

SHAREATE



CEMENTED CARBIDE

—— Mining Tungsten Carbide ——



SHAREATE
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SHAREATE TOOLS LTD.

PASSION WINS DREAM QUALITY WINS RESPECT

Continuous accumulation and innovation of cemented carbide technology for over 30 years

- ◆ In 1982, we were the first company in China who brought in the cemented carbide production equipment and technology from US.
- ◆ The biggest mining tungsten carbide insert manufacturing and research base in China.
- ◆ 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 its industry.



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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

The clean and tidy operating field guarantees the orderly production

The rational workshop equipment improves the work efficiency

Spray granulation, high-precision DORST Automatic Pressing Machine and 10Mpa ALD low-pressure sintering furnace ensure the product quality

ADVANCED INSPECTION EQUIPMENT

We are equipped with advanced experimental apparatus, testing equipment, experienced technicians to monitor the whole process of production which guarantees the high quality products.

- ◆ ALD Sintering Furnance
- ◆ Dry-bag Isostatic Pressing Machine
- ◆ Rolling Ball Mill
- ◆ DORST Pressing Machine
- ◆ Automatic Pressing Machine
- ◆ Spray Granulation

- Scanning Electron Microscopical Energy Spectrometer
- Infrared Carbon and Sulfur Analyzer
- Projector
- TR5 Tester
- Microhardness Tester
- ZEISS Metallography Microscope

Grade Chart for Mining Tungsten Carbide

Grade	Cobalt conten %	Density g/cm ³	Hardness HRA	TRS N/mm ²	Wear Resistance 1/cm ³	Fracture Toughness Mpa m ^{1/2}	Description
JZ06	6	14.95	90.3	2900	14.5	12.2	Applied to DTH hammer and DTH hammer bit, drilling into medium-hard(f10-14) rock stratum
XR06AS	6	14.95	90.4	3100	14.8	12.3	Applied to DTH hammer and high air-pressure DTH hammer bit, drilling into medium-hard(f10-14) and hard(f14-16) rock stratum
XR06CC	6	14.93	87.7	2500	5.4	17.5	Applied to the milling&planing tool, cut asphalt and cement pavement
JZ08	8	14.75	89.5	3000	10.0	13.4	Applied to DTH hammer and high air-pressure tool, drilling into extreme hard(>f16)rock stratum
JZ08X	8	14.75	90.8	3100	17.5	11.3	Applied to DTH hammer and DTH hammer bit, drilling into the quartz sandstone(f10-12)
XR08TC	8	14.71	85.4	2200	3.8	23.0	Applied to the coal cutter pick and rotary cutter pick; excellent fracture toughness and heat resistance; suitable for drilling into coal stratum(f3-6) and rock stratum(f6-12)
JZ09	9	14.50	≥89.0	/	10.0	/	Applied to various wear resistant parts, such as saw drill bit and shield gauge
JZ10	10	14.55	88.4	2900	7.0	14.7	Applied to the cone bit with medium-high insert projection fro drilling medium-hard rock stratum.Better wear resistance than JZ10C
JZ10C	10	14.55	87.8	2900	5.1	16.5	Applied to the cone bit with medium-high insert projection fro drilling medium-hard rock stratum.Better wear toughness than JZ10C
XR10CC	10	14.51	85.4	2350	3.6	22.7	Applied to the coal cutter pick and rotary cutter pick; excellent fracture toughness and heat resistance; suitable for drilling into coal stratum(f3-6) and rock stratum(f6-12)
XR10TC	10	14.51	85.0	2150	3.0	25.0	Applied to the cone bit with medium-high insert projection and rotary cutter pick.
JZ12C	12	14.33	86.6	2800	3.7	17.9	Applied to the cone bit with medium-high insert projection;Better toughness than JZ12
JZ12	12	14.33	87.8	3000	4.8	16.8	Applied to the cone bit with medium-high insert projection;Better wear resistance than JZ12

Grade	Cobalt conten %	Density g/cm ³	Hardness HRA	TRS N/mm ²	Wear Resistance 1/cm ³	Fracture Toughness Mpa m ^{1/2}	Description
JZ13	13	14.20	87.5	2800	5.0	16.7	Applied to the PDC tip and substrate.
JZ14	14	14.14	87.0	3200	4.2	17.3	Applied to the cone bit with medium-high insert projection;Better wear resistance than JZ14C
JZ14C	14	14.14	86.0	2800	3.3	19.0	Applied to the cone bit with medium-high insert projection;Better toughness than JZ14C
JZ16	16	13.95	86.5	2850	3.6	16.8	Applied to the substrates and cone bit with medium-high insert projection;Better wear resistance than JZ16C
JZ16C	16	13.95	85.5	2850	3.1	21.3	Applied to the cone bit with medium-high insert projection;adapt to higher rotary speed and weight on bit; better toughness than JZ16C

★ Our rich system of tungsten carbide insert grades can meet the various needs of customers, and we can also design grades according to the special needs of customers.



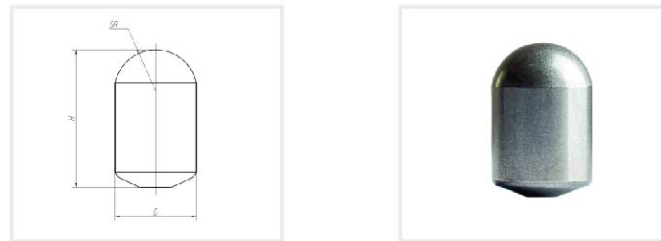
PRODUCT INTRODUCTION

Tungsten Carbide Insert

According to the matching, our tungsten carbide insert can be divided into rock drill bit, DTH hammer bit and cone bit. In term of shape, our tungsten carbide insert can be divided into ovoid insert, conical insert, bullet insert, wedge insert, spoon insert, flat insert, saw insert, etc.

1 Ovoid Insert

The ovoid insert can be applied to the DTH hammer for rock drilling, DTH hammer bit and cone bit for oil drilling. It drills and crushes the rock stratum and it is suitable for hard and extreme hard rock stratum.

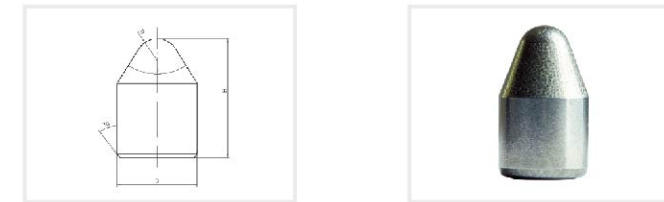


MODEL	SPECIFICATION (mm)		MODEL	SPECIFICATION(mm)	
	D	H		D	H
Q0406	4.4	6.0	Q1620	16.3	20.0
Q0507	5.4	7.0	Q1825	18.5	25.0
Q0709	7.4	9.0	Q1925	19.2	25.0
Q0914	9.2	14.0	Q2635	26.0	35.0
Q1422	14.3	22.0	Q2838	28.6	38.0

★ The customized specification is available.

2 Conical Insert

The conical insert can be applied to the DTH hammer for rock drilling, DTH hammer bit and cone bit. It drills and crushes the rock stratum and it is suitable for the hard rock stratum.

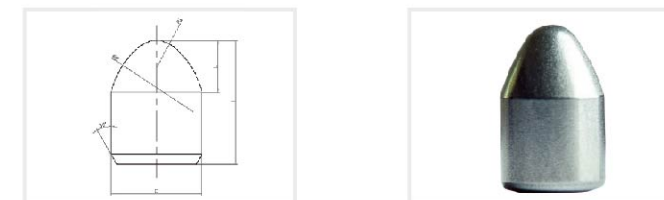


MODEL	SPECIFICATION (mm)		MODEL	SPECIFICATION (mm)	
	D	H		D	H
Z0507	5.4	7.0	Z1217	12.3	17.0
Z0710	7.4	10.0	Z1419	14.3	19.0
Z0812	8.3	12.0	Z1518	14.7	18.0
Z0913	9.2	13.0	Z1625	16.3	25.0
Z1015	10.3	15.0	Z2238	22.3	38.0

★ The customized specification is available.

3 Bullet Insert

The bullet insert can be applied to the DTH hammer bit and cone bit. It drills, crushes and cuts the rock stratum and it is suitable for medium-hard rock stratum.



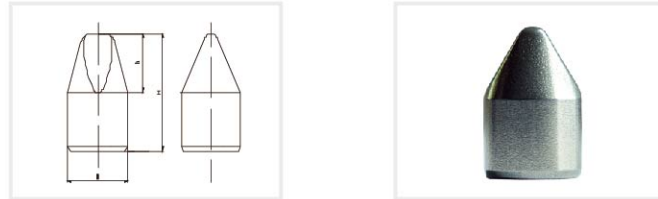
MODEL	SPECIFICATION (mm)			MODEL	SPECIFICATION (mm)		
	D	H	h		D	H	h
D0710	7.4	10	3.7	D1218	12.4	18	7.1
D0812	8.3	12	4.3	D1320	13.2	20	5.7
D0813	8.5	13	4.1	D1418	14.3	18	7.3
D0914	9.6	14	5.0	D1419	14.5	19	6.6
D1016	10.5	16	5.4	D1622	16.5	22	12.5

★ The customized specification is available.



4 Wedge Insert

The wedge insert can be applied to the DTH hammer bit and cone bit. It cuts and drills the rock stratum. It is suitable for the soft rock stratum.

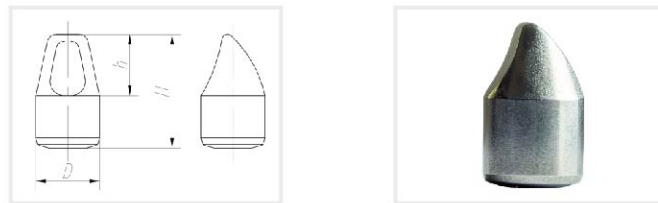


MODEL	SPECIFICATION (mm)			MODEL	SPECIFICATION (mm)		
	D	H	h		D	H	h
X1015	10	15	6.2	X1620	16.4	20	7.6
X1114	11.6	14	7.5	X1828	18.5	28	13.3
X1217	12.2	17	6.0	X2032	20.6	32	15.5
X1218	12.5	18	7.3	X2838	28.6	38	15.4
X1421	14.4	21	8.1	X3040	30.5	40	16.3

★ The customized specification is available.

5 Spoon Insert

The spoon insert can be applied to the cone bit. It cuts the rock stratum and adapts to the high speed drilling.



MODEL	SPECIFICATION(mm)			MODEL	SPECIFICATION (mm)		
	D	H	h		D	H	h
S0813	8.3	13	4.7	S2239	22.8	39.7	21.9
S1115	11.6	15.1	6.9	S2641	26.0	41.9	19.1
S1320	13.2	20	9.4	S2843	28.6	43.5	18.5
S1423	14.8	23	10.3	S3047	30.6	47	19.5
S1625	16.4	25.4	13.1	S3252	32.6	52	22.5

★ The customized specification is available.

6 Flat Insert

The flat insert can be applied to the cone bit, diamond drill bit. It can reduce the abrasion of the friction surface.

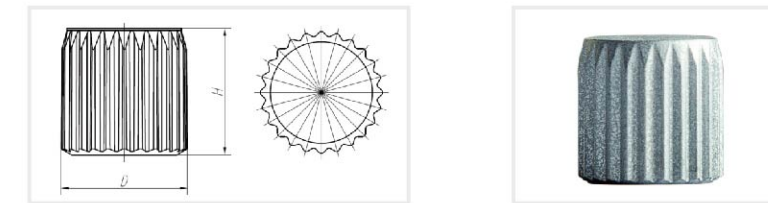


MODEL	SPECIFICATION (mm)		MODEL	SPECIFICATION (mm)	
	D	H		D	H
P0406	4.4	6	P1008	10.3	8
P0506	5.4	6	P1210	12.5	10
P0606	6.7	6	P1620	16.6	20
P0707	7.4	7	P1916	19.6	16
P0807	8.4	7	P2232	22.4	32

★ The customized specification is available .

7 Saw Insert

The saw insert can be applied to the stabilizer in the drilling rig, etc. It can be used to protect the friction surface like steel, etc.



MODEL	SPECIFICATION (mm)	
	D	H
K0806	4.4	7
K0806	5.4	7
K1008	6.7	8
K1106	7.4	6

★ The customized specification is available.

PRODUCT INTRODUCTION

Coal Cutter Pick

The ultra-thick cemented carbide Grades XR08TC and XR10CC have excellent fracture toughness and heat resistance. These two Grades can be applied to the coal cutter pick and rotary cutter pick.

1 Multi-conical Insert

The multi-conical insert can be applied to the coal cutter pick and rotary cutter pick. It is suitable for cutting hard coal rock stratum and rock stratum.

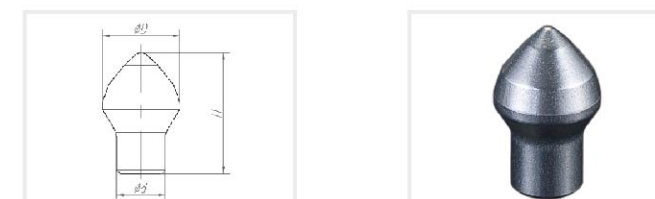


MODEL	SPECIFICATION (mm)	
	D	H
Z1625	16.1	25
Z1825	18.1	25
Z1850	18.7	51
Z2030	20.1	30
Z2230	22.1	30
Z2335	23.2	35
Z2532	25.6	32

★ The customized specification is available.

2 Mushroom Shaped Insert

The mushroom shaped insert can be applied to the coal cutter pick. It is suitable for cutting soft and medium-hard coal stratum.



MODEL	SPECIFICATION (mm)		
	D	H	h
Z1930Y	19.0	12.0	30.0
Z2236Y	22.0	14.3	36.0
Z2236Y	22.0	14.7	36.0
Z2536Y	25.0	18	36.0

★ The customized specification is available.



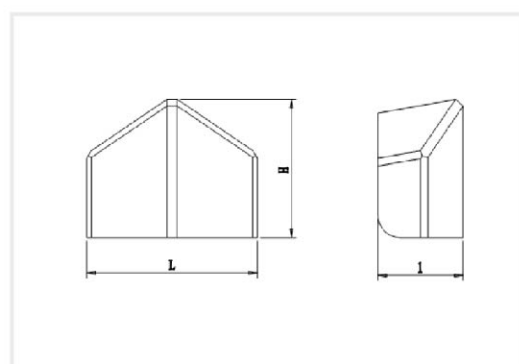


PRODUCT INTRODUCTION

Shield Machine Tool

We have a variety of shield machine tools, mainly applied to the equipment with shield structure. Currently, there are many types of shield machine tools at our company like the main shield machine tool, left&right shield machine tool, long shield machine tool, etc. We can also provide professional design, development and manufacturing of shield machine tools in other specification according to your requirement.

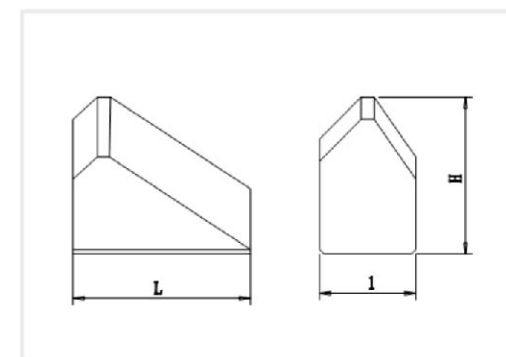
1 Main Shield Machine Tool



MODEL	L (mm)	l (mm)	H (mm)
DKY050040025	50	25	40
DKY060042028	60	28	42

★ The customized specification is available.

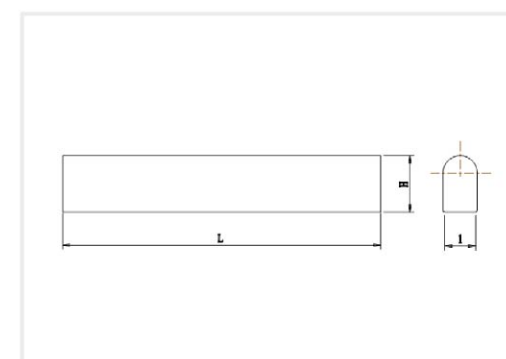
2 Left&right shield machine tool



MODEL	L (mm)	l (mm)	H (mm)
DKY040035022	40	21.7	35
DKY045040025	45	24.5	40

★ The customized specification is available .

3 Long Shield Machine Tool



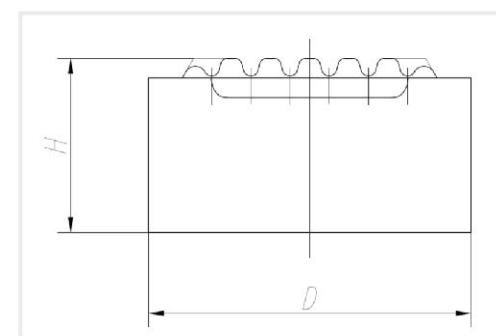
MODEL	L (mm)	l (mm)	H (mm)
DKY093016010	93	10	16
DKY073016010	73	10	16

★ The customized specification is available .



2 Carbide Substrate for Mining

Model and Specification of Carbide Substrate for mining



PRODUCT INTRODUCTION | Carbide Substrate for PDC Compact

1 Grade chart for carbide substrate

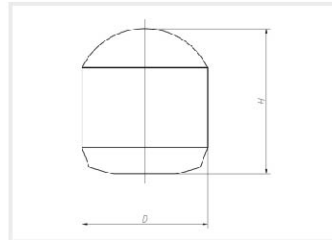
Grade	Cobalt Content %	Density g/cm ³	Hardness HRA	TRS N/mm ²	Wear Resistance 1/cm ³	Fracture Toughness Mpa m ^{1/2}
JZ08	8	14.75	89.5	3000	10.0	13.4
XR111	11	14.43	89.7	3000	7.5	13.0
JZ13	13	14.20	87.5	2800	5.0	16.7
XR13II	13	14.20	88.7	3300	7.0	14.0
JZ13A	13	14.22	88.5	3300	6.5	14.5
JZ16	16	13.95	86.5	2850	3.6	16.8

★ Applied to the oil and gas, coal geology, cutting tool.

MODEL		SPECIFICATION (mm)	
		D	H
J15系列	J1504	14.6	4.0
	J1508	15.0	8.0
	J1513	15.2	13.0
J18系列	J1812	18.0	12.0
	J1813	18.4	13.0
J21系列	J2108	21.0	8.0
	J2113		13.0
	J2116	21.4	16.2
	J2119		19.0

★ The customized specification is available.

Model and Specification of Carbide Substrate for PDC Compact

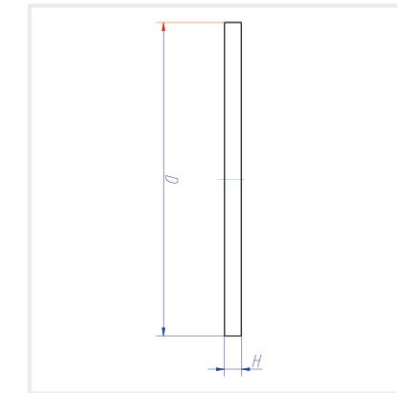


MODEL		SPECIFICATION (mm)			
		D	H	SR	h
Q08系列	Q0808	8	8	4	3
	Q0810		10	4	3
	Q0812		12	4	3
Q13系列	Q1308	13	8	7	6
	Q1312		12	7	6
Q16系列	Q1610	16	10	8	7
	Q1618		18	8	7
Q19系列	Q1913	19	13	9.5	9
	Q1917		17	9.5	9
Q22系列	Q2225	22	25	12	10

MODEL		SPECIFICATION (mm)			
		D	H	SR	h
Z09系列	Z0910	9	10	2.5	3
Z12系列	Z1216	12	16	3.5	6.5
Z13系列	Z1318	13	18	4	7.5
Z15系列	Z1520	15	20	5	7.5
Z17系列	Z1724	17	24	5.0	11

★ The customized specification is available.

3 Carbide Substrate for Cutting



MODEL		SPECIFICATION (mm)	
		D	H
J28 Type	J2804	28.5	4
J32 Type	J3203	32.5	3
J47 Type	J4704	47.7	3
J52 Type	J5203	52	3
J54 Type	J5403	54	3
J58 Type	J5803	58	3(2.5)
J66 Type	J6603	66	3(2.5)

★ The customized specification is available.

PRODUCT INTRODUCTION

Tungsten Carbide Tubular Electrode



PROFILE

After introducing, digesting, absorbing and researching foreign special tubular electrode technology for oil steel tooth bit for years, we develop a series of tungsten carbide tubular electrode according to different working conditions. Compared with the conventional one, the new type of tungsten carbide tubular electrode is filled with cemented carbide particles which have the optimized combinational particle size. It has the better weldability, abrasion resistance and impact resistance. And it is applied to the surfacing and repairing of the oil drilling rig, construction, building materials, geological mining tool, agricultural machinery, etc. We produce per ISO9001 Strictly, providing value-added services to our customers with the stable quality.

Specification and Application

Model	Specification		Cemented carbide particle (mesh)	Filling Rate (%)	Typical Applicable areas and working condition
	Diameter(mm)	Length(mm)			
XRYD-1	φ3.2~φ6	400~1000	Sintered WC Particle: 10~60 mesh	60~70	Having good performance in resisting particles' abrasion in low stress; applicable to the surfacing and repairing of the well drilling and salvage tool, concrete mixing blade, slush pump, coal chute, coal drill pipe, pulverizer blade, dredge blade, high speed sand mixer, etc.
XRYD-2			Sintered WC Particle: 10~40 mesh Cast WC Particle: 30~80 mesh		
XRYD-3	φ3.2~φ6	400~1000	Single Crystal WC Particle: 40~200 mesh	60~70	Having better performance in resisting particles' abrasion in low stress; particularly applicable to the oil drilling tool and the geological tool, such as steel drill bit and fishtail bit; and the surfacing of the machine parts suffering from rock and particles' intensive abrasion.
XRYD-4			Single crystal WC Particle: 40~100 mesh Cast WC Particle: 100~200 mesh		
XRYD-5	φ3.2~φ6	400~1000	Sintered WC Particle: 10~60 mesh Cast WC Particle: 40~100 mesh	60~70	Suitable for the working condition of medium impact and abrasion, such as the blades and scrapers of all kinds of mixers, crusher, disk-type scraper, slush pump blade, drill pipe joint, stabilizer, coal cutter pick, cone bit.
XRYD-6	φ2.8~φ6	400~1000	Sintered WC Particle: 10~100 mesh	60~70	Suitable for the surfacing of the workpiece suffering from higher impact loading, especially the tooth surface and tip of steel tooth bit for oil drilling, drilling rig for mining, coal cutter pick, rip saw tooth, etc.
XRYD-7			Sintered WC Particle: 10~60 mesh Cast WC Particle: 40~100 mesh		

NOTES FOR CEMENTED CARBIDE

1 The Notes for Transportation

- ◆ When falling to the hard ground from high position, the cemented carbide products could be easily broken. Please check the products whether any damages happen when opening the package.
- ◆ Be careful not to get injured to hands or feet when carrying and using the products since the density of cemented carbide is two times higher than steel parts.
- ◆ The thin cement carbide products(pipe or strip shape or with sharp corners) will easily lose the corners or sides. So do not put excessive load when fastening,dismounting and transport before machining.

2 Notes for Machining

2.1 Machining and grinding

The cemented carbide could be easily cracking or chipping under the condition of impact effect and excessive machining load. Before starting machining please check whether the parts are fastened to the workbench.

Don't strike the cemented carbide with iron hammer due to its non-good impact resistance.

The general cemented carbide is not easily fixed by magnet. When using the magnet for fastening, please double check whether the parts are loose or not.

The surfaces machined are very smooth and the corners are very sharp. Be careful for your safety when carrying and using.

2.2 Electro machining

When the cemented carbide is in the process of electro machining, the machining surfaces are easily cracking and chipping corners, the work piece programs need to be adjusted according to the geometric parameter of the parts and the degree of the carbide materials.

Wire-electrode cutting sometimes causes the phenomenon of cracking on the machining surfaces. It is necessary to check the machining surfaces to confirm that there is no defect before starting next procedure.

2.3 Welding

When the cemented carbide is in the process of welding procedure, the cemented carbide and welding gap easily emerge the cracks. It is necessary to proceed next procedure after checking and confirming that there is no defect. Be strict with the welding technology of cemented carbide and making fore welding pretreatment and post welding heat preservation which will protect the cemented carbide from fast heating and cooling to cause cracking of cemented carbide.