
	STD4	-	SKD4	-	BH21	X30WCrV9 3	Z30WCV9	
	STD5	X30WCrV9-3	SKD5	H21				
	STD6	X37CrMoV5-1	SKD6	H11	BH13	X40CrMoV5 1	Z40CDV5	
	STD61	X40CrMoV5-1	SKD61	H13				
	STD62	X35CrWMoV5	SKD62	H12				
	STD7	32CrMoV12-28	SKD7	H10				
	STD8	-	SKD8	H19				
	STF3	-	SKT3	-		55NiCrMoV6	55NCDV7	
	STF4	55NiCrMoV7	SKT4	L6				

*The above Alloy steel can supplied by domestic manufacturing

Tool steel

Type	Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
	KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Free cutting carbon steel	SUM11	-	SUM11	1110				
	SUM12	-	SUM12	1109				
	SUM21	9S20	SUM21	1212				
	SUM22	11SMn28	SUM22	1213	230M07	9SMn28	S250	
	SUM22L	11SMnPb28	SUM22L	12L13		9SMnPb28	S250Pb	
	SUM23	-	SUM23	1215	240M07	9SMn36	S 300	
	SUM23L	-	SUM23L	-				
	SUM24L	11SMnPb28	SUM24L	12L14		9SMnPb36	S300Pb	
	SUM25	12SMn35	SUM25	-				
	SUM31	-	SUM31	1117				
	SUM31L	-	SUM31L	-				
	SUM32	-	SUM32	-				
	SUM41	-	SUM41	1137				
	SUM42	-	SUM42	1141				
	SUM43	44SMn28	SUM43	1144				
High carbon chromiom	STB1	-	SUJ1	-				
	STB2	B1	SUJ2	52100	534A99	100Cr6	100Cr6	
	STB3	B2	SUJ3	ASTM A 485 Grade 1				
	STB4	-	SUJ4	-				
	STB5	-	SUJ5	-				

*The above Alloy steel can supplied by domestic manufacturing

Stainless steel

Type		Korea	ISO	Japan	U.S.A		Great Britain	Germany	France	Russia
		KS	ISO	JIS	UNS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Stainless steel	Austenitic	STS201	X12CrMnNiN17-7-5	SUS201	S20100	201	284S16	X12CrNi17-7	Z12CMN17-07Az	12X17•9AH4
		STS202	X12CrMnNiN18-9-5	SUS202	S20200	202	301S21	X2CrNiN18-7		07X16H6
		STS301	X10CrNi18-8	SUS301	S30100	301		X12CrNi17-7	Z11CN17-08	
		STS301L	X2CrNiN18-7	SUS301L						
		STS301J1		SUS301J1			302S25			12X18H9
		STS302		SUS302	S30200	302		X10CrNiS18-9	Z12CN18-09	
		STS302B	X12CrNiSi18-9-3	SUS302B	S30215	302B	303S21			
		STS303	X10CrNiS18-9	SUS303	S30300	303	303S41		Z8CNF18-09	12X18H10E
		STS303Se		SUS303Se	S30323	303Se		X5CrNi18-10		
		STS303Cu		SUS303Cu			304S31			08X18H10
		STS304	X5CrNi18-9 X2CrNi18-9	SUS304	S30400	304	304S11	X2CrNi19-11	Z7CN18-09	03X18H11
		STS304L	X2CrNi19-11	SUS304L	S30403	304L		X2CrNiN18-10	Z3CN19-11	
		STS304N1	X5CrNiN18-8	SUS304N1	S30451	304N			Z6CN19-09Az	
		STS304LN	X2CrNiN18-8	SUS304LN	S30453	304LN		X5CrNi18-12	Z3CN18-10Az	
		STS304J1		SUS304J1			305S19			06X18H11
		STS305	X6CrNi18-12	SUS305	S30500	305			Z8CN18-12	
		STS309S		SUS309S	S30908	309S	310S31	X5CrNiMo27-12-2	Z10CN24-13	10X23H18
		STS310S	X6CrNi25-20	SUS310S	S31008	310S	316S31	X5CrNiMo27-13-3	Z8CN25-20	
		STS316	X5CrNiMo17-12-2 X3CrNiMo17-12-3	SUS316	S31600	316	316S11	X2CrNiMo17-13-2 X2CrNiMo17-14-3	Z7CND17-12-02 Z6CND18-12-03	03X17H14M3
		STS316L	X2CrNiMo17-12-2 X2CrNiMo17-12-3 X2CrNiMo18-14-3	SUS316L	S31603	316L			Z3CND17-12-02 Z3CND17-12-03	
		STS316N		SUS316N	S31651	316N	317S16	X6CrNiTi18-10		
		STS317		SUS317	S31700	317	321S31	X6CrNiNb18-10		08X18H10T
		STS321	X6CrNiTi18-10	SUS321	S32100	321	347S31		Z6CNT18-10	08X18H12
		STS347	X6CrNiNb18-10	SUS347	S34700	347		X6CrAl13	Z6CNNb18-10	
		STS384	X3NiCr18-16	SUS384	S38400	384	405S17		Z6CN18-16	
	Ferritic	STS405	X6CrAl13	SUS405	S40500	405			Z8CA12	
		STS410L		SUS410L				X6Cr17	Z3C14	
		STS429		SUS429	S42900	429	430S17	X7CrS18		12X17
		STS430	X6Cr17	SUS430	S43000	430		X6CrMo17-1	Z8C17	
		STS430F	X7CrS17	SUS430F	S43020	430F	434S17		Z8CF17	
		STS434	X6CrMo17-1	SUS434	S43400	434			Z8CD17-01	
		STS444	X2CrMoTi18-2	SUS444	S44400	444			Z3CDT18-02	
		STSXM27		SUSXM27	S44627			X10Cr13	Z1CD26-01	
	Martensitic	STS403		SUS403	S40300	403	410S21			
		STS410	X12Cr13	SUS410	S41000	410	416S21	X20Cr13	Z13C13	
		STS416	X12CrS13	SUS416	S41600	416	420S29	X20CrNi17-2	Z11CF13	20X13
		STS420J1	X20Cr13	SUS420J1	S42000	420	431S29		Z20C13	20X17H2
		STS431	X19CrNi16-2	SUS431	S43100	431			Z15CN16-02	
		STS440A	X70CrMo15	SUS440A	S44002	440A		X7CrNiAl17-7	Z70C15	
	Precipitation hardening type	STS630	X5CrNiCuNb16-4	SUS630	S17400	S17400			Z6CNU17-04	09X17H7IO
		STS631	X7CrNiAl17-7	SUS631	S17700	S17700			Z9CNA17-07	
		STS631J1		SUS631J1						

*The above Alloy steel can supplied by domestic manufacturing

Casting or forging steel

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Casting Iron	Grey iron casting	GC100 GC150 GC200 GC250 GC300 GC350	100,150, 200, 250, 300, 350	FC100 FC150 FC200 FC250 FC300 FC350	No 20 B No 25 B No 30 B No 35 B No 45 B No 50 B No 55 B	 Grade 150 Grade 220 Grade 260 Grade 300 Grade 350 Grade 400	GG 10 GG 15 GG 20 GG 25 GG 30 GG 35 GG 40	Ft 10 D Ft 15 D Ft 20 D Ft 25 D Ft 30 D Ft 35 D Ft 40 D	
	Spheroidal graphite iron casting	GCD400-15, GCD400-18 GCD450-10, GCD500-7 GCD600-3 GCD700-2	400-15, 400-18 450-10, 500-7 600-3 700-2	FCD400 FCD500 FCD600 FCD700	60-40-18 65-45-12 80-55-06 100-70-03	SNG 420/12 SNG 370/17 SNG 500/7 SNG 600/3 SNG 700/2	GGG 40 GGG 40.3 GGG 50 GGG 60 GGG 70	FCS 400-12 FGS 370-17 FGS 500-7 FGS 600-3 FGS 700-2	
	Austempered Spheroidal graphite iron casting	FCAD	-	FCAD	-	EN-GJS-	EN-GJS-	EN-GJS-	
	Austenitic iron casting	FCA- FCDA-	L-, S-	FCA- FCDA-	Type 1, 2, Type D-2, D-3A Class 1, 2	F1, F2, S2W, S5S	GGL-, GGG-	L-, S-	

Non-ferrous alloy

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Aluminum alloy	Aluminum alloy ingots for casting	AC1B	Al-Cu4MgTi	AC1B	204.0	-	-	A-U5GT	
		AC2A	-	AC2A	-	-	-	-	
		AC2B	-	AC2B	319.0	-	-	-	
		AC3A	-	AC3A	-	LM-6	-	-	
		AC4A	-	AC4A	-	-	G(GK)-AlSi9Cu3	-	
		AC4B	-	AC4B	-	-	-	-	
		AC4C	Al-Si7Mg(Fe)	AC4C	356.0	LM-25	G(GK)-AlSi7MG	A-S7G	
		AC4CH	Al-Si7Mg	AC4CH	A356.0	-	-	-	
		AC4D	Al-Si5Cu1Mg	AC4D	355.0	LM-16	-	-	
		AC5A	Al-Cu4Ni2Mg2	AC5A	242.0	-	G(GK)-AlMg5	A-U4NT	
		AC7A	-	AC7A	514.0	LM-5	-	-	
		AC8A	-	AC8A	-	LM-13	-	A-S12UNG	
		AC8B	-	AC8B	-	LM-26	-	A-S10UG	
		AC8C	-	AC8C	-	-	-	A-S10UG	
		AC9A	-	AC9A	-	LM-29	-	-	
		AC9B	-	AC9B	-	-	GD-AlSi12 (Cu)	A-S18UNG	
	Aluminum alloy die casting	ALDC1	Al-Si12CuFe	ADC1	A413.0	LM20	GD-AlSi10Mg	A-S13	
		ALDC2	-	ADC3	A360.0	-	GD-AlMg9	A-S9G	
		ALDC3	-	ADC5	518.0	-	-	A-G6	
		ALDC4	-	ADC6	-	-	GD-AlSi9Cu3	A-G3T	
		ALDC7	Al-Si8Cu3Fe	ADC10	A380.0	-	GD-AlSi9Cu3	-	
		ALDC7Z	Al-Si8Cu3Fe	ADC10Z	A380.0	LM24	-	-	
		ALDC8	-	ADC12	383.0	LM2	-	-	
		ALDC8Z	-	ADC12Z	383.0	LM2	-	-	
		ALDC9	-	ADC14	B390.0	LM30	EN AW-5052	-	
	Aluminum alloy extruded shapes	A5052S	-	A5052S	5052	EN AW-5052	EN AW-5454	EN AW-5052	
		A5454S	-	A5454S	5454	EN AW-5454	EN AW-5083	EN AW-5454	
		A5083S	AlMg4.5Mn0.7	A5083S	5083	EN AW-5083	EN AW-5086	EN AW-5083	
		A5086S	-	A5086S	5086	EN AW-5086	EN AW-6061	EN AW-5086	
		A6061S	AlMg1SiCu	A6061S	6061	EN AW-6061	EN AW-6063	EN AW-6061	
		A6063S	AlMg0.7Si	A6063S	6063	EN AW-6063	EN AW-7003	EN AW-6063	
		A7003S	-	A7003S	-	EN AW-7003	-	EN AW-7003	
		A7N01S	-	A7N01S	-	-	EN AW-7075	-	
		A7075S	AlZn5.5MgCu	A7075S	7075	EN AW-7075		EN AW-7075	

Heat resistant steel

Type		Korea	ISO	Japan	U.S.A		Great Britain	Germany	France	Russia
		KS	ISO	JIS	UNS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Heat resistant steel	Austenitic	STR31		SUH31			331S42		Z35CNWS14-14	
		STR35		SUH35			349S52	X53CrMnNi21-9	Z52CMN21-09-Az	
		STR36		SUH36			349S54		Z55CMN21-09-Az	
		STR37		SUH37	S63008		381S34			
		STR38		SUH38	S63017					
		STR309		SUH309			309S24	CrNi2520	Z15CN24-13	
		STR310		SUH310	S30900		310S24		Z15CN25-20	
		STR330		SUH330	S31000	309			Z12NCS35-16	
		STR660		SUH660	N08330	310			Z6NCTV25-20	
		STR661		SUH661	S66286	N08330		CrAl1205		
	Ferritic	STR21		SUH21	R30155			X6CrTi12		
		STR409	X6CrTi12	SUH409			409S19		Z6CT12	
		STR409L	X2CrTi12	SUH409L	S40900				Z3CT12	
		STR446		SUH446		409		X45CrSi9-3	Z12C25	
	Martensitic	STR1		SUH1	S44600		401S45		Z45CS9	
		STR3		SUH3	S65007	446			Z40CSD10	
		STR4		SUH4			443S65		Z80CSN20-02	
		STR11		SUH11						
		STR600		SUH600						
		STR616		SUH616	S42200					

*The above Heat resistant steel can supplied by domestic manufacturing

Steel, Non-Ferrous Metal Symbol List

Comparison of workpiece material standards

Group	Standard term	Code
Structural Steel	Rolled Steel for Welded Structure	SWS
	Rerolled Steel	SBR
	Rolled Steel for General Structure	SB
	Light Gauge Steel for General Structure	SBC
	Hot- rolled Steel Plate, Sheet/ Strip for Automobile Structural Use	SAPH
Steel Plate	Cold-rolled Steel Sheet/Strip	SBC
	Hot-rolled Soft Steel Sheet/Strip	SHP
Steel Pipe	Carbon Steel Pipe for Ordinary Piping	SPP
	Carbon Steel Pipe for Boiler and Heat Exchanger	STH
	Seamless Steel Pipe for High Pressure Gas Cylinder	STHG
	Carbon Steel Pipe for General Structural Use	SPS
	Carbon Steel Pipe for Machine Structural Use	STST
	Alloy Steel Pipe for Structural Use	STA
	Stainless Steel Pipe for Machine and Structural Use	STS-TK
	Carbon Steel Square Pipe for General Structural Use	SPSR
	Alloy Steel Pipe	SPA
	Carbon Steel Pipe for Pressure Service	SPPS
	Carbon Steel Pipe for High Temperature Service	SPSR
	Carbon Steel Pipe for High Pressure Service	SPPH
	Stainless Steel Pipe	STSxT
Iron and Steel	Carbon Steel for Machine Structural Use	SMxxC, SMxxCK
	Aluminum Chromium Molybdenum Steel	SACM
	Chromium Molybdenum Steel	SCM
	Chromium Steel	SCr
	Nickel Chromium Steel	SNC
	Nickel Chromium Molybdenum Steel	SNCM
	Manganese Steel and manganese Chromium Steel for Machine Structural Use	SMn, SMnC
Special steel – Tool steel	Carbon Tool Steel	STC
	Hollow Drill Steel	SKC
	Alloy Tool Steel	STS, STD, STF
	High Speed Tool Steel	SKH
Special steel – Stainless steel	Stainless Steel Bar	STS
Special steel – Heat resisting steel	Heat Resisting Steel	STR
	Heat Resisting Steel Bar	STR
	Heat Resisting Steel Sheet	STR
Special steel	Free cutting carbon steel	SUM
	Special steel	STB
	Spring steel	SPS

Group	Standard term	Code
Forged steel	Carbon Steel Forging	SF
	Chromium Molybdenum Steel Forging	SFCM
	Nickel Chromium Molybdenum Steel Forging	SFNCM
Cast iron	Gray Cast iron	GC
	Spheroidal Graphite Cast iron	GCD
	Blackheart Malleable Cast iron	BMC
	Whiteheat Malleable Cast iron	WMC
	Pearlitic Malleable Cast iron	PMC
Cast steel	Carbon Cast Steel	SC
	High Tensile Strength Carbon Cast Steel & Low Alloy Cast Steel	HSC
	Stainless Cast Steel	SSC
	Heat Resisting Cast Steel	HRSC
	High Manganese Cast Steel	HMnSC
	Cast Steel for High Temperature and High Pressure Service	SCPH
Casting	Brass Casting	BsC
	High Strength Brass Casting	HBsC
	Bronze Casting	BrC
	Phosphoric Bronze Casting	PCB
	Aluminum Bronze Casting	AlBC
	Aluminum Alloy Casting	ACxA
	Magnesium Alloy Casting	MgC
	Zinc Alloy Die Casting	ZnDC
	Aluminum Alloy Die Casting	Aℓ DC
	Magnesium Alloy Die Casting	MgDC
	White Metal	WM
	Aluminum Alloy Casting for Bearing	AM
	Brass Alloy Casting for Bearing	KM

SI Unit Conversion Table

Major SI unit conversion table

Force

N	kgf	dyn
1	1.01972×10^{-1}	1×10^{5}
9.80665	1	9.80665×10^{5}
1×10^{-5}	1.01972×10^{-6}	1

Stress

Pa or N/m²	MPa or N/mm²	kgf/mm²	kgf/cm²	kgf/m²
1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}	1.01972×10^{-1}
1×10^{6}	1	1.01972×10^{-1}	1.01972×10	1.01972×10^{5}
9.80665×10^{6}	9.80665	1	1×10^{2}	1×10^{6}
9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1	1×10^{4}
9.80665	9.80665×10^{-6}	1×10^{-6}	1×10^{-4}	1

Pressure

Pa	kPa	MPa	bar	kgf/cm²
1	1×10^{-3}	1×10^{-6}	1×10^{-5}	1.01972×10^{-5}
1×10^{3}	1	1×10^{-3}	1×10^{-2}	1.01972×10^{-2}
1×10^{6}	1×10^{3}	1	1×10	1.01972×10
1×10^{5}	1×10^{2}	1×10^{-1}	1	1.01972
9.80665×10^{4}	9.80665×10	9.80665×10^{-2}	9.80665×10^{-1}	1

Work, Energy, Calorie

J	kW·h	kgf·m	kcal
1	2.77778×10^{-7}	1.01972×10^{-1}	2.38889×10^{-4}
3.60000×10^{6}	1	3.67098×10^{5}	8.60000×10^{2}
9.80665	2.72407×10^{-6}	1	2.34270×10^{-3}
4.18605×10^{3}	1.16279×10^{-3}	4.26858×10^{2}	1

Power

W	kW	kgf·m/s	PS	kcal/h
1	1×10^{-3}	1.01972×10^{-1}	1.35962×10^{-3}	0.860
1×10^{3}	1	1.01972×10^{2}	1.359 62	8.60000×10^{2}
9.81 65	9.80665×10^{-3}	1	1.33333×10^{-2}	8.433 71
7.355×10^{2}	7.355×10^{-1}	7.5×10	1	6.32529×10^{2}
1.16279	1.16279×10^{-3}	1.18572×10^{-1}	1.58095×10^{-3}	1

Specific heat

J/(kg·K)	kcal/(kg·℃) cal/(g·℃)
1	2.38889×10^{-4}
4.18605×10^{3}	1

Thermal conductivity

W/(m·k)	kcal/(h·m·℃)
1	8.6000×10^{-1}
1.16279	1

Revolution per minute

min⁻¹	s⁻¹	r.p.m.
1	0.0167	1
60	1	60

Hardness Calculating Table

Work piece hardness calculating table

Vickers 50kgf HV	Brinell 3000kgf HB		Rockwell				Shore HS	Tensile strength (approximate value) MPa (1)
	Standard ball 10㎜	Cemented carbide ball 10㎜	A scale 60kgf Diamond particle HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf Diamond particle HRC	D scale 100kgf Diamond particle HRD		
940	-	-	85.6	-	68.0	76.9	97	
920	-	-	85.3	-	67.5	76.5	96	
900	-	-	85.0	-	67.0	76.1	95	
880	-	(767)	84.7	-	66.4	75.7	93	
860	-	(757)	84.4	-	65.9	75.3	92	
840	-	(745)	84.1	-	65.3	74.8	91	
820	-	(733)	83.8	-	64.7	74.3	90	
800	-	(722)	83.4	-	64.0	74.8	88	
780	-	(710)	83.0	-	63.3	73.3	87	
760	-	(698)	82.6	-	62.5	72.6	86	
740	-	(684)	82.2	-	61.8	72.1	84	
720	-	(670)	81.8	-	61.0	71.5	83	
700	-	(656)	81.3	-	60.1	70.8	81	
690	-	(647)	81.1	-	59.7	70.5	-	
680	-	(638)	80.8	-	59.2	70.1	80	
670	-	630	80.6	-	58.8	69.8	-	
660	-	620	80.3	-	58.3	69.4	79	
650	-	611	80.0	-	57.8	69.0	-	
640	-	601	79.8	-	57.3	68.7	77	
630	-	591	79.5	-	56.8	68.3	-	
620	-	582	79.2	-	56.3	67.9	75	
610	-	573	78.9	-	55.7	67.5	-	
600	-	564	78.6	-	55.2	67.0	74	
590	-	554	78.4	-	54.7	66.7	-	2055
580	-	545	78.0	-	54.1	66.2	72	2020
570	-	535	77.8	-	53.6	65.8	-	1985
560	-	525	77.4	-	53.0	65.4	71	1950
550	(505)	517	77.0	-	52.3	64.8	-	1905
540	(496)	507	76.7	-	51.7	64.4	69	1860
530	(488)	497	76.4	-	51.1	63.9	-	1825
520	(480)	488	76.1	-	50.5	63.5	67	1795
510	(473)	479	75.7	-	49.8	62.9	-	1750
500	(465)	471	75.3	-	49.1	62.2	66	1705
490	(456)	460	74.9	-	48.4	61.6	-	1660
480	488	452	74.5	-	47.7	61.3	64	1620
470	441	442	74.1	-	46.9	60.7	-	1570
460	433	433	73.6	-	46.1	60.1	62	1530
450	425	425	73.3	-	45.3	59.4	-	1495
440	415	415	72.8	-	44.5	58.8	59	1460
430	405	405	72.3	-	43.6	58.2	-	1410
420	397	397	71.8	-	42.7	57.5	57	1370
410	388	388	71.4	-	41.8	56.8	-	1330
100	379	379	70.8	-	40.8	56.0	55	1290
390	369	369	70.3	-	39.8	55.2	-	1240
380	360	360	69.8	(100.0)	38.8	54.4	52	1205
370	350	350	69.2	-	39.9	53.6	-	1170
360	341	341	68.7	(109.0)	36.6	52.8	50	1130
350	331	331	68.1	-	35.5	51.9	-	1095
340	322	322	67.6	(108.0)	34.4	51.1	47	1070
330	313	313	67.0	-	33.3	50.2	-	1035

Vickers 50kgf HV	Brinell 3000kgf HB		Rockwell				Shore HS	Tensile strength (approximate value) MPa (1)
	Standard ball 10㎜	Cemented carbide ball 10㎜	A scale 60kgf Diamond particle HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf Diamond particle HRC	D scale 100kgf Diamond particle HRD		
320	303	303	66.4	(107.0)	32.2	49.4	45	1005
310	294	294	65.8	-	31.0	48.4	-	980
300	284	284	65.2	(105.5)	29.8	47.5	42	950
295	280	280	64.8	-	29.2	47.1	-	935
290	275	275	64.5	(104.5)	28.5	46.5	41	915
285	270	270	64.2	-	27.8	46.0	-	905
280	265	265	63.8	(103.5)	27.1	45.3	40	890
275	261	261	63.5	-	26.4	44.9	-	875
270	256	256	63.1	(102.0)	25.6	44.3	38	855
265	252	252	62.7	-	24.8	43.7	-	840
260	247	247	62.4	(101.0)	24.0	43.1	37	825
255	243	243	62.0	-	23.1	42.2	-	805
250	238	238	61.6	99.5	22.2	41.7	36	795
245	233	233	61.2	-	21.3	41.1	-	780
240	228	228	60.7	98.1	20.3	40.3	34	765
230	219	219	-	96.7	(18.0)	-	33	730
220	209	209	-	95.0	(15.7)	-	32	695
210	200	200	-	93.4	(13.4)	-	30	670
200	190	190	-	91.5	(11.0)	-	29	635
190	181	181	-	89.5	(8.5)	-	28	605
180	171	171	-	87.1	(6.0)	-	26	580
170	162	162	-	85.0	(3.0)	-	25	545
160	152	152	-	81.7	(0.0)	-	24	515
150	143	143	-	78.7	-	-	22	490
140	133	133	-	75.0	-	-	21	455
130	124	124	-	71.2	-	-	20	425
120	114	114	-	66.7	-	-	-	390
110	105	105	-	62.3	-	-	-	-
100	95	95	-	56.2	-	-	-	-
95	90	90	-	52.0	-	-	-	-
90	86	86	-	48.0	-	-	-	-
85	81	81	-	41.0	-	-	-	-

Note) 1. 1MPa = 1N/㎟
2. The number In the blank is not generally used ranges

Actual designation of Milling Cutter

Inch Type

Fig. 1

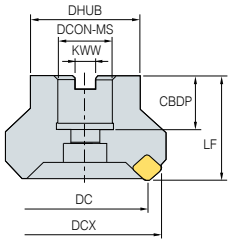


Fig. 2

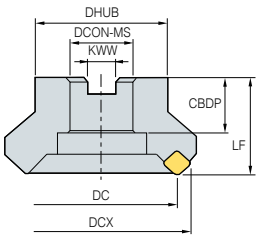


Fig. 3

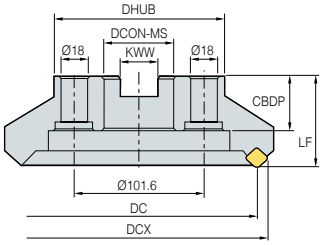
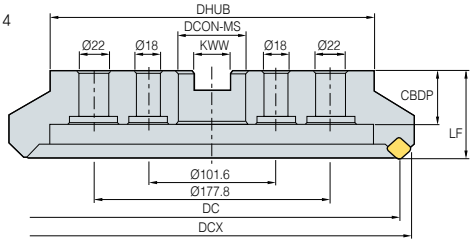


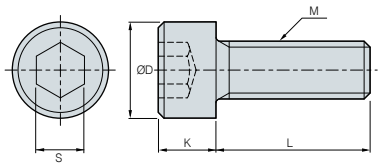
Fig. 4



Internal inch type

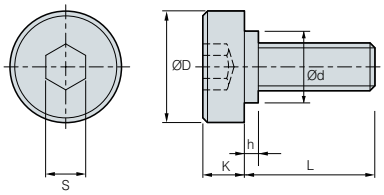
Dimensions (mm)						Fig.	Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB		
40	16	8.4	18	40	34	1	FMC16, SMA16
50	22	10.4	20	40	42	1	FMC22
63	22	10.4	20	40	49	1	FMC22
80	25.4	9.5	25	50	57	1	FMA25.4
100	31.75	12.7	32	50	67	2	FMA31.75, SMB31.75
125	38.1	15.9	38	63	87	2	FMA38.1
160	50.8	19	38	63	107	2	FMA50.8
200	47.625	25.4	38	63	130	3	FMA47.625
250	47.625	25.4	38	63	180	3	FMA47.625
315	47.625	25.4	38	63	240	4	-

Wrench bolt



Designation	D	S	K	L	M	Cutter size
SB0825	13	6	8	25	M08×1.25	Ø40
SB1025	16	8	10	25	M10×1.50	Ø50, Ø63
SB1035	16	8	10	35	M10×1.50	Ø50, Ø63(HRM)
SB1230	18	10	12	30	M12×1.75	Ø80
SB1630	24	14	16	30	M16×2.0	Ø100
SB1645	24	14	16	45	M16×2.0	Ø80, Ø100(HRM)
SB2040	30	17	20	40	M20×2.5	Ø125

Clamp bolt



Designation	Dimensions (mm)						Cutter size
	D	L	K	S	h	d	
M8×1.25	20	20	7	6	-	-	Ø40
M10×1.5	28	24	9	8	-	-	Ø50, Ø63
M12×1.75	33	28	10	10	2	23	Ø80
M16×2	40	32	10	14	5	23	Ø100
M20×2.5	50	40	14	17	5	27	Ø125
M24×3	64	46	14	19	9	37	Ø160

Actual designation of Milling Cutter

Metric Type - ISO6462, DIN138

Fig. 1

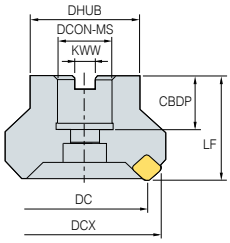


Fig. 2

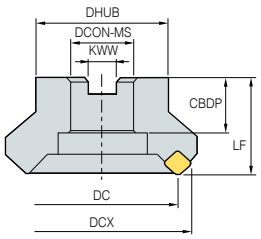


Fig. 3

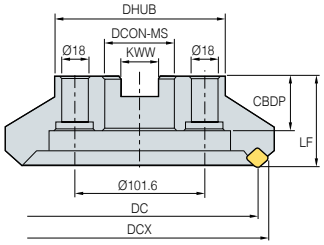
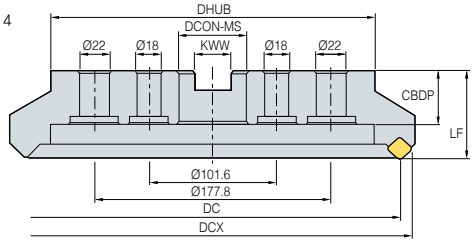


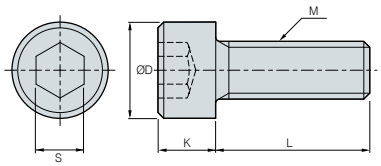
Fig. 4



Internal metric type

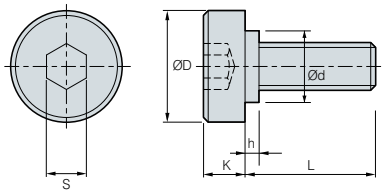
Dimensions (mm)						Fig.	Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB		
40	16	8.4	18	40	34	1	FMC16, SMA16
50	22	10.4	20	40	42	1	FMC22
63	22	10.4	20	40	49	1	FMC22
80	27	12.4	22	50	57	1	FMC27
100	32	14.4	28	50	67	2	FMC32
125	40	16.4	32	63	87	2	FMB40
160	40	16.4	32	63	107	2	FMB40
200	60	25.7	38	63	130	3	FMB60
250	60	25.7	38	63	180	3	FMB60
315	60	25.7	38	63	240	4	-

Wrench bolt



Designation	DCON-MS	S	K	L	M	Cutter size
SB0825	13	6	8	25	M08×1.25	Ø40
SB1025	16	8	10	25	M10×1.50	Ø50, Ø63
SB1035	16	8	10	35	M10×1.50	Ø50, Ø63(HRM)
SB1230	18	10	12	30	M12×1.75	Ø80
SB1245	18	10	12	45	M12×1.75	Ø80(HRM)
SB1630	24	14	16	30	M16×2.0	Ø100
SB1645	24	14	16	45	M16×2.0	Ø100(HRM)
SB2040	30	17	20	40	M20×2.5	Ø125

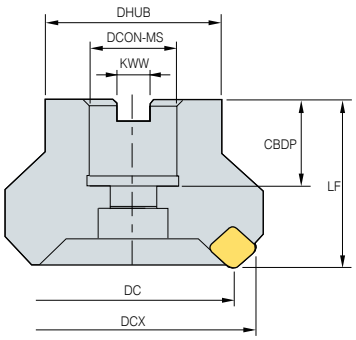
Clamp bolt



Designation	Dimensions (mm)						Cutter size
	D	L	K	S	h	d	
M12×1.75	33	28	10	10	2	23	Ø80
M16×2	40	32	10	14	5	23	Ø100
M20×2.5	50	40	14	17	5	27	Ø125, Ø160

Clamping Part of Milling Cutter (Oil-hole)

Clamping part of milling cutter



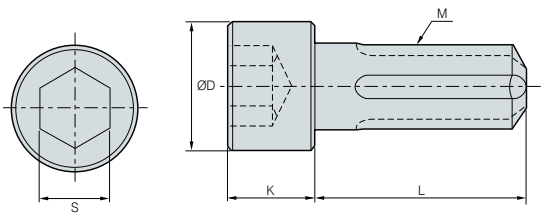
Inch type

Dimensions (mm)						Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB	
40	16	8.4	19	40	34	FMC16, SMA16
50	22	10.4	21	40	42	FMC22
63	22	10.4	21	40	49	FMC22
80	25.4	9.5	24	50	57	FMA25.4, FMB25.4
100	31.75	12.7	32	63	67	FMA31.75, SMB31.75
125	38.1	15.9	35	63	87	FMA38.1, FMB38.1, FMC38.1

Metric type

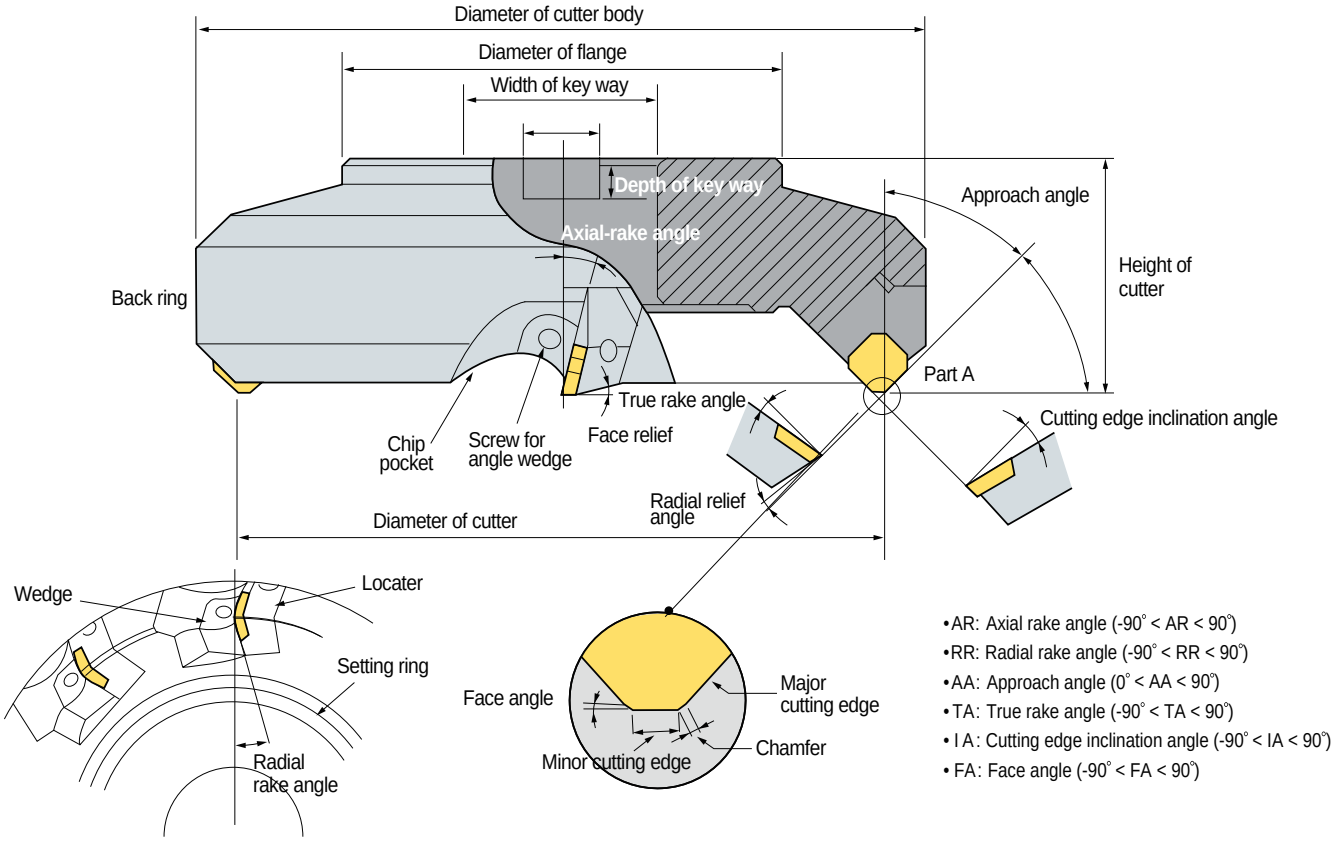
Dimensions (mm)						Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB	
40	16	8.4	19	40	34	FMC16, SMA16
50	22	10.4	21	40	42	FMC22
63	22	10.4	21	40	49	FMC22
80	27	12.4	23	50	57	FMC27
100	32	14.4	25	50	67	FMC32
125	40	16.4	29	63	87	FMB40/FMC40

Wrench bolt



Designation	ØD	S	K	L	M	Cutter size
CB0825	13	6	8	25	M08×1.25	Ø40
CB1025	16	8	10	25	M10×1.50	Ø50, Ø63
CB1035	16	8	10	35	M10×1.50	Ø50, Ø63(HRM)
CB1230	18	10	12	30	M12×1.75	Ø80
CB1245	18	10	12	45	M12×1.75	Ø80(HRM)
CB1630	24	14	16	30	M16×2.0	Ø100
CB1645	24	14	16	45	M16×2.0	Ø100(HRM)
CB2040	30	17	20	40	M20×2.5	Ø125

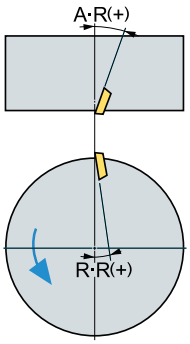
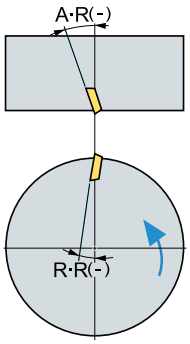
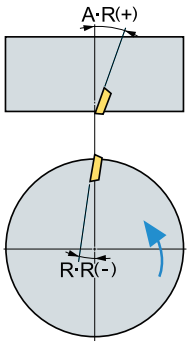
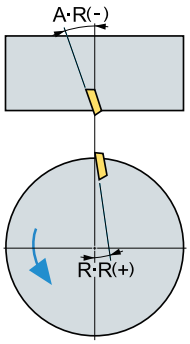
Milling cutter shape and designation



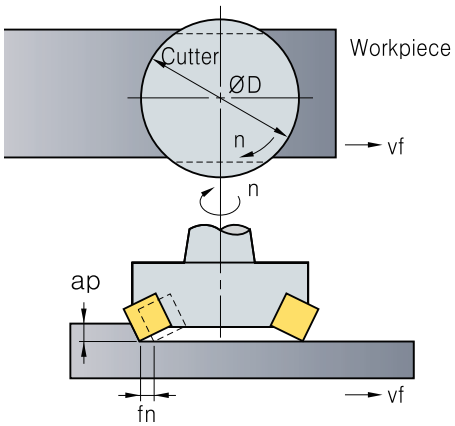
● The terminology and functions of cutting edge angle

No.	Tool failure	Symbol	Function	Effects
1	Axial rake angle	A.R	Chip flow direction	Positive: Excellent cutting, built-up edge prevented
2	Radial rake angle	R.R	Affecting on thrust	Negative: Excellent chip control
3	Approach angle	A.A	Chip thickness, Determines flow direction	(+): Chip thickness become thinner, cutting force could be reduced
4	True rake angle	T.A	Effective rake angle	(+): Better cutting. Preventing adhesion, Weakening cutting edge strength (–): Cutting edge strength increases, easy to adhere
5	Cutting edge inclination angle	I.A	Determines chip flow direction	(+): Good chip flow, cutting force could decreases, Comer edge strength weakens
6	Face angle	F.A	Controlling cutting edge strenght, tool life and chattering	Surface roughness increases as F.A gets close to 0 degree

Features by combination of rake angle

	Double positive angle	Double negative angle	Posi - Negative angle	Nega - Positive angle
Division				
Use	• General machining of steel, cast iron, stainless steel • Machining soft steel that brings about built-up edge easily • Machining material having tendency to poor surface roughness	• Under interrupted cutting condition • Roughing of cast iron and steel	• Machining difficult to cut material • Roughing with deep depth of cut and wide width of cut in steel and cast iron	• Chip flows to center of cutter body
Advantages	• As for tough workpiece material It prevents built-up edge to improve surface roughness • Low cutting load and better machinability	• Strong cutting edge • Roughing of workpiece that has bad surface condition containing sand, mill scale • Double sided inserts can be applied(Economical) • Good chip control	• Good chip flow and machinability. • Suitable for machining of difficult-to-cut material	-
Disadvantages	• Weak cutting edge strength • Only single sided inserts are available (No economical) • Machine and cutter need enough power and rigidity	• Machine and cutter need enough power and rigidity	• Only single sided inserts are available (No economical)	• Since the chips flows toward the center of cutter. Chips scratch on machined surface • Bad chip flow • No economical

Major cutting formulas



● Cutting speed

$$vc = \frac{\pi \cdot D \cdot n}{1000} \text{ (m/min)}$$

- vc: Cutting speed (m/min)
- D: Diameter of tool (mm)
- n: Revolution per minute (min^{-1})
- π: Circular constant (3.14)

● Feed

$$fz = \frac{vf}{z \cdot n} \text{ (mm/t)}$$

- fz: Feed per tooth (mm/t)
- vf: Feed per minute (mm/min)
- n: Revolution per minute (min^{-1})
- z: Number of tooth

● Chip removal amount

$$Q = \frac{Lxvfxap}{1000} \text{ (cm^3/min)}$$

- Q: Chip removal amount (cm^3/min)
- L: Width of cut (mm)
- vf: Table feed (mm/min)
- ap: Depth of cut (mm)

● Power requirement

$$P_{kw} = \frac{Q \times kc}{60 \times 102 \times \eta} \qquad P_{hp} = \frac{P_{kw}}{0.75}$$

- Pc: Power requirement (kW)
- H: Horse power requirement (hp) (mm/min)
- Q: Chip removal amount (cm^3/min)
- kc: Specific cutting resistance (kgf/mm^3)
- η: Machine efficiency rate (0.7~0.8)

● Machining time

$$T = \frac{60 \times Lt}{vf} \text{ (sec)}$$

- T: Machining time (sec)
- Lt: Total length of table feed (mm) (= Lw+D+2R)
- Lw: The length of workpiece (mm)
- D: The diameter of cutter body (mm)
- vf: Table feed (mm/min)
- R: Relief length (mm)

● True rake angle/Cutting edge inclination angle

True rake angle: $\tan(T) = \tan(R) \times \cos(AA) + \tan(A) \times \sin(C)$

Cutting edge inclination angle: $\tan(I) = \tan(A) \times \cos(AA) - \tan(R) \times \sin(C)$

Values of specific cutting resistance

Workpiece	Tensile strength (kg/mm²) and hardness	Specific cutting resistance according to various feed kc(MPa)				
		0.1 (mm/t)	0.2 (mm/t)	0.3 (mm/t)	0.4 (mm/t)	0.6 (mm/t)
Soft steel	52	220	195	182	170	158
Medium carbon steel	62	198	180	173	160	157
High carbon steel	72	252	220	204	185	174
Tool steel	67	198	180	173	170	160
Tool steel	77	203	180	175	170	158
Chrome manganese steel	77	230	200	188	175	166
Chrome manganese steel	63	275	230	206	180	178
Chrome molybdenum steel	73	254	225	214	200	180
Chrome molybdenum steel	60	218	200	186	180	167
Nickel Chrome molybdenum steel	94	200	180	168	160	150
Nickel Chrome molybdenum steel	HB352	210	190	176	170	153
Cast steel	52	280	250	232	220	204
Hardened cast iron	HRC46	300	270	250	240	220
Meehanite cast iron	36	218	200	175	160	147
Gray cast iron	HB200	175	140	124	105	97
Brass	50	115	95	80	70	63
Light alloy (Al - Mg)	16	58	48	40	35	32
Light alloy (Al - Si)	20	70	60	52	45	39

Chip removal amount (cm3/min) per rated horse power

Workpiece \ Rated horse power		5Hp	10Hp	20Hp	30Hp	40Hp	50Hp
Steel	Soft	32	75	163	295	425	570
	Medium	26	55	127	212	310	425
	hard	18	41	93	163	228	310
Cast iron	Soft	52	116	260	455	670	880
	Medium	32	75	163	295	425	570
	hard	26	55	127	212	310	425
Bronze Brass	Soft	77	163	390	670	980	1,280
	Medium	54	118	275	490	700	910
	hard	26	55	127	245	325	425
Aluminum		90	195	440	780	1,110	1,500

Selection of MILL-MAX diameter (D)

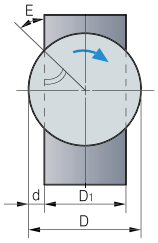
Selection by machine rigidity

Machine horse power (PS)	10~15	15~20	Over 20
Proper cutter body specification (mm)	Ø80~Ø100	Ø125~Ø160	Ø160~Ø200

Selection by machine rigidity

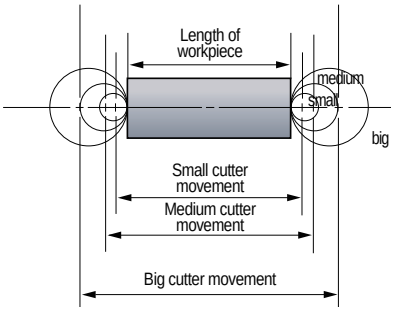
Workpiece	E	□
Steel	+20°~-10°	3 : 2
Cast iron	Under +50°	5 : 4
Light alloy	Under +40°	5 : 3

D: External diameter of cutter body
D1: Width of workpiece
d: Projected part of cutter body
E: Engage angle
□: Ratio of cutter body and width of workpiece (D: D1)



Selection by machining time

The bigger size cutter the longer machining time

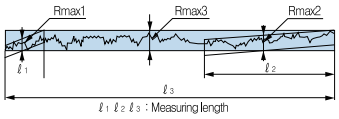
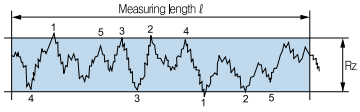
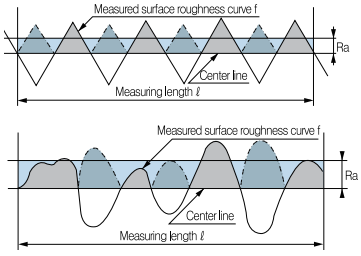


Selection by number of tooth

Workpiece	Steel	Cast iron	Light alloy
Number of tooth	Dx (1~1.5)	Dx (1~4)	Dx1+α

ex) D = ø100 ⇒ 4" x(1~1.5) = 4~6 D is the size of cutter body converted into inch size

Classification of surface roughness

Type	Symbol	How to calculate	Measured value
Maximum height	Rmax	• The distance between the top of profile peak line and the bottom of rofile valley line on this sampled portion is measured in the longitudinal magnification direction of roughness curve (Expressed by unit: μ) • Exclude extraordinary values (too small or big) that look like grooves or mountains	
+10 point mean roughness	Rz	• Sampled from the roughness curve in the direction of its mean line, the sum of the average value of absolute value of the highest profile peaks and the depths of five deepest profile valleys measured in the vertical magnification is expressed by micro meter (μ)	
Arithmetic mean roughness	Ra	• Sampling only the reference length from the roughness curve in the direction of mean line , taking X-axis in the direction of mean line and Y-axis in the direction of longitudinal magnification of this sampled part and is expressed by micro meter (μ) • Generally, Read measured value by Ra measurer	

Finish mark		Grind Ra0.2	Grind Ra0.4	Grind Ra0.8	Ra1.6	Ra6.3	
Surface roughness	Rmax	0.8s	1.6s	3.2s	6.3s	25s	Unspecified
	Rz	0.8z	1.6z	3.2z	6.3z	25z	
	Ra	0.2a	0.4a	0.8a	1.6a	6.3a	

Trouble shooting for milling

Trouble	Causes	Solutions										
		Cutting conditions				Tool shape					Insert grade	
		Cutting speed	Depth of cut	Feed	Coolant	Rake angle	Relief angle	Approach angle	Chattering at cutting edge	Nose radius	Toughness	Hardness
Flank wear	• Improper insert grade • Improper cutting conditions • Chattering	⬇		⬆			⬆	⬇		⬆		⬆
Crater wear	• Improper cutting conditions • Improper insert grade	⬇	⬇	⬇	●	⬆	⬆			⬇		⬆
Chipping	• Lack of insert toughness • Excessive feed • Excessive cutting load			⬇		⬇	⬇	⬇		⬆	⬆	
Built-up edge	• Improper cutting conditions • Improper cutting edge shape • Improper insert grade	⬆	⬇			⬆				⬇		
Chattering	• Improper cutting conditions • Lack of number of cutting teeth • Improper cutting edge shape • Bad chip flow • Unstable workpiece clamping		⬇	⬇	●	⬆		⬆	⬇	⬇		
Poor surface finish	• Built-up edge • Improper cutting conditions • Chattering • Bad chip flow	⬆	⬇	⬇	●	⬆			⬇	⬆		
Thermal crack	• Improper cutting conditions • Improper insert grade	⬇	⬇	⬇	◉	⬆				⬆	⬆	
Fracture	• Improper insert grade • Excessive cutting load • Bad chip flow • Chattering • Excessive overhang		⬇	⬇	●						⬆	

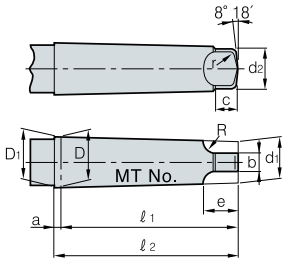
⬆: Increase ⬇: Decrease ●: use ◉: Correct use

General formulas for milling

● Machine efficiency rate (η)

Power transmission mode	Efficiency rate (E)	Reference
Principal axis direct connection driving	0.90	
Belt driving	0.85	Double connection: 0.85 × 0.85 ≒ 0.70
Starting driving	0.75	
Oil pressure driving	0.60~0.90	

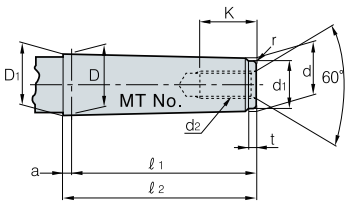
Morse taper (Tang type)



(mm)

MT No.	Taper	Taper angle (α)	D	a	D1	d1	ℓ1	ℓ2	d2	b	c	e	R	r
0	1/19.212	1°29′27″	9.045	3	9.201	6.104	56.5	59.5	6.0	3.9	6.5	10.5	4	1
1	1/20.047	1°25′43″	12.065	3.5	12.240	8.972	62.0	65.5	8.7	5.2	8.5	13.5	5	1.2
2	1/20.020	1°25′50″	17.780	5	18.030	14.034	75.0	80.0	13.5	6.3	10	16	6	1.6
3	1/19.922	1°26′16″	23.825	5	24.076	19.107	94.0	99.0	18.5	7.9	13	20	7	2
4	1/19.254	1°29′15″	31.267	6.5	31.605	25.164	117.5	124.0	24.5	11.9	16	24	8	2.5
5	1/19.002	1°30′26″	44.399	6.5	4.741	36.531	149.5	156.0	35.7	15.9	19	29	10	3
6	1/19.180	1°29′36″	63.348	8	63.765	52.399	210.0	218.0	51.0	19.0	27	40	13	4
7	1/19.231	1°29′22″	83.058	10	83.578	68.186	286.0	296.0	66.8	28.6	35	54	19	5

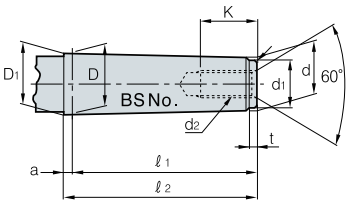
Morse taper (Screw type)



(mm)

MT No.	Taper	Taper angle (α)	D	a	D1	d	ℓ1	ℓ2	d1	d2	k	t	r
0	1/19.212	1°29′27″	9.045	3	9.201	6.442	50	53	6	-		4	0.2
1	1/20.047	1°25′43″	12.065	3.5	12.230	9.396	53.5	57	9	M6	16	5	0.2
2	1/20.020	1°25′50″	17.780	5	18.030	14.583	64	69	14	M10	24	5	0.2
3	1/19.922	1°26′16″	23.825	5	24.076	19.759	81	86	19	M12	28	7	0.6
4	1/19.254	1°29′15″	31.267	6.5	31.605	25.943	102.5	109	25	M16	32	9	1
5	1/19.002	1°30′26″	44.399	6.5	4.741	37.584	129.5	136	35.7	M20	40	9	2.5
6	1/19.180	1°29′36″	63.348	8	63.765	53.859	182	190	51	M24	50	12	4
7	1/19.231	1°29′22″	83.058	10	83.578	70.058	250	260	65	M33	80	18.5	5

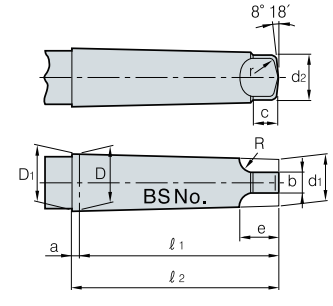
Brown sharp taper (Screw type)



(mm)

B&S No.	D	a	D1	d	d1	ℓ1	ℓ2	t	r	d2	K
4	10.221	2.4	10.321	8.890	8.0	31.0	34.2	2	0.2	-	-
5	13.286	2.4	13.386	11.430	10.0	44.4	46.8	3	0.2	-	-
6	15.229	2.4	15.330	12.700	11.0	60.0	62.7	3	0.2	M 8(1/4)	20
7	18.424	2.4	18.524	15.240	14.0	76.2	78.6	4	0.2	M10(3/8)	24
8	22.828	3.2	22.962	19.090	17.0	90.5	93.7	4	0.6	M12(1/2)	28
9	27.104	3.2	27.238	22.863	21.0	101.6	104.8	4	0.6	M12(1/2)	28
10	32.749	3.2	32.887	26.534	24.0	144.5	147.7	5	1.0	M16(5/8)	32
11	38.905	3.2	39.039	31.749	29.0	171.4	174.6	5	1.0	M16(5/8)	32
12	45.641	3.2	45.774	38.103	35.0	181.0	184.2	6	2.5	M20(3/4)	40
13	52.654	3.2	52.787	44.451	41.0	196.8	200.0	6	3.0	M20(3/4)	40
14	59.533	3.2	59.666	50.800	47.0	209.6	212.8	7	4.0	M24(1)	40
15	66.408	3.2	66.541	57.150	53.0	222.2	225.4	7	4.0	M24(1)	50
16	73.292	3.2	73.425	63.500	59.0	35.0	238.2	8	5.0	M30(11/8)	60

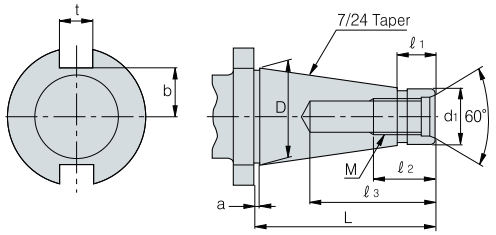
Brown sharp taper (Tang type)



(mm)

B&S No.	D	a	D1	d1	d2	ℓ1	ℓ2	b	c	e	R	r
4	10.221	2.4	10.321	8.458	8.1	42.1	44.5	5.5	8.7	14.4	7.9	1.3
5	13.286	2.4	13.386	10.962	10.7	55.6	58.0	6.3	9.5	16.2	7.9	1.5
6	15.229	2.4	15.330	12.167	11.7	73.0	75.4	7.1	11.1	18.0	7.9	1.5
7	18.424	2.4	18.524	14.675	14.2	89.7	92.1	7.9	11.9	20.3	9.5	1.8
8	22.828	3.2	22.962	18.453.	18.0	104.8	108.0	8.7	12.7	22.0	9.5	2.0
9	28.104	3.2	27.238	22.200	21.8	117.5	120.7	9.5	14.3	25.4	11.1	2.5
10	32.749	3.2	32.887	25.751	25.7	162.7	165.9	11.1	16.7	28.1	11.1	2.8
11	38.905	3.2	39.039	30.985	30.7	189.7	192.9	11.1	16.7	30.0	12.7	3.3
12	45.641	3.2	45.774	37.246	37.1	201.6	204.8	12.7	190	32.5	12.7	3.8
13	52.654	3.2	52.787	43.589	43.4	217.5	220.7	12.7	19.0	35.7	15.9	4.3
14	59.533	3.2	59.666	49.841	49.8	232.6	235.8	14.2	21.4	41.2	19.0	4.8
15	66.408	3.2	66.541	56.186	56.1	245.3	248.5	14.2	21.4	44.4	22.2	5.3
16	73.292	3.2	73.425	62.441	62.2	260.4	263.6	15.8	23.8	50.0	25.4	5.8

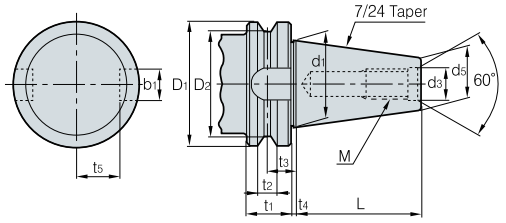
Standard taper of american milling machine



(mm)

NT No.	Dimensions	D	D1	L	ℓ1	M	ℓ2	ℓ3	a	t	b
30	1 1/4	31.750	17.40 -0.29 -0.36	70	20	UNC 1/2″	24	50	1.6	15.9	6
40	1 3/4	44.450	25.32 -0.30 -0.384	95	25	UNC 5/8″	30	60	1.6	15.9	22.5
50	2 3/4	69.850	39.60 -0.31 -0.41	130	25	UNC 1″	45	90	3.2	25.4	35
60	4 1/4	107.950	60.20 -0.34 -0.46	210	45	UNC 1 1/4″	56	110	3.2	25.4	60

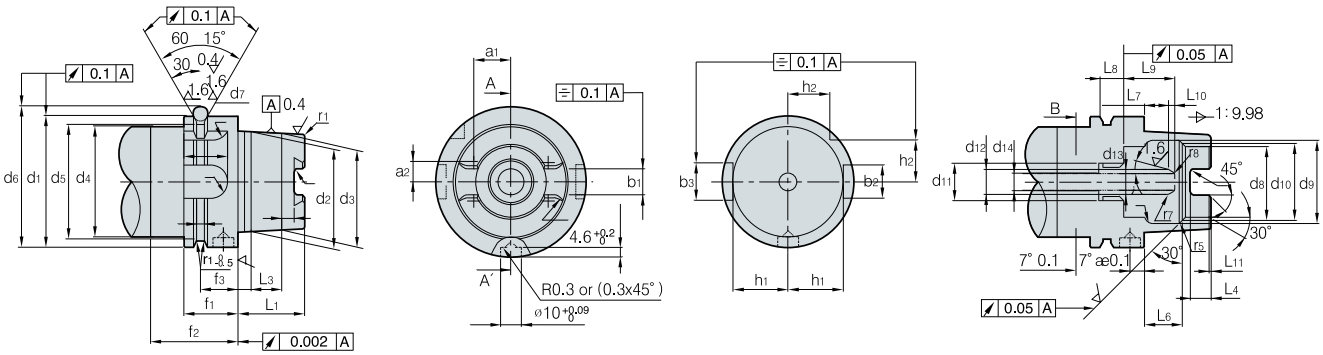
Bottle grip taper



(mm)

BT No.	D1	D2	t1	t2	t3	t4	d1	d3	L	M	b1	t5	d5
35	53	43	22	10	14.6	2	38.1	13	56.5	M12×1.75	16.1	19.6	21.62
40	63	52	25	10	16.6	2	44.45	17	65.4	M16×2	16.1	22.6	25.3
45	85	73	30	12	21.2	3	57.15	21	82.8	M20×25	19.3	29.1	33.1
50	100	85	35	15	23.2	3	69.85	25	101.8	M24×3	25.7	35.4	40.1
60	155	135	45	20	28.2	3	107.95	31	161.8	M30×3.5	25.7	60.1	60.7

HSK shank (DIN 69893)



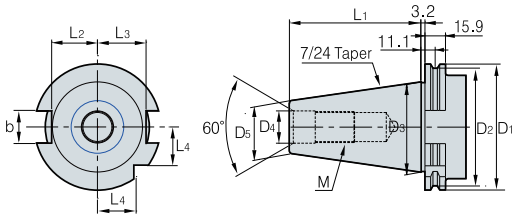
(mm)

HSK No.	b1	b2	b3	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d12	d13	d14	a1	a2
50	10.54	12	14	50	38	36.90	42	43	59.3	7	26	32	29	M16X1	10	6.8	6.8	13.997	7.648
63	12.5	16	14	63	48	46.53	53	55	72.3	7	34	40	37	M18X1	12	8	8.4	17.862	9.25
100	20	20	14	100	75	72,80	85	92	109.75	7	53	63	58	M24X1.5	16	12	12	27.329	15.00

(mm)

HSK No.	f1	f2	f3	f4	b1	b2	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	r1	r2	r3	r4	r5	r6	r7	r8
50	26	42	18	3.75	2	15.5	25	5	11	7.5	4.5	14.13	10	10	23	3	1	19	1	1.5	2.38	6	0.5	1	2	6
63	26	42	18	3.75	28.5	20	32	6.3	14.7	10	6	18.13	10	12	24.5	3	1	21	1.2	1.5	3	8	0.6	1.5	3	8
100	29	45	20	3.75	44	31.5	50	10	24	15	10	28.56	12.5	16	28	3	1.5	24	2	2	3	12	1	1.5	3	10

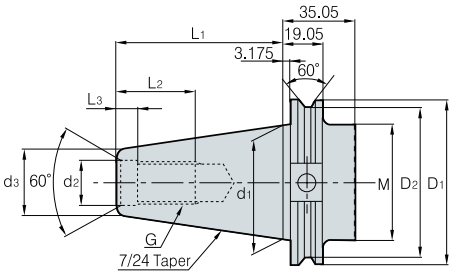
DIN 69871



(mm)

Shank No	D1	D2	D3	D4	D5	L1	L2	L3	L	b	M
30	50.0	44.3	31.75	13	17.8	47.8	16.4	19.0	33.5	16.0	M12×1.75
40	63.5	56.2	44.45	17	24.5	68.4	22.8	25.0	42.5	16.1	M16×2
45	82.5	57.2	57.15	21	33.0	82.7	29.1	31.3	52.5	19.3	M20×2.5
50	97.5	91.2	68.85	25	40.1	101.7	35.5	37.7	61.5	25.7	M24×3

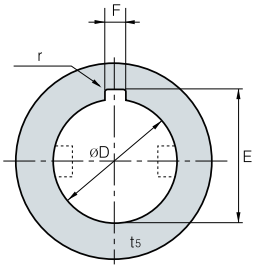
CAT shank



(mm)

Shank No	D1	D2	M	d1	d2	d3	L1	L2	L3	G
CAT40	63.5	56.36	M16×2	44.45	16.28	21.84	68.25	28.45	4.78	5/8-11
CAT45	82.55	75.41	M20×25	57.15	19.46	27.69	82.55	38.1	4.78	3/4-10
CAT50	98.43	91.29	M24×3	69.85	26.19	35.05	101.6	44.45	6.35	1-8

Standard of milling cutter hole (KSB3203)



● Type A

Diameter	øDH7	E	F	r
8	8 +0.015 0	8.9 +0.25 0	2 +0.16 +0.06	0.4
10	10 +0.015 0	11.5 +0.25 0	3 +0.16 +0.06	0.4
13	13 +0.018 0	14.6 +0.25 0	3 +0.16 +0.06	0.6
16	16 +0.018 0	17.7 +0.25 0	4 +0.19 +0.07	0.6
19	19 +0.021 0	21.1 +0.25 0	5 +0.19 +0.07	1
22	22 +0.021 0	24.1 +0.25 0	6 +0.19 +0.07	1
27	27 +0.021 0	29.8 +0.25 0	7 +0.23 +0.08	1.2
32	32 +0.025 0	34.8 +0.25 0	8 +0.23 +0.08	1.2
40	40 +0.025 0	43.5 +0.3 0	10 +0.23 +0.08	1.2
50	50 +0.025 0	53.5 +0.3 0	12 +0.23 +0.095	1.6
60	60 +0.030 0	64.2 +0.3 0	14 +0.275 +0.095	1.6
70	70 +0.030 0	75.0 +0.3 0	16 +0.275 +0.095	2
80	80 +0.030 0	85.5 +0.3 0	18 +0.275 +0.095	2
100	100 +0.035 0	107.0 +0.3 0	24 +0.32 +0.11	2.5

● Type B

Diameter	øDH7	E	F	r
1/2	12.70 +0.018 0	14.17 +0.25 0	2.38 +0.31 +0.13	0.5
5/8	15.875 +0.018 0	17.74 +0.25 0	3.18 +0.31 +0.13	0.8
3/4	19.050 +0.021 0	20.89 +0.25 0	3.18 +0.31 +0.13	0.8
7/8	22.225 +0.021 0	24.07 +0.25 0	3.18 +0.31 +0.13	0.8
1	25.40 +0.021 0	28.04 +0.25 0	6.35 +0.31 +0.13	1.2
1 1/4	31.750 +0.025 0	35.18 +0.25 0	7.94 +0.32 +0.14	1.6
1 1/2	38.10 +0.025 0	42.32 +0.25 0	9.53 +0.89 +0.25	1.6
1 3/4	44.450 +0.025 0	49.48 +0.25 0	11.11 +0.89 +0.25	1.6
2	50.80 +0.03 0	55.83 +0.25 0	12.7 +0.89 +0.25	1.6
2 1/2	63.50 +0.03 0	69.42 +0.25 0	15.81 +0.89 +0.25	1.6
3	76.20 +0.03 0	82.93 +0.25 0	19.05 +0.89 +0.25	2.4
3 1/2	88.90 +0.035 0	98.81 +0.25 0	22.23 +0.89 +0.25	2.4
4	101.60 +0.035 0	111.51 +0.25 0	25.4 +0.89 +0.25	2.4
4 1/2	114.30 +0.035 0	125.81 +0.25 0	25.58 +0.89 +0.25	3.2
5	127.0 +0.04 0	140.08 +0.25 0	31.75 +0.89 +0.25	3.2

The Comparison of Grade for Milling

Cermet Milling Grades

ISO		Grade	KORLOY	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Milling	P	P20			C15M MP1020		KT530M				MX3020 NX2525	TN60 TN620M	T2500A		CX75	
		P30	CN30	CT530				IC30N	NS740		MX3030 NX4545				CX90	

Milling Grades

* NC- : CVD Grade / PC- : PVD Grade

ISO		KORLOY 1st	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Milling	P		GC4210			WKP25S	IC5100								
			GC4220	MP1500	KCPM20					FH7020					
		NCM535 NC5330 NCM325	GC4230	MP2500 MS2500	KCPM30	WKP35S WKP35G	IC5400	T3130	TT8525 TT7800	F7030					
		NCM545 NCM335		MM4500	KC927M										
	M	NC5330		MP2500 MS2500				T3130							
		NCM535 NCM545	GC2040	MM4500											
	K			MK1500	KC907M KCK15	WAK15	IC5100	T1115 T1015		MC5020					
		NC5330		MK2000 MS2500	KC914M KCPK30	WKK25 WKP25S			TT7515 TT6800						
		NCM535		MK3000	KC917M	WKP35S WKP35G									

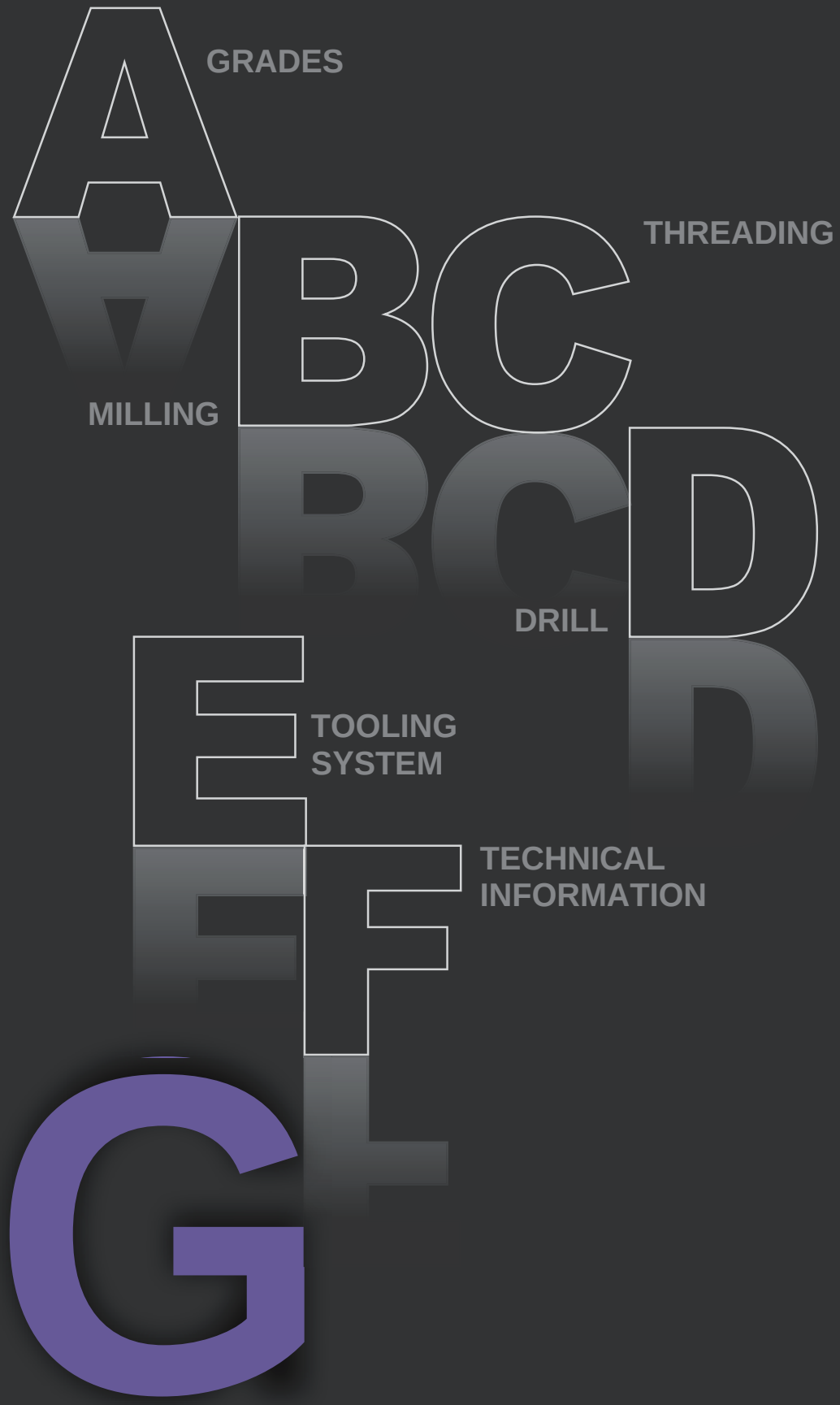
Milling Grades

* NC- : CVD Grade / PC- : PVD Grade

ISO		KORLOY 1st	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Milling	P	PC2005 PC2505 PC2010 PC2510	GC1010	MH1000	WHH15 WHH15X WXM15	KC505M KC510M KC515M	IC903	AH8015	TT2510 TT5505	MP8010	-	ACZ120	ATH08M JP4105 JP4115 JP4120	DH102 JC5003 JC8003 JC8008	VC935 SV510
		PC2015	-	-	-	-	-	-	TT5515	-	-	-	PN215 PN15M	-	-
		PC3700	P20A	F25M	WKP25S	KC525M KCSM30	IC380 IC810	AH330 AH7025	TT7080	-	PR630 PR730	ACP3000	CY250 JS4045	-	-
		PC5535 PC5300	GC1025 GC1130	MP3000 F32M	WKP35G WSM35S	KC530M KCPK30	IC900 IC808	AH130 AH725	TT9030 TT9080	VP15TF MP6120 MP6130	PR1025 PR1225	ACU2500	JP4120	JC5015 JC5118	-
		PC5400	-	F40M	WSP45S/G	KC735M KCPM40	IC830 IC330	AH140 AH740	TT8020 TT8080	VP30RT	PR1535	-	PTH30E JM4160	JC8050	V1N
	M	PC5300 PC5535	GC1030 GC1130 GC2030	F30M	WKP35G WSM35G	KC525M KC530M	IC380 IC808 IC840 IC882	AH120 AH725	TT9080 TT9030	MP7130 MP7030 VP15TF	PR1225 PR1525	ACM100 ACK300 ACU2500	JP4120 CY250	JC730U JC8015	-
		PC5400 PC9540	GC1040 GC2040	MM4500 MP2050 F40M	WSP45G	KCPM40 KCSM40	IC830 IC330	AH180 AH3135	TT8080 TT8020 TT7800	MP7140 VP30RT	PR1535	ACM200 ACM300	PTH30H JM4160	JC8050	VC936
	S	PC5300 PC5535	S30T GC1030 GC1130	F30M	WSM35G	KC525M KCSM30	IC380 IC330 IC840 IC882	-	TT9080 TT9030 TT3540	MP9120 V15TF	PR1525	ACM100 ACK300	JS1025	-	-
		PC5400 PC9540	S40T GC1040	MS2050 F40M	WSP45G WSM45X	KC725M KCSM40	IC830	AH140 AH4035	TT8080 TT8020 TT9540	MP9130 MP9030 MP9140	PR1535	ACM200 ACM300 ACS2500 ACS3000	PTH30H JM4160	-	-
	K	PC6100	GC1010 GC1020	MH1000	WKK25S/G	KC515M	-	AH110 AH710	TT6030 TT6080	MP8010	PR905 PR1510	ACK3000	ATH10E	JC5003 JC600	-
		PC5535 PC5300	-	MK2050	WSM35S/G	KCK20	IC808	AH120 AH725	TT9080	VP15TF	PR1525 PR1810	ACU2500	CY9020	JC8015 JC5015	VN5
		PC5400	-	MK3000	WSP45S/G	KC524M	IC830	AH180	TT8020 TT8080	VP20RT	PR1535	-	-	JC5080	VC928 SV510

BROTECH

INDEX



G2 Index (A~Z)

A ~ Z

Actual designation of Milling Cutter	Technical Informationl	F9
Aero Mill	Milling	B150
Aero Mill Mini	Milling	B155
Aero Mill Plus	Milling	B152
Alpha Mill	Milling	B173
Alpha Mill Nick	Milling	B167
Alpha Mill-X	Milling	B162
Angular head	Tooling System	E132
ATM	Tooling System	E150
ATM(U) SPARE PART	Tooling System	E153
ATU	Tooling System	E154
BFE	Milling	B329
BKA	Tooling System	E129
BRE	Milling	B337
BT Tooling System (Alpha Mill)	Milling	B344
BT Tooling System (Mono Tool)	Milling	B349
Center Drill	Drill	D82
Cermet Grade	Grades & Chip Breakers	A15
Chamfer Tools	Milling	B371
Chip Breakers for Drilling	Grades & Chip Breakers	A26
Chip Breakers for Milling	Grades & Chip Breakers	A19
Clamping Part of Milling Cutter (Oil-hole)	Technical Informationl	F11
CVD Coated Grades	Grades & Chip Breakers	A5
DBC	Tooling System	E121
DBCA	Tooling System	E118
DCJ	Tooling System	E41
DHC Collet	Tooling System	E20
DHE	Tooling System	E9
DHE/G	Tooling System	E19
DHE/S	Tooling System	E16
Diamond Coated Grades	Grades & Chip Breakers	A16
DINOX MAP	Tooling System	E4
DLC Coated Grades	Grades & Chip Breakers	A17
Double Mill	Milling	B62
Drill Available Insert	Drill	D9
DSC	Tooling System	E28
DSK	Tooling System	E68
DST	Tooling System	E83
DTN	Tooling System	E79
DZC	Tooling System	E23
EXT/RDC	Tooling System	E105
FBH	Tooling System	E112
FBH/B	Tooling System	E107
FBH/D	Tooling System	E114

A ~ Z

FMA	Tooling System	E94
FMA	Tooling System	E158
FMC	Tooling System	E95
FMC	Tooling System	E159
FMR P-Positive	Milling	B244
Future Mill	Milling	B206
Future Mill (FMR)	Milling	B218
FZ UNIT	Tooling System	E131
GBE	Milling	B333
Gear Cutter	Milling	B427
Gear Cutter Order Form	Milling	B434
Gear Cutter Table	Milling	B426
GERC	Tooling System	E57
Grade System	Grades & Chip Breakers	A3
GSK	Tooling System	E71
Hardness Calculating Table	Technical Informationl	F8
HAVE	Milling	B341
HFM	Milling	B280
HFMD	Milling	B267
HRAG	Tooling System	E140
HRM	Milling	B299
HRMD	Milling	B288
HSK Tooling System (Alpha Mill)	Milling	B355
HSK Tooling System (Mono Tool)	Milling	B360
HSK Tooling System (Pro-V Mill)	Milling	B365
HSK Tooling System (Pro-X Mill)	Milling	B366
HT	Tooling System	E164
Indexable HOB	Milling	B435
Indexable HOB Cutter Order Form	Milling	B436
Indexable Reamer	Drill	D91
KAC	Tooling System	E144
KAG	Tooling System	E138
KAH	Tooling System	E133
KED Plus Drill	Drill	D29
KHU	Tooling System	E136
KING Drill	Drill	D11
KING Drill (For large diameter drilling)	Drill	D25
KING Drill (For through coolant system with a lathe)	Drill	D21
KMB	Tooling System	E125
KORLOY Cutters	Milling	B34
KORLOY Drills	Drill	D2
KORLOY Grade Index	Grades & Chip Breakers	A2
KORLOY Modular Adaptors	Milling	B45
KORLOY Shanks	Milling	B41

A ~ Z

Laser Mill	Milling	B324
MAH	Tooling System	E142
MD	Tooling System	E99
Mill Max	Milling	B47
Mill Max Heavy	Milling	B58
Mill Max Plus	Milling	B48
Milling Grade selections	Grades & Chip Breakers	A4
Milling Insert Code System (ISO)	Milling	B2
Milling Inserts	Milling	B3
Modular Adaptor	Milling	B400
MTA	Tooling System	E93
Multi Turn	Drill	D87
Multi-functional Chamfer Tool	Milling	B373
NPM	Tooling System	E34
O-ring Cutter	Milling	B368
OFH	Tooling System	E89
PCD Face Cutter	Milling	B157
PCD Insert Grades	Grades & Chip Breakers	A18
POSITIONING BLOCK	Tooling System	E148
Power Buster	Milling	B67
Pro-A Mill	Milling	B377
Pro-L Mill	Milling	B389
Pro-V Mill	Milling	B398
Pro-X Mill	Milling	B382
Pro-XL Mill	Milling	B394
Pull Stud Bolt	Tooling System	E163
PVD Coated Grades	Grades & Chip Breakers	A6
Rich Mill RM14	Milling	B140
Rich Mill RM16	Milling	B142
Rich Mill RM3	Milling	B80
Rich Mill RM4	Milling	B92
Rich Mill RM6	Milling	B110
Rich Mill RM8	Milling	B118
Rich Mill RM8-X	Milling	B136
Rich Mill RMR	Milling	B146
Rich Mill RMT8	Milling	B129
Rich Mill Table	Milling	B71
RTJW	Tooling System	E66
SAH	Tooling System	E146
SDC/P	Tooling System	E45
SDC/PL	Tooling System	E54
SI Unit Conversion Table	Technical InformationI	F7
Side Cutter	Milling	B410
Side Milling Cutter	Milling	B406

A ~ Z

SLA	Tooling System	E90
SMB	Tooling System	E123
SMH	Tooling System	E127
Steel, Non-Ferrous Metal Symbol List	Technical InformationI	F6
T-Cutter	Milling	B374
Tangen-Pro (TP2P)	Milling	B310
Tangen-Pro (TP8P)	Milling	B318
Tank Mill	Milling	B306
TCA	Tooling System	E81
Technical Inforamation for KING Drill (For through coolant system with a lathe)	Drill	D20
Technical Information for Aero Mill	Milling	B148
Technical information for Aero Mill Mini	Milling	B154
Technical Information for Aero Mill Plus	Milling	B151
Technical Information for Alpha Mill	Milling	B166
Technical Information for Alpha Mill-X	Milling	B158
Technical Information for BRE	Milling	B336
Technical Information for BT/HSK Tooling System	Milling	B343
Technical Information for Chamfer Tool	Milling	B369
Technical Information for Couple Mill	Milling	B420
Technical Information for Cube Mill	Milling	B419
Technical Information for DAMPING PRO	Tooling System	E156
Technical information for DBCA	Tooling System	E117
Technical information for DCJ	Tooling System	E40
Technical information for DCL	Tooling System	E39
Technical information for DHE	Tooling System	E8
Technical information for DHE/G	Tooling System	E18
Technical information for DHE/S	Tooling System	E15
Technical information for DSC	Tooling System	E24
Technical information for DSK	Tooling System	E67
Technical information for DST	Tooling System	E82
Technical information for DTN	Tooling System	E78
Technical information for DZC	Tooling System	E22
Technical information for ER/L	Tooling System	E64
Technical information for FBH/B	Tooling System	E106
Technical information for FBH/D	Tooling System	E113
Technical Information for FMR P-Positive	Milling	B239
Technical Information for Future Mill	Milling	B203
Technical Information for GBE	Milling	B330
Technical information for GERC	Tooling System	E56
Technical information for GSK	Tooling System	E70
Technical Information for HAVE	Milling	B339
Technical Information for HFM	Milling	B277
Technical Information for HFMD	Milling	B263
Technical Information for High feed Cutter	Milling	B417

BROTECH

A ~ Z

Technical Information for HRMDouble	Milling	B283
Technical Information for Indexable Reamer	Drill	D88
Technical Information for KED Plus Drill	Drill	D26
Technical Information for KING Drill	Drill	D3
Technical Information for KING Drill (For large diameter drilling)	Drill	D24
Technical Information for Laser Mill	Milling	B320
Technical Information for Mill Max Heavy	Milling	B57
Technical Information for Milling	Technical Information II	F12
Technical Information for Multi Turn	Drill	D85
Technical information for NPM	Tooling System	E33
Technical Information for O-ring Cutter	Milling	B367
Technical Information for Power Buster	Milling	B64
Technical Information for Pro-A Mill	Milling	B375
Technical Information for Pro-L Mill	Milling	B387
Technical Information for Pro-V Mill	Milling	B395
Technical Information for Pro-X Mill	Milling	B380
Technical Information for Pro-XL Mill	Milling	B393
Technical Information for Rich Mill	Milling	B70
Technical Information for Rich Mill RM14	Milling	B137
Technical Information for Rich Mill RM16	Milling	B141
Technical Information for Rich Mill RM3	Milling	B77
Technical Information for Rich Mill RM4	Milling	B86
Technical Information for Rich Mill RM6	Milling	B107
Technical Information for Rich Mill RM8	Milling	B116
Technical Information for Rich Mill RM8-X	Milling	B134
Technical Information for Rich Mill RMR	Milling	B144
Technical Information for Rich Mill RMT8	Milling	B128
Technical information for RTJW	Tooling System	E65
Technical information for SDC/P	Tooling System	E44
Technical information for SDC/PL	Tooling System	E53
Technical Information for Shave Mill	Milling	B422
Technical Information for Shave Mill Ultra	Milling	B424
Technical Information for Side Milling Cutters	Milling	B404
Technical information for STER PAT.	Tooling System	E88
Technical Information for Tapers	Technical Information II	F16
Technical information for THE	Tooling System	E86
Technical Information for Thread Milling	Threading	C2
Technical Information for TP2P	Milling	B307
Technical Information for TP8P	Milling	B316
Technical Information for TPDB Plus Drill	Drill	D52
Technical Information for TPDB-DS	Drill	D65
Technical Information for TPDB-F	Drill	D75
Technical Information for TPDB-H	Drill	D69
Technical Information for TPDC Plus Drill	Drill	D37

A ~ Z

Technical Information for Triple Mill	Milling	B256
Technical Information for Wind Mill	Milling	B413
Technical Information for WPDC	Drill	D79
TER	Tooling System	E85
THE	Tooling System	E87
The Comparison of Grade for Milling	Technical Information II	F19
Thread Milling Holders	Threading	C17
Thread Milling Inserts	Threading	C12
Tooling System Index	Tooling System	E2
TPDB Plus Drill	Drill	D58
TPDB-DS	Drill	D67
TPDB-F	Drill	D77
TPDB-H	Drill	D72
TPDC Plus Drill	Drill	D45
Triple Mill	Milling	B259
Turbo Mill	Milling	B59
Uncoated Carbide Grades	Grades & Chip Breakers	A14
Wind Mill	Milling	B415
Workpiece Material Grades	Technical InformationI	F2
WPDC	Drill	D83

A

ADKA	Milling Inserts	**B4**
ADKT-ML	Milling Inserts	**B4**
ADKT-MM	Milling Inserts	**B4**
ADLT	Milling Inserts	**B4**
ADN(M)4000	Mill Max	**B47**
ADN(M)5000+	Mill Max Plus	**B48**
ADS4000	Turbo Mill	**B59**
ADS5000	Turbo Mill	**B60**
AE(M)4000	Mill Max	**B49**
AE(M)5000	Mill Max	**B50**
AFO(M)4000	Double Mill	**B62**
AFO(M)5000	Double Mill	**B63**
AMC(M)1000SE	Alpha Mill	**B179**
AMC(M)1500S	Alpha Mill	**B174**
AMC(M)2000M	Alpha Mill	**B181**
AMC(M)2000S	Alpha Mill	**B175**
AMC(M)2000SE	Alpha Mill	**B179**
AMC(M)3000M	Alpha Mill	**B182**
AMC(M)3000S	Alpha Mill	**B176**
AMC(M)3000S-K	Alpha Mill	**B177**
AMC(M)3000SE	Alpha Mill	**B180**
AMC(M)4000M	Alpha Mill	**B183**
AMC(M)4000S	Alpha Mill	**B178**
AMCM1000S	Alpha Mill	**B173**
American UNC	Thread Milling Inserts	**C13**
AMM type	Modular Adaptors	**B45**
AMM1000	Alpha Mill	**B200**
AMM1500	Alpha Mill	**B201**
AMM2000	Alpha Mill	**B202**
AMS1000M	Alpha Mill	**B195**
AMS1000MH	Alpha Mill	**B198**
AMS1000S	Alpha Mill	**B184**
AMS1000SE	Alpha Mill	**B193**
AMS1500M	Alpha Mill	**B195**
AMS1500MH	Alpha Mill	**B198**
AMS1500S	Alpha Mill	**B185**
AMS2000M	Alpha Mill	**B196**
AMS2000MH	Alpha Mill	**B199**
AMS2000S	Alpha Mill	**B187**
AMS2000SE	Alpha Mill	**B193**
AMS3000MH(-K)	Alpha Mill	**B199**
AMS3000S	Alpha Mill	**B189**
AMS3000S-K	Alpha Mill	**B190**
AMS3000SE	Alpha Mill	**B194**
AMS4000M	Alpha Mill	**B197**
AMS4000S	Alpha Mill	**B191**
AMXCM-AD17	Alpha Mill	**B163**
AMXS-AD10	Alpha Mill	**B162**
AMXS-AD10	Alpha Mill	**B164**
AMXS-AD12	Alpha Mill	**B162**
AMXS-AD12	Alpha Mill	**B164**
AMXS-AD17	Alpha Mill	**B165**
APD(M)-A	Aero Mill Plus	**B150**
APD(M)-PB	Aero Mill Plus	**B152**
APKT	Milling Inserts	**B4**
APKT-MA	Milling Inserts	**B4**
APKT-MA2	Milling Inserts	**B4**
APKT-MA3	Milling Inserts	**B4**
APKT-MF	Milling Inserts	**B4**
APKT-MM	Milling Inserts	**B4**
APLT	Milling Inserts	**B5**
APMT-MA	Milling Inserts	**B5**
APMT-MF	Milling Inserts	**B5**
APMT-ML	Milling Inserts	**B5**
APMT-MM	Milling Inserts	**B6**
APMT-MN	Milling Inserts	**B6**

B

BAMPR-XAF	Milling Inserts	**B7**
BAMPR-XAW	Milling Inserts	**B7**
BAMPR-XAWR	Milling Inserts	**B7**
BFE	BFE	**B329**
BRE	BRE	**B337**
BSPT	Thread Milling Inserts	**C15**
BT Arbors type	Modular Adaptors	**B45**
BT-ATM	Tooling System (ATM)	**E152**
BT-BKA	Tooling System (BKA)	**E129**
BT-DBC	Tooling System (DBC)	**E121**
BT-DBCA-H	Tooling System (DBCA)	**E118**
BT-DBCA-S	Tooling System (DBCA)	**E120**
BT-DHE	Tooling System (DHE)	**E10**
BT-DHE/S	Tooling System (DHE/S)	**E16**
BT-DMC	Tooling System (NPM)	**E38**
BT-DSC	Tooling System (DSC)	**E28**
BT-DSC/M	Tooling System (DSC)	**E28**
BT-DSC/S	Tooling System (DSC)	**E31**
BT-DSK	Tooling System (DSK)	**E68**
BT-DST	Tooling System (DST)	**E83**

B

BT-DTN	Tooling System (DTN)	E79
BT-FBH/B	Tooling System (FBH/B)	E107
BT-FBH/D	Tooling System (FBH/D)	E114
BT-FMA	Tooling System (FMA)	E94
BT-FMA	Tooling System (FMA)	E158
BT-FMC	Tooling System (FMC)	E96
BT-FMC	Tooling System (FMC)	E159
BT-GSK	Tooling System (GSK)	E71
BT-KMB	Tooling System (KMB)	E125
BT-MD	Tooling System (MD)	E101
BT-NPM	Tooling System (NPM)	E35
BT-NPU	Tooling System (GSK)	E76
BT-OFH	Tooling System (OFH)	E89
BT-SDC/P	Tooling System (SDC/P)	E47
BT-SDC/PL	Tooling System (SDC/PL)	E54
BT-SLA	Tooling System (SLA)	E90
BT-SMB	Tooling System (SMB)	E123
BT-SMH	Tooling System (SMH)	E127
BT30	Modular Adaptor (BT)	B402
BT30 AM1000HS	BT Tooling System (Alpha Mill)	B344
BT30/40 AM1000	BT Tooling System (Mono Tool)	B349
BT30/40 AM1500	BT Tooling System (Mono Tool)	B350
BT30/40 AM2000	BT Tooling System (Mono Tool)	B351
BT40	Modular Adaptor (BT)	B402
BT40 AM1500HS	BT Tooling System (Alpha Mill)	B345
BT40 AM2000HS	BT Tooling System (Alpha Mill)	B346
BT50	Modular Adaptor (BT)	B402
BT50 AM3000	BT Tooling System (Mono Tool)	B352
BT50 AM3000HS	BT Tooling System (Alpha Mill)	B347
BT50 AM4000	BT Tooling System (Mono Tool)	B353
BT50 AM4000HS	BT Tooling System (Alpha Mill)	B348
BT50 HAT4000	BT Tooling System (Mono Tool)	B354

C

Carbide Shank type	Modular Adaptors	B45
CD	Drill (Center Drill)	D82
CDEW-NAF	Milling Inserts	B7
CDEW-NAW	Milling Inserts	B7
CDEW-XAF	Milling Inserts	B7
CDEW-XAW	Milling Inserts	B7
CDEW-XCF	Milling Inserts	B7
CDH	Drill (Center Drill)	D82
CE	Chamfer Tool (Back & Front Champer)	B371
CE	Chamfer Tool (Long chamfer)	B372
CE	Chamfer Tool (Multi-functional)	B373
CN30	Cermet Grade	A15
CNHQ	Milling Inserts	B7
CPMH	Milling Inserts	B7
CPMT	Milling Inserts	B8

D

DBT-DHE	Tooling System (DHE)	E9
DBT-MD	Tooling System (MD)	E99
DBT-MD	Tooling System (MD)	E100
DBT-NPM	Tooling System (NPM)	E34
DBT-SDC/P	Tooling System (SDC/P)	E45
DC Collet	Tooling System (DCJ Collet)	E41
DCS Collet	Tooling System (DCJ Collet)	E42
DHC Collet	Tooling System (DHC Collet)	E20
DHC-(P) Collet	Tooling System (DHC Collet)	E21
DHE/G	Tooling System (DHE/G)	E19
DHJ Collet	Tooling System (DHC Collet)	E21
DJT	Tooling System (DCJ Drill Chuck Arbor)	E43
DP150	PCD Insert Grades	A18
DP200	PCD Insert Grades	A18
DP90	PCD Insert Grades	A18
DZC	Tooling System (DZC)	E23

E

E2D	Drill (KED Plus-2D)	D29
E3D	Drill (KED Plus-3D)	D31
E4D	Drill (KED Plus-4D)	D33
E5D	Drill (KED Plus-5D)	D35
EF(M)4000	Mill Max	B51
EN(M)4000	Mill Max	B52
EPN(M)4000	Mill Max	B53
EPN(M)5000+	Mill Max Plus	B54
ER Collet	Tooling System (GERC Collet)	E60
ER/L Collet	Tooling System (ER/L Collet)	E64
EXT	Tooling System (EXT/RDC)	E105
DJT	Tooling System (DCJ Drill Chuck Arbor)	E43
DP150	PCD Insert Grades	A18
DP200	PCD Insert Grades	A18
DP90	PCD Insert Grades	A18
DZC	Tooling System (DZC)	E23

F

FBB Bite	Tooling System (FBH/D)	E116
FMAC(M)3000	Future Mill	B206
FMAC(M)3000-A	Future Mill	B208
FMAC(M)4000	Future Mill	B207
FMAC(M)4000-A	Future Mill	B209
FMAS3000	Future Mill	B210
FMAS4000	Future Mill	B211
FMPC(M)3000	Future Mill	B212
FMPC(M)3000-A	Future Mill	B214
FMPC(M)4000	Future Mill	B213
FMPC(M)4000-A	Future Mill	B215
FMPS3000	Future Mill	B216
FMPS4000	Future Mill	B217
FMRC(M)3000	Future Mill	B225
FMRC(M)4000	Future Mill	B226
FMRC(M)4000	FMR P-Positive	B245
FMRC(M)5000	Future Mill	B227
FMRC(M)5000	FMR P-Positive	B246
FMRC(M)6000	Future Mill	B228
FMRC(M)6000	FMR P-Positive	B247
FMRCM3000	FMR P-Positive	B244
FMRM type	Modular Adaptors	B45
FMRM1000	Future Mill	B235
FMRM1500	Future Mill	B235
FMRM2000	Future Mill	B236
FMRM2500	Future Mill	B236
FMRM2500	FMR P-Positive	B252
FMRM3000	Future Mill	B237
FMRM3000	FMR P-Positive	B253
FMRM4000	Future Mill	B238
FMRM4000	FMR P-Positive	B254
FMRM5000	Future Mill	B238
FMRM5000	FMR P-Positive	B255
FMRS1000	Future Mill	B229
FMRS1500	Future Mill	B229
FMRS2000	Future Mill	B230
FMRS2500	Future Mill	B230
FMRS2500	FMR P-Positive	B248
FMRS3000	Future Mill	B231
FMRS3000	FMR P-Positive	B249
FMRS4000	Future Mill	B232
FMRS4000	FMR P-Positive	B250
FMRS5000	Future Mill	B233
FMRS5000	FMR P-Positive	B251
FMRS6000	Future Mill	B234
FMRS6000	FMR P-Positive	B251
FZ UNIT	Tooling System (FZ UNIT)	E131

G

GBE	GBE (Single-edge)	B333
GBE	GBE (Multi-edge)	B334
GBEM	GBE	B335
GBEM type	Modular Adaptors	B46
Gear Finishing Cutter	Gear Cutter (1 Step type, External gear)	B432
Gear Finishing Cutter	Gear Cutter (1 Step type, Internal / External gear)	B433
Gear Roughing Cutter	Gear Cutter (Step type)	B427
Gear Roughing Cutter	Gear Cutter (V shape type)	B428
Gear Semi-finishing Cutter	Gear Cutter (High rigid edge type, External gear)	B429
Gear Semi-finishing Cutter	Gear Cutter (High rigid edge type, Internal gear)	B431
GERC Collet	Tooling System (GERC Collet)	E57

H

H01	Uncoated Carbide Grades	A14
H05	Uncoated Carbide Grades	A14
HAVE	HAVE (Single-edge)	B341
HAVE	HAVE (Multi-edge)	B342
HC Collet	Tooling System (GSK)	E74
HDDCM 7000	Mill Max Heavy	B58
HDDCM 9000	Mill Max Heavy	B58
HECN	Milling Inserts	B8
HFMDC(M)-LN10	HFMD	B268
HFMDCM-LN06	HFMD	B267
HFMDM type	Modular Adaptors	B46
HFMDM-LN04	HFMD	B274
HFMDM-LN06	HFMD	B275
HFMDM-LN10	HFMD	B276
HFMDS-LN04	HFMD	B269
HFMDS-LN06	HFMD	B271
HFMDS-LN10	HFMD	B273
HFMM	HFM	B281
HFMM type	Modular Adaptors	B46
HFMS1000	HFM	B280
HPEN	Milling Inserts	B8
HPEN-WC	Milling Inserts	B8
HRMC(M)13	HRMD	B299
HRMC(M)15	HRMD	B300
HRMDC(M)09	HRMD	B288
HRMDC(M)13 DHUB	HRMD	B289

H

HRMDC(M)16	HRMD	**B290**
HRMDM type	Modular Adaptors	**B46**
HRMDM06	HRMD	**B296**
HRMDM09	HRMD	**B297**
HRMDM13	HRMD	**B298**
HRMDS06	HRMD	**B291**
HRMDS09	HRMD	**B292**
HRMDS13	HRMD	**B294**
HRMM type	Modular Adaptors	**B46**
HRMM08	HRMD	**B304**
HRMM10	HRMD	**B305**
HRMM13	HRMD	**B305**
HRMS08	HRMD	**B301**
HRMS10	HRMD	**B301**
HRMS13	HRMD	**B302**
HRMS15	HRMD	**B303**
HSK Arbors type	Modular Adaptors	**B45**
HSK-ATM	Tooling System (ATM)	**E152**
HSK-DBC	Tooling System (DBC)	**E122**
HSK-DBCA-H	Tooling System (DBCA)	**E119**
HSK-DBCA-S	Tooling System (DBCA)	**E119**
HSK-DHE	Tooling System (DHE)	**E12**
HSK-DHE/S	Tooling System (DHE/S)	**E17**
HSK-DSC/M	Tooling System (DSC)	**E30**
HSK-DST	Tooling System (DST)	**E83**
HSK-FBH/B	Tooling System (FBH/B)	**E109**
HSK-FBH/D	Tooling System (FBH/D)	**E114**
HSK-FMA	Tooling System (FMA)	**E160**
HSK-FMC	Tooling System (FMC)	**E97**
HSK-FMC	Tooling System (FMC)	**E161**
HSK-GSK	Tooling System (GSK)	**E72**
HSK-KMB	Tooling System (KMB)	**E126**
HSK-MD	Tooling System (MD)	**E103**
HSK-NPM	Tooling System (NPM)	**E36**
HSK-NPU	Tooling System (GSK)	**E76**
HSK-SDC/P	Tooling System (SDC/P)	**E49**
HSK-SDC/PL	Tooling System (SDC/PL)	**E55**
HSK-SLA	Tooling System (SLA)	**E91**
HSK-SMB	Tooling System (SMB)	**E124**
HSK-SMH	Tooling System (SMH)	**E128**
HSK100A	Modular Adaptor (HSK)	**B403**
HSK100A AM3000	HSK Tooling System (Mono Tool)	**B363**
HSK100A AM4000	HSK Tooling System (Mono Tool)	**B364**
HSK63A	Modular Adaptor (HSK)	**B403**
HSK63A AM1000	HSK Tooling System (Mono Tool)	**B360**
HSK63A AM1000HS	HSK Tooling System (Alpha Mill)	**B355**
HSK63A AM1500	HSK Tooling System (Mono Tool)	**B361**
HSK63A AM1500HS	HSK Tooling System (Alpha Mill)	**B356**
HSK63A AM2000	HSK Tooling System (Mono Tool)	**B362**
HSK63A AM2000HS	HSK Tooling System (Alpha Mill)	**B357**
HSK63A AM3000HS	HSK Tooling System (Alpha Mill)	**B358**
HSK63A AM4000HS	HSK Tooling System (Alpha Mill)	**B359**
HSK63A PAV-XD19	HSK Tooling System (Pro-V Mill)	**B365**
HSK63A/100A PAX5000	HSK Tooling System (Pro-X Mill)	**B366**
HT	Tooling System (HT)	**E164**

I

Indexable HOB	Indexable HOB	**B435**
IRB	Indexable Reamer (Stuffed Hole)	**D93**
IRT	Indexable Reamer (Throughout Hole)	**D92**
ISO Metric	Thread Milling Inserts	**C12**

K

K2D	KING Drill-2D	**D11**
K2D	KING Drill (through coolant system with a lathe)-2D	**D21**
K2D	KING Drill (large diameter drilling)-2D	**D25**
K3D	KING Drill-3D	**D13**
K3D	KING Drill (through coolant system with a lathe)-3D	**D22**
K3D	KING Drill (large diameter drilling)-3D	**D25**
K4D	KING Drill-4D	**D16**
K4D	KING Drill (through coolant system with a lathe)-4D	**D23**
K4D	KING Drill (large diameter drilling)-4D	**D25**
K5D	KING Drill-5D	**D18**
KEL-ANN	Milling Inserts	**B8**
KEL-MF	Milling Inserts	**B8**
KEL-QNN	Milling Inserts	**B8**

L

LBE-MHD	Laser Mill	**B328**
LBE-MHD type	Modular Adaptors	**B45**
LBE08/10/12/16/20/25/30/32	Laser Mill (Carbide Shank-Ball, Straight type)	**B324**
LBE08/10/12/16/20/25/30/32	Laser Mill (Steel Shank-Ball, Taper type)	**B325**
LBE12/16/20/25/30/32	Laser Mill (Steel Shank-Ball, Straight type)	**B325**
LBH	Milling Inserts	**B8**
LBH-KF	Milling Inserts	**B8**
LBH-KH	Milling Inserts	**B9**
LBS	Milling Inserts	**B9**

L

LCF	Milling Inserts	**B9**
LDET-MA	Milling Inserts	**B10**
LFH	Milling Inserts	**B9**
LNCS	Milling Inserts	**B10**
LNE	Milling Inserts	**B10**
LNEX-MA	Milling Inserts	**B11**
LNKT-MA	Milling Inserts	**B10**
LNKT-ML	Milling Inserts	**B11**
LNKT-MM	Milling Inserts	**B11**
LNM(E)X-MF	Milling Inserts	**B11**
LNM(E)X-MM	Milling Inserts	**B11**
LNMX-MF	Milling Inserts	**B12**
LNMX-ML	Milling Inserts	**B12**
LNMX-MM	Milling Inserts	**B12**
Long Type	Thread Milling Holders	**C16**
LPEW	Milling Inserts	**B12**
LPMT-MF	Milling Inserts	**B12**
LPMW	Milling Inserts	**B13**
LRE10/12	Laser Mill (Steel Shank-Corner R, Taper type)	**B327**
LRE10/12/16/20/25/30/32	Laser Mill (Carbide Shank-Corner R, Straight type)	**B326**
LRE12/16/25/30/32	Laser Mill (Steel Shank-Corner R, Straight type)	**B327**
LRH	Milling Inserts	**B9**
LXET-MA	Milling Inserts	**B13**
LXET-ML	Milling Inserts	**B13**

M

MAPD000HR/L-Z0	Aero Mill Mini	**B155**
MAPDS000HR/L-Z0	Aero Mill Mini	**B156**
MAT	Modular Adaptor (Steel shank)	**B400**
MAT-C	Modular Adaptor (Carbide shank)	**B401**
MPMT	Milling Inserts	**B14**
MT	Multi Functional (Multi-Turn)	**D85**

N

NCM535	CVD Coated Grades	**A5**
NCM545	CVD Coated Grades	**A5**
ND3000	Diamond Coated Grades	**A16**
NPT	Thread Milling Inserts	**C15**
NPTF	Thread Milling Inserts	**C15**
NT-FMA	Tooling System (FMA)	**E95**
NT-NPM	Tooling System (NPM)	**E37**

O

OFCN	Milling Inserts	**B14**
OFCW	Milling Inserts	**B14**
OFKR-MA	Milling Inserts	**B14**
OFKR-MF	Milling Inserts	**B14**
OFKR-MM	Milling Inserts	**B14**
OFKT-MA	Milling Inserts	**B14**
OFKT-MF	Milling Inserts	**B14**
OFKT-MM	Milling Inserts	**B15**
ONHX-MA	Milling Inserts	**B15**
ONHX-MF	Milling Inserts	**B15**
ONHX-ML	Milling Inserts	**B15**
ONHX-MM	Milling Inserts	**B15**
ONHX-W	Milling Inserts	**B15**
ONMX-MF	Milling Inserts	**B15**
ONMX-MM	Milling Inserts	**B15**
ORC	O-ring Cutter	**B368**
ORG	Milling Inserts	**B15**

P

PAC(M)2000	Pro-A Mill	**B377**
PAC(M)4000	Pro-A Mill	**B377**
PALCM	Pro-L Mill	**B389**
PALS (Multi-edge)	Pro-L Mill (Multi-edge)	**B392**
PALS (Single-edge)	Pro-L Mill (Single-edge)	**B390**
PAM type	Modular Adaptors	**B45**
PAM2000	Pro-A Mill	**B379**
PAS2000	Pro-A Mill	**B378**
PAS4000	Pro-A Mill	**B378**
PAVCM-XD19	Pro-V Mill	**B398**
PAVS-XD19	Pro-V Mill	**B399**
PAXC(M)5000	Pro-X Mill	**B382**
PAXC(M)6000	Pro-X Mill	**B383**
PAXM type	Modular Adaptors	**B45**
PAXM5000	Pro-X Mill	**B386**
PAXS5000	Pro-X Mill	**B384**
PAXS6000	Pro-X Mill	**B385**
PBAC(M)5000	Power Buster	**B67**
PBPCM6000	Power Buster	**B69**
PBZC(M)5000	Power Buster	**B68**
PC2005	PVD Coated Grades	**A9**
PC2010	PVD Coated Grades	**A9**
PC2015	PVD Coated Grades	**A9**
PC2505	PVD Coated Grades	**A9**

P

PC2510	PVD Coated Grades	**A9**
PC3700	PVD Coated Grades	**A7**
PC5335	PVD Coated Grades	**A11**
PC5400	PVD Coated Grades	**A10**
PC5535	PVD Coated Grades	**A12**
PC6100	PVD Coated Grades	**A6**
PC9540	PVD Coated Grades	**A8**
PCD Face Cutter	PCD Face Cutter	**B157**
PD1005	DLC Coated Grades	**A17**
PD1010	DLC Coated Grades	**A17**
PES2000	Turbo Mill	**B61**
PES3000	Turbo Mill	**B61**
PES4000	Turbo Mill	**B61**
PF(M)4000	Mill Max	**B55**
PNEJ	Milling Inserts	**B16**
PNEJ-C	Milling Inserts	**B16**
PPN(M)4000	Mill Max	**B56**
Pull Stud Bolt	Tooling System (Pull Stud Bolt)	**E163**
PXL	Pro-XL Mill	**B394**

Q

QCGT	Multi Functional insert (Multi-Turn)	**D85**
QCMT	Multi Functional insert (Multi-Turn)	**D85**

R

RC	Milling Inserts	**B16**
RDC	Tooling System (EXT/RDC)	**E106**
RDCT-MA	Milling Inserts	**B16**
RDHW	Milling Inserts	**B16**
RDKT-MF	Milling Inserts	**B17**
RDKT-ML	Milling Inserts	**B17**
RDKT-MM	Milling Inserts	**B17**
RDKW	Milling Inserts	**B17**
REKR-MM	Milling Inserts	**B17**
RI	Drill Insert (Indexable Reamer)	**D91**
RM14XCM-XN06	Rich Mill	**B140**
RM16AC(M)6000	Rich Mill	**B142**
RM16AC(M)8000	Rich Mill	**B143**
RM3PC(M)3000	Rich Mill	**B80**
RM3PC(M)4000	Rich Mill	**B81**
RM3PC(M)5000	Rich Mill	**B82**
RM3PM type	Modular Adaptors	**B45**
RM3PM3000	Rich Mill	**B85**
RM3PM4000	Rich Mill	**B85**
RM3PS3000	Rich Mill	**B83**
RM3PS4000	Rich Mill	**B84**
RM4PC(M)3000	Rich Mill	**B92**
RM4PC(M)4000	Rich Mill	**B93**
RM4PFCB3000	Rich Mill	**B99**
RM4PFCB4000	Rich Mill	**B100**
RM4PFCP3000	Rich Mill	**B103**
RM4PFCP4000	Rich Mill	**B104**
RM4PHCB3000	Rich Mill	**B101**
RM4PHCB4000	Rich Mill	**B102**
RM4PHCP3000	Rich Mill	**B105**
RM4PHCP4000	Rich Mill	**B106**
RM4PM type	Modular Adaptors	**B45**
RM4PM3000	Rich Mill	**B96**
RM4PS3000	Rich Mill	**B94**
RM4PS4000	Rich Mill	**B95**
RM4ZC(M)3000	Rich Mill	**B97**
RM4ZC(M)4000	Rich Mill	**B97**
RM4ZM type	Modular Adaptors	**B46**
RM4ZM3000	Rich Mill	**B98**
RM4ZS3000	Rich Mill	**B98**
RM6PC(M)-WN08	Rich Mill	**B111**
RM6PCM-WN04	Rich Mill	**B110**
RM6PM type	Modular Adaptors	**B46**
RM6PM-WN04	Rich Mill	**B114**
RM6PM-WN08	Rich Mill	**B115**
RM6PS-WN04	Rich Mill	**B112**
RM6PS-WN08	Rich Mill	**B113**
RM8AC(M)4000	Rich Mill	**B118**
RM8AC(M)5000	Rich Mill	**B120**
RM8EC(M)4000	Rich Mill	**B122**
RM8EC(M)5000	Rich Mill	**B124**
RM8QC(M)4000	Rich Mill	**B126**
RMH8AC(M)4000	Rich Mill	**B119**
RMH8AC(M)5000	Rich Mill	**B121**
RMH8EC(M)4000	Rich Mill	**B123**
RMH8EC(M)5000	Rich Mill	**B125**
RMH8QC(M)4000	Rich Mill	**B127**
RMRC(M)-RN12	Rich Mill	**B146**
RMRS-RN12	Aero Mill	**B147**
RMT8A(M)4000	Rich Mill	**B129**
RMT8A(M)5000	Rich Mill	**B130**
RMT8E(M)4000	Rich Mill	**B131**
RMT8E(M)5000	Rich Mill	**B132**

R

RMT8Q(M)4000	Rich Mill	B133
RMX8AC(M)-SA14	Rich Mill	B136
RNMX-ML	Milling Inserts	B17
RPCT-MA	Milling Inserts	B17
RPET-ML	Milling Inserts	B18
RPMT-MF	Milling Inserts	B18
RPMT-MM	Milling Inserts	B18
RPMW	Milling Inserts	B18
RTJW	Tooling System (RTJW)	E66

S

S-DTN	Tooling System (DTN)	E79
S-FBH	Tooling System (FBH)	E112
S-FBH/B	Tooling System (FBH/B)	E111
S-SDC	Tooling System (SDC/P)	E51
S-SDC/S	Tooling System (SDC/P)	E52
SAGX-ML	Milling Inserts	B18
SAGX-MM	Milling Inserts	B18
SCKN	Milling Inserts	B19
SDCN	Milling Inserts	B19
SDET-MA	Milling Inserts	B19
SDET-MF	Milling Inserts	B19
SDET-MM	Milling Inserts	B19
SDKN-CM	Milling Inserts	B19
SDKN-MU	Milling Inserts	B20
SDKN-SU	Milling Inserts	B20
SDKR-MX	Milling Inserts	B20
SDMT-MM	Milling Inserts	B20
SDXT-MA	Milling Inserts	B20
SDXT-MF	Milling Inserts	B20
SDXT-MM	Milling Inserts	B20
SECA	Milling Inserts	B20
SECN	Milling Inserts	B21
SEET-MA	Milling Inserts	B21
SEET-MF	Milling Inserts	B21
SEET-MM	Milling Inserts	B21
SEEW	Milling Inserts	B21
SEEW-W	Milling Inserts	B21
SEKN-SU	Milling Inserts	B21
SEKR-MX	Milling Inserts	B22
SEMN	Milling Inserts	B22
SEXT-MF	Milling Inserts	B22
SEXT-MM	Milling Inserts	B22
SEXT-MR	Milling Inserts	B22
SFCN	Milling Inserts	B22
SK-DHE	Tooling System (DHE)	E14
SK-DSC/M	Tooling System (DSC)	E30
SK-DST	Tooling System (DST)	E84
SK-DTN	Tooling System (DTN)	E80
SK-FBH/B	Tooling System (FBH/B)	E110
SK-FBH/D	Tooling System (FBH/D)	E115
SK-FMC	Tooling System (FMC)	E98
SK-FMC	Tooling System (FMC)	E162
SK-GSK	Tooling System (GSK)	E73
SK-MD	Tooling System (MD)	E104
SK-MTA	Tooling System (MTA)	E93
SK-NPM	Tooling System (NPM)	E37
SK-NPU	Tooling System (GSK)	E77
SK-SDC/P	Tooling System (SDC/P)	E50
SK-SLA	Tooling System (SLA)	E92
SNC(M)F-MF	Milling Inserts	B22
SNC(M)F-MM	Milling Inserts	B22
SNCN	Milling Inserts	B23
SNEF	Milling Inserts	B23
SNEU-MF	Milling Inserts	B23
SNEU-TBW	Milling Inserts	B24
SNEU-WMF	Milling Inserts	B24
SNEW	Milling Inserts	B24
SNEW-NAF	Milling Inserts	B24
SNEW-XAF	Milling Inserts	B24
SNEX	Milling Inserts	B24
SNEX-CU1	Milling Inserts	B24
SNEX-MA	Milling Inserts	B24
SNEX-ML	Milling Inserts	B24
SNEX-W	Milling Inserts	B26
SNHT-WX	Milling Inserts	B25
SNKN	Milling Inserts	B25
SNM(E)X-MF	Milling Inserts	B25
SNM(E)X-MM	Milling Inserts	B25
SNMX-MM	Milling Inserts	B18
SOKX	Milling Inserts	B26
SPB(M)	Side Cutter	B411
SPCN	Milling Inserts	B26
Special PCD Order Sheet	PCD Face Cutter	B157
SPEN-WC	Milling Inserts	B26
SPET-ND	Drill Insert (KING Drill)	D9
SPEX	Milling Inserts	B26
SPFN	Milling Inserts	B26
SPKN-MU	Milling Inserts	B27

S

SPKN-SU	Milling Inserts	B27
SPKR-MX	Milling Inserts	B27
SPMN	Milling Inserts	B27
SPMT	Milling Inserts	B27
SPMT-KC	Milling Inserts	B27
SPMT-LD	Drill Insert (KING Drill)	D9
SPMT-MM	Milling Inserts	B27
SPMT-PD	Drill Insert (KING Drill)	D9
SPP(M)	Side Cutter	B410
SPS	Side Cutter	B412
ST-DSC/M	Tooling System (DSC)	E32
ST-DSC/S	Tooling System (DSC)	E32
ST-OFH	Tooling System (OFH)	E89
Standard Type	Thread Milling Holders	C16
Steel Shank type	Modular Adaptors	B45

T

Taper Type	Thread Milling Holders	C16
TC Collet	Tooling System (DCJ Collet)	E43
TCA Tap Adapter	Tooling System (TCA)	E81
TEC(E)N	Milling Inserts	B27
TEEN	Milling Inserts	B27
TEH	Tooling System (TEH)	E87
TER Collet	Tooling System (TER Collet)	E85
TFCN	Milling Inserts	B28
TFE	T-Cutter	B374
THE	Tank Mill	B306
TNKT-ML	Milling Inserts	B28
TNKT-MM	Milling Inserts	B28
TNMX-NM	Milling Inserts	B28
TP2PC(M)-LN14	TP2P	B311
TP2PC(M)-LN17	TP2P	B312
TP2PCM-LN08	TP2P	B310
TP2PS-LN08	TP2P	B313
TP2PS-LN14	TP2P	B314
TP2PS-LN17	TP2P	B315
TP8PC(M)-SO14	TP8P	B318
TP8PS-SO14	TP8P	B319
TPCN	Milling Inserts	B28
TPD	Drill Insert (TPDC Plus Drill)	D45
TPD	Drill Insert (TPDB Plus Drill)	D58
TPD	Drill Insert (TPDB-DS)	D67
TPD	Drill Insert (TPDB-H)	D72
TPD	Drill Insert (TPDB-F)	D77
TPDB-DS(3D)	Drill (TPDB-DS)	D68
TPDB-DS(5D)	Drill (TPDB-DS)	D68
TPDB-DS(8D)	Drill (TPDB-DS)	D68
TPDB-F(1.5D)	Drill (TPDB-F)	D78
TPDB-H(3D)	Drill (TPDB-H)	D73
TPDB-H(4D)	Drill (TPDB-H)	D73
TPDB-H(5D)	Drill (TPDB-H)	D74
TPDB-H(8D)	Drill (TPDB-H)	D74
TPDB(10D)	Drill (TPDB Plus)	D63
TPDB(12D)	Drill (TPDB Plus)	D64
TPDB(3D)	Drill (TPDB Plus)	D60
TPDB(5D)	Drill (TPDB Plus)	D61
TPDB(8D)	Drill (TPDB Plus)	D62
TPDC(1.5D)	Drill (TPDC Plus)	D49
TPDC(10D)	Drill (TPDC Plus)	D51
TPDC(12D)	Drill (TPDC Plus)	D51
TPDC(3D)	Drill (TPDC Plus)	D49
TPDC(5D)	Drill (TPDC Plus)	D50
TPDC(8D)	Drill (TPDC Plus)	D50
TPDX(3D)	Drill (TPDC Plus)	D46
TPDX(5D)	Drill (TPDC Plus)	D46
TPDX(8D)	Drill (TPDC Plus)	D46
TPKN-MU	Milling Inserts	B29
TPKN-SU	Milling Inserts	B29
TPKR-MX	Milling Inserts	B29
TPMCM-TN16	Triple Mill	B259
TPMCM-TN20	Triple Mill	B260
TPMS-TN11	Triple Mill	B262
TPMS-TN16	Triple Mill	B261
TWX-KC	Milling Inserts	B29

V

VCKT-MA	Milling Inserts	B29
VDKT-MA	Milling Inserts	B29

W

WCMT-C20N	Drill Insert (WPDC)	D83
WCMT-C21N	Drill Insert (WPDC)	D83
WDKT-MH	Milling Inserts	B29
WFSB(M)	Wind Mill (Boss type)	B415
WFSP(M)	Wind Mill (Plane type)	B416
Whitworth(BSW, BSF, BSP, BSB)	Thread Milling Inserts	C14
WNGX-MA	Milling Inserts	B30

W

WNGX-ML	Milling Inserts	**B30**
WNGX-MM	Milling Inserts	**B30**
WNMX-MF	Milling Inserts	**B30**
WNMX-ML	Milling Inserts	**B30**
WNMX-MM	Milling Inserts	**B30**
WPDC(5D)	Drill (WPDC Standard type)	**D83**
WPDC(5D)	Drill (WPDC Single insert catridge type)	**D84**
WPDC(5D)	Drill (WPDC Dual insert cartridge type)	**D84**
WPDC(6.5D)	Drill (WPDC Standard type)	**D83**
WPDC(6.5D)	Drill (WPDC Single insert catridge type)	**D84**
WPDC(6.5D)	Drill (WPDC Dual insert cartridge type)	**D84**
WPDC(8D)	Drill (WPDC Standard type)	**D83**
WPDC(8D)	Drill (WPDC Single insert catridge type)	**D84**
WPDC(8D)	Drill (WPDC Dual insert cartridge type)	**D84**

X

XCET-KC	Milling Inserts	**B31**
XDET-MA	Milling Inserts	**B31**
XEKT-MA	Milling Inserts	**B31**
XEKT-ML	Milling Inserts	**B31**
XNCT-MA	Milling Inserts	**B31**
XNKT-ML	Milling Inserts	**B32**
XNKT-MM	Milling Inserts	**B32**
XNMX-ML	Milling Inserts	**B32**
XOET-ND	Drill Insert (KING Drill)	**D10**
XOMT-LD	Drill Insert (KING Drill)	**D9**
XOMT-PD	Drill Insert (KING Drill)	**D9**
XOMT-RD	Drill Insert (KING Drill)	**D10**
XPMT-MM	Milling Inserts	**B32**

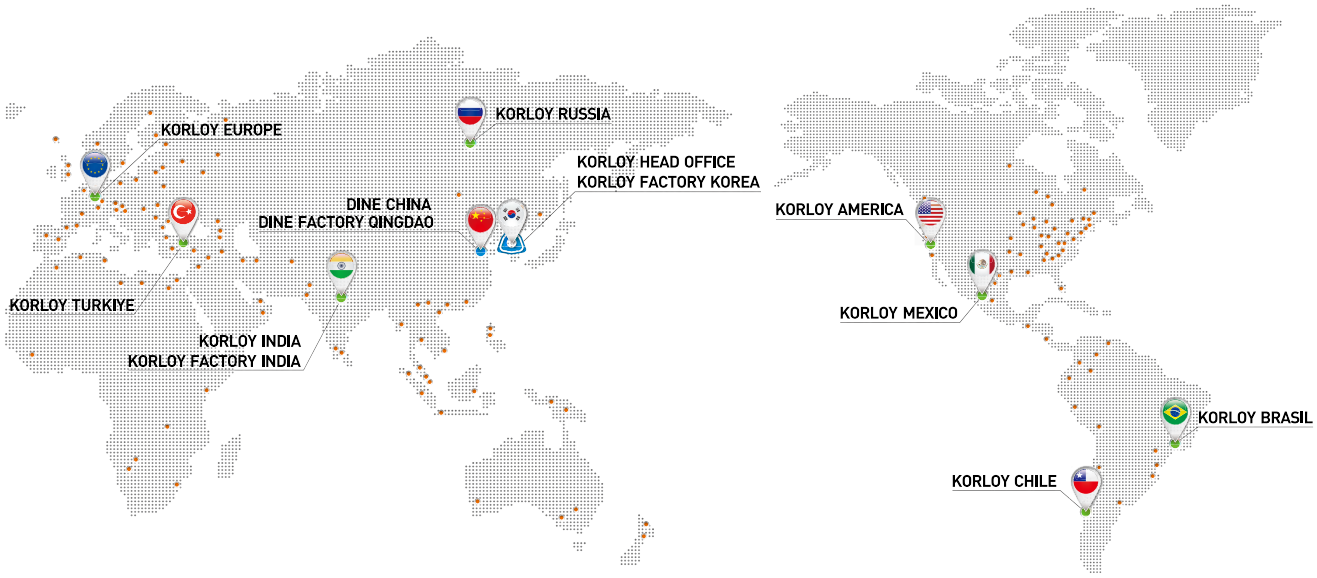
Z

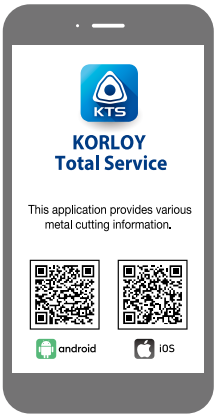
ZDMT-R-MM	Milling Inserts	**B33**
ZPET-MM	Milling Inserts	**B33**
ZPMT-MM	Milling Inserts	**B33**
ZPMT-R-MM	Milling Inserts	**B33**
ZPMT-R-MR	Milling Inserts	**B33**

BROTECH

KORLOY Global Network

We stand to be the Global Top Manufacturer. Korea's Best. World's Best





KORLOY

Head Office: Holystar B/D, 326, Seocho-daero, Seocho-gu, Seoul, 06633, Republic of Korea
Tel: +82-2-522-3181 Fax: +82-2-522-3184, +82-2-3474-4744 Web: www.korloy.com E-mail: sales.khq@korloy.com

---

KORLOY AMERICA
620 Maple Avenue, Torrance, CA 90503, USA
Tel: +1-310-782-3800 Toll Free: +1-888-711-0001 Fax: +1-310-782-3885
E-mail: sales.kai@korloy.com

KORLOY INDIA
Plot No. 415, Sector 8, IMT Manesar, Gurgaon 122051, Haryana, India
Tel: +91-124-4391790 Fax: +91-124-4050032
E-mail: sales.kip@korloy.com

KORLOY TURKIYE
Serifali Mahallesi, Burhan Sokak NO: 34
Dudullu OSB/Umraniye/Istanbul, 34775, Turkey
Tel: +90-216-415-8874 E-mail: sales.ktl@korloy.com

KORLOY RUSSIA
123242, Moscow, vn.ter.g. municipal district Presnensky,
per Kapranova, house 3 building 3, premises 1/3
Tel: +7-495-280-1458 Fax: +7-495-280-1459 E-mail: tech.sales@korloy.ru

KORLOY FACTORY INDIA
Plot No. 415, Sector 8, IMT Manesar, Gurgaon 122051, Haryana, India
Tel: +91-124-4391790 Fax: +91-124-4050032
E-mail: pro.kim@korloy.com

KORLOY EUROPE
Gablonzer Str. 25-27, 61440 Oberursel, Germany
Tel: +49-6171-277-83-0 Fax: +49-6171-277-83-59
E-mail: sales.keg@korloy.com

KORLOY BRASIL
Av. Aruana 280, conj.12, WLC, Alphaville, Barueri,
CEP06460-010, SP, Brasil
Tel: +55-11-4193-3810 E-mail: sales.kbl@korloy.com

KORLOY CHILE
Av. Providencia 1650, Office 1009, 7500027
Providencia-Santiago, Chile
Tel: +56-229-295-490 E-mail: sales.kcs@korloy.com

KORLOY MEXICO
Avenida de las ciencias, No.3015, Interior 507, Juriquilla, Santa Fe,
Queretaro, Queretaro, C.P. 76230
Tel: +52-442-673-7388 E-mail: sales.kml@korloy.com

PRINTED WITH SOY INK

CA(R)-EM-01 / 20241230