



| 恒 | 锋 | 工 | 具 |
Ever Sharp Tools



EST
Manufacturer
in
Pioneering
Cutting
and
Measuring
Tools



CONTENT

Corporate Culture	02
Organization Structure	03
Core Competitiveness	03
Major Customer Domain	03
Factory Locations	04
Historic Highlights	04
Research & Development	05
Site Views	05
Product Series	06/07
EST Milestone	06/07

Broaches 08

Extra-large Broaches	09
Helical Broaches	10
Spline Broaches	11
Solid Carbide Spline Broaches	12
Special Profile Broaches	13
Flat Broaches	15
Turbine Disk Broaches	16/17
Steering Rack Broaches/ Flat Spline Broaches	18
Pot Broaches	19

Cold Forming Tools 21

Forming Racks	22/23
Forming Roll Dies	24
Spline Forming Dies	25

Spline Measuring Tools 26

Spline Measuring Tools	27
Spline Gauges	28
Spline Meters	29/30
Master Gears	31
EST Solution and Service System	32

Gear Cutters 33

High-precision Hobs	34
Solid Carbide hobs / Rack Milling Cutters	35
Shaper Cutters/ Skive Cutters	36

Drillings & Milling cutters 37

Turbine Disk Milling Cutters	38
Nonstandard Drilling & Milling Cutters	39/40
Profile Milling Cutters	41
Roughing End Mills	42

Core Drills & Hole Saws 43

Core Drills	44
Rail Cutting Core Drills	45
Hole Saws/ Helical Flute Step Drills	46
Nonstandard Core Drills	47
Typical Clients	48

企业经营理念：

开拓进取 求实严谨
诚信和谐 勇攀高峰

陈尔奇 2017.4.8

EST, a leading complex tool manufacturer in China, is going globally!

EST ranks NO.1 among the complex cutting tool and precision spline gauge manufacturers in China and top 5 globally. For 30 years, EST has been innovating and investing in high-end equipment. The company started with making HSS roughing end mills and grew to a leading manufacturer for complex cutting tools and precision spline gauges. EST is presenting the world a new era of 'Made in China'.

Patents and awards demonstrate EST's strong R&D capabilities

EST is committed to continual innovative research and development. It owns a provincial level research center, a national level spline gauge measuring lab, and a provincially awarded research team. EST has nine invention patents and over 50 application patents. EST was awarded the national first prize in technology and many prizes in Chinese machinery industry and some industrial innovation projects were national-funded. EST was also awarded three pioneering products prizes for the helical ring gear broach, the one-pass large broach, and the turbine disk slot broaches set.

EST as an executive member of CMTBA, drafted and greatly contributed to the final GB involute spline standard.

EST has six experienced engineering teams for the six series of products, and each year the team made new breakthrough on innovative projects.

EST keeps investing in up-to-date technologies and equipment to make the best performance tools. There are over 100 world's cutting-edge CNC grinding machines and over 500 specialized manufacturing equipment, including the largest PVD coating chamber in Asia.

CORPORATE CULTURE

MISSION:

Provide users with excellent cutting tools and spline gauges while striving to become a leading domestic and world-class manufacturer and supplier in the modern tools industry.

CORE VALUES:

Passionate, honest, disciplined, quality conscious, realistic.

GUIDING PRINCIPLES:

Pioneering & innovative, quality-oriented craftsmanship, teamwork



ISO9001



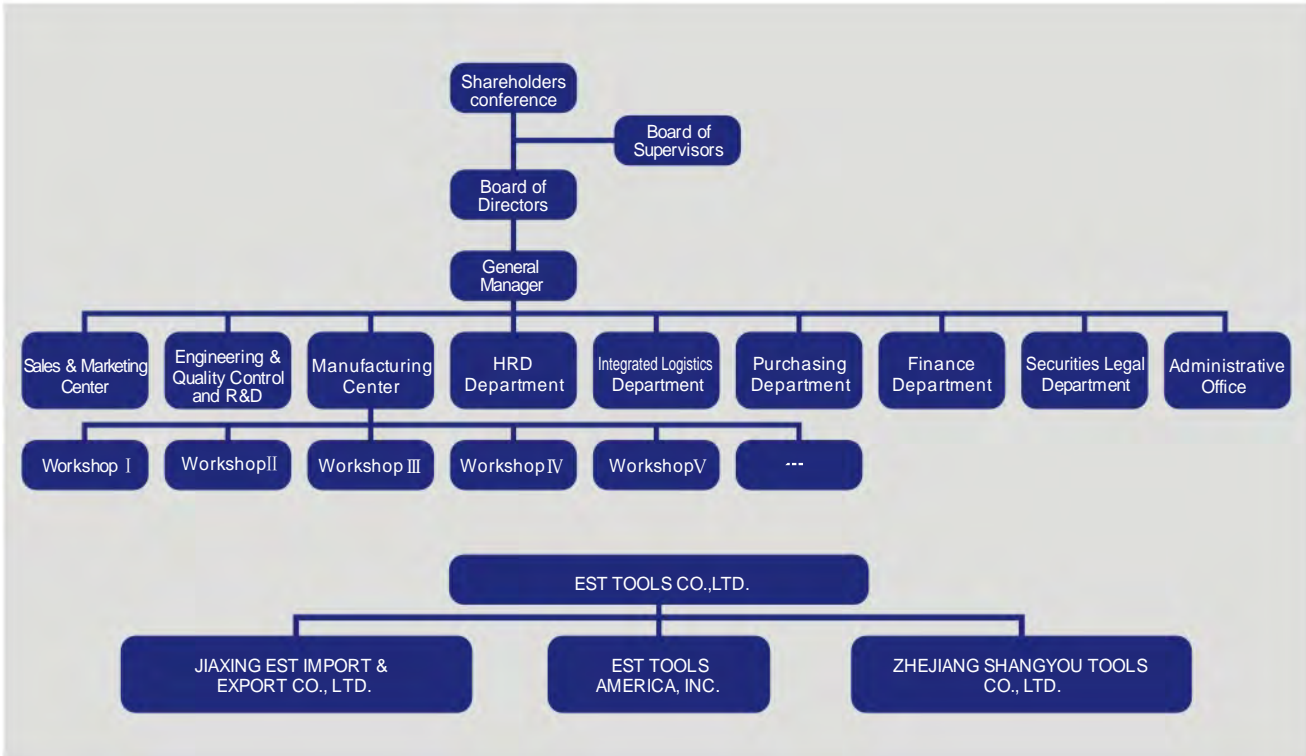
ISO14001



OHSAS18001



ORGANIZATION STRUCTURE



CORE COMPETENCY

<p>Customer Service</p> <p>EST's technical service teams connect with users to offer fast response and efficient solutions.</p>	<p>Continuous employees training and products development</p> <p>EST provides platforms and devices and collaborates with Universities for employee training, process improvement and product development.</p>	<p>Modern management</p> <p>EST is managed by a young and passionate team with modern software management to make great ideas come true.</p>
--	---	---

MARKET SEGMENTS



EST has grown into one of the most competitive manufacturers in the world for complex cutting tools and precision spline gauges. EST provides integrated professional solutions in components machining and spline measuring for transmissions, power generators, aircrafts, etc.

FACTORY LOCATIONS



EST factory in Haiyan

EST has its 25-acre-headquarter with workshops for the six series of products in Haiyan, Zhejiang, another hob manufacturing and re-sharpening plant in Wenling, Zhejiang, and a sales & service center in Smiths Creek, Michigan.



Old Office building



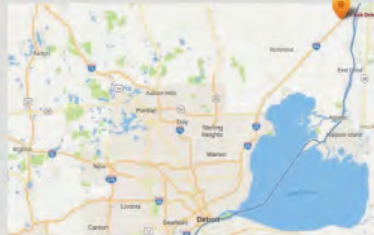
The main road between old workshops buildings



New office and workshop buildings



Hob plant in Wenling



Sales center in Michigan



Sales center in Michigan

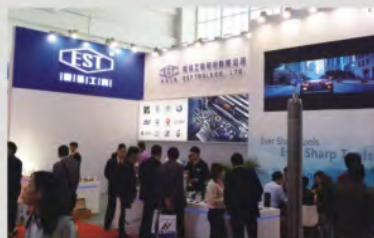
HISTORIC HIGHLIGHTS



EST launched IPO on the Shenzhen Stock Market on July 1, 2015



EST was honored by the visit by secretary of Provincial Committee of CPC



EST was at one of the world's biggest industrial exhibition



Employees were performing at EST 25th anniversary event

RESEARCH AND DEVELOPMENT

EST commits itself innovative research and development. It has a provincial high-tech research center and a research institute under its management. The technology innovation team of EST was rated as a key innovation team of Zhejiang Province in 2011. The Precision Measurement Laboratory of EST has been identified by the COSTINE as a qualified lab in terms of involute spline testing.



Collaboration between EST and Shanghai Jiaotong University



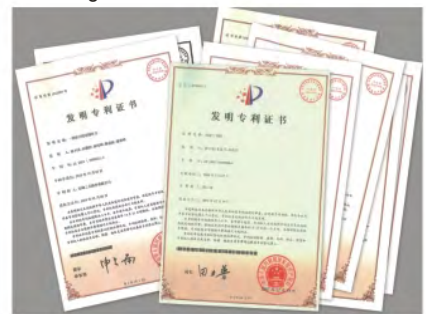
The director of engineering team shares his knowledge



Teams report on-going projects and sharing technology breakthroughs



EST was awarded the first prize of the Chinese Machinery Industry Science and Technology



EST's patents

SITE VIEWS

EST has over 500 sets of specialized processing equipment and heat treatment equipment, etc. and more than 30 sets of measuring instruments. Among them, over 100 sets of advanced precise CNC grinding equipment and instruments are imported from Germany. EST satisfies the overall demand of customers with its developed cutting and processing solutions and service system.



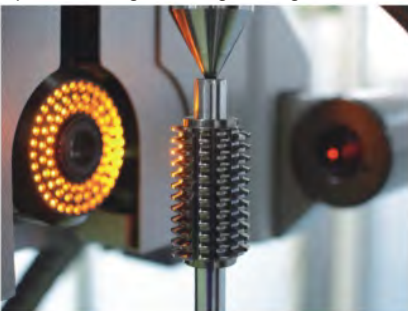
Special milling & drilling cutting tools site



Broach rake angle grinding site



Steel stock site



Inspection lab site



Broach spline grinding site



Forming rack grinding site

PRODUCTS SERIES

Complex Cutting Tools & Spline Gauges

Round Broaches



Extra-large Ring Gear Broach



Helical Ring Gear Broach with Shell



Spline Broach with Coating



Solid Carbide Spline Broach



Special Profile Broach

We design and build special form broaches

Flat Broaches



Turbine Disk Broach



Rack Profile Broach



Pot Sticks & Rings



Pot Broach Holder



Flat Broach with Carbide Inserts

We design and build special form flat broaches

Hobs



High-precision hob with shank



Solid Carbide Hob



Class AAA Hob

Shaper Cutters

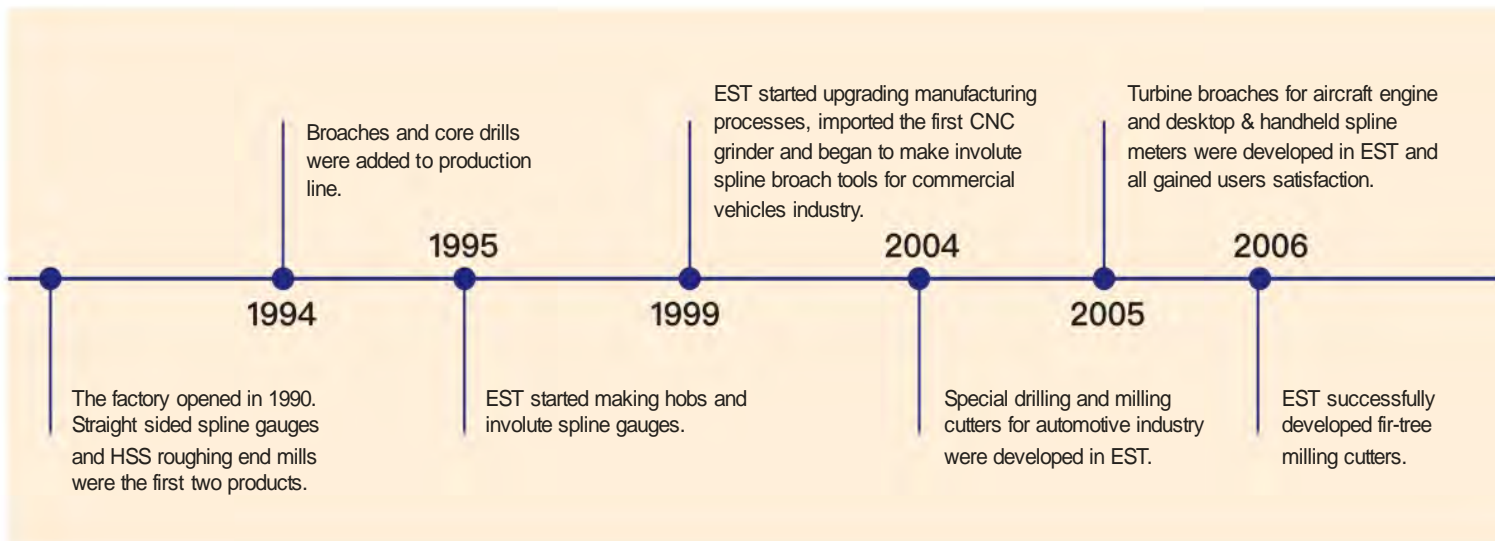


Disk type Shaper Cutter
Deep-counterbore type Shaper Cutter
Shank type Shaper Cutter

Skive Cutters



EST MILESTONE



COLD FORMING TOOLS

SPLINE MEASURING TOOLS

Forming Racks



Spline Rolling Racks

Forming Roll Dies



Circular Spline Roll Dies

Carbide Spline Forming Dies



Spline Forming Dies

Spline Gauges



Spline Ring Gauges

Spline Meters



Desktop Spline Meters

Master Gears



Master Gears



Thread Rolling Racks



Circular Thread Roll Dies



Spline Plug Gauges



Handheld Spline Meters

Other spline related gauges...

DRILLING & MILLING CUTTERS



Turbine disk milling cutters
Nonstandard drilling and milling cutters
Profile milling cutters
Roughing end mills
...

CORE DRILLS & HOLE SAWS



Core drills
Rail cutting core drills
Hole saws
Helical flute step drills
...

Spline rolling racks were produced in EST.

2008

EST designed and manufactured the first 3-meter-long large broach in China.

EST successfully developed the first automatic transmission helical ring gear broach in China.

2010

EST produced the first set of gas turbine disk fir-tree broach.

The production and sales volume exceeded one hundred million RMB.

2011

2012

EST formulated and released the Chinese standards for spline measuring gauges.

Class AAA hobs were designed and made in EST.

2013

2014

EST successfully built fir-tree solid carbide milling cutters.

Broaches with indexable inserts were developed by EST.

2015

2016

EST successfully developed pot broach holders.

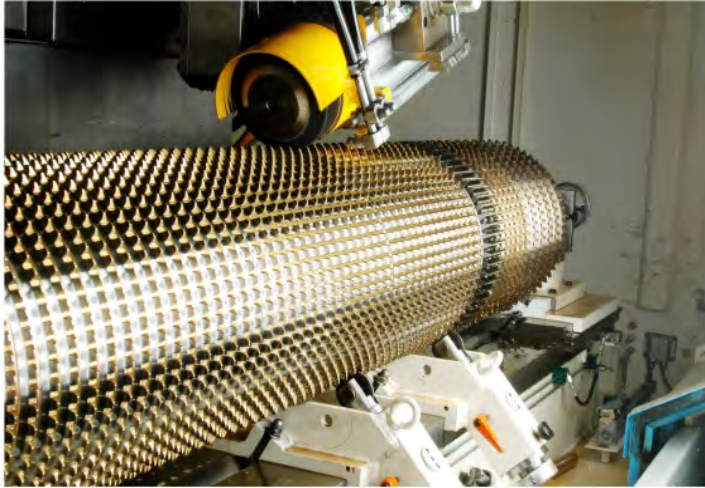


With advanced equipment, EST broach tools rank the first in terms of production and sales volume in China.

Precision Cutting and Measuring Tools

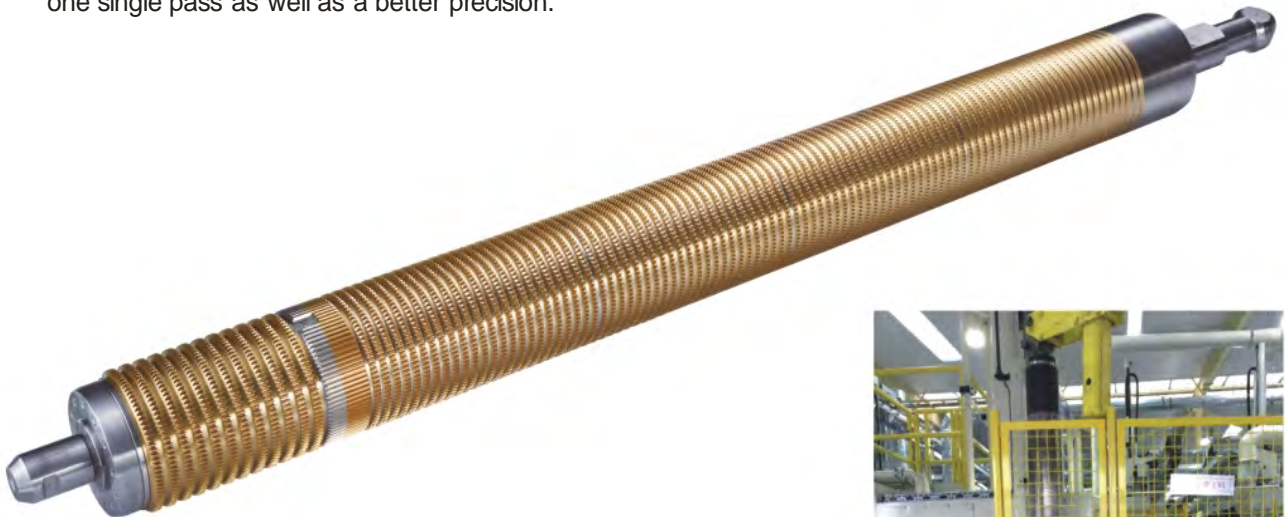
Broaches





Extra-large broach rake angle grinding

In 2008, EST built the first extra-large broach which was 240mm in diameter and 2850mm in length. This extra-large broach offers efficient broaching with one single pass as well as a better precision.



The first one-pass extra-large broach in China was born at EST

The current extra-large broach in EST

Max diameter	350 mm
Max length	3000 mm



Heavy truck



Large gear ring parts



Extra-large broach operation



Helical broaching parts

In 2009, the first helical annular gear broach for automatic transmission of cars, which is manufactured in China was born in EST.

This broach is approximately 135mm in diameter and 1,930mm in length. It takes less than one minute to broaching a workpiece, thus the production efficiency is improved dramatically.

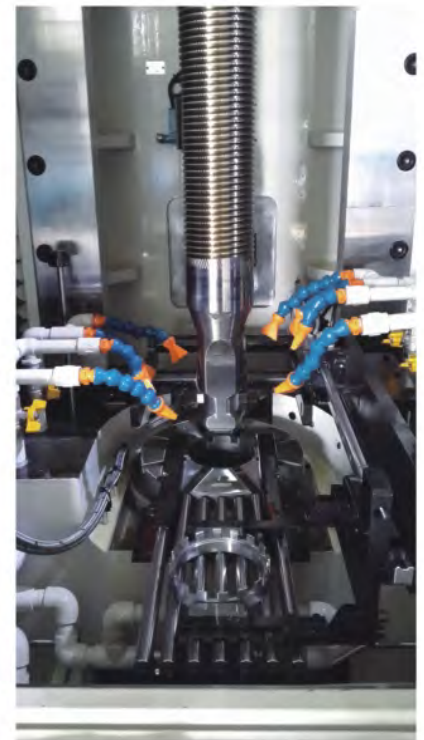
Currently, EST also provides helical broaching services.



The first helical annular gear broach for automatic transmission in China was born in EST



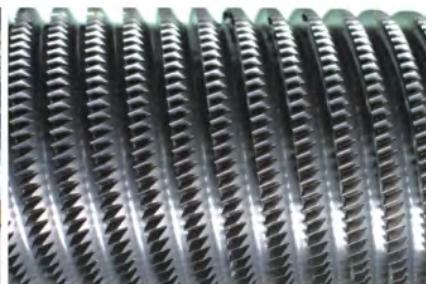
EST won the title of the first broach in key areas in 2010



Helical broaching machine



Automatic transmission (AT) helical broaching machine



Helical broach finishing shell





The spline broaches designed and manufactured by EST, the involute spline broaches tool minimum module is 0.4.

EST also provides grinding service of various types of round broaches for our customers.



Parts processed by EST spline broaches



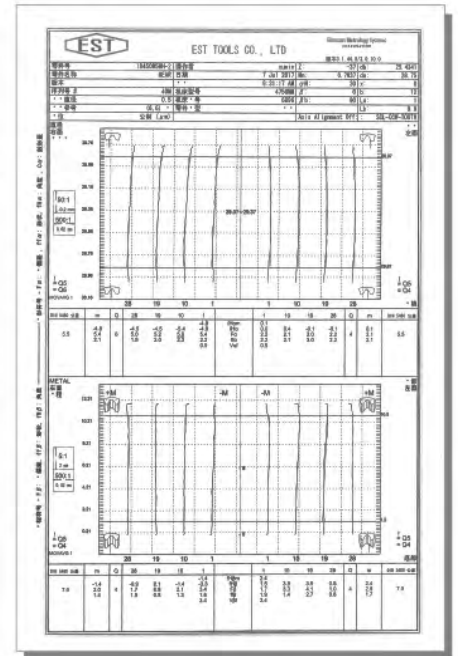
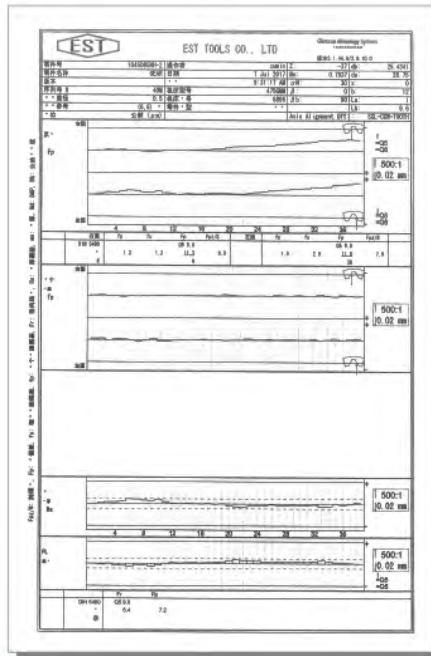
Coatings and surface treatment of spline broaches are applied in EST



Hardness of broached parts: About HRC60
 Broaching speed: 60m/min
 Surface roughness: Up to Ra0.4

The carbide hard broach tools are used for broaching parts after heat treatment. This kind of broach can improve the precision of spline parts.

EST can provide users with a whole set of products including hard broach body and hard broach tools, as well as broaching services.



Measure Report of broached workpiece



Part broached by carbide hard broach tools





EST also designed and manufactured special profile broaches, to meet customers' production requirements.

Application of broaches in industry



Various types of parts broached by special profile broach tools



EST provides users with the design and customized productions of new round broaches, as well as grinding services.



EST provides users with the design and customized productions of complete sets of surface broaches, as well as grinding services.

Turbine disks are made of superalloy which exhibit mechanic characteristics but is hard to process.

In 2010, the first set of large-scale turbine disk broach made in China was born in EST. These whole set of broaches are composed of 32 broaches, with a total length of 21 meter, including rough broaching, semi-finishing broaching, finishing broaching and chamfering broaching.



The first set of large-scale turbine disk broaches with slots in China was born in EST



The broach won the title of the first set in key areas of China in 2013

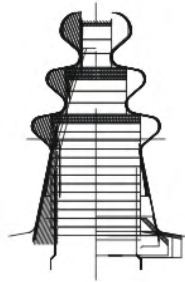




Manufacture production



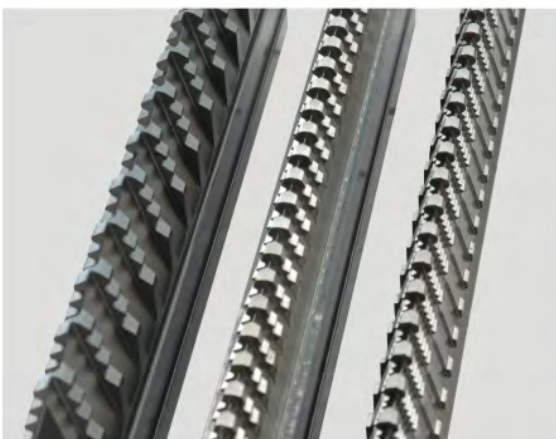
Measure in the Processing



Broaching gas turbine disk



Turbine disk broaches broaching machine



Turbine disk broaches



Turbine disk broaches setting on the machine

Flat spline broaches are used for broaching automobile transmission shaft and steering rack broach are used for broaching steering gear racks, with high broaching efficiency and fine precision.

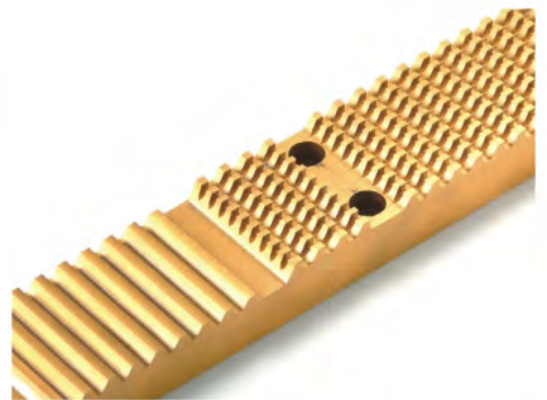
The flat broaches designed and manufactured by EST are widely used in automobile manufacture industry.

The broaches are made by powder high speed steel or cobalt high speed steel and advanced coating technology.

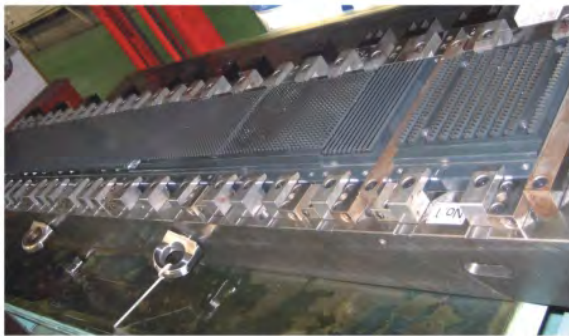
Max. broaching speed: 30m/min



Steering rack broach and broaching parts



Flat Spline Broaches



Steering rack broaching machine



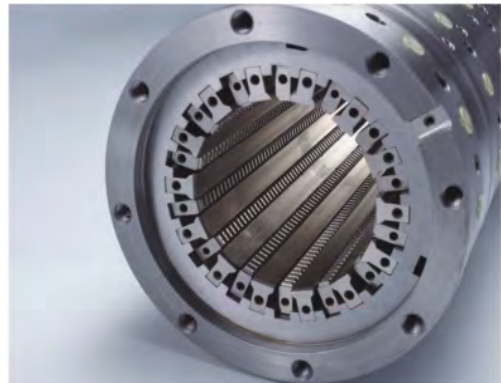
Sparts broaching by flat spline broach



Steering rack broach holder and broach



Flat broach grinding machine



Pot broach holder

Pot broaches are flat processing tools which used for broaching external splines, slots or other specially-shaped tooth.

EST has supplied large number of pot broaches and pot broach holders for multiple automobile gear manufacturers in China and been well received by clients.

EST also provides re-grinding services for surface broach tools.



Pot broaching machine



Pot broaches



Broaching machine



The carbide insert broach applies to broaching multiple materials, it applies in the broaching of automobile brake caliper holders, automobile engine bearing covers and gas turbine disks, etc.

Carbide insert broach can reduce the downtime caused by broach changing and improve the operating efficiency of the machine. This broach tool can be repeatedly used for a long time and the blade can be changed.



Broaching speed of carbide

insert broach: Up to 30m/min

Broaching life of broach: 600,000+

pieces or above per set

Independently developed products,

multiple obtained patents



Carbide insert broaching machine



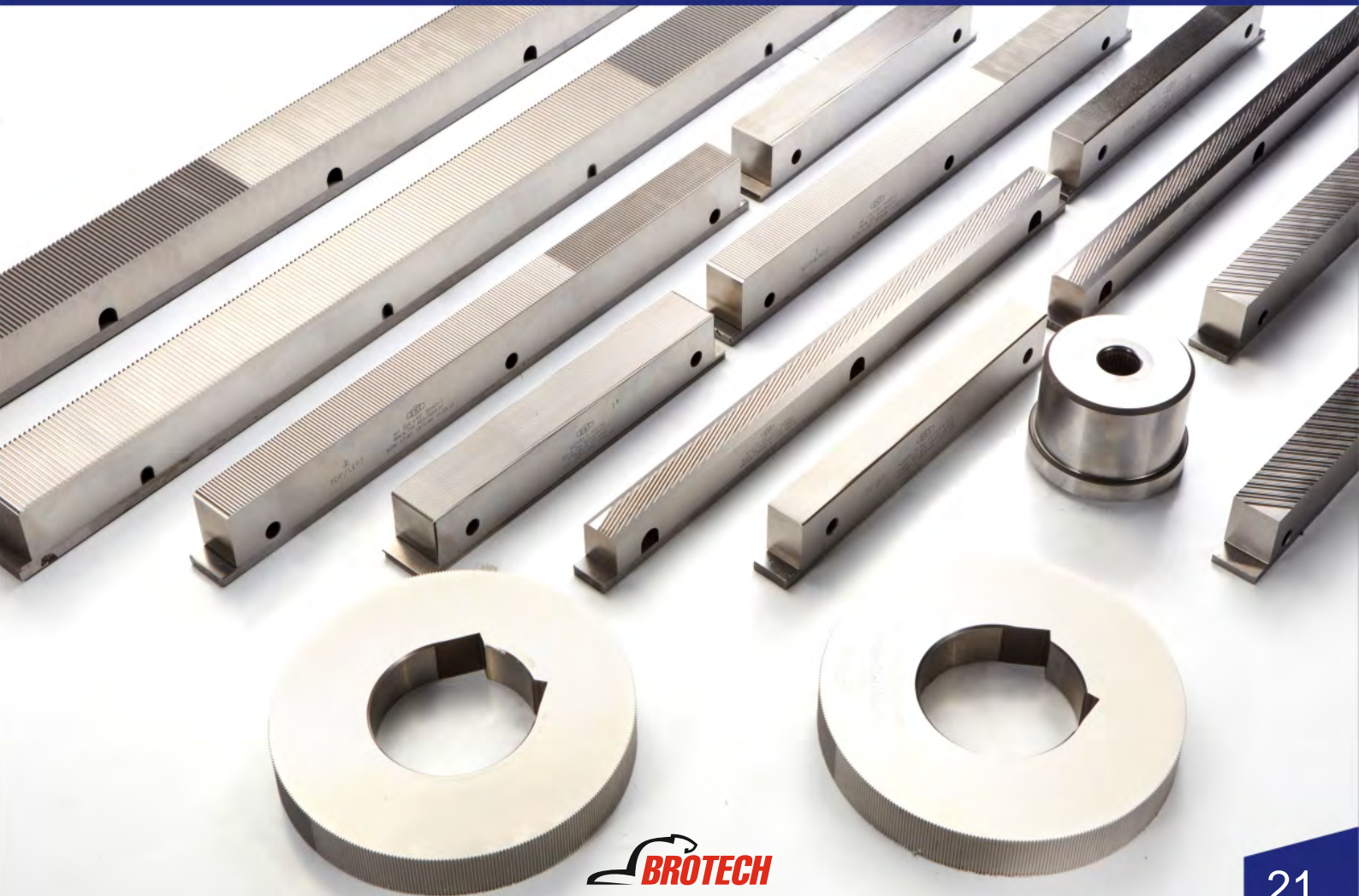
Automobile brake caliper holder

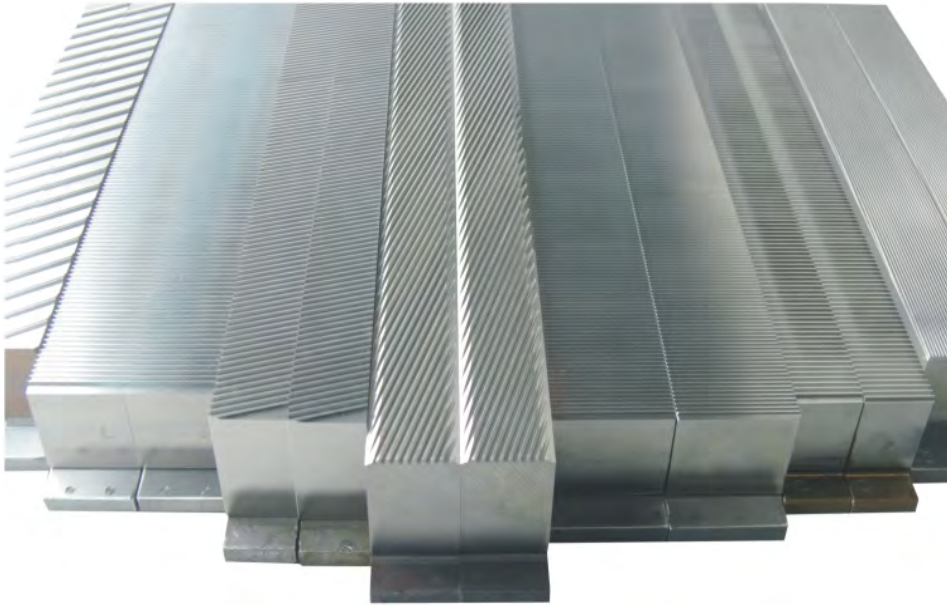


With complete varieties of tools, EST has become a high-profile brand.

Precision Cutting and Measuring Tools

Cold Forming Tools





EST can design and manufacture spline forming racks with module range from 0.3 to 2, pressure angle include 20°, 30°, 37.5° and 45°, and specifications of 13", 24", 36", 48" and 60".

EST also can design and manufacture the forming rack for machining the thread, oil slot, worm rolling, etc.



Spline shaft part after forming



Forming parts



Spine forming racks



Forming processing



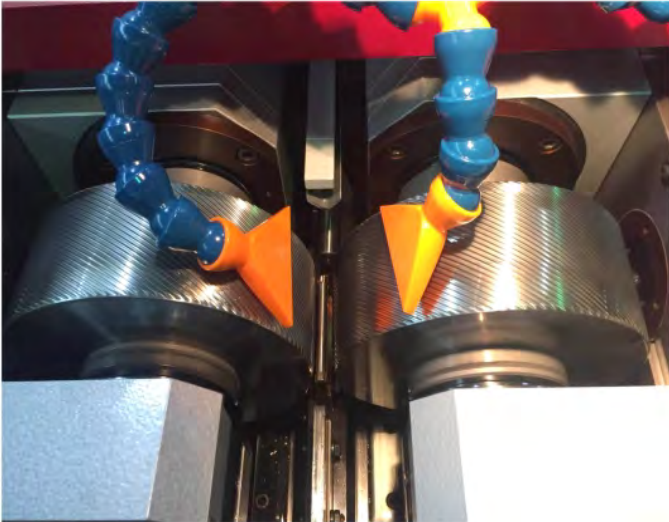
Grinding Forming racks



Spline forming rack JB Industry Standard drafted and formulated by EST



Thread Forming Racks



Forming roll die processing site

Forming roll dies include high-precision spline roller dies and thread roller dies. Spline roll dies are mainly used for cold forming of straight threads, diagonal threads and worm spline shafts.

High-precision spline roll dies and thread roll dies are used in pairs with high processing efficiency.

These roll dies can be customs for users.

Spine Roll Dies

Module range : M0.3- M2

Pressure angle: 20°, 30°, 37.5°, 45°

Thread Roll Dies

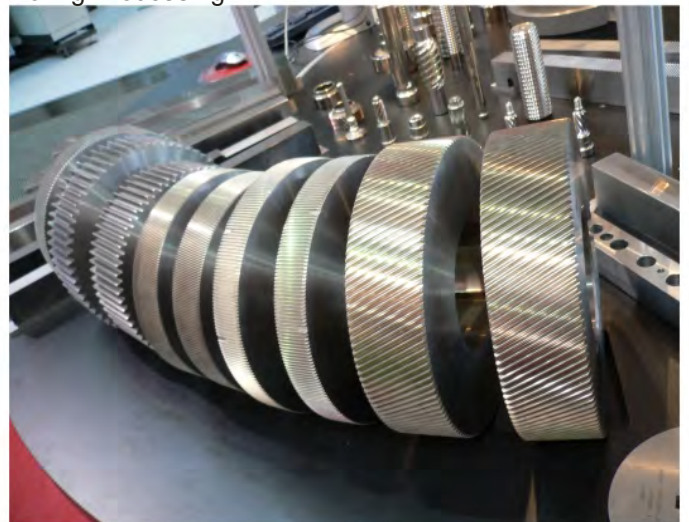
Tooth pitch range : 0.5mm-8mm



Rolling Processing



Thread Roll Dies



Forming Roll Dies



Solid Carbide Spline Forming Dies

For the carbide spline forming dies, solid carbide materials are used to make die core and the external layer is made of steel substrate. With stable processing quality, the tools have been widely used in external spline processing areas including driving shafts and steering gears.

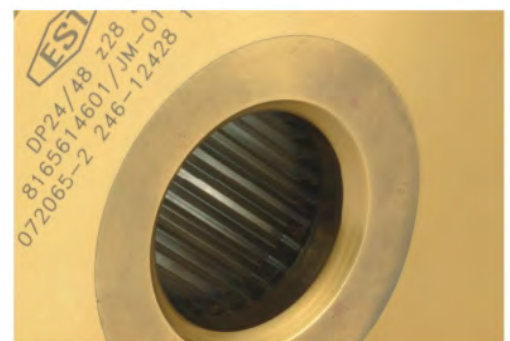


Parts processed by spline forming dies



Module: M0.3- M2

the processed parts after rolling can meet the Standard GB/T3478, Grade 5 spline requirement.



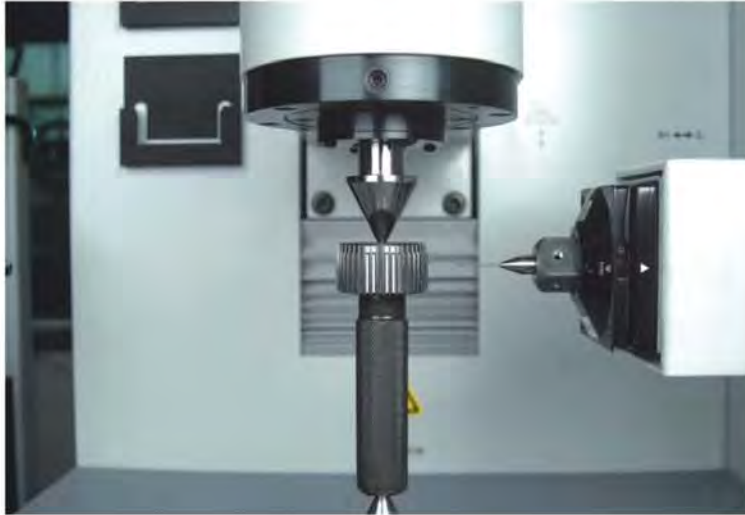


EST is the standard setter for the spline measuring tools and the brand designated by customers in automobile industry.

Precision Cutting and Measuring Tools

Spline Measuring Tools





Spline plug gauge measuring process

Spline measuring tools are used for the measure of internal or external spline products. The spline measuring tools designed and manufactured by EST include spline gauges and spline variable gauges, etc.

We also designed gages according German standards (DIN), American standards (ANSI) and Japanese standards (JIS).etc., to meet customer requirement.

EST ,GB standard setter of spline gauges and measuring



Appearance patent - spline ring gauge packing case

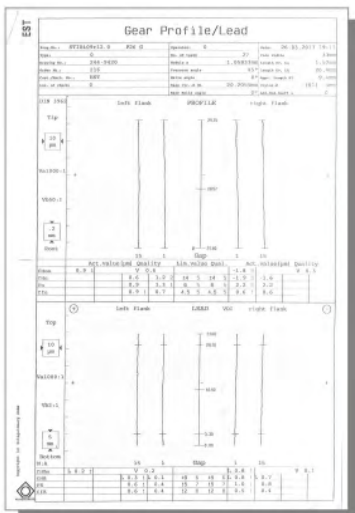


Appearance patent - spline plug gauge packing case

- Spline measuring gauges including:
- Involute spline ring/plug gauges
- Triangular spline ring/plug gauges
- Rectangular spline ring/plug gauges
- Helical spline ring/plug gauges
- Taper spline ring/plug gauges
- Spline taper shafts
- etc.



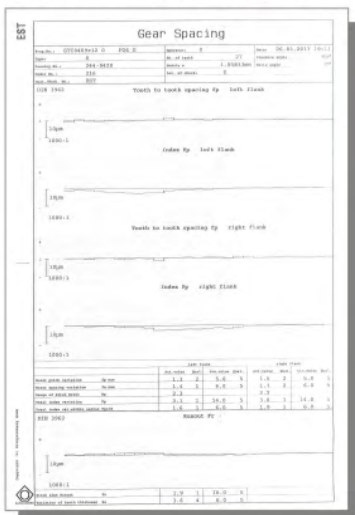
Spline plug gauges



Gauge Profile/Lead Report



Spline ring gauges





Desktop Spline Meters

- Straight cylindrical involute splines meter
- Internal spline measurement between two pins meter
- External spline measurement over two pins meter
- Internal spline actual space width meter
- External spline actual tooth thickness meter
- Internal spline effective space width meter
- External spline effective tooth thickness meter



Handheld Bar Distance Meters



Desktop Digital Spline Meters

Spline meters include: Internal spline measurement between two pins meter, External spline measurement between two pins meter, Internal spline actual space width meter, External spline actual tooth thickness meter, Internal spline effective space width meter, External spline effective tooth thickness meter, Internal spline effective space width meter, External spline effective tooth thickness meter, customized, etc.



Patent of invention 39 - special handheld bar distance spline meter , ZL 201310299587.6.



Industry standard for Spline meters is drafted and formulated by EST.



General handheld bar distance meters



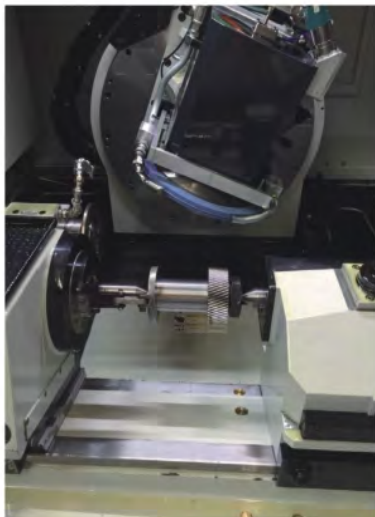
Spline meters used in the measuring process



The precision of master gears meet Grade IV or above specified in DIN3962, GB/T10095.1 & GB/T10095.2.

Master gears are used for the engaging test of gears.

Master gears designed and manufactured by EST, include master gears for engaging and master gears for setting.



Grinding master gears



Test the master gears

EST Solution and Service system.

Spline Processing

Internal Spline Parts

External Spline Parts

Spline Broaches
Carbide Hard Spline Broaches
Shaper Cutters
Skive Cutters

Internal spline measurement

Spline Plug Gauges
Spline Taper Shafts
Internal Spline Variable Gauges

External Spline Parts

External spline processing

Spline Forming Racks
Spline Roll Dies
Spline Forming Dies

External spline measurement

Spline Ring Gauges
External Spline Meters

Products subject to spline processing and measurement provided by EST



Spline processing and measurement services provided by EST

1. Customization design of cutting and measuring tools
2. Broach regrinding service
3. Forming rack regrinding service
4. Internal spline broaching service
5. External spline forming service
6. Spline gauge and meter periodic testing service
7. Spline parts measurement service
8. Spline shaft parts grinding service
9. Supply parts machining service in according with the standard of German, American, Japanese and Chinese.



Internal and external spline processing and measure solution



EST gear products with high precision and long tool life, it has been recognized by the gear industry users in China.

Precision Cutting and Measuring Tools

Gear Cutters



EST designs and manufactures hobs that has hole style and shank style, which can be used for dry and wet cutting. The maximum cutting speed can be up to 300m/min or above.

Hobs made by carbide or high speed steel. The surface finish has AlTiN, Alcrona -Pro and Altensa coating, with a long tool life.

EST hob grade has DIN A, AA, AAA.

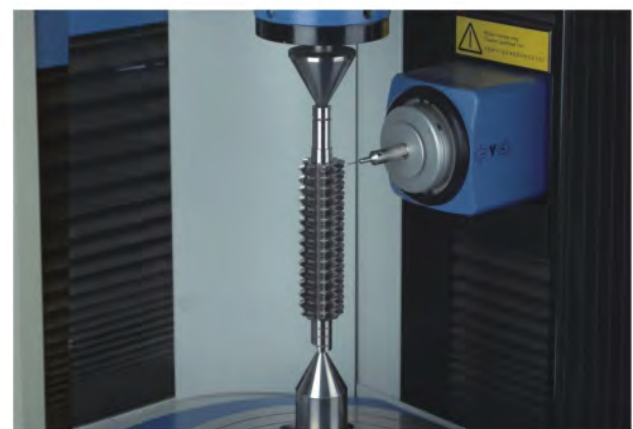
EST provides hob re-grinding service.



Grinding Hobs



High-precision Hobs with Shank



Measuring Hobs

Solid carbide hobs are made of high-performance cemented carbide.

Carbide hobs can be used for machining workpiece before H/T, the tool life is longer than HSS hob; it also can be used for machining the workpiece after H/T, the workpiece hardness between HRC 58-62, it is the best choose for hobbing.



Solid Carbide Hobs



Rack Milling Cutters

The rack milling cutters of EST are manufactured by the world first-class specialized process and high level measure equipment, with high precision and stable quality.

Rack milling cutters made by cobalt high speed steel or carbide steel. The surface coating is treated with high quality to increase tool life.

EST also provides rack milling cutter re-grinding and re-coating service.



Measuring rack milling cutters



Rack milling cutters machining process



Gear sharper cutters are used to process stepped gears, internal gears, multi-connected gears etc.

EST provides gear sharper cutters whose module is bigger than 0.3 and minimum external diameter is larger than 8mm for Gear industry users.

The gear shaper cutters include forms of shank type, disk and deep-counterbore type.



Grinding sharper cutters



Machining by sharper cutters



Hobbing workpiece



EST provides nonstandard customized drilling and milling cutters for users.

Precision high efficiency cutting Tools

High-efficiency Drilling & Milling Cutters





Turbine disk milling cutters are widely used for milling various types of turbine rotor slots.

The turbine disk milling cutters developed, designed and manufactured by EST have been applied in large turbine plants in China.

EST has obtained the title of "Excellent Supplier " several times among Chinese large-scale turbine manufacturers for its turbine disk milling cutters.



Turbine rotor milling process



Turbine rotor



Automobile engine production lines



Automobile engine cylinder

Nonstandard drilling and milling cutters for automobile engines include step drills, inner cooling drills, nonstandard center drills, nonstandard twist drills, thread milling cutters etc.

EST develops, designs and provides various types of nonstandard drilling and milling cutters for automobile engine manufacturers.

We also provide re-grinding services for the above cutters.





C919, the first large plane made in China, whose nonstandard drilling and milling cutters were provided by EST

Inside of C919 aircraft

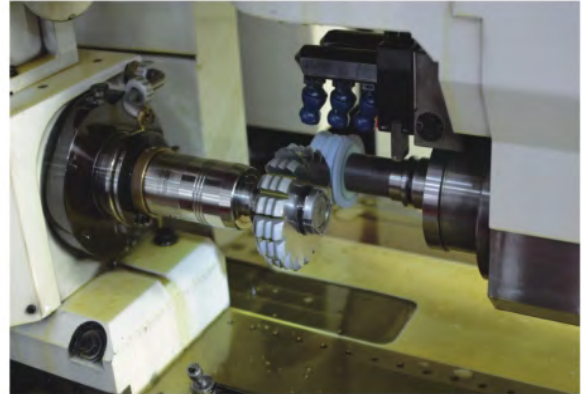
EST always commits itself to researching and manufacturing aviation cutters, from light complex materials to special alloy materials, from manufacture of aircraft parts and aviation engine to aircraft assembly.



EST is equipped with the world first-class grinding, measurement and trial processing equipments, to effectively guarantee the precision for dimensions of high-precision profile milling cutters.

EST has made an in-depth technical research on the selection of milling cutter materials, heat treatment process, surface coating and edge treatment, etc.

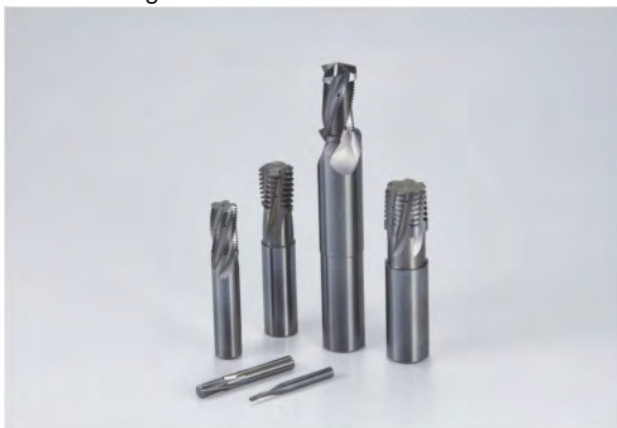
EST cutters have been widely applied in turbine blade processing, steering gear rotor grinding, thread grinding and the mobile phone housing processing , etc.



Profile milling cutters processing



Profile milling cutters



Thread milling cutters



Measuring profile milling cutter

Roughing end mills are widely used for rough milling in general mechanical processing. Powder high speed, cobalt high speed steel, aluminum high speed steel, or solid carbide may be selected to make the cutters. These cutters are the best choice for users who seek for high performance in coarse processing.

Metric Regular Size<mm>					
NO.	d	d1	L2	L1	z
M-NR-BC<K>406R	6.0	6.0	13	57	4
M-NR-BC<K>407R	7.0	10	16	66	4
M-NR-BC<K>408R	8.0	10	19	69	4
M-NR-BC<K>409R	9.0	10	19	69	4
M-NR-BC<K>410R	10	10	22	72	4
M-NR-BC<K>411R	11	12	22	79	4
M-NR-BC<K>412R	12	12	26	83	4
M-NR-BC<K>414R	14	12	26	83	4
M-NR-BC<K>416R	16	16	32	92	4
M-NR-BC<K>418R	18	16	32	92	4
M-NR-BC<K>420R	20	20	38	104	4
M-NR-BC<K>422R	22	22	38	104	4
M-NR-BC<K>425R	25	25	45	121	4
M-NR-BC<K>428R	28	25	45	121	6
M-NR-BC<K>430R	30	25	45	121	6
M-NR-BC<K>432R	32	32	53	133	6
M-NR-BC<K>436R	36	32	53	133	6
M-NR-BC<K>440R	40	40	63	155	6
M-NR-BC<K>445R	45	40	63	155	6



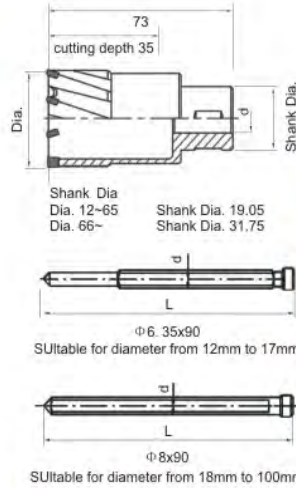


With classic quality,
EST won the trust of partners.

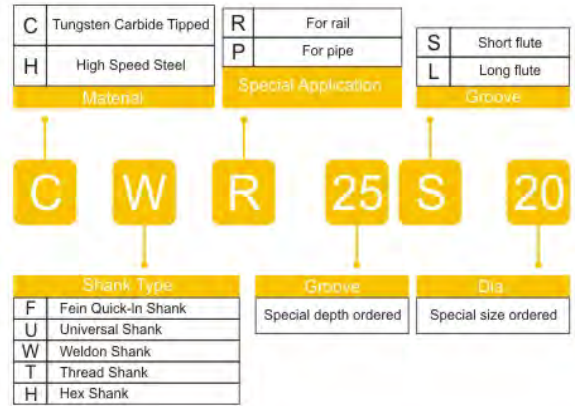
Precision high efficiency cutting Tools

Core Drills & Hole Saws





Order No Representation



Steel plate edge grinding

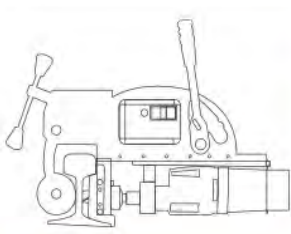


Magnetic drilling

EST designs and manufactures various types of core drills. These products are applicable for drilling various types of metallic and nonmetallic materials. They are quite popular among users with their high drilling efficiency, which effectively shortened construction time. EST has nearly twenty years' experience in designing and manufacturing core drills.

Metric Regular Size<mm>					
Order NO.	Dia	Price	Order NO.	Dia	Price
CW35S/L-12	12		CW35S/L-57	57	
CW35S/L-13	13		CW35S/L-58	58	
CW35S/L-14	14		CW35S/L-59	59	
CW35S/L-15	15		CW35S/L-60	60	
CW35S/L-16	16		CW35S/L-61	61	
CW35S/L-17	17		CW35S/L-62	62	
CW35S/L-18	18		CW35S/L-63	63	
CW35S/L-19	19		CW35S/L-64	64	
CW35S/L-20	20		CW35S/L-65	65	
CW35S/L-21	21		CW35S/L-66	66	
CW35S/L-22	22		CW35S/L-67	67	
CW35S/L-23	23		CW35S/L-68	68	
CW35S/L-24	24		CW35S/L-69	69	
CW35S/L-25	25		CW35S/L-70	70	
CW35S/L-26	26		CW35S/L-71	71	
CW35S/L-27	27		CW35S/L-72	72	
CW35S/L-28	28		CW35S/L-73	73	
CW35S/L-29	29		CW35S/L-74	74	
CW35S/L-30	30		CW35S/L-75	75	
CW35S/L-31	31		CW35S/L-76	76	
CW35S/L-32	32		CW35S/L-77	77	
CW35S/L-33	33		CW35S/L-78	78	
CW35S/L-34	34		CW35S/L-79	79	
CW35S/L-35	35		CW35S/L-80	80	
CW35S/L-36	36		CW35S/L-81	81	
CW35S/L-37	37		CW35S/L-82	82	
CW35S/L-38	38		CW35S/L-83	83	
CW35S/L-39	39		CW35S/L-84	84	

Rail Cutting Core Drills with Weldon Shank
Cutting depth 25mm or 50mm



Metric Regular Size<mm>

Order No.	Dia	Price	Order No.	Dia	Price
CWR25S-20	20		CWR50S-20	20	
CWR25S-21	21		CWR50S-21	21	
CWR25S-22	22		CWR50S-22	22	
CWR25S-23	23		CWR50S-23	23	
CWR25S-24	24		CWR50S-24	24	
CWR25S-25	25		CWR50S-25	25	
CWR25S-26	26		CWR50S-26	26	
CWR25S-27	27		CWR50S-27	27	
CWR25S-28	28		CWR50S-28	28	
CWR25S-29	29		CWR50S-29	29	
CWR25S-30	30		CWR50S-30	30	
CWR25S-31	31		CWR50S-31	31	
CWR25S-32	32		CWR50S-32	32	
CWR25S-33	33		CWR50S-33	33	
CWR25S-34	34		CWR50S-34	34	
CWR25S-35	35		CWR50S-35	35	
CWR25S-36	36		CWR50S-36	36	

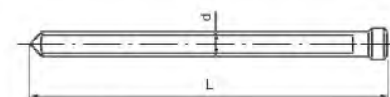
Metric Regular Size<mm>

Order No.	Dia	Price	Order No.	Dia	Price
HWR25L-20	20		HWR50L-20	20	
HWR25L-21	21		HWR50L-21	21	
HWR25L-22	22		HWR50L-22	22	
HWR25L-23	23		HWR50L-23	23	
HWR25L-24	24		HWR50L-24	24	
HWR25L-25	25		HWR50L-25	25	
HWR25L-26	26		HWR50L-26	26	
HWR25L-27	27		HWR50L-27	27	
HWR25L-28	28		HWR50L-28	28	
HWR25L-29	29		HWR50L-29	29	
HWR25L-30	30		HWR50L-30	30	
HWR25L-31	31		HWR50L-31	31	
HWR25L-32	32		HWR50L-32	32	
HWR25L-33	33		HWR50L-33	33	
HWR25L-34	34		HWR50L-34	34	
HWR25L-35	35		HWR50L-35	35	
HWR25L-36	36		HWR50L-36	36	

CWR25 CWR50



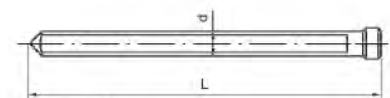
HWR25 HWR50



HWR25

∅ 8x90

Suitable for diameter from 20mm to 36mm

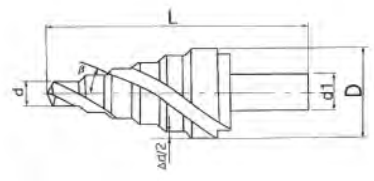


HWR50

∅ 8x105

Suitable for diameter from 20mm to 36mm

Hole saws and helical flute step drills are used in machining automobile sheet metal, aircraft shell, and other various types of sheet metals. Step drill is easy to bring and can drill various specifications of holes.



T.C.T. Core Drill with Hex Shank/Cutting depth 25mm

Metric Regular Size<mm>

Order No.	Dia	Price	Order No.	Dia	Price
CH25-15	15		CH25-129	129	
CH25-16	16		CH25-130	130	
CH25-17	17		CH25-131	131	
CH25-18	18		CH25-132	132	
CH25-19	19		CH25-133	133	
CH25-20	20		CH25-134	134	
CH25-21	21		CH25-135	135	
CH25-22	22		CH25-136	136	
CH25-23	23		CH25-137	137	
CH25-24	24		CH25-138	138	
CH25-25	25		CH25-139	139	
CH25-26	26		CH25-140	140	
CH25-27	27		CH25-141	141	
CH25-28	28		CH25-142	142	
CH25-29	29		CH25-143	143	
CH25-30	30		CH25-144	144	
•			CH25-145	145	
•			CH25-146	146	
•			CH25-147	147	
•			CH25-148	148	
•			CH25-149	149	
•			CH25-150	150	

Metric Size<mm>

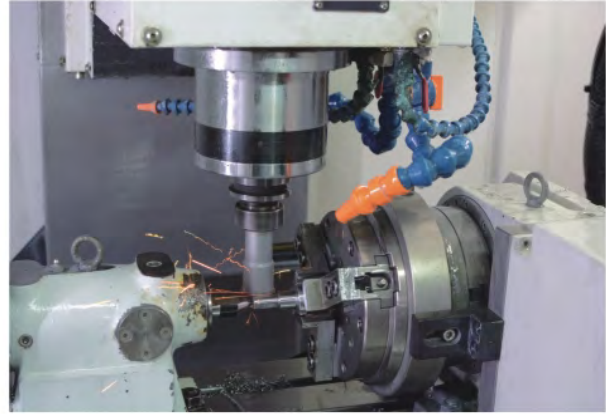
NO.	d	D	d1	Δd	L	β
M-KZL-A-01	4	12	6	1	80	15°
M-KZL-A-02	4	20	8	2	70	30°
M-KZL-A-03	6	30	10	2	98	30°
M-KZL-A-04	6	36	12	3	82	30°
M-KZL-A-05	7	40.5	12	2-5	115	30°

Inch Size<in>

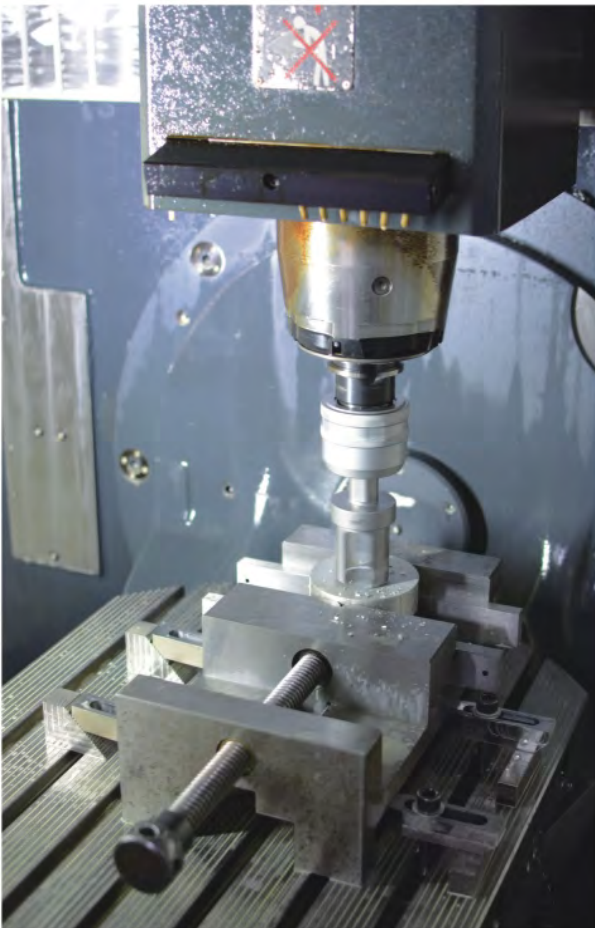
NO.	d	D	d1	L
I-KZL-A-01	3/16	1/2	1/4	3-1/8
I-KZL-A-02	1/8	1/2	1/4	3-1/8
I-KZL-A-03	1/4	3/4	3/8	2-3/4
I-KZL-A-04	3/16	7/8	3/8	3-1/4
I-KZL-A-05	7/8	1-3/8	3/8	3-1/4



Operation of core drills on the lathe



Operation of core drills on the milling machine



Operation of core drills on the milling center



Operation of core drills on the drilling machine

Core drills can be used in multiple mechanical processing fields, such as drilling on lathes, on the radial drill machine and on the drilling machine. The customized core drills can also be used for metal sheet milling, with a high milling efficiency and high quality.

TYPICAL CLIENTS

Automobile Industry



Electrical & Power Station Equipment



Aviation & Aerospace Industry



High-precision Mechanical Processing



We will do our best to provide the high quality products and services for you.



Test Broaching



Service



Test Forming



Re-Sharpening



High-precision Processing



High-precision Measuring



Programming



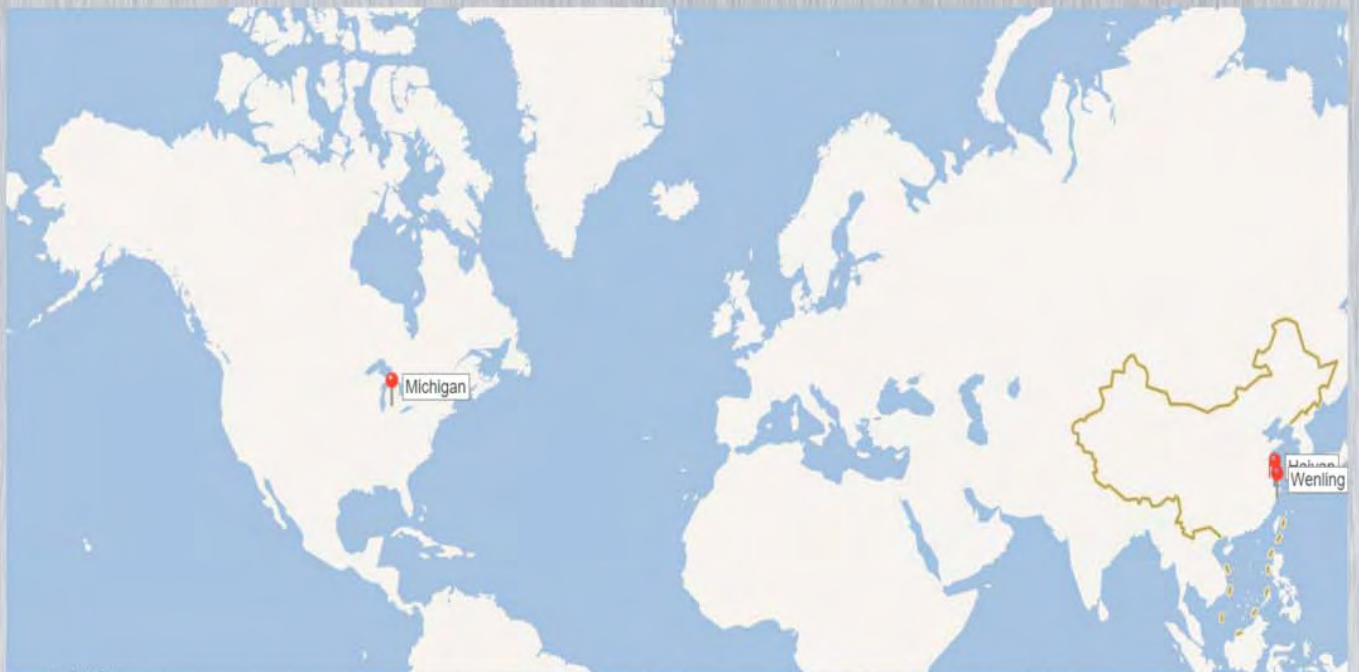
Test Cutting



Design

EST
will embrace a growing market with products of
the highest quality to be a world-class cutting
and measuring tools brand.





www.esttools.com
www.est-us.com

EST TOOLS CO.,LTD.

Jiaxing EST Import & Export Co., Ltd.

ADD:NO.239 Xinqiao North Road, Haiyan, Zhejiang, China.

ZHEJIANG SHANGYOU TOOLS CO., LTD

ADD:No.3 Road, Industry, City, Wenling, Zhejiang, China.

EST TOOLS AMERICA, INC.

ADD:71 ASH DRIVE, SMITHS CREEK, MI 48074, U.S.A.

