

**SHAREATE**



## CEMENTED CARBIDE ROD



**SHAREATE**  
SHAREATE TOOLS LTD.

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**SHAREATE TOOLS LTD.**





## COMPANY PROFILE

Registering and establishing in Suzhou Industrial Park on August 25, 2005, Shareate Tools Ltd. has been an international manufacturing service company with the integration of research & development, manufacturing, sales and service. The sale contents include professional cemented carbide products, mining drilling tools and mine services. It was overall-changed and established by Shareate Tools Ltd. in 2012. Many branches and subsidiaries are involved in the company, including rock drill tools department, mining carbide department, precision component department, profile department, Wuhan Shareate Tools Ltd. and so on.

In the aspect of mining rock drilling tool industry, a research and manufacturing base of mining cone bit and water well bit with the leading technology and scale has been firstly built. The company is known as the representative enterprise with advanced productivity in China's mining rock drilling tool industry. In our company, flexible production and manufacturing system has been adopted to achieve a flexible production line with numerical control machining center being the main body. Besides, a complete set of manufacturing equipment such as forging, heat treatment, numerical control machining center and advanced testing equipment are also well assembled in the company. The main products include 6 1/4-13 3/4 series of mining bits, and other size series of mining bits can be designed and manufactured according to the user's requirements. The products manufactured by our company enjoy a good reputation in the domestic and international market because of our high standard in material section, high level in technology and reliability.



In the aspect of cemented carbide industry, a high-level technology manufacturing and research base of oil and mining tungsten carbide insert has been built. The main products are listed as follows: tungsten carbide insert for oil drill, tungsten carbide insert for mining, base bracket for diamond composite sheet, cemented carbide bar, materials for cemented carbide mould, cermet series, precision components, et al. The product are with the characteristics of wide range, complete varieties, and rich grades. The tungsten carbide insert and tungsten carbide substrate for oil and mining are located in the advanced position both in the domestic as well as around the world. Moreover, the products have been widely applied in products for oil and mining such as the cone bit, the top hammer bit, the downhole bit, the shield cutter, thanks to their excellent using performance and stability.

In the recent years, our products are exported to more than 20 countries and regions, including Australia, Peru, Chile, Japan, South Korea, the United States, Brazil, Russia, Mexico. Long-term and stable business relations with many internationally famous enterprises have been established at present. To achieve sustainable, rapid and efficient development, we strive to become an international manufacturing service provider in the field of cemented carbide and rock drilling tools.



## ADVANCED MANUFACTURING EQUIPMENT



ALD Sintering Furnace

Spray Granulation

Dry-bag Isostatic Pressing Machine

## ADVANCED INSPECTION EQUIPMENT



Scanning Electron Microscope/  
Energy Spectrometer

Microhardness Tester

ZEISS Metallography Microscope

Projector

LECO Carbon Analyzer

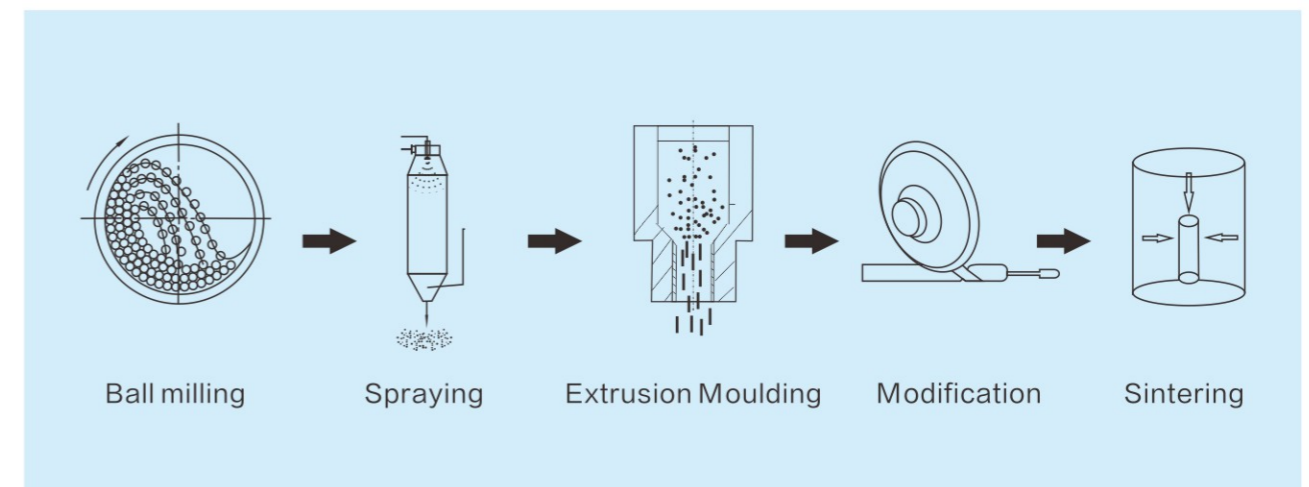
LECO Oxygen Analyzer

## FINE GRAIN ROD PRODUCT CATEGORY

### \* Product Type

Product Model	WC+ (%)	Co (%)	Grain size (μm)	Density (g/cm <sup>3</sup> )	Hardness		Flexural Strength (MPa)	Fracture Toughness (MPa·m <sup>1/2</sup> )	ISO Category
					HRA	HV30			
XR06F	94	6	submicron	14.90	93.1	1810	>3900	9.0	K05-K20
XR09U	91	9	Superfine	14.45	93.8	1930	>4100	8.0	K05-K10
XR10S	90	10	submicron	14.40	91.6	1560	>3900	12.0	K30-K40
XR10ST	90	10	submicron	14.40	91.8	1580	>4000	11.7	K30-K40
XR10SD	90	10	submicron	14.40	92.1	1640	>4000	11.5	K30-K40
XR12U+	88	12	Superfine	14.10	92.5	1717	>4000	9.6	K20-K30
XR12UF	88	12	Superfine	14.10	92.6	1720	>4200	9.5	K20-K30

### \* Process Demonstration

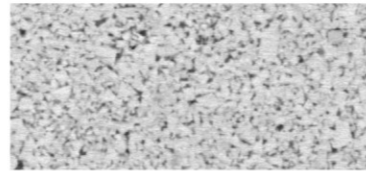




### XR06F

**Characteristic:**  
Submicron tungsten carbide particles;  
Good wear resistance.

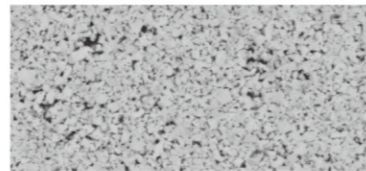
**Application:**  
High-speed milling and drilling;  
Processing hardened steel, plastic, fiber reinforced materials,  
aluminum alloy, graphite, etc.



### XR09U

**Characteristic:**  
Ultrafine tungsten carbide particles;  
Sharp edge, extremely wear-resistant.

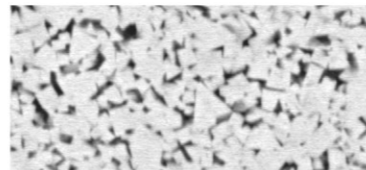
**Application:**  
High-speed milling and drilling;  
Processing hardened steel, plastic, fiber reinforced materials,  
aluminum alloy, graphite, etc.



### XR10S

**Characteristic:**  
Submicron tungsten carbide particles;  
Good wear resistance and toughness.

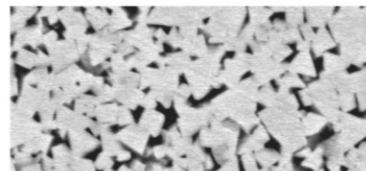
**Application:**  
Low speed machining, intermittent cutting;  
Processing aluminum alloy, cast iron, carbon steel, stainless  
steel, etc.



### XR10ST

**Characteristic:**  
Submicron tungsten carbide particles, optimize particle size  
distribution;  
Have the best combination of hardness and toughness.

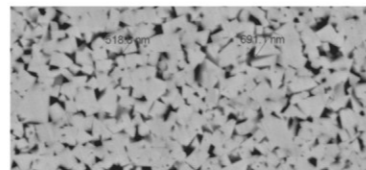
**Application:**  
Medium speed, high feed cutting;  
Processing copper alloy, carbon steel, cast iron, alloy steel,  
stainless steel, etc.



### XR10SD

**Characteristic:**  
Submicron tungsten carbide particles, with optimized formulation  
process;  
High wear resistance and toughness.

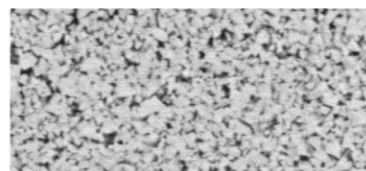
**Application:**  
Medium speed, medium feed cutting;  
Processing steel, cast iron, stainless steel, carbon steel, titanium  
alloy, nickel alloy, etc.



### XR12U+

**Characteristic:**  
Ultrafine tungsten carbide particles;  
Good wear resistance.

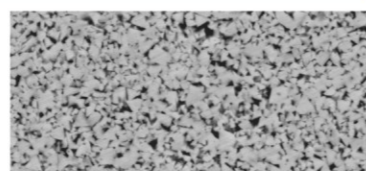
**Application:**  
High speed milling;  
Processing aluminum alloy, copper alloy, carbon steel,  
stainless steel, etc.



### XR12UF

**Characteristic:**  
Ultrafine tungsten carbide particles, with special additives;  
Good combination of wear resistance and toughness.

**Application:**  
High speed milling;  
Processing aluminum alloy, copper alloy, alloy steel, carbon steel,  
stainless steel, titanium alloy, nickel alloy, etc.



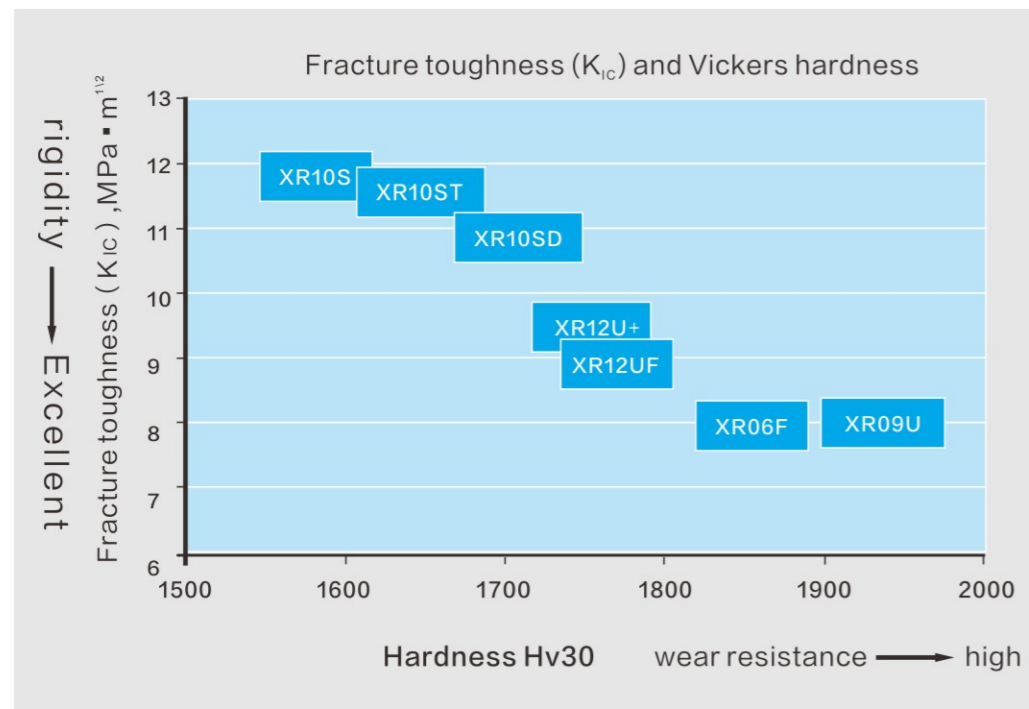
### \*Model Selection (\*: first selection; O: secondary selection)

Processing materials		Tool type	XR06F	XR09U	XR12U+	XR12UF	XR10SD	XR10ST XR10S
P	Steel	Drill bit					O	*
		End mill	Rough machining					
	Fine machining			*	*	*		O
M	Stainless steel	Drill bit					O	*
		End mill	Rough machining				*	O
	Fine machining			O		*		
K	Cast iron	Drill bit					O	*
		End mill	Rough machining					*
	Fine machining					O	O	
N	Non-ferrous	Drill bit						*
		End mill	Rough machining					*
	Fine machining		*	*	*	*		
S	Heat-resistant alloy	Drill bit					O	*
		End mill	Rough machining				O	O
	Fine machining		*	*		*	O	
H	High hardness material	Drill bit					O	
		End mill	Rough machining					*
	Fine machining		*	*				
Other	Compound material	Drill bit	*	*			O	
		End mill	Rough machining					
	Fine machining		*	*	O	O		

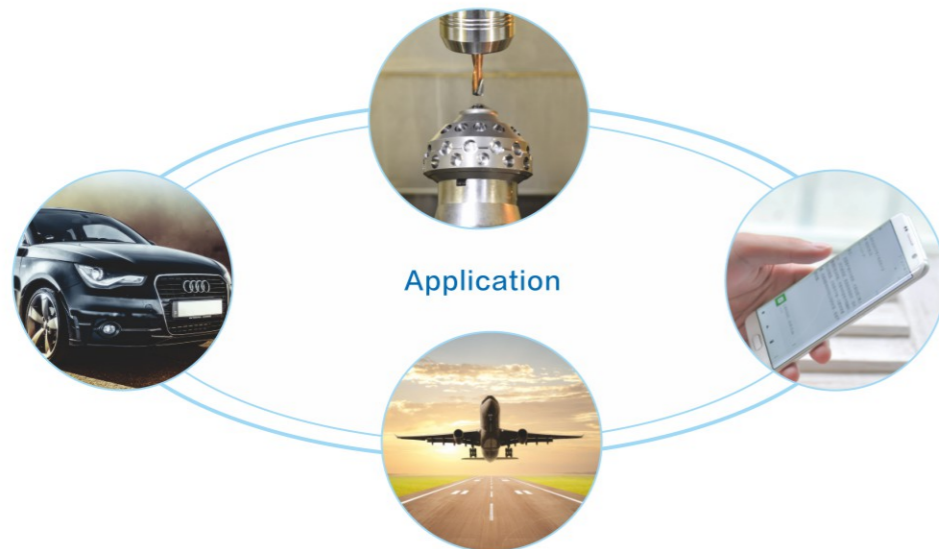
Model	Comparison table for brands				
	Sandvik	Guhring	Ceratizit	KFC	IMC
XR10S		DK400N		K40XF	UF10
XR10ST/XR10SD	H10F	DK460UF	CTS20D	K40UF	UF10N
XR06F		DK105	MG12	K6UF	UF1
XR12U+/XR12UF		DK500UF	TSF44	K44UF	UF12
XR09U	PN90	K55SF	TSF22	K55SF	UF09



## \* Material properties

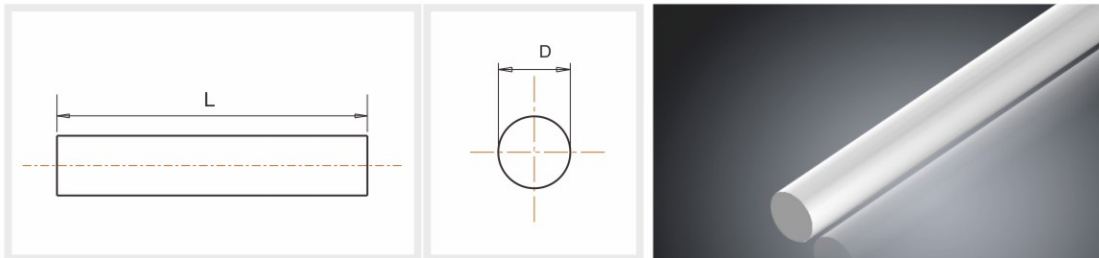


- Use raw materials with high purity and high quality after strict screening
- Advanced production equipment and unique manufacturing technology to achieve stable quality and short lead time
- Advanced quality assurance system
- Unremitting development of new materials
- Build a strong customer service team





## SOLID ROUND ROD (METRIC)



### \* Ordering example

The order brand is XR10S, the outer diameter is 8.2mm, and the length is 330mm, which is indicated by RS082330S.

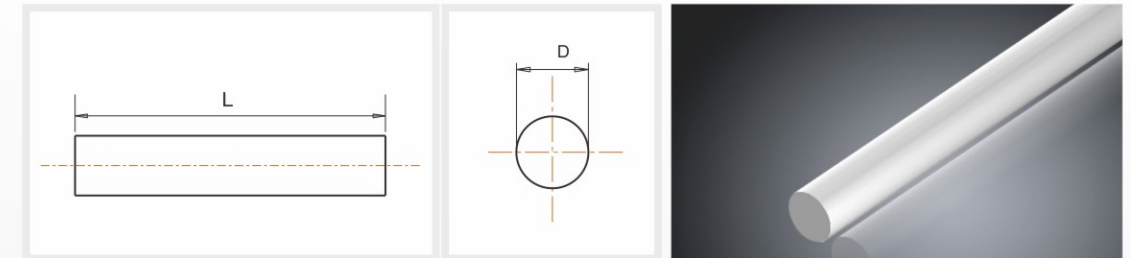
Length(mm)	Tolerance(mm)
≤150	+0.5/+1.0
>150	+1.0/2.0

### \* The following services are available



Diameter D(mm)	Tolerance (mm)	Series number
2.2	-0/+0.2	RS022****
3.2	-0/+0.2	RS032****
4.2	-0/+0.2	RS042****
5.2	-0/+0.2	RS052****
6.2	-0/+0.2	RS062****
7.2	-0/+0.2	RS072****
8.2	-0/+0.3	RS082****
9.2	-0/+0.3	RS092****
10.2	-0/+0.3	RS102****
11.2	-0/+0.3	RS112****
12.2	-0/+0.3	RS122****
13.2	-0/+0.3	RS132****
14.2	-0/+0.3	RS142****
15.2	-0/+0.3	RS152****
16.2	-0/+0.4	RS162****
17.2	-0/+0.4	RS172****
18.2	-0/+0.4	RS182****
19.2	-0/+0.4	RS192****
20.2	-0/+0.5	RS202****
21.2	-0/+0.5	RS212****
22.2	-0/+0.5	RS222****
23.2	-0/+0.5	RS232****
24.2	-0/+0.5	RS242****
25.2	-0/+0.5	RS252****
26.2	-0/+0.5	RS262****
27.2	-0/+0.5	RS272****
28.2	-0/+0.5	RS282****
29.2	-0/+0.5	RS292****
30.2	-0/+0.5	RS302****
31.2	-0/+0.5	RS312****
32.2	-0/+0.5	RS322****
33.2	-0/+0.5	RS332****
34.2	-0/+0.5	RS342****
35.2	-0/+0.5	RS352****
36.2	-0/+0.7	RS362****
37.2	-0/+0.7	RS372****
38.2	-0/+0.7	RS382****
39.2	-0/+0.7	RS392****
40.2	-0/+0.7	RS402****

## SOLID ROUND ROD (ENGLISH SYSTEM)



### \* Ordering example

Order brand xr10s, 1/8 "O.D., 13-1/8" long, as RS034333s. British specifications need to be customized.

Tolerance(Inch)
+1/8 ~ +3/8

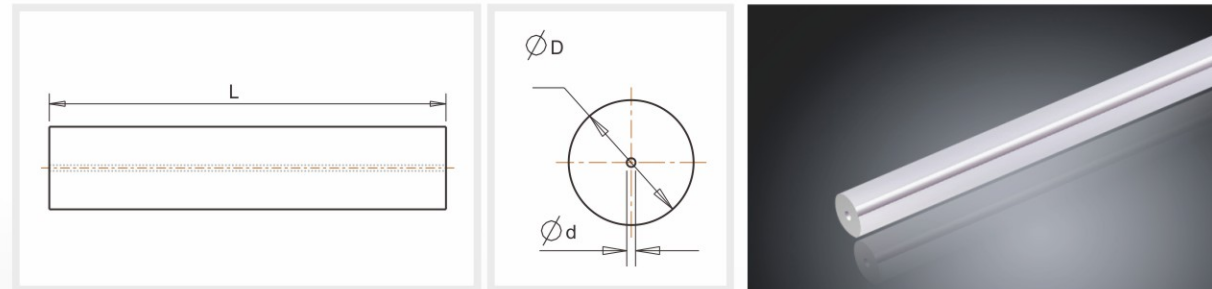
### \* The following services are available



Diameter D(Inch)	Length L(Inch)	Series number
1/8	13-1/8	RS034333S
1/7	13-1/8	RS038333S
1/6	13-1/8	RS042333S
1/6	13-1/8	RS046333S
1/5	13-1/8	RS050333S
1/5	13-1/8	RS054333S
2/9	13-1/8	RS058333S
2/9	13-1/8	RS062333S
1/4	13-1/8	RS066333S
2/7	12-1/8	RS074307S
2/7	12-1/8	RS078307S
1/3	12-1/8	RS082307S
1/3	12-1/8	RS086307S
1/3	12-1/8	RS090307S
3/8	12-1/8	RS094307S
3/8	12-1/8	RS098307S
2/5	12-1/8	RS102307S
2/5	12-1/8	RS106307S
3/7	12-1/8	RS110307S
4/9	12-1/8	RS114307S
4/9	12-1/8	RS118307S
4/9	12-1/8	RS122307S
1/2	12-1/8	RS126307S
1/2	12-1/8	RS130307S
5/9	12-1/8	RS138307S
5/9	12-1/8	RS145307S
5/8	12-1/8	RS161307S
2/3	12-1/8	RS177307S
3/4	12-1/8	RS193307S
4/5	12-1/8	RS209307S
7/8	12-1/8	RS225307S
8/9	12-1/8	RS241307S
1	12-1/8	RS257307S



## SINGLE STRAIGHT HOLE ROUND ROD



### \* Ordering example

The order model is XR10ST, outer diameter is 7.2mm, and length is 330mm, which is indicated by RC072330ST.

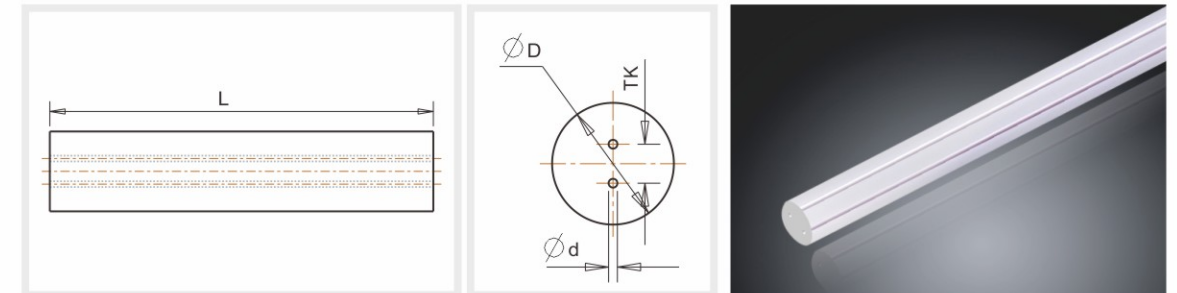
Length(mm)	Tolerance(mm)
≤150	+0.5/+1.0
>150	+1.0/2.0

### \* The following service are available



Diameter D(mm)	Tolerance (mm)	Inner diameter d (mm)	Tolerance (mm)	Series number
2.2	-0/+0.2	0.2~1.00	±0.05	RC022***
3.2	-0/+0.2			RC032***
4.2	-0/+0.2			RC042***
5.2	-0/+0.2			RC052***
6.2	-0/+0.2			RC***062***
7.2	-0/+0.2			RC***072***
8.2	-0/+0.3	1.00~2.00	±0.15	RC***082***
9.2	-0/+0.3			RC***092***
10.2	-0/+0.3			RC***102***
11.2	-0/+0.3			RC***112***
12.2	-0/+0.3			RC***122***
13.2	-0/+0.3			1.45~6.00
14.2	-0/+0.3	RC***142***		
15.2	-0/+0.3	RC***152***		
16.2	-0/+0.4	RC***162***		
17.2	-0/+0.4	RC***172***		
18.2	-0/+0.4	RC***182***		
19.2	-0/+0.4	RC***192***		
20.2	-0/+0.5	RC***202***		
21.2	-0/+0.5	RC***212***		
22.2	-0/+0.5	RC***222***		
23.2	-0/+0.5	RC***232***		
24.2	-0/+0.5	RC***242***		

## DOUBLE STRAIGHT HOLE ROUND ROD



Diameter D(mm)	Tolerance (mm)	TK (mm)	Tolerance (mm)	Inner diameter d (mm)	Tolerance (mm)	Length L(mm)	Series number
3.2	0.1~0.3	1.5	±0.15	0.5	±0.10	330	RP033*****
4.2	0.1~0.3	2	±0.20	0.6	±0.10	330	RP043*****
5.2	0.1~0.3	2.6	±0.20	0.8	±0.10	330	RP053*****
6..2	0.1~0.3	2.9	±0.20	1	±0.10	330	RP062*****
8.2	0.1~0.4	3.8	±0.20	1	±0.15	330	RP082*****
8.2	0.1~0.4	2.5	±0.20	0.8	±0.15	330	RP082*****
10.2	0.1~0.4	4.8	±0.30	1.4	±0.15	330	RP102*****
10.2	0.1~0.4	2.5	±0.30	0.8	±0.15	330	RP102*****
12.2	0.1~0.4	5.85	±0.40	1.75	±0.15	330	RP122*****
12.2	0.1~0.4	3.3	±0.40	1.2	±0.15	330	RP122*****
13.2	0.2~0.5	5.85	±0.50	1.75	±0.25	330	RP132*****
13.2	0.2~0.5	4.5	±0.50	1.4	±0.25	330	RP132*****
14.2	0.2~0.5	6.8	±0.50	1.75	±0.25	330	RP142*****
14.2	0.2~0.5	4.8	±0.50	1.5	±0.25	330	RP142*****
15.2	0.2~0.5	4.8	±0.50	1.5	±0.25	330	RP152*****
16.2	0.2~0.6	7.8	±0.50	2	±0.25	330	RP162*****
16.2	0.2~0.6	4.8	±0.50	1.5	±0.25	330	RP162*****
18.2	0.2~0.6	6	±0.50	2	±0.30	330	RP182*****
20.2	0.3~0.8	9.8	±0.50	2.5	±0.30	330	RP202*****
25.2	0.3~0.8	10	±0.50	3	±0.30	330	RP252*****

### \* Ordering example

The order model is XR10ST, outer diameter is 8.2mm, and length is 330mm, which is indicated by RP082330ST.

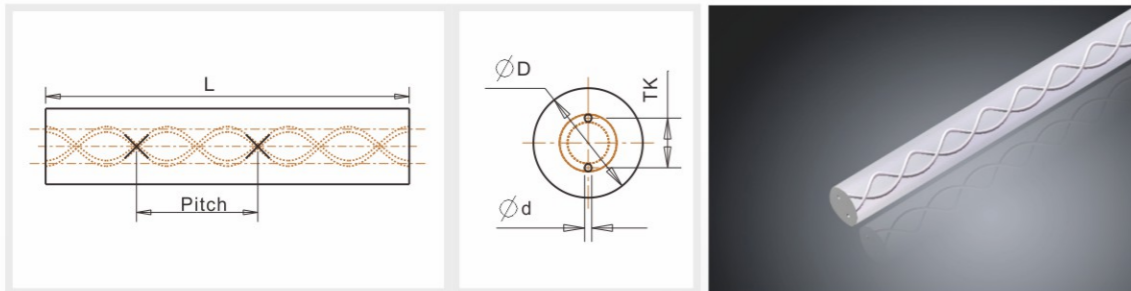
Length(mm)	Tolerance(mm)
≤150	+0.5/+1.0
>150	+1.0/2.0

### \* The following service are available





## 30 DEGREE ROUND ROD WITH DOUBLE HELIX HOLE



Diameter D(mm)	Tolerance (mm)	pitch (mm)	TK (mm)	Tolerance (mm)	d (mm)	Tolerance (mm)	Length L (mm)	Series number
6.3	-0/+0.3	32.65	2.40	±0.20	0.70	±0.15	330	RH063*****
7.3	-0/+0.3	38.09	3.50	±0.20	1.00	±0.15	330	RH073*****
8.3	-0/+0.3	43.53	2.40	±0.20	0.70	±0.15	330	RH083*****
8.3	-0/+0.3	43.53	3.80	±0.20	1.00	±0.15	330	RH083*****
9.3	-0/+0.3	48.97	4.50	±0.30	1.40	±0.15	330	RH093*****
10.3	-0/+0.3	54.41	2.60	±0.20	0.70	±0.15	330	RH103*****
10.3	-0/+0.3	54.41	4.50	±0.30	1.40	±0.15	330	RH103*****
11.3	-0/+0.4	59.86	4.90	±0.40	1.40	±0.15	330	RH113*****
12.3	-0/+0.4	65.30	3.80	±0.40	1.00	±0.20	330	RH123*****
12.3	-0/+0.4	65.30	5.85	±0.40	1.40	±0.20	330	RH123*****
13.3	-0/+0.4	70.74	6.10	±0.40	1.75	±0.20	330	RH133*****
14.3	-0/+0.4	76.18	6.70	±0.40	1.75	±0.20	330	RH143*****
15.3	-0/+0.4	81.62	7.30	±0.40	1.75	±0.20	330	RH153*****
16.3	-0/+0.5	87.06	7.90	±0.40	1.75	±0.20	330	RH163*****
17.3	-0/+0.5	92.50	8.50	±0.40	1.75	±0.20	330	RH173*****
18.3	-0/+0.5	97.95	9.15	±0.40	2.00	±0.25	330	RH183*****
19.3	-0/+0.5	103.39	9.70	±0.50	2.00	±0.25	330	RH193*****
20.3	-0/+0.5	108.83	9.90	±0.50	2.00	±0.25	330	RH203*****
22.3	-0/+0.5	119.71	11.10	±0.50	2.00	±0.25	330	RH223*****
25.3	-0/+0.5	136.03	12.80	±0.50	2.00	±0.25	330	RH253*****

### \* Ordering example

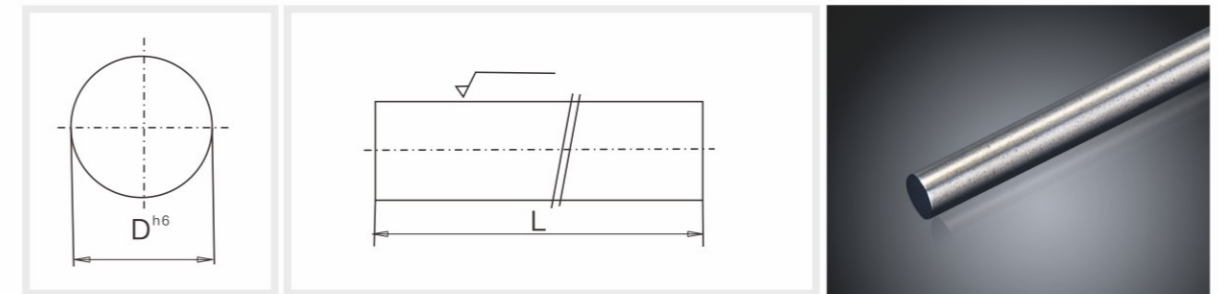
The order model is XR10ST, outer diameter is 6.3mm, and length is 330mm, which is indicated by RH063330ST.

Length(mm)	Tolerance(mm)
≤150	+0.5/+1.0
>150	+1.0/2.0

### \* The following service are available



## FINE-GROUND ROD



Diameter D(mm)	Length L(mm)	Series number
3.0	≤150	RS030****M
4.0	≤150	RS040****M
5.0	≤150	RS050****M
6.0	≤150	RS060****M
7.0	≤150	RS070****M
8.0	≤150	RS080****M
9.0	≤150	RS090****M
10.0	≤150	RS100****M
11.0	≤150	RS110****M
12.0	≤150	RS120****M
13.0	≤150	RS130****M
14.0	≤150	RS140****M
15.0	≤150	RS150****M
16.0	≤150	RS160****M
17.0	≤150	RS170****M
18.0	≤150	RS180****M
19.0	≤150	RS190****M
20.0	≤150	RS200****M
21.0	≤150	RS210****M
22.0	≤150	RS220****M
23.0	≤150	RS230****M
24.0	≤150	RS240****M
25.0	≤150	RS250****M
26.0	≤150	RS260****M
27.0	≤150	RS270****M
28.0	≤150	RS280****M
29.0	≤150	RS290****M
30.0	≤150	RS300****M
31.0	≤150	RS310****M
32.0	≤150	RS320****M
33.0	≤150	RS330****M
34.0	≤150	RS340****M
35.0	≤150	RS350****M
36.0	≤150	RS360****M
37.0	≤150	RS370****M
38.0	≤150	RS380****M
39.0	≤150	RS390****M
40.0	≤150	RS400****M

### \* Ordering example

The order model is XR10S, outer diameter is 8.0mm, and length is 330mm, which is indicated by RS080330SM.

Diameter(mm)	Tolerance(mm)
All	ISO h6
Length(mm)	Tolerance(mm)
≤150	+0.5/+1.0

### \* The following services are available





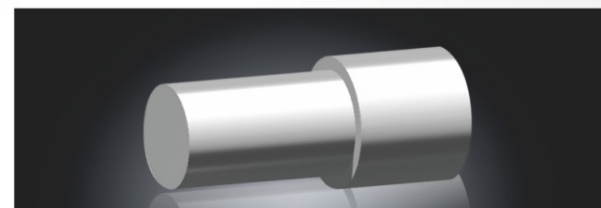
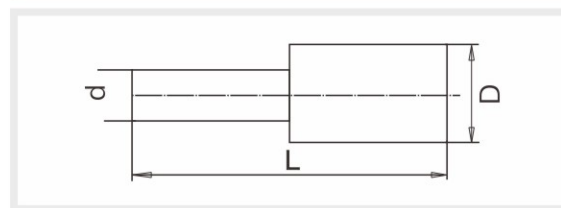
## INTRODUCTION OF POST PROCESSING

### FINE-GROUND ROD

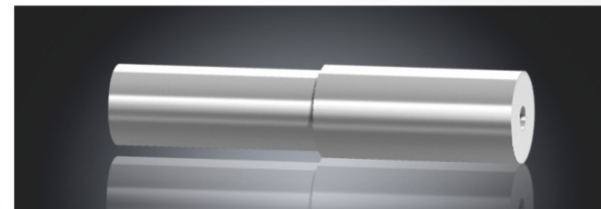
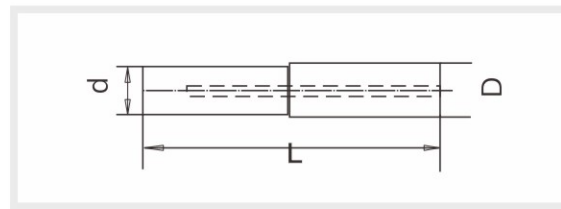
(customized according to customer's drawing)



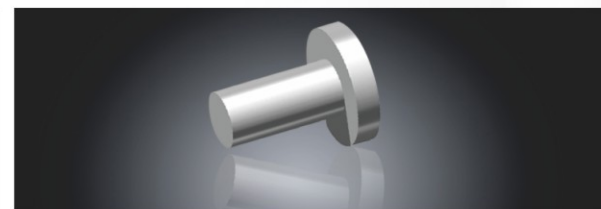
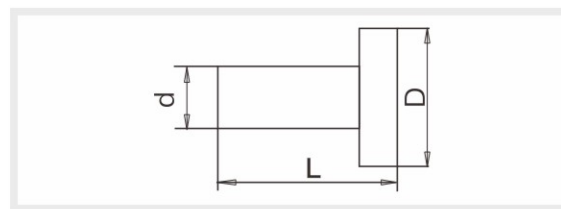
#### \* Step Bar



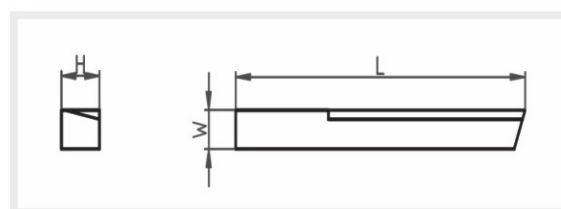
#### \* Blind-hole step bar



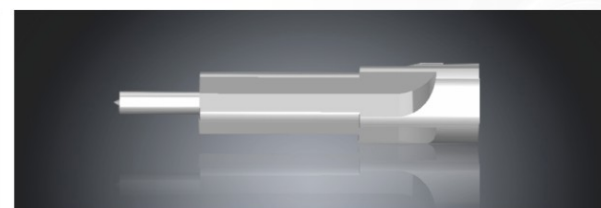
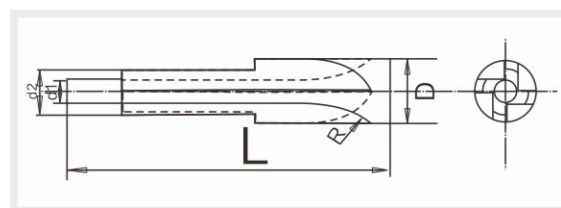
#### \* T-bar



#### \* Knife Blade



#### \* Preform tool blank



SHAREATE has been quietly providing high-quality cemented carbide products to meet your expectations. In addition to cemented carbide products, SHAREATE also provides a range of post-processing services, a variety of shape and geometry of the Bar, all-round to meet the needs of customers and the tool market, just by providing the blueprints, SHAREATE can quickly respond to your needs with a combination of superior manufacturing capabilities and a variety of shape-shifting technologies.

Signs	Services	Account
	Cut Off	Provide round bar cutting service of any standard length or special length.
	Fine grinding	Fine grinding to H6 tolerance, or other fine grinding tolerance, according to the drawing.
	Chamfer Angle	Provide round-rod chamfering service to improve your processing efficiency.
	Segment difference	Provide repair service for large outside diameter or high segment difference to reduce grinding time.
	Gutter processing	Make all kinds of standard gutter.

## TECHNICAL INFORMATION

#### \* Technical parameters of round Rod

	<b>Outside diameter</b> Outside diameter of the Rod to be measured		<b>Ovality</b> Ovality is the radial distance between two concentric circles, including the circumference of the section of the bar
	<b>Length</b> The length of the Rod to be measured		<b>Bore diameter</b> Diameter of inner cold hole of round Rod
	<b>Degree of finish</b> The surface quality of a round bar is usually expressed in terms of the maximum average finish Ra		<b>Eccentricity ratio</b> The eccentricity ratio represents the deviation of the center of the Round Bar from the pitch circle formed by the inner cold hole, the deviation of the center of the Round Bar with a single straight hole and the center of the inner cold hole from the round bar
	<b>Flatness</b> A rotating Rod, mounted on two support points, is measured in the middle of its maximum curvature		<b>Spiral Angle</b> The Helix Angle represents the angle between the Longitudinal center line and Helix of the Rod
	<b>Degree of concentricity</b> Maximum bending of a Rod		<b>Cylindricity</b> The deviation of the surface of a bar from that of an ideal cylinder



\* Problems and countermeasures of hole machining

Problems		Reasons	Countermeasures
Bit Damage	Rake wear	The cutting conditions are not suitable	For high-speed applications Increase feed rate
		Improper cutting oil	In the case of internal cold drilling, reduce oil supply output Use High lubricity cutting oil
	Collapse at the edge of the blade	Poor penetration	Reduce the feed rate at the drill entry Additional pre-processing procedures, plane occlusion
		Insufficient rigidity of equipment and material to be cut	Change cutting conditions to reduce resistance Improve the clamping strength of the paring material
		Insufficient strength of blade tip	Increase the width of the blade Increase the passivation treatment capacity of cutting edge
	The collapse around the cutting edge	The processing conditions are not suitable	Reduce cutting speed Lower the feed
		Improper cutting oil	Use High lubricity cutting oil
		Insufficient rigidity of equipment and material to be cut	Improve the clamping strength of the paring material
		Insufficient strength of blade tip	Increase the passivation treatment capacity of cutting edge Reduce the rake angle of front and back tool
		From the bite around the cutting edge	Increase the width of the edge band Lower the feed Increase the passivation treatment capacity of cutting edge Reduce the rake angle of front and back tool
	Abrasion of the edge band	The processing conditions are not suitable	Reduce cutting speed
		Improper cutting oil	Use High lubricity cutting oil Increase the supply of cutting oil
		Residual wear of edge band	Re-grind early to ensure reverse taper Increase the reverse taper
		Improper tool design	Reduce the width of the edge band
	Fracture of drill bit body	Chip accumulation	Use the most suitable cutting conditions and tools Increase the supply of cutting oil
The clamping strength of the fixing tool is insufficient Insufficient rigidity of equipment and material to be cut		Use Strong fixing tools Improve the clamping strength of the paring material	
Poor machining accuracy	Large enlargement of aperture	Poor penetration	Reduce the feed rate at the drill entry Reduce cutting speed Additional pre-processing procedures, plane occlusion
		The drill bit is not rigid enough	Use The drill bit that is most suitable for deep holes Improve the integral rigidity of drill bit
		Bit beat	Improving the installation precision of drill bit Improving the clamping rigidity of drill bit
	Poor finish surface roughness	The cutting conditions are not suitable	Increase cutting speed Lower the feed
		Improper cutting oil	Use High lubricity cutting oil
	Bad straightness	Poor penetration	Increase feed rate
		Improper bit installatio	Improving the installation precision of drill bit Improving the clamping rigidity of drill bit
Insufficient rigidity of equipment and material to be cut		Improve the clamping strength of the paring material INTO A double-edged belt	
Poor chip handling	Chip clogging	The processing conditions are not suitable	Increase feed rate Increase cutting speed
		Poor removal of chips	In the case of internal cold drilling, reduce oil supply output
	Constant chipping	The processing conditions are not suitable	Increase feed rate Increase cutting speed
		Good cooling effect Poor sharpness of cutting edge	In the case of internal cold drilling, reduce oil supply output Reduce the passivation treatment of cutting edge

TECHNICAL DIRECTION

\* Problems and countermeasures of End Milling Cutter machining

Questions		Why	Countermeasures
Cutting edge damage	Extreme wear	Cutting conditions, tool shape, tool material	Fast cutting speed, fast feeding speed, small peripheral back tool angle, poor wear resistance
	Small opening	Cutting conditions, mechanical perimeter	Feed speed is large, cutting depth is large, the blade overhang is long, the material being cut is weak, the tool installation is unstable
	Defacement	Cutting conditions, tool shape	Feed speed is large, cutting depth is large, blade overhang is long, milling along, core thickness is small
In the news	Wall collapse	Cutting conditions, tool shape	Feed speed, cutting depth, blade overhang, milling along, spiral angle, core thickness
	Poor finish finish	Cutting condition	Fast cutting speed, fast feeding speed, chip embedding
	Vibration in cutting	Cutting conditions, tool shape, machine perimeter	High cutting speed, reverse milling, Long Blade Overhang, big rake angle, weak material support, unstable tool installation
	Chip clogging	Cutting conditions, tool shape	Fast feeding speed, large cutting depth, many blades, chip embedding