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CEMENTED CARBIDE ROD

Shareate Tools Ltd.

CONTENTS

COMPANY PROFILE	02	CARBIDE GRADE DATA	06
MAIN EQUIPMENT	04	CARBIDE GRADE FEATURES	07
NOMENCLATURE EXPLANATION	05	APPLICATIONS BY CARBIDE GRADE	08

SHAREATE SOLID RODS	11-13
Solid Rods in Metric Sizes	11
Solid Rods Ground in Metric Sizes	12
Solid Rods with Weldon and Chamfer Ground in Metric Sizes	12
Solid Rods with Chamfer and Specified Length Ground in Metric Sizes	13

COOLANT RODS WITH HELICAL HOLES	17-21
Coolant Rods with 2 Holes and 30° Helix	17
Coolant Rods with 2 Holes and 40° Helix	18
Coolant Rods with 3 Holes and 30° Helix	19
Coolant Rods with 3 Holes and 40° Helix	19
Coolant Rods with 2 Holes and Non-Standard Helix	20
Coolant Rods for Micro Drilling	20
Deep Hole Drilling	21

APPENDIX	26-28
Performance Characterization of Carbide Materials	26
Introduction to Post-processing	27
Technical Documentation	27
Tolerance Grade	28

COOLANT RODS WITH STRAIGHT HOLES	14-16
Coolant Rods with Central Hole	14
Coolant Rods with 2 Parallel Holes	15
Coolant Rods with 2 Parallel Constricted Holes	16

SPECIAL RODS	22-26
Drill Blanks with Chamfered One End	22
Preforms	24
Step Rod Series	25
Customized Products	26



COMPANY PROFILE

Shareate Tools Ltd. was established in August 2005 as a multinational corporation engaged in the research and development, manufacturing, service, and sales of cemented carbide products and rock drilling tools. Shareate owns several domestic and overseas subsidiary companies, including Shareate Wuhan, Zhuzhou Wecan, Australia AMS, America AMS, and others, which were acquired or established through joint ventures. In October 2021, Shareate was officially listed on the SSE STAR Market (stock code 688257).

As a national strategic emerging industry, our company focuses on developing cemented carbide technology and progressively mastering core technologies in mining, cutting, and wear-resistant applications. With advanced production technology and a strong market position, we have built a complete industrial chain covering cemented carbide production and tool manufacturing.

Currently, our group company serves six fields: carbide, rock drilling tools, cutting tools, petroleum instrumentation, electric drilling equipment, and mining exploration services. Our main products include cone drill bits, carbide buttons and rods, molds, precision components for drilling tools, and carbide inserts. These products find wide application in various industries such as petroleum engineering, automotive manufacturing, infrastructure construction, mining operations, electronics production, machinery fabrication, new energy development, and comprehensive mining consumables services.

Over the years, Shareate has been granted 72 invention patents and 380 utility model patents. We are accredited with the API Spec Q1 and ISO 9001 certifications. Shareate has established itself as the leading supplier of rock drilling tools in Asia and one of the top five globally.

Our products are exported to five continents and distributed in over 60 countries. We currently collaborate with renowned companies such as Rio Tinto, BHP, Glencore, Barrick, FMG, Vale, and Anglo American.

Shareate takes pride in being a leader in modern manufacturing and service integration. We operate state-of-the-art factories that adhere to the highest international standards. We understand that product success relies on the trust and support of our customers.

Therefore, Shareate works closely with customers worldwide to create best-in-class products and solutions to overcome the most challenging technical problems. Whatever your carbide-related situation may be, Shareate can provide an appropriate technical solution.



PASSION WINS DREAM
QUALITY WINS RESPECT

Continuous Accumulation and Innovation of
Cemented Carbide Technology for
Over 40 Years

- ◎ In 1982, we were the first company in China who brought in the cemented carbide production equipment and technology from US.
- ◎ The forerunner of low pressure sintering technology with the greatest sintering pressure in China at present.
- ◎ The advanced and complete physical & chemical testing and experimental center, owning the prospective research and development in the industry.

MAIN EQUIPMENT

MANUFACTURING EQUIPMENT



Spray Granulation



Extrusion Machine

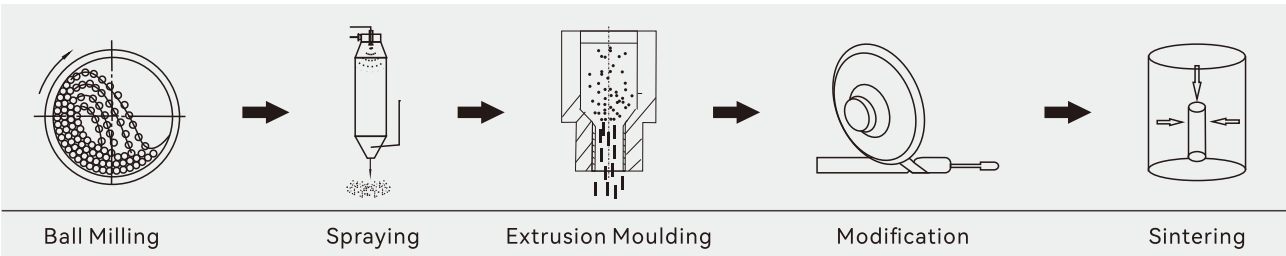


Dry-bag Isostatic Pressing Machine



ALD Sintering Furnace

Process Demonstration



INSPECTION EQUIPMENT



Scanning Electron Microscope /Energy Spectrometer



Microhardness Tester



ZEISS Metallography Microscope



Projector



LECO Carbon Analyzer



LECO Oxygen Analyzer

NOMENCLATURE EXPLANATION

SHAPE	PRINCIPAL FEATURE	PRINCIPAL DIMENSION		GRADE	AUXILIARY FEATURE		AUXILIARY DIMENSION		SHAPE STANDARDS		
SHAPE	PRINCIPAL FEATURE	DIAMETER	LENGTH	GRADE	HELIX ANGLE	NOS. OF HOLE	HOLE DIAMETER	TK	GROUND DIMENSION	REQUIREMENT OF CHAMFER ANGLE	REQUIREMENTS OF SHAPE
R	S	103	3300	SD+	30	2	140	058	h5	C	Y
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫

① SHAPE

R-Round Rods
Y-Special-shaped Rods
V-VRods with V-Slot
...

② PRINCIPAL FEATURE

S-Solid
C-With Central Hole
P-With 2 Parallel Holes
H-With Helix Holes
...

③ DIAMETER

④ LENGTH

⑤ GRADE

S-XR10S
ST-XR10ST
SD-XR10SD
SD+-XR10SD+
UF-XR12UF
2S-XR12S
U1-XR06U
U2-XR09U
KA-XR50
CS-XR70
M+-XR80
U2+-XR90
MT-XR100

⑥ HELIX ANGLE

⑦ NOS. OF HOLE

⑧ HOLE DIAMETER

⑨ TK

⑩ GROUND DIMENSION

Blank-As Sintered
h5-Ground to h5
h6-Ground to h6
H7-Special Tolerance
H8-Semi-ground
...

⑪ REQUIREMENT OF CHAMFER ANGLE

Blank-No Chamfer Angle
C-Chamfer Angle

⑫ REQUIREMENTS OF SHAPE

Y-Cone Point
O-Connection Slot
T-Connection Slot with Cone Point
...

CARBIDE GRADE DATA

HOLEMAKING SERIES

GRADE	CO (%)	GRAIN SIZE (um)	DENSITY (g/cm³)	HARDNESS		TRS (MPa)	FRACTURE TOUGHNESS (MPa*m ^{1/2})	CLASSIFICATION
				HRA	HV30			
XR10ST	10	0.7	14.40	91.8	1580	>4000	10.4	K30-K40
XR10SD+	10	0.6	14.40	92.0	1620	>4000	10.2	K30-K40

APPLICATION SPECIFIC SERIES

GRADE	CO (%)	GRAIN SIZE (um)	DENSITY (g/cm³)	HARDNESS		TRS (MPa)	FRACTURE TOUGHNESS (MPa*m ^{1/2})	CLASSIFICATION
				HRA	HV30			
XR50	6	0.9	14.95	92.5	1720	>3600	10.0	K20-K30
XR100	6.5	0.6	14.80	93.2	1840	>3800	9.4	K10-K20
XR06U	6.5	0.4	14.75	94.0	2040	>3800	9.0	K05-K10
XR09U	9	0.4	14.45	93.8	1950	>4000	9.3	K05-K15
XR12UF	12	0.4	14.10	92.6	1740	>4200	9.9	K20-K30
XR80	8.5	0.4	14.60	93.3	1850	>4000	9.5	H10-H20
XR90	9	0.2	14.45	94.0	2020	>4200	9.2	H05-H10
XR70	12	0.7	14.10	91.5	1550	>4000	11.0	S20-S40
XR12S	12	0.6	14.10	91.8	1580	>4000	10.3	S20-S40

GENERAL PURPOSE SERIES

GRADE	CO (%)	GRAIN SIZE (um)	DENSITY (g/cm³)	HARDNESS		TRS (MPa)	FRACTURE TOUGHNESS (MPa*m ^{1/2})	CLASSIFICATION
				HRA	HV30			
XR10S	10	0.8	14.40	91.7	1560	>4000	10.6	K30-K40
XR10SD	10	0.6	14.40	92.1	1640	>4000	10.2	K30-K40
XR12U+	12	0.6	14.10	92.5	1720	>3800	10.0	K20-K30

CARBIDE GRADE FEATURES

APPLICATION	GRADE	FEATURE DESCRIPTION	APPLICABLE FIELDS
Holemaking	XR10ST	Owens a high versatility for applications with uncertain working conditions. Especially for holemaking in carbon steel, cast iron, stainless steel, and so on.	    
Holemaking	XR10SD+	Designed for tool users seeking exceptional tool performance. Particularly excels in medium-speed drilling, suitable for machining carbon steel, stainless steel, and alloy steel.	    
Precision machining	XR50	Ideal for machining non-ferrous metals, aluminum alloys, and graphite products (diamond-coated). Particularly effective for diamond coatings, offering excellent compatibility with various post-treatment processes and coating structures, with high coating adhesion strength.	    
Precision machining	XR100	Ideal for machining materials such as aluminum alloys, fiber-reinforced materials, composites, and graphite products (diamond-coated). Particularly well-suited for use as reamers for stainless steel, alloy steel, and carbon steel, offering strong versatility.	    
Precision machining	XR06U	Highly wear-resistant with excellent performance in high-speed milling, suitable for non-ferrous metals, acrylics, and fiber-reinforced materials. Also applicable for PCB drilling and milling.	  
Precision machining	XR09U	Ideal choice for fine machining of high-hardness materials, such as carbon steel, stainless steel, non-ferrous metals, and fiber-reinforced materials.	     
Die & Mold	XR12UF	Offers excellent performance in high-speed light cutting, ideal for semi-finishing and finishing of carbon steel, stainless steel, and non-ferrous metals.	 
Die & Mold	XR80	Designed for semi-finishing of quenched steel and mold steel, as well as finishing of carbon steel, stainless steel, and non-ferrous metals.	 
Die & Mold	XR90	Excels at machining high-hardness materials such as >54HRC high-hardness steel.	 
Aerospace	XR70	Featuring high toughness and excellent hot hardness, it delivers outstanding performance in low-speed, high-feed cutting operations, making it ideal for rough machining of high-temperature alloys.	
Electronics	XR12S	Combining high toughness with excellent wear resistance, particularly suitable for medium to rough machining of stainless steel in electronics, titanium alloys, and high-temperature alloys.	
Universal	XR10S	Exhibits exceptional versatility, particularly suited for rough machining of stainless steel and aluminum alloys.	     
Universal	XR10SD	Highly wear-resistant while maintaining excellent toughness. Delivers superior performance in medium-speed milling for carbon steel, alloy steel, and stainless steel.	     
Universal	XR12U+	Offers impressive versatility, delivering outstanding performance in the semi-finishing and finishing of stainless steel and aluminum alloys.	     

Automotive Industry



Electrics



Electronics



Machining



Aerospace



Mold



Healthcare



APPLICATIONS BY CARBIDE GRADE

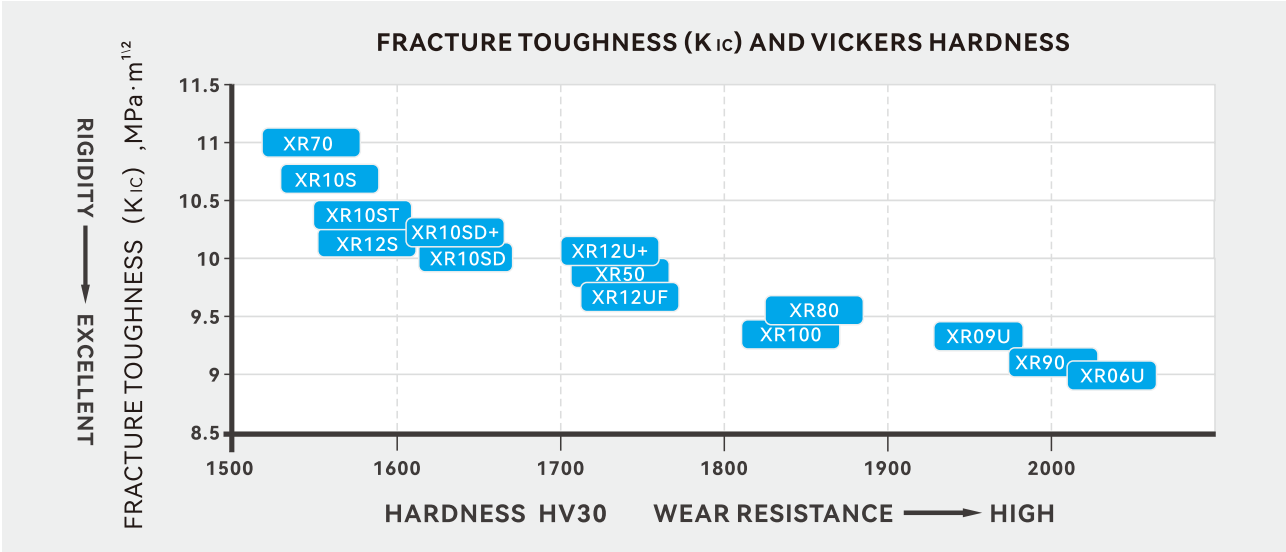
Workpiece Materials		Tool Type		Holemaking Series		Application Specific Series								General Purpose Series		
				XR10ST	XR10SD+	XR50	XR100	XR06U	XR09U	XR12UF	XR80	XR90	XR70	XR12S	XR10S	XR10SD
P	Steel	End Mill	Drill	●	★											
			Roughing											★	★	
			Finishing							★					●	★
M	Stainless Steel	End Mill	Drill	●	★											
			Roughing									★	●	★	★	
			Finishing				★			★	★		●		●	★
K	Cast Iron	End Mill	Drill	★	●											
			Roughing											★	★	
			Finishing				★			★					●	★
N	Non-ferrous	End Mill	Drill	★	●											
			Roughing											★	★	
			Finishing				●	★		★					●	★
S	Heat-resistant Alloy	End Mill	Drill	●	★											
			Roughing										★	●	●	
			Finishing				★		●	★	★	★		★		●
H	High Hardness Material	End Mill	Drill		★											
			Roughing							★	●					●
			Finishing						●	●	★	★				
Other	Fiber Composites					●	★	●								
	Graphite				△	△										

- Preferred Option★
- Alternative Option●
- Diamond Coating△

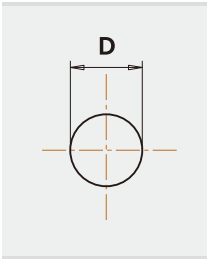
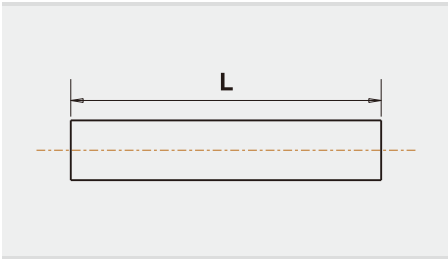
COMPARISON TABLE FOR BRANDS

GRADE	SANDVIK	GUHRING	CERATIZIT	KFC	IMC	EMT
XR06U		KFM308		K5UF	SF060	
XR80	DM80					
XR90	PN90		TSF22	K55SF	UF09	
XR10ST	AFK40UF	DK400N		K40XF	UF10	EMT210
XR10SD/XR10SD+	H10F	DK460UF	CTS20D	K40UF		
XR12UF		DK500UF	TSF44	K44UF	UF12	EMT612
XR70/XR12S	AM70		CTS24Z			EMT212
XR100		DK12UF	CTS12D		UF1	EMT100
XR50	H6N	DK120	CTF12E		K20	

MATERIAL PROPERTIES



SOLID RODS IN METRIC SIZES



LENGTH(mm)	TOL.(mm)
L≤50	+0.5/+1.0
50 < L < 150	+0.75/+1.25
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

Services Available

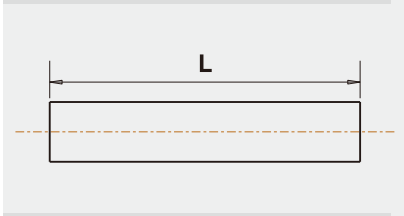
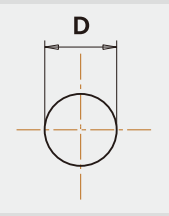
Fixed Length

● Customizable

★ In stock

SN	DIAMETER (mm)	TOL. (mm)	LENGTH (mm)	INVENTORY
RS0223100***	2.2	+0.0~+0.2	310/330	★
RS0323100***	3.2	+0.0~+0.2	310/330	★
RS0423100***	4.2	+0.0~+0.2	310/330	★
RS0433100***	4.3	+0.05~+0.25	310/330	★
RS0523100***	5.2	+0.0~+0.2	310/330	★
RS0623100***	6.2	+0.0~+0.2	310/330	★
RS0633100***	6.3	+0.05~+0.25	310/330	★
RS0723100***	7.2	+0.1~+0.4	310/330	★
RS0823100***	8.2	+0.1~+0.4	310/330	★
RS0923100***	9.2	+0.1~+0.4	310/330	★
RS1023100***	10.2	+0.1~+0.4	310/330	★
RS1123100***	11.2	+0.1~+0.4	310/330	★
RS1223100***	12.2	+0.1~+0.4	310/330	★
RS1323100***	13.2	+0.2~+0.5	310/330	★
RS1423100***	14.2	+0.2~+0.5	310/330	★
RS1523100***	15.2	+0.2~+0.5	310/330	★
RS1623100***	16.2	+0.2~+0.5	310/330	★
RS1723100***	17.2	+0.2~+0.5	310/330	★
RS1823100***	18.2	+0.2~+0.5	310/330	★
RS1923100***	19.2	+0.2~+0.5	310/330	★
RS2023100***	20.2	+0.3~+0.7	310/330	★
RS2123100***	21.2	+0.3~+0.7	310/330	★
RS2223100***	22.2	+0.3~+0.7	310/330	★
RS2323100***	23.2	+0.3~+0.7	310/330	★
RS2423100***	24.2	+0.3~+0.7	310/330	★
RS2523100***	25.2	+0.3~+0.7	310/330	★
RS2623100***	26.2	+0.3~+0.7	310/330	★
RS2723100***	27.2	+0.3~+0.7	310/330	★
RS2823100***	28.2	+0.3~+0.7	310/330	★
RS2923100***	29.2	+0.3~+0.7	310/330	★
RS3023100***	30.2	+0.3~+0.8	310/330	★
RS3123100***	31.2	+0.3~+0.8	310/330	★
RS3223100***	32.2	+0.3~+0.8	310/330	★
RS3323100***	33.2	+0.3~+0.8	310/330	●
RS3423100***	34.2	+0.3~+0.8	310/330	●
RS3523100***	35.2	+0.3~+0.8	310/330	●
RS3623100***	36.2	+0.3~+0.8	310/330	●
RS3723100***	37.2	+0.3~+0.8	310/330	●
RS3823100***	38.2	+0.3~+0.8	310/330	●
RS3923100***	39.2	+0.3~+0.8	310/330	●
RS4023100***	40.2	+0.3~+0.8	310/330	●

SOLID RODS GROUND IN METRIC SIZES



Services Available

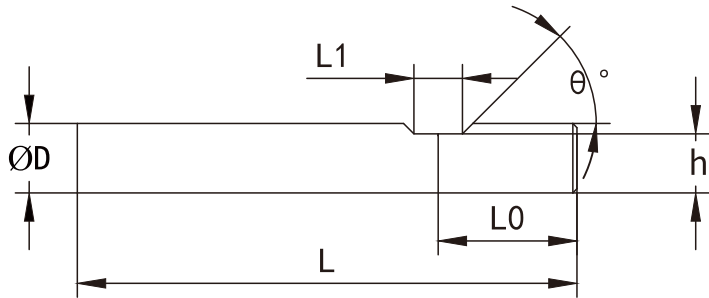


LENGTH(mm)	TOL.(mm)
L≤50	+0.5/+1.0
50 < L < 150	+0.75/+1.25
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

● Customizable ★ In stock

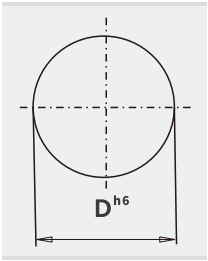
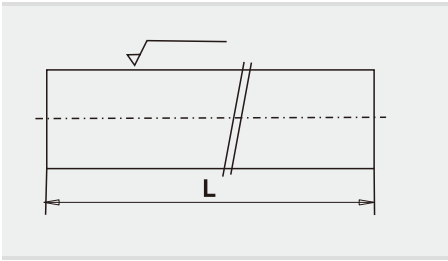
SN	DIAMETER (mm)	TOL. (mm)	LENGTH (mm)	INVENTORY
RS0403100***H8	4.0	+0.15~+0.25	310/330	●
RS0503100***H8	5.0	+0.15~+0.25	310/330	●
RS0603100***H8	6.0	+0.15~+0.25	310/330	●
RS0703100***H8	7.0	+0.15~+0.25	310/330	●
RS0803100***H8	8.0	+0.15~+0.25	310/330	●
RS0903100***H8	9.0	+0.15~+0.25	310/330	●
RS1003100***H8	10.0	+0.15~+0.25	310/330	●
RS1103100***H8	11.0	+0.15~+0.25	310/330	●
RS1203100***H8	12.0	+0.15~+0.25	310/330	●
RS1303100***H8	13.0	+0.15~+0.25	310/330	●
RS1403100***H8	14.0	+0.15~+0.25	310/330	●
RS1503100***H8	15.0	+0.15~+0.25	310/330	●
RS1603100***H8	16.0	+0.15~+0.25	310/330	●
RS1703100***H8	17.0	+0.15~+0.25	310/330	●
RS1803100***H8	18.0	+0.15~+0.25	310/330	●
RS1903100***H8	19.0	+0.15~+0.25	310/330	●
RS2003100***H8	20.0	+0.15~+0.25	310/330	●
RS2103100***H8	21.0	+0.15~+0.25	310/330	●
RS2203100***H8	22.0	+0.15~+0.25	310/330	●
RS2303100***H8	23.0	+0.15~+0.25	310/330	●
RS2403100***H8	24.0	+0.15~+0.25	310/330	●
RS2503100***H8	25.0	+0.15~+0.25	310/330	●

SOLID RODS WITH WELDON AND CHAMFER GROUND IN METRIC SIZES



No.	SN	ΦD (mm)	L (mm)	L1 (mm)	L0 (mm)	h (mm)	Tol.	θ°
1	RS0600500STH5CF	6	50	4.2	15.9	4.8	-0.075,-0.0	45
2	RS0600570STH5CF	6	57	4.2	18.0	5.1	-0.075,-0.0	45
3	RS0800630STH5CF	8	63	5.5	18.0	6.9	-0.090,-0.0	45
4	RS1000720STH5CF	10	72	7.0	20.0	8.5	-0.090,-0.0	45
5	RS1200830STH5CF	12	83	8.0	22.5	10.4	-0.110,-0.0	45
6	RS1400830STH5CF	14	83	8.0	22.5	12.7	-0.110,-0.0	45
7	RS1600920STH5CF	16	92	10.0	24.0	14.2	-0.110,-0.0	45
8	RS1800920STH5CF	18	92	10.0	24.0	16.2	-0.110,-0.0	45
9	RS2001040STH5CF	20	104	11.0	25.0	18.2	-0.130,-0.0	45

SOLID RODS WITH CHAMFER AND SPECIFIED LENGTH GROUND IN METRIC SIZE



LENGTH(mm)	TOL.(mm)
All	ISO h6/h5

LENGTH(mm)	TOL.(mm)
≤50	+0.2/+0.5
50 < L ≤150	+0.5/+1.0

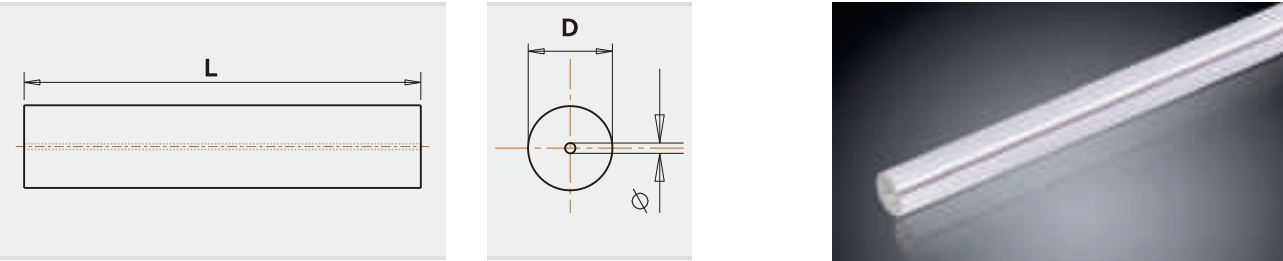
Services Available

h5/h6

SN	DIAMETER (mm)	TOL. (mm)	LENGTH (mm)	TOL. (mm)	CHAMFER DIMENSION C*45°(±3°)	INVENTORY
RS0400400***H5	4	h5/h6	40	+0.2~+0.5	0.4±0.1	★
RS0400500***H5	4	h5/h6	50	+0.2~+0.5	0.4±0.1	★
RS0400750***H5	4	h5/h6	75	+0.5~+1.0	0.4±0.1	★
RS0401000***H5	4	h5/h6	100	+0.5~+1.0	0.4±0.1	★
RS0600500***H5	6	h5/h6	50	+0.2~+0.5	0.5±0.1	★
RS0600600***H5	6	h5/h6	60	+0.5~+1.0	0.5±0.1	★
RS0600660***H5	6	h5/h6	66	+0.5~+1.0	0.5±0.1	★
RS0600750***H5	6	h5/h6	75	+0.5~+1.0	0.5±0.1	★
RS0600820***H5	6	h5/h6	82	+0.5~+1.0	0.5±0.1	★
RS0601000***H5	6	h5/h6	100	+0.5~+1.0	0.5±0.1	★
RS0800600***H5	8	h5/h6	60	+0.5~+1.0	0.6±0.1	★
RS0800750***H5	8	h5/h6	75	+0.5~+1.0	0.6±0.1	★
RS0800790***H5	8	h5/h6	79	+0.5~+1.0	0.6±0.1	★
RS0800910***H5	8	h5/h6	91	+0.5~+1.0	0.6±0.1	★
RS0801000***H5	8	h5/h6	100	+0.5~+1.0	0.6±0.1	★
RS1000750***H5	10	h5/h6	75	+0.5~+1.0	0.6±0.1	★
RS1000890***H5	10	h5/h6	89	+0.5~+1.0	0.6±0.1	★
RS1001000***H5	10	h5/h6	100	+0.5~+1.0	0.6±0.1	★
RS1001030***H5	10	h5/h6	103	+0.5~+1.0	0.6±0.1	★
RS1001500***H5	10	h5/h6	150	+0.5~+1.0	0.6±0.1	★
RS1200750***H5	12	h5/h6	75	+0.5~+1.0	0.8±0.1	★
RS1201000***H5	12	h5/h6	100	+0.5~+1.0	0.8±0.1	★
RS1201180***H5	12	h5/h6	118	+0.5~+1.0	0.8±0.1	★
RS1201500***H5	12	h5/h6	150	+0.5~+1.0	0.8±0.1	★
RS1401000***H5	14	h5/h6	100	+0.5~+1.0	0.8±0.1	★
RS1401240***H5	14	h5/h6	124	+0.5~+1.0	0.8±0.1	★
RS1601000***H5	16	h5/h6	100	+0.5~+1.0	0.8±0.1	★
RS1601150***H5	16	h5/h6	115	+0.5~+1.0	0.8±0.1	★
RS1601330***H5	16	h5/h6	133	+0.5~+1.0	0.8±0.1	★
RS1801000***H5	18	h5/h6	100	+0.5~+1.0	1.0±0.1	★
RS1801500***H5	18	h5/h6	150	+0.5~+1.0	1.0±0.1	★
RS2001000***H5	20	h5/h6	100	+0.5~+1.0	1.0±0.1	★
RS2001500***H5	20	h5/h6	150	+0.5~+1.0	1.0±0.1	★
RS2501000***H5	25	h5/h6	100	+0.5~+1.0	1.0±0.1	★
RS2501500***H5	25	h5/h6	150	+0.5~+1.0	1.0±0.1	★

● Customizable ★ In stock

COOLANT RODS WITH CENTRAL HOLE



LENGTH(mm)	TOL.(mm)
< 150	+0.5/+1.0
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

Services Available

h5/h6

Fixed Length

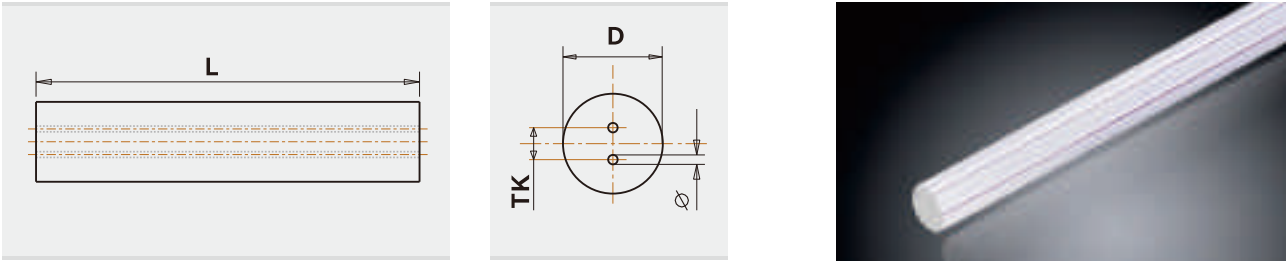
Customization of Hole Diameter from 0.2 to 6.0 mm

Grades Available	
XR10ST	XR10SD
XR12UF	XR100

SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		ECCENTRICITY (mm) e≤	INVENTORY
	SINTERED	Tol.		d	Tol.		
RC0223300***1030	2.2	+0.1~+0.3	330	0.3	±0.10	0.10	★
RC0323300***1040	3.2	+0.1~+0.3	330	0.4	±0.10	0.10	★
RC0423300***1060	4.2	+0.1~+0.3	330	0.6	±0.10	0.10	★
RC0523300***1080	5.2	+0.1~+0.3	330	0.8	±0.10	0.15	★
RC0623300***1100	6.2	+0.1~+0.3	330/360	1.0	±0.15	0.15	★
RC0623300***1130	6.2	+0.1~+0.3	330/360	1.3	±0.15	0.15	★
RC0723300***1100	7.2	+0.1~+0.3	330/360	1.0	±0.15	0.15	★
RC0823300***1100	8.2	+0.1~+0.4	330/360	1.0	±0.15	0.15	★
RC0823300***1130	8.2	+0.1~+0.4	330/360	1.3	±0.15	0.15	★
RC0923300***1200	9.2	+0.1~+0.4	330/360	2.0	±0.20	0.15	★
RC1023300***1150	10.2	+0.1~+0.4	330/360/415	1.5	±0.15	0.15	★
RC1023300***1200	10.2	+0.1~+0.4	330/360/415	2.0	±0.20	0.15	★
RC1123300***1200	11.2	+0.1~+0.4	330/360/415	2.0	±0.20	0.15	★
RC1223300***1200	12.2	+0.1~+0.4	330/360/415	2.0	±0.20	0.15	★
RC1223300***1300	12.2	+0.1~+0.4	330/360/415	3.0	±0.20	0.15	★
RC1323300***1200	13.2	+0.2~+0.5	330/360/415	2.0	±0.20	0.15	★
RC1423300***1200	14.2	+0.2~+0.5	330/360/415	2.0	±0.20	0.20	★
RC1523300***1200	15.2	+0.2~+0.5	330/360/415	2.0	±0.20	0.20	★
RC1623300***1200	16.2	+0.2~+0.6	330/360/415	2.0	±0.20	0.20	★
RC1623300***1300	16.2	+0.2~+0.6	330/360/415	3.0	±0.20	0.20	★
RC1723300***1300	17.2	+0.2~+0.6	330/360/415	3.0	±0.20	0.20	★
RC1823300***1300	18.2	+0.2~+0.6	330/360/415	3.0	±0.20	0.20	★
RC1923300***1300	19.2	+0.2~+0.6	330/360/415	3.0	±0.20	0.20	★
RC2023300***1200	20.2	+0.3~+0.8	330/360/415	2.0	±0.20	0.20	★
RC2023300***1300	20.2	+0.3~+0.8	330/360/415	3.0	±0.20	0.20	★
RC2123300***1300	21.2	+0.3~+0.8	330/360/415	3.0	±0.20	0.20	★
RC2223300***1300	22.2	+0.3~+0.8	330/360/415	3.0	±0.20	0.20	★
RC2323300***1300	23.2	+0.3~+0.8	330/360/415	3.0	±0.20	0.20	★
RC2423300***1300	24.2	+0.3~+0.8	330/360/415	3.0	±0.20	0.20	★
RC2523300***1300	25.2	+0.3~+0.8	330/360/415	3.0	±0.20	0.20	★
RC2623300***1300	26.2	+0.3~+0.8	330	3.0	±0.20	0.25	★
RC2723300***1300	27.2	+0.3~+0.8	330	3.0	±0.20	0.25	★
RC2823300***1400	28.2	+0.3~+0.8	330	4.0	±0.25	0.25	★
RC2923300***1400	29.2	+0.3~+0.8	330	4.0	±0.25	0.25	★
RC3023300***1500	30.2	+0.3~+0.8	330	5.0	±0.25	0.25	★
RC3123300***1500	31.2	+0.3~+0.8	330	5.0	±0.25	0.25	★
RC3223300***1500	32.2	+0.3~+0.8	330	5.0	±0.25	0.25	★

Customizable In stock

COOLANT RODS WITH 2 PARALLEL HOLES



SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		ECCENTRICITY (mm) e≤	INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.		
RP0423300***2080017	4.2	+0.1~+0.3	330	0.80	±0.10	1.73	±0.07	0.10	★
RP0623300***2100030	6.2	+0.1~+0.3	330/360/415	1.00	±0.15	3.00	±0.10	0.15	★
RP0723300***2100035	7.2	+0.1~+0.3	330	1.00	±0.15	3.50	±0.10	0.15	★
RP0823300***2100038	8.2	+0.1~+0.4	330/360/415	1.00	±0.15	3.80	±0.20	0.15	★
RP0923300***2140040	9.2	+0.1~+0.4	330	1.40	±0.15	4.00	±0.20	0.20	★
RP1023300***2140048	10.2	+0.1~+0.4	330/360/415	1.40	±0.15	4.80	±0.20	0.28	★
RP1123300***2140048	11.2	+0.1~+0.4	330	1.40	±0.15	4.80	±0.20	0.28	★
RP1223300***2175058	12.2	+0.1~+0.4	330/360/415	1.75	±0.20	5.85	±0.15	0.34	★
RP1323300***2175058	13.2	+0.2~+0.5	330	1.75	±0.20	5.85	±0.15	0.37	★
RP1423300***2175068	14.2	+0.2~+0.5	330/360/415	1.75	±0.20	6.80	±0.20	0.40	★
RP1523300***2200068	15.2	+0.2~+0.5	330	2.00	±0.20	6.85	±0.15	0.40	★
RP1623300***2200078	16.2	+0.2~+0.6	330/360/415	2.00	±0.20	7.80	±0.20	0.47	★
RP1723300***2200078	17.2	+0.2~+0.6	330	2.00	±0.20	7.85	±0.15	0.47	★
RP1823300***2200088	18.2	+0.2~+0.6	330/360/415	2.00	±0.20	8.85	±0.15	0.50	★
RP1923300***2200088	19.2	+0.2~+0.6	330	2.00	±0.20	8.85	±0.15	0.50	★
RP2023300***2250098	20.2	+0.3~+0.8	330/360/415	2.50	±0.20	9.80	±0.20	0.50	★
RP2123300***2250098	21.2	+0.3~+0.8	330	2.50	±0.20	9.80	±0.20	0.50	★
RP2223300***2250108	22.2	+0.3~+0.8	330/360/415	2.50	±0.20	10.80	±0.20	0.50	★
RP2323300***2250108	23.2	+0.3~+0.8	330	2.50	±0.20	10.80	±0.20	0.50	★
RP2423300***2300117	24.2	+0.3~+0.8	330	3.00	±0.25	11.75	±0.25	0.50	★
RP2523300***2300117	25.2	+0.3~+0.8	330/360/415	3.00	±0.25	11.75	±0.25	0.50	★
RP2623300***2300127	26.2	+0.3~+0.8	330/360	3.00	±0.25	12.75	±0.25	0.50	★
RP2823300***2300137	28.2	+0.3~+0.8	330/360	3.00	±0.25	13.75	±0.25	0.50	★
RP3023300***2300137	30.2	+0.3~+0.8	330/360	3.00	±0.25	13.75	±0.25	0.50	★
RP3223300***2300137	32.2	+0.3~+0.8	330/360	3.00	±0.25	13.75	±0.25	0.50	★
RP3423300***2300137	34.2	+0.3~+0.8	330/360	3.00	±0.25	13.75	±0.25	0.50	★

Customizable In stock

LENGTH(mm)	TOL.(mm)
< 150	+0.5/+1.0
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

Services Available

h5/h6

Fixed Length

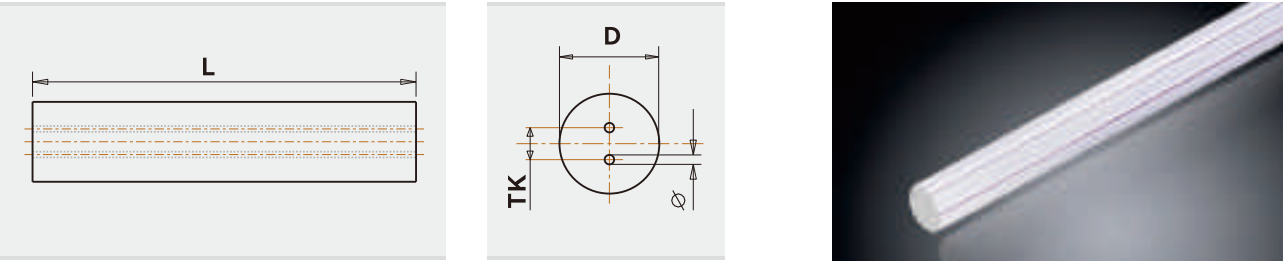
Grades Available

XR10ST XR10SD

XR12UF

Suitable for Diamond Tool Holders

COOLANT RODS WITH 2 PARALLEL CONSTRICTED HOLES



SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		ECCENTRICITY (mm) e≤	INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.		
RP0623300***2080015	6.2	+0.1~+0.3	330/360/415	0.80	±0.10	1.50	±0.10	0.15	★
RP0723300***2080015	7.2	+0.1~+0.3	330	0.80	±0.10	1.50	±0.10	0.15	★
RP0823300***2080025	8.2	+0.1~+0.4	330	0.80	±0.10	2.50	±0.10	0.15	★
RP0823300***2100026	8.2	+0.1~+0.4	330/360/415	1.00	±0.15	2.60	±0.10	0.15	★
RP0923300***2100026	9.2	+0.1~+0.4	330	1.00	±0.15	2.60	±0.10	0.20	★
RP1023300***2100026	10.2	+0.1~+0.4	330/360/415	1.00	±0.15	2.60	±0.10	0.28	★
RP1023300***2100035	10.2	+0.1~+0.4	330	1.00	±0.15	3.50	±0.10	0.28	★
RP1123300***2120033	11.2	+0.1~+0.4	330	1.20	±0.15	3.35	±0.15	0.28	★
RP1223300***2120033	12.2	+0.1~+0.4	330/360/415	1.20	±0.15	3.35	±0.15	0.34	★
RP1323300***2120033	13.2	+0.2~+0.5	330	1.20	±0.15	3.35	±0.15	0.37	★
RP1423300***2150048	14.2	+0.2~+0.5	330/360/415	1.50	±0.20	4.80	±0.20	0.40	★
RP1523300***2150048	15.2	+0.2~+0.5	330	1.50	±0.20	4.80	±0.20	0.40	★
RP1623300***2150048	16.2	+0.2~+0.6	330/360/415	1.50	±0.20	4.80	±0.20	0.47	★
RP1623300***2180055	16.2	+0.2~+0.6	330	1.80	±0.20	5.50	±0.20	0.47	★
RP1723300***2200060	17.2	+0.2~+0.6	330	2.00	±0.20	6.00	±0.20	0.47	★
RP1823300***2200060	18.2	+0.2~+0.6	330/360/415	2.00	±0.20	6.00	±0.20	0.50	★
RP1923300***2200060	19.2	+0.2~+0.6	330	2.00	±0.20	6.00	±0.20	0.50	★
RP2023300***2200062	20.2	+0.3~+0.8	330/360/415	2.00	±0.20	6.20	±0.20	0.50	★
RP2123300***2200062	21.2	+0.3~+0.8	330	2.00	±0.20	6.20	±0.20	0.50	★
RP2223300***2200062	22.2	+0.3~+0.8	330/360/415	2.00	±0.20	6.20	±0.20	0.50	★
RP2323300***2200073	23.2	+0.3~+0.8	330	2.00	±0.20	7.30	±0.20	0.50	★
RP2423300***2200073	24.2	+0.3~+0.8	330	2.00	±0.20	7.30	±0.20	0.50	★
RP2523300***2200073	25.2	+0.3~+0.8	330/360/415	2.00	±0.20	7.30	±0.20	0.50	★
RP2523300***2250100	25.2	+0.3~+0.8	330	2.50	±0.20	10.00	±0.20	0.50	★
RP2623300***2200073	26.2	+0.3~+0.8	330/360	2.00	±0.20	7.30	±0.20	0.50	★
RP2823300***2250088	28.2	+0.3~+0.8	330/360	2.50	±0.20	8.80	±0.20	0.50	★
RP3023300***2250088	30.2	+0.3~+0.8	330/360	2.50	±0.20	8.80	±0.20	0.50	★
RP3223300***2250088	32.2	+0.3~+0.8	330/360	2.50	±0.20	8.80	±0.20	0.50	★

Customizable In stock

LENGTH(mm)	TOL.(mm)
< 150	+0.5/+1.0
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

Services Available

h5/h6

Fixed Length

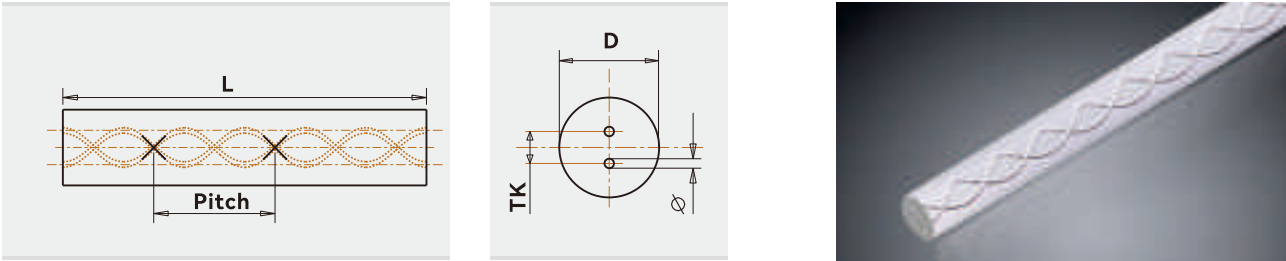
Grades Available

XR10ST XR10SD

XR12UF

Suitable for Diamond Tool Holders

COOLANT RODS WITH 2 HOLES AND 30° HELIX



SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		PITCH(±0.5°)		ECCENTRICITY (mm) e≤	INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.	P	Tol.		
RH0333300***302040016	3.3	+0.3~+0.6	330	0.40	±0.10	1.60	±0.10	16.32	-0.32 +0.33	0.10	★
RH0433300***302025012	4.3	+0.3~+0.6	330	0.25	±0.10	1.20	±0.10	21.77	-0.43 +0.45	0.10	★
RH0433300***302060021	4.3	+0.3~+0.6	330	0.60	±0.10	2.10	±0.10	21.77	-0.43 +0.45	0.10	★
RH0433300***302060016	4.3	+0.3~+0.6	330	0.60	±0.10	1.60	±0.10	21.77	-0.43 +0.45	0.10	★
RH0533300***302070024	5.3	+0.3~+0.6	330	0.70	±0.15	2.40	±0.20	27.21	-0.54 +0.56	0.10	★
RH0633300***302040014	6.3	+0.3~+0.6	330	0.40	±0.10	1.40	±0.20	32.65	-0.65 +0.67	0.15	★
RH0633300***302070024	6.3	+0.3~+0.6	330/360	0.70	±0.15	2.40	±0.20	32.65	-0.65 +0.67	0.15	★
RH0633300***302090026	6.3	+0.3~+0.6	330	0.90	±0.15	2.60	±0.20	32.65	-0.65 +0.67	0.15	★
RH0733300***302100035	7.3	+0.3~+0.6	330	1.00	±0.15	3.50	±0.20	38.09	-0.76 +0.78	0.15	★
RH0833300***302070024	8.3	+0.4~+0.7	330	0.70	±0.10	2.40	±0.20	43.53	-0.86 +0.89	0.20	★
RH0833300***302100038	8.3	+0.4~+0.7	330/360	1.00	±0.15	3.80	±0.20	43.53	-0.86 +0.89	0.20	★
RH0833300***302125036	8.3	+0.4~+0.7	330	1.25	±0.20	3.60	±0.20	43.53	-0.86 +0.89	0.20	★
RH0933300***302140045	9.3	+0.4~+1.0	330	1.40	±0.15	4.50	±0.30	48.97	-0.97 +1.00	0.20	★
RH1033300***302070026	10.3	+0.4~+1.0	330	0.70	±0.10	2.60	±0.30	54.41	-1.08 +1.11	0.20	★
RH1033300***302100038	10.3	+0.4~+1.0	330	1.00	±0.15	3.80	±0.30	54.41	-1.08 +1.11	0.20	★
RH1033300***302140045	10.3	+0.4~+1.0	330/360/415	1.40	±0.15	4.50	±0.30	54.41	-1.08 +1.11	0.20	★
RH1133300***302140049	11.3	+0.4~+1.0	330	1.40	±0.15	4.90	±0.40	59.86	-1.19 +1.22	0.28	★
RH1233300***302100038	12.3	+0.4~+1.0	330	1.00	±0.15	3.80	±0.40	65.30	-1.30 +1.34	0.30	★
RH1233300***302140058	12.3	+0.4~+1.0	330/360/415	1.40	±0.15	5.85	±0.40	65.30	-1.30 +1.34	0.30	★
RH1333300***302175061	13.3	+0.4~+1.0	330	1.75	±0.20	6.10	±0.40	70.74	-1.40 +1.45	0.34	★
RH1433300***302045025	14.3	+0.4~+1.0	330	0.45	±0.10	2.50	±0.20	76.18	-1.51 +1.56	0.37	●
RH1433300***302140043	14.3	+0.4~+1.0	330	1.40	±0.20	4.30	±0.40	76.18	-1.51 +1.56	0.37	★
RH1433300***302175067	14.3	+0.4~+1.0	330/360/415	1.75	±0.20	6.70	±0.40	76.18	-1.51 +1.56	0.37	★
RH1533300***302175073	15.3	+0.4~+1.0	330	1.75	±0.20	7.30	±0.40	81.62	-1.62 +1.67	0.40	★
RH1633300***302140049	16.3	+0.5~+1.1	330	1.40	±0.20	4.90	±0.40	87.06	-1.73 +1.78	0.40	★
RH1633300***302175079	16.3	+0.5~+1.1	330/360/415	1.75	±0.20	7.90	±0.40	87.06	-1.73 +1.78	0.40	★
RH1733300***302175085	17.3	+0.5~+1.1	330	1.75	±0.20	8.50	±0.40	92.50	-1.84 +1.89	0.47	★
RH1833300***302140059	18.3	+0.6~+1.2	330	1.40	±0.20	5.90	±0.40	97.95	-1.94 +2.00	0.50	★
RH1833300***302200091	18.3	+0.6~+1.2	330/360/415	2.00	±0.25	9.15	±0.40	97.95	-1.94 +2.00	0.50	★
RH1933300***302200097	19.3	+0.6~+1.2	330	2.00	±0.25	9.70	±0.40	103.39	-2.05 +2.12	0.50	★
RH2033300***302150066	20.3	+0.6~+1.2	330	1.50	±0.20	6.60	±0.50	108.83	-2.16 +2.23	0.50	★
RH2033300***302200099	20.3	+0.6~+1.2	330/360/415	2.00	±0.25	9.90	±0.50	108.83	-2.16 +2.23	0.50	★
RH2033300***302320099	20.3	+0.6~+1.2	330	3.20	±0.25	9.90	±0.50	108.83	-2.16 +2.23	0.50	●
RH2133300***302200106	21.3	+0.6~+1.2	330	2.00	±0.25	10.65	±0.50	114.27	-2.27 +2.34	0.50	★
RH2233300***302175067	22.3	+0.7~+1.3	330	1.75	±0.20	6.70	±0.50	119.71	-2.38 +2.45	0.50	★
RH2233300***302200111	22.3	+0.7~+1.3	330/360/415	2.00	±0.25	11.10	±0.50	119.71	-2.38 +2.45	0.50	★
RH2233300***302320099	22.3	+0.7~+1.3	330	3.20	±0.25	9.90	±0.50	119.71	-2.38 +2.45	0.50	●
RH2333300***302200117	23.3	+0.7~+1.3	330	2.00	±0.25	11.70	±0.50	125.15	-2.45 +2.56	0.50	★
RH2433300***302200123	24.3	+0.7~+1.3	330	2.00	±0.25	12.30	±0.50	130.59	-2.59 +2.67	0.50	★
RH2533300***302175067	25.3	+0.7~+1.3	330	1.75	±0.20	6.70	±0.50	136.03	-2.70 +2.78	0.50	★
RH2533300***302200128	25.3	+0.7~+1.3	330/360/415	2.00	±0.25	12.80	±0.50	136.03	-2.70 +2.78	0.50	★
RH2533300***302320140	25.3	+0.7~+1.3	330	3.20	±0.25	14.00	±0.50	136.03	-2.70 +2.78	0.50	●
RH2633300***302200133	26.3	+0.7~+1.3	330/360	2.00	±0.25	13.30	±0.50	141.48	-2.81 +2.90	0.50	★
RH2633300***302320133	26.3	+0.7~+1.3	330	3.20	±0.25	13.30	±0.50	141.48	-2.81 +2.90	0.50	●
RH2833300***302250142	28.3	+0.7~+1.3	330/360	2.50	±0.25	14.20	±0.60	152.36	-3.02 +3.12	0.60	★
RH3033300***302250154	30.3	+0.7~+1.3	330/360	2.50	±0.25	15.40	±0.60	163.24	-3.24 +3.34	0.60	★
RH3233300***302300166	32.3	+0.7~+1.3	330/360	3.00	±0.30	16.60	±0.60	174.12	-3.46 +3.56	0.60	★

LENGTH(mm)	TOL.(mm)
< 150	+0.5/+1.0
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

Services Available

h5/h6

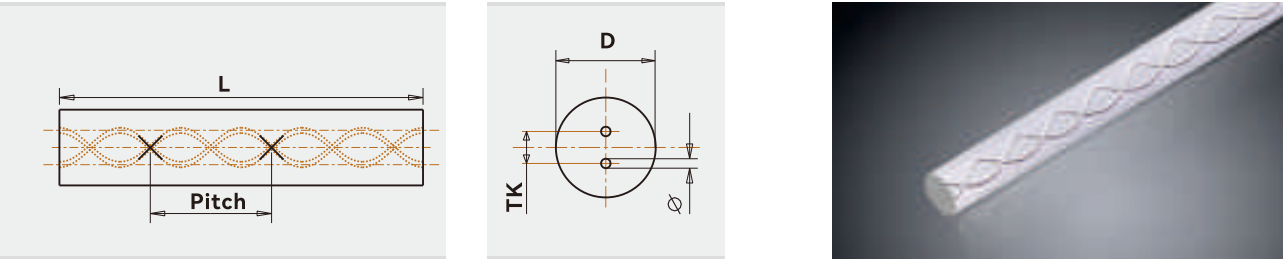
Fixed Length

Grades Available

XR10ST XR10SD+

Customizable In stock

COOLANT RODS WITH 2 HOLES AND 40° HELIX



SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		PITCH(±0.5°)		ECCENTRICITY (mm)	INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.	P	Tol.	e≤	
RH0343300***402030013	3.4	+0.4~+1.0	330	0.30	±0.10	1.30	±0.10	11.23	-0.20 +0.20	0.10	★
RH0443300***402040016	4.4	+0.4~+1.0	330	0.40	±0.10	1.60	±0.10	14.98	-0.26 +0.27	0.10	★
RH0643300***402040014	6.4	+0.4~+1.0	330	0.40	±0.10	1.40	±0.10	22.46	-0.39 +0.40	0.15	★
RH0643300***402050020	6.4	+0.4~+1.0	330	0.50	±0.10	2.00	±0.20	22.46	-0.39 +0.40	0.15	★
RH0843300***402040017	8.4	+0.4~+1.0	330	0.40	±0.10	1.70	±0.10	29.95	-0.53 +0.54	0.15	★
RH0843300***402065024	8.4	+0.4~+1.0	330	0.65	±0.10	2.40	±0.20	29.95	-0.53 +0.54	0.15	★
RH1043300***402050020	10.4	+0.4~+1.0	330	0.50	±0.15	2.00	±0.20	37.44	-0.66 +0.67	0.20	★
RH1043300***402080032	10.4	+0.4~+1.0	330	0.80	±0.15	3.20	±0.30	37.44	-0.66 +0.67	0.20	★
RH1243300***402060023	12.4	+0.4~+1.0	330	0.60	±0.15	2.30	±0.20	44.93	-0.79 +0.80	0.30	★
RH1243300***402090038	12.4	+0.4~+1.0	330	0.90	±0.15	3.80	±0.40	44.93	-0.79 +0.80	0.30	★
RH1443300***402070027	14.4	+0.5~+1.1	330	0.70	±0.15	2.70	±0.20	52.42	-0.92 +0.94	0.37	★
RH1443300***402100043	14.4	+0.5~+1.1	330	1.00	±0.15	4.30	±0.40	52.42	-0.92 +0.94	0.37	★
RH1643300***402080031	16.4	+0.5~+1.1	330	0.80	±0.15	3.10	±0.20	59.90	-1.05 +1.07	0.40	★
RH1643300***402120051	16.4	+0.5~+1.1	330	1.20	±0.15	5.10	±0.40	59.90	-1.05 +1.07	0.40	★
RH1843300***402090035	18.4	+0.5~+1.1	330	0.90	±0.15	3.50	±0.30	67.39	-1.18 +1.21	0.50	★
RH1843300***402140059	18.4	+0.5~+1.1	330	1.40	±0.15	5.90	±0.40	67.39	-1.18 +1.21	0.50	★
RH2043300***402100039	20.4	+0.5~+1.1	330	1.00	±0.15	3.90	±0.30	74.88	-1.31 +1.34	0.50	★
RH2043300***402150066	20.4	+0.5~+1.1	330	1.50	±0.15	6.60	±0.50	74.88	-1.31 +1.34	0.50	★
RH2243300***402170072	22.4	+0.6~+1.2	330	1.70	±0.20	7.20	±0.50	82.37	-1.44 +1.48	0.50	★
RH2543300***402175076	25.4	+0.6~+1.2	330	1.75	±0.20	7.60	±0.50	93.60	-1.64 +1.68	0.50	★
RH2643300***402175077	26.4	+0.7~+1.3	330	1.75	±0.20	7.70	±0.50	97.34	-1.71 +1.74	0.50	●
RH2843300***402200084	28.4	+0.7~+1.3	330	2.00	±0.20	8.40	±0.60	104.83	-1.84 +1.88	0.50	●
RH3043300***402200094	30.4	+0.7~+1.3	330	2.00	±0.20	9.40	±0.60	112.32	-1.97 +2.01	0.50	●
RH3243300***402200104	32.4	+0.7~+1.3	330	2.00	±0.20	10.40	±0.60	119.81	-2.10 +2.15	0.50	●

Customizable In stock

LENGTH(mm)	TOL.(mm)
< 150	+0.5/+1.0
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

Services Available

h5/h6 Fixed Length

Grades Available

XR10SD+

COOLANT RODS WITH 3 HOLES AND 30° HELIX

SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		PITCH(±0.5°)		ECCENTRICITY (mm)		INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.	P	Tol.	e≤	α	
RH0633300***303050027	6.3	+0.3~+0.6	330	0.50	±0.10	2.75	±0.15	32.65	-0.65 +0.67	0.15	±4°	★
RH0633300***303070025	6.3	+0.3~+0.6	330	0.70	±0.10	2.55	±0.15	32.65	-0.65 +0.67	0.15	±4°	★
RH0833300***303070038	8.3	+0.4~+0.7	330	0.70	±0.10	3.85	±0.15	43.53	-0.86 +0.89	0.15	±4°	★
RH0933300***303085049	9.3	+0.4~+1.0	330	0.85	±0.15	4.95	±0.15	48.97	-0.97 +1.00	0.20	±4°	★
RH1033300***303085049	10.3	+0.4~+1.0	330	0.85	±0.15	4.95	±0.15	54.41	-1.08 +1.11	0.20	±4°	★
RH1233300***303110060	12.3	+0.4~+1.0	330	1.10	±0.15	6.05	±0.25	65.30	-1.30 +1.34	0.30	±4°	★
RH1433300***303140070	14.3	+0.4~+1.0	330	1.40	±0.20	7.05	±0.25	76.18	-1.51 +1.56	0.37	±4°	★
RH1633300***303160080	16.3	+0.5~+1.1	330	1.60	±0.20	8.05	±0.25	87.06	-1.73 +1.78	0.40	±4°	★
RH1833300***303170092	18.3	+0.6~+1.2	330	1.70	±0.20	9.25	±0.25	97.95	-1.94 +2.00	0.50	±4°	★
RH2033300***303190099	20.3	+0.6~+1.2	330	1.90	±0.20	9.95	±0.25	108.83	-2.16 +2.23	0.50	±4°	★
RH2233300***303200111	22.3	+0.7~+1.3	330	2.00	±0.20	11.15	±0.35	119.71	-2.38 +2.45	0.50	±4°	★
RH2333300***303200114	23.3	+0.7~+1.3	330	2.00	±0.20	11.45	±0.35	125.15	-2.45 +2.56	0.50	±4°	★
RH2533300***303200121	25.3	+0.7~+1.3	330	2.00	±0.20	12.15	±0.35	136.03	-2.70 +2.78	0.50	±4°	★
RH2633300***303200127	26.3	+0.7~+1.3	330	2.00	±0.20	12.75	±0.35	141.48	-2.81 +2.90	0.50	±4°	★
RH2833300***303250136	28.3	+0.7~+1.3	330	2.50	±0.25	13.65	±0.45	152.36	-3.02 +3.12	0.60	±4°	★
RH3033300***303250145	30.3	+0.7~+1.3	330	2.50	±0.25	14.50	±0.60	163.24	-3.24 +3.34	0.60	±4°	★
RH3233300***303300155	32.3	+0.7~+1.3	330	3.00	±0.30	15.50	±0.60	174.12	-3.46 +3.56	0.60	±4°	★

Customizable In stock

LENGTH(mm)	TOL.(mm)
< 150	+0.5/+1.0
150≤L≤300	+1.0/+2.0
> 300	+2.0/+5.0

Services Available

h5/h6 Fixed Length

Grades Available

XR10SD+

COOLANT RODS WITH 3 HOLES AND 40° HELIX

SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		PITCH(±0.5°)		ECCENTRICITY (mm)		INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.	P	Tol.	e≤	α	
RH0643300***403050022	6.4	+0.4~+1.0	330	0.50	±0.10	2.20	±0.10	22.46	-0.39 +0.40	0.15	±4°	★
RH0843300***403065026	8.4	+0.4~+1.0	330	0.65	±0.10	2.60	±0.15	29.95	-0.53 +0.54	0.15	±4°	★
RH1043300***403080033	10.4	+0.4~+1.0	330	0.80	±0.15	3.35	±0.15	37.44	-0.66 +0.67	0.20	±4°	★
RH1243300***403090040	12.4	+0.4~+1.0	330	0.90	±0.15	4.00	±0.20	44.93	-0.79 +0.80	0.30	±4°	★
RH1443300***403100045	14.4	+0.5~+1.1	330	1.00	±0.15	4.50	±0.20	52.42	-0.92 +0.94	0.37	±4°	★
RH1643300***403120053	16.4	+0.5~+1.1	330	1.20	±0.15	5.30	±0.20	59.90	-1.05 +1.07	0.40	±4°	★
RH1843300***403140059	18.4	+0.5~+1.1	330	1.40	±0.15	5.90	±0.30	67.39	-1.18 +1.21	0.50	±4°	★
RH2043300***403150066	20.4	+0.5~+1.1	330	1.50	±0.15	6.60	±0.30	74.88	-1.31 +1.34	0.50	±4°	★
RH2243300***403170073	22.4	+0.6~+1.2	330	1.70	±0.20	7.35	±0.35	82.37	-1.44 +1.48	0.50	±4°	●
RH2543300***403175076	25.4	+0.6~+1.2	330	1.75	±0.20	7.65	±0.45	93.60	-1.64 +1.68	0.50	±4°	●
RH2643300***403175077	26.4	+0.7~+1.3	330	1.75	±0.20	7.75	±0.45	97.34	-1.71 +1.74	0.50	±4°	●
RH2843300***403200085	28.4	+0.7~+1.3	330	2.00	±0.20	8.55	±0.45	104.83	-1.84 +1.88	0.50	±4°	●
RH3043300***403200094	30.4	+0.7~+1.3	330	2.00	±0.20	9.45	±0.55	112.32	-1.97 +2.01	0.50	±4°	●
RH3243300***403200104	32.4	+0.7~+1.3	330	2.00	±0.20	10.45	±0.55	119.81	-2.10 +2.15	0.50	±4°	●

Customizable In stock

COOLANT RODS WITH 2 HOLES AND NON-STANDARD HELIX

SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		HELIX ANGLE	PITCH(±0.5°)			ECCENTRICITY (mm) e≤	INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.		P	Tol.			
RH0633300***152070026	6.3	+0.4~+1.0	330	0.70	±0.15	2.60	±0.20	15	70.35	-2.38	+2.54	0.15	★
RH0833300***152125036	8.3	+0.4~+1.0	330	1.25	±0.15	3.60	±0.20	15	93.80	-3.17	+3.38	0.15	★
RH1433300***152190067	14.3	+0.7~+1.3	330	1.90	±0.20	6.70	±0.40	15	164.14	-5.55	+5.92	0.37	★
RH1633300***152210080	16.3	+0.7~+1.3	330	2.10	±0.25	8.00	±0.40	15	187.59	-6.34	+6.77	0.40	★
RH1833300***152230090	18.3	+0.7~+1.3	330	2.30	±0.25	9.00	±0.40	15	211.04	-7.13	+7.61	0.50	★
RH2033300***152250100	20.3	+0.7~+1.3	330	2.50	±0.25	10.00	±0.50	15	234.49	-7.93	+8.46	0.50	★
RH0633300***362080019	6.3	+0.7~+1.3	330	0.80	±0.10	1.90	±0.10	36	25.94	-0.47	+0.48	0.15	★
RH0633300***432060016	6.3	+0.7~+1.3	330	0.60	±0.10	1.60	±0.10	43	20.21	-0.35	+0.36	0.15	★
RH0633300***462050017	6.3	+0.7~+1.3	330	0.50	±0.10	1.70	±0.10	46	18.20	-0.32	+0.32	0.15	★
RH0833300***362100034	8.3	+0.7~+1.3	330	1.00	±0.15	3.40	±0.20	36	34.59	-0.63	+0.64	0.20	★
RH1033300***322115044	10.3	+0.7~+1.3	330	1.35	±0.15	4.40	±0.20	32.9	48.56	-0.92	+0.94	0.20	★
RH1033300***342115044	10.3	+0.7~+1.3	330	1.15	±0.15	4.40	±0.20	34.3	46.05	-0.85	+0.87	0.20	★

LENGTH(mm)TOL.(mm)

< 150+0.5/+1.0

150≤L≤300+1.0/+2.0

> 300+2.0/+5.0

Services Available

h5/h6Fixed Length

Grades Available

XR10SD+

Customizable

In stock

COOLANT RODS FOR MICRO DRILLING

SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		HELIX ANGLE	PITCH(±0.5°)			ECCENTRICITY (mm) e≤	INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.		P	Tol.			
RH0333300***302040016	3.3	+0.3~+0.6	330	0.40	±0.10	1.60	±0.10	30	16.32	-0.32	+0.33	0.10	★
RH0343300***402030013	3.4	+0.4~+1.0	330	0.30	±0.10	1.30	±0.10	40	11.23	-0.20	+0.20	0.10	★
RH0333300***462020009	3.3	+0.4~+1.0	330	0.20	±0.10	0.90	±0.10	46.3	9.00	-0.23	+0.24	0.05	★
RH0333300***622010004	3.3	+0.4~+1.0	330	0.10	±0.03	0.45	±0.05	62.1	5.00	-0.16	+0.16	0.05	★
RH0333300***672007003	3.3	+0.4~+1.0	330	0.07	±0.03	0.37	±0.05	67	4.00	-0.14	+0.15	0.05	★
RH0433300***302025012	4.3	+0.7~+1.3	330	0.25	±0.10	1.20	±0.10	30	21.77	-0.64	+0.67	0.10	★
RH0433300***302060016	4.3	+0.7~+1.3	330	0.60	±0.10	1.60	±0.10	30	21.77	-0.64	+0.67	0.10	★
RH0433300***302060021	4.3	+0.7~+1.3	330	0.60	±0.10	2.10	±0.10	30	21.77	-0.64	+0.67	0.10	★
RH0433300***352040017	4.3	+0.7~+1.3	330	0.40	±0.10	1.75	±0.10	35	17.95	-0.49	+0.51	0.10	★
RH0443300***402040016	4.3	+0.7~+1.3	330	0.40	±0.10	1.60	±0.10	40	14.98	-0.39	+0.41	0.10	★
RH0433300***462030010	4.3	+0.7~+1.3	330	0.30	±0.10	1.00	±0.10	46.3	12.01	-0.31	+0.32	0.10	★
RH0433300***542020009	4.3	+0.7~+1.3	330	0.20	±0.10	0.90	±0.10	54.4	9.00	-0.25	+0.25	0.05	★
RH0433300***602016007	4.3	+0.7~+1.3	330	0.16	±0.05	0.75	±0.05	60	7.26	-0.22	+0.22	0.05	★
RH0433300***602023008	4.3	+0.7~+1.3	330	0.23	±0.05	0.80	±0.10	60	7.26	-0.22	+0.22	0.05	★
RH0433300***642013006	4.3	+0.7~+1.3	330	0.13	±0.05	0.60	±0.05	64.5	6.00	-0.20	+0.20	0.05	★

LENGTH(mm)TOL.(mm)

< 150+0.5/+1.0

150≤L≤300+1.0/+2.0

> 300+2.0/+5.0

Services Available

h5/h6Fixed Length

Grades Available

XR10SD+

Customizable

In stock

DEEP HOLE DRILLING

RELATIONSHIP BETWEEN HELIX ANGLE AND PITCH

< Converting pitch to helix angle >

$$\alpha = \frac{180}{\pi} \times \arctan\left(\frac{D \times \pi}{P}\right)$$

< Converting helix angle to pitch >

$$P = \frac{\pi \times D}{\tan \alpha}$$

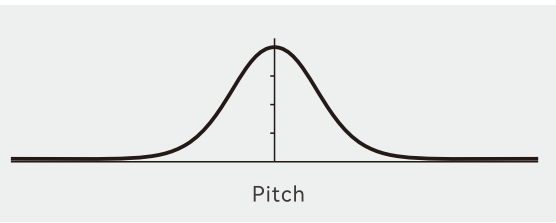
α : Helix Angle

P : Pitch

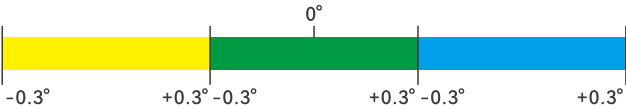
D : Diameter

CLASSIFICATION SYSTEM OF PITCH

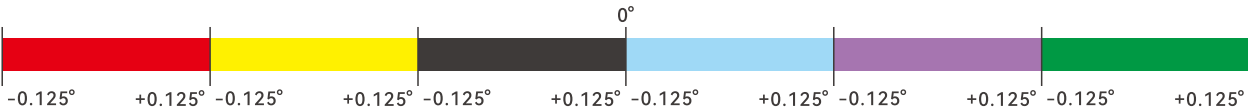
In order to ensure the pitch tolerance of the helix rod, the classification of pitch is based on the helix angle tolerance. In order to achieve the accuracy of pitch classification, the pitch of each helix rod is tested and then classified. Conventional helix rods use the Level 3 classification system for pitch categorization, while deep hole drilling (for helix rods with a diameter-to-length ratio greater than 15) uses a Level 6 classification system for pitch categorization;



Level 3 Classification System



Level 6 Classification System



SN	DIAMETER(mm)		LENGTH (mm) (Tol.+2~+5)	HOLE DIAMETER (mm)		HOLE DISTANCE (mm)		HELIX ANGLE	PITCH(±0.5°)			ECCENTRICITY (mm) e≤	INVENTORY
	SINTERED	Tol.		d	Tol.	TK	Tol.		P	Tol.			
RH0633300***302070024	6.3	+0.3~+0.6	430.0	0.70	±0.15	2.40	±0.20	30	32.65	-0.65	+0.67	0.15	★
RH0733300***302100035	7.3	+0.3~+0.6	430.0	1.00	±0.15	3.50	±0.20	30	38.09	-0.76	+0.78	0.15	★
RH0833300***302100038	8.3	+0.4~+0.7	530.0	1.00	±0.15	3.80	±0.20	30	43.53	-0.86	+0.89	0.20	★
RH0933300***302140045	9.3	+0.4~+1.0	530.0	1.40	±0.15	4.50	±0.30	30	48.97	-0.97	+1.00	0.20	★
RH1033300***302140045	10.3	+0.4~+1.0	530.0	1.40	±0.15	4.50	±0.30	30	54.41	-1.08	+1.11	0.20	★
RH1133300***302140049	11.3	+0.4~+1.0	530.0	1.40	±0.15	4.90	±0.40	30	59.86	1.19	+1.22	0.28	★
RH1233300***302140058	12.3	+0.4~+1.0	530.0	1.40	±0.15	5.85	±0.40	30	65.30	-1.30	+1.34	0.30	★
RH1333300***302175061	13.3	+0.4~+1.0	530.0	1.75	±0.20	6.10	±0.40	30	70.74	-1.40	+1.45	0.34	★
RH1433300***302175067	14.3	+0.4~+1.0	530.0	1.75	±0.20	6.70	±0.40	30	76.18	-1.51	+1.56	0.37	★
RH1633300***302175079	16.3	+0.5~+1.1	530.0	1.75	±0.20	7.90	±0.40	30	87.06	-1.73	1.78	0.40	★
RH1833300***302200091	18.3	+0.6~+1.2	530.0	2.00	±0.25	9.15	±0.40	30	97.95	-1.94	+2.00	0.50	★
RH2033300***302200099	20.3	+0.6~+1.2	530.0	2.00	±0.25	9.90	±0.50	30	108.83	-2.16	+2.23	0.50	★
RH2533300***302200128	25.3	+0.7~+1.3	530.0	2.00	±0.25	12.80	±0.50	30	136.03	-2.70	+2.78	0.50	★

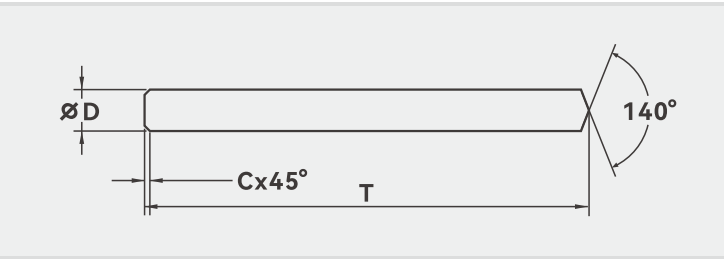
Grades Available

XR10SD+

Customizable

In stock

DRILL BLANKS WITH CHAMFERED ONE END



WITHOUT COOLING CHANNELS

DIAMETER (mm)		LENGTH		CHAMFER ANGLE	CHAMFER DIMENSION (mm)	TIP ANGLE	INVENTORY
GROUND	Tol.	L (mm)	Tol.(mm)				
6.0	h5	66	+0~+0.5	45°±3°	0.6±0.1	140°(0°~+2°)	★
6.0	h5	82	+0~+0.5	45°±3°	0.6±0.1	140°(0°~+2°)	★
8.0	h5	80	+0~+0.5	45°±3°	0.6±0.1	140°(0°~+2°)	★
8.0	h5	92	+0~+0.5	45°±3°	0.6±0.1	140°(0°~+2°)	★
10.0	h5	90	+0~+0.5	45°±3°	0.6±0.1	140°(0°~+2°)	★
10.0	h5	104	+0~+0.5	45°±3°	0.6±0.1	140°(0°~+2°)	★
12.0	h5	103	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
12.0	h5	119	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
14.0	h5	108	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
14.0	h5	125	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
16.0	h5	115	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
16.0	h5	133	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
18.0	h5	124.5	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
18.0	h5	144.5	+0~+0.5	45°±3°	0.8±0.1	140°(0°~+2°)	★
20.0	h5	133	+0~+0.5	45°±3°	1.0±0.1	140°(0°~+2°)	★
20.0	h5	155	+0~+0.5	45°±3°	1.0±0.1	140°(0°~+2°)	★

Customizable In stock

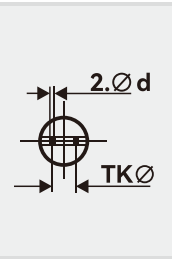
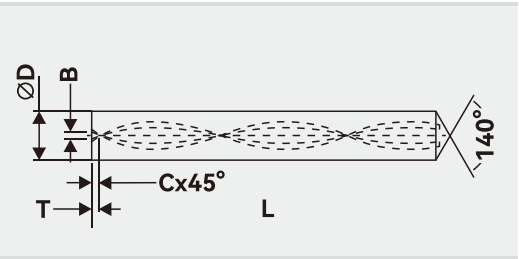
Services Available

Grades Available

h5

XR10ST XR10SD+

Customization of Tip Angle from 120° to 150°



WITH HELICAL COOLING CHANNELS AND CONNECTION SLOT

DIAMETER (mm)		LENGTH		SLOT WIDTH (mm)	SLOT DEPTH (mm)	CHAMFER ANGLE	CHAMFER DIMENSION (mm)	TIP ANGLE	HOLE DIAMETER (mm)	HOLE DISTANCE (mm)	PITCH (±0.5°)		ECCENTRICITY (mm)
GROUND	Tol.	L (mm)	Tol. (mm)						d	TK	P	Tol.	
6.0	h5	66	+0~+0.5	1.5±0.2	0.9(0.0~+0.4)	45°±3°	0.5±0.1	140°(0°~+2°)	0.70	2.40	32.65	-0.65 +0.67	0.15
6.0	h5	82	+0~+0.5	1.5±0.2	0.9(0.0~+0.4)	45°±3°	0.5±0.1	140°(0°~+2°)	0.70	2.40	32.65	-0.65 +0.67	0.15
8.0	h5	80	+0~+0.5	2.0±0.2	1.4(0.0~+0.4)	45°±3°	0.6±0.1	140°(0°~+2°)	1.00	3.80	43.53	-0.86 +0.89	0.15
8.0	h5	92	+0~+0.5	2.0±0.2	1.4(0.0~+0.4)	45°±3°	0.6±0.1	140°(0°~+2°)	1.00	3.80	43.53	-0.86 +0.89	0.15
10.0	h5	90	+0~+0.5	2.5±0.2	1.65(0.0~+0.4)	45°±3°	0.6±0.1	140°(0°~+2°)	1.40	4.50	54.41	-1.08 +1.11	0.20
10.0	h5	104	+0~+0.5	2.5±0.2	1.65(0.0~+0.4)	45°±3°	0.6±0.1	140°(0°~+2°)	1.40	4.50	54.41	-1.08 +1.11	0.20
12.0	h5	103	+0~+0.5	2.5±0.2	1.75(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	1.40	5.85	65.30	-1.30 +1.34	0.30
12.0	h5	108	+0~+0.5	2.5±0.2	1.75(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	1.40	5.85	65.30	-1.30 +1.34	0.30
14.0	h5	108	+0~+0.5	3.0±0.2	2.15(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	1.75	6.70	76.18	-1.51 +1.56	0.37
14.0	h5	125	+0~+0.5	3.0±0.2	2.15(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	1.75	6.70	76.18	-1.51 +1.56	0.37
16.0	h5	115	+0~+0.5	3.0±0.2	2.3(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	1.75	7.90	87.06	-1.73 +1.78	0.40
16.0	h5	133	+0~+0.5	3.0±0.2	2.3(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	1.75	7.90	87.06	-1.73 +1.78	0.40
18.0	h5	124.5	+0~+0.5	3.5±0.2	2.5(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	2.00	9.15	97.95	-1.94 +2.00	0.50
18.0	h5	144.5	+0~+0.5	3.5±0.2	2.5(0.0~+0.4)	45°±3°	0.8±0.1	140°(0°~+2°)	2.00	9.15	97.95	-1.94 +2.00	0.50
20.0	h5	133	+0~+0.5	3.5±0.2	2.7(0.0~+0.4)	45°±3°	1.0±0.1	140°(0°~+2°)	2.00	9.90	108.83	-2.16 +2.23	0.50
20.0	h5	155	+0~+0.5	3.5±0.2	2.7(0.0~+0.4)	45°±3°	1.0±0.1	140°(0°~+2°)	2.00	9.90	108.83	-2.16 +2.23	0.50

Customization Available

Services Available

Grades Available

h5

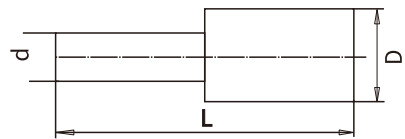
XR10ST XR10SD+

Customization of Tip Angle from 120° to 150°

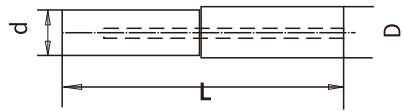
PREFORMS

- Customization of Length from 20-130mm
- Back diameter below 40mm and thickness above 3mmFront diameter above 10mm
- Any customized products can be produced within 7-10 days (both internal and external point ends are customizable)

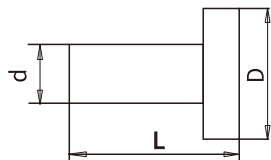
STEP ROD



BLIND HOLE STEP ROD



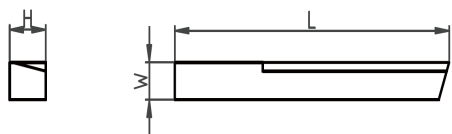
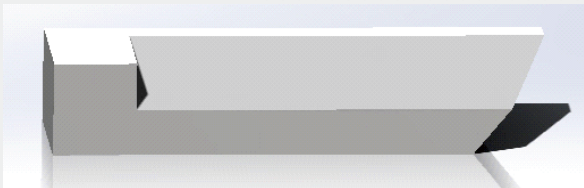
T-SHAPED ROD



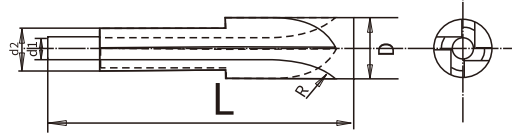
GEAR HOBS



CUTTING BLADE



PRE-FORMED TOOL BLANKS



STEP ROD SERIES

- We are capable of mass-producing Step Rods with an overall rod length ranging from 38 mm to 150 mm and an outer diameter up to Ø20 mm. Customization services are available for tip angles, stepped chamfer dimensions, and reverse tapers up to 10°.

Product Type	3D Schematic Diagram	2D Dimensional Detail Drawing
Standard Step Rod		
Ball Nose Rod		
Ball Nose Step Rod		
Taper Tip Step Rod		
Double-Helical Coolant Groove Taper Tip Step Rod		
Deep Groove Step Rod		

CUSTOMIZED PRODUCTS

Customizable according to customer drawing

Replaceable Carbide Drill Heads



Replaceable Carbide Endmill Heads

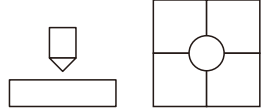


PERFORMANCE CHARACTERIZATION OF CARBIDE MATERIALS

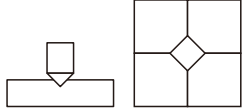
1、Hardness (ISO3738 and IOS3878)

Hardness refers to the ability of the material to resist local deformation. The common method of hardness determination for cemented carbide is Rockwell hardness and Vickers hardness testing, with units of HRA (60kg load) and HV30 (30kg load), respectively. Due to the different measurement techniques, the two hardness values shall be converted according to the reference table for the measured materials.

Rockwell Hardness



Vickers Hardness



2、Fracture Toughness

Fracture toughness (KIC) refers to the material's ability to resist the unstable propagation of internal cracks. Its magnitude depends on intrinsic factors such as the material composition and structure, and it characterizes the overall performance of the material.

3、Transverse Rupture Strength (ISO3327)

Transverse Rupture Strength (TRS) refers to the ability of the material to resist bending without fracture. The value is the stress at the break point of material in a standard three-point bending test. When this experiment is applied to the cemented carbide, the test is conducted using a C-shaped specimen according to the GBT/3851-2015 standard. TRS uses the average of several values as the final measurements, which can vary widely. This result depends greatly on the smoothness, residual stress, corrosion of the sample surface and material defects.

INTRODUCTION TO POST-PROCESSING

Shareate has consistently been providing high-quality carbide products that meet your high expectations. In addition to carbide products, we offer a range of post-processing services, including rods with various geometries and dimensions, fully catering to the needs of customers and the tool market. Simply provide the drawings, and Shareate's advanced manufacturing capabilities and versatile shape processing technology will allow us to respond to your needs promptly.

ICON	SERVICE	ESCRPTION
	Cut to size	Provide rod cutting service of any length.
	Ground to h5/h6	Ground to h5/h6 or other tolerance according to the drawing.
	Chamfering	Offer the service of chamfering to improve your processing efficiency.
	Step Making	Provide service of shape modification for large outside diameter or high segment difference to reduce grinding time.
	Groove Making	Make various of standard grooves.
	Customized Length	Provide rods with any customized lengths.

TECHNICAL DOCUMENTATION

TECHNICAL INFORMATION

 Outer Diameter Outer diameter of the measured rod.	 Ovality Ovality is the radial distance between two concentric circles, including the circumference of the section of rod.
 Length Length of the measured rod.	 Hole Diameter Diameter of cooling hole.
 Surface Finish Surface quality of rod is usually expressed in terms of the maximum average finish Ra.	 Eccentricity The eccentricity refers to the deviation between the rod center and the center of the pitch circle formed by inner holes. For coolant rods with central hole, the eccentricity refers to the deviation between the rod center and the center of the inner hole.
 Straightness Maximum curvature of a rotating rod which placed on two support points.	 Helix Angle Helix angle refers to the angle between the longitudinal center line and helix line of the rod.
 Concentricity Maximum curvature of rod.	 Cylindricity The deviation between the surface of the rod and an ideal standard cylinder.
 Hole Distance TK The hole distance refers to the diameter of a circle formed by passing through the centers of two or three internal cooling holes.	 Pitch Deviation The half-section surface of the coolant rods with 3 holes will be divided into three sectors by inner cooling hole, and the boundary of each sector just passes through the center of the inner hole. The pitch error is the deviation between the angles of these three sectors.

● TOLERANCE GRADE

● OUTER DIAMETER TOLERANCE AFTER GRINDING

OUTER DIAMETER	h3	h4	h5	h6
0~3.0mm	0.002mm	0.003mm	0.004mm	0.006mm
3.001~6.0mm	0.0025mm	0.004mm	0.005mm	0.008mm
6.001~10.0mm	0.0025mm	0.004mm	0.006mm	0.009mm
10.001~18.0mm	0.003mm	0.005mm	0.008mm	0.011mm
18.001~30.0mm	0.004mm	0.006mm	0.009mm	0.013mm
30.001~50.0mm	0.004mm	0.007mm	0.011mm	0.016mm

* All tolerance of "h" is +0.0/-.

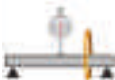
● SURFACE ROUGHNESS OF ROD

TYPE	ACCURACY
High Polished Ground Rod	0.00~0.02μm
Mirror Polished Ground Rod	0.00~0.05μm
Standard Ground Rod	0.00~0.12μm
Matte Ground Rod	0.10~0.20μm

● OVALITY TOLERANCE

OUTER DIAMETER	OVALITY
0~16.0mm	0.00~0.0015mm
16.001~30.0mm	0.00~0.0020mm

● RUNOUT STANDARDS

RUNOUT TOLERANCE OF SHORT GROUND ROD							RUNOUT TOLERANCE OF LONG GROUND ROD	
LENGTH DIAMETER	0 < L ≤ 50	50 < L ≤ 80	80 < L ≤ 100	100 < L ≤ 120	120 < L ≤ 150	150 < L ≤ 200	200 < L ≤ 260	260 < L ≤ 330
3 ≤ D < 4	0.005	0.007	0.010	/	/	/	/	/
4 ≤ D < 6	0.003	0.003	0.005	0.008	0.015	0.020	0.050	0.100
6 ≤ D < 8	0.003	0.003	0.005	0.008	0.010	0.015	0.040	0.080
8 ≤ D < 10	0.003	0.003	0.005	0.008	0.010	0.015	0.030	0.060
10 ≤ D < 16	0.003	0.003	0.005	0.005	0.008	0.010	0.020	0.050
16 ≤ D < 25	0.003	0.003	0.005	0.005	0.008	0.010	0.020	0.040
25 ≤ D < 32	0.003	0.003	0.005	0.005	0.008	0.010	0.020	0.030
Measurement Method	Measure the runout of one end 						Measure the runout of midsection 	

QUALITY WINS RESPECT

