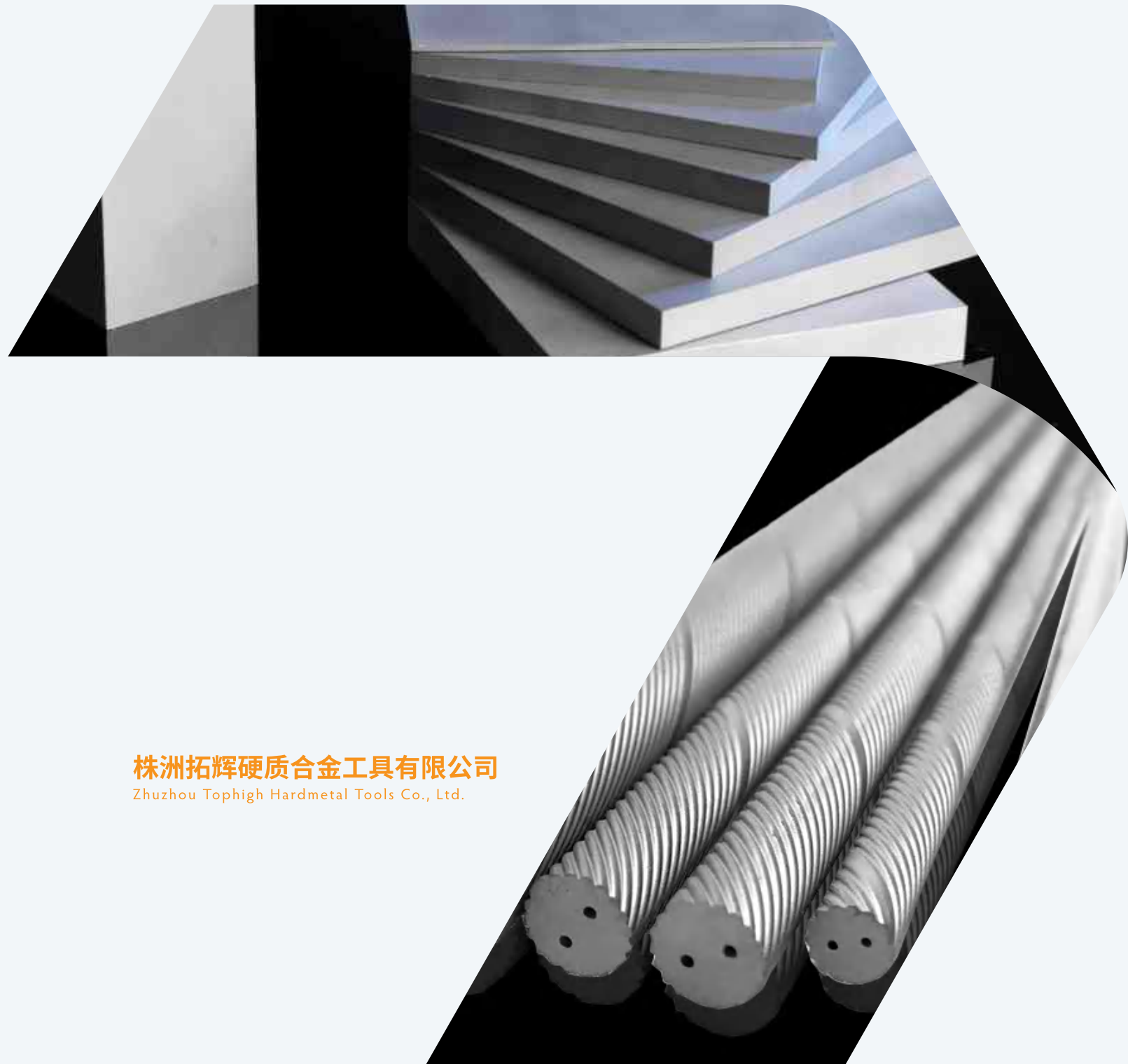


TOPHIGH

Zhuzhou Tophigh
Hardmetal Tools Co., Ltd.



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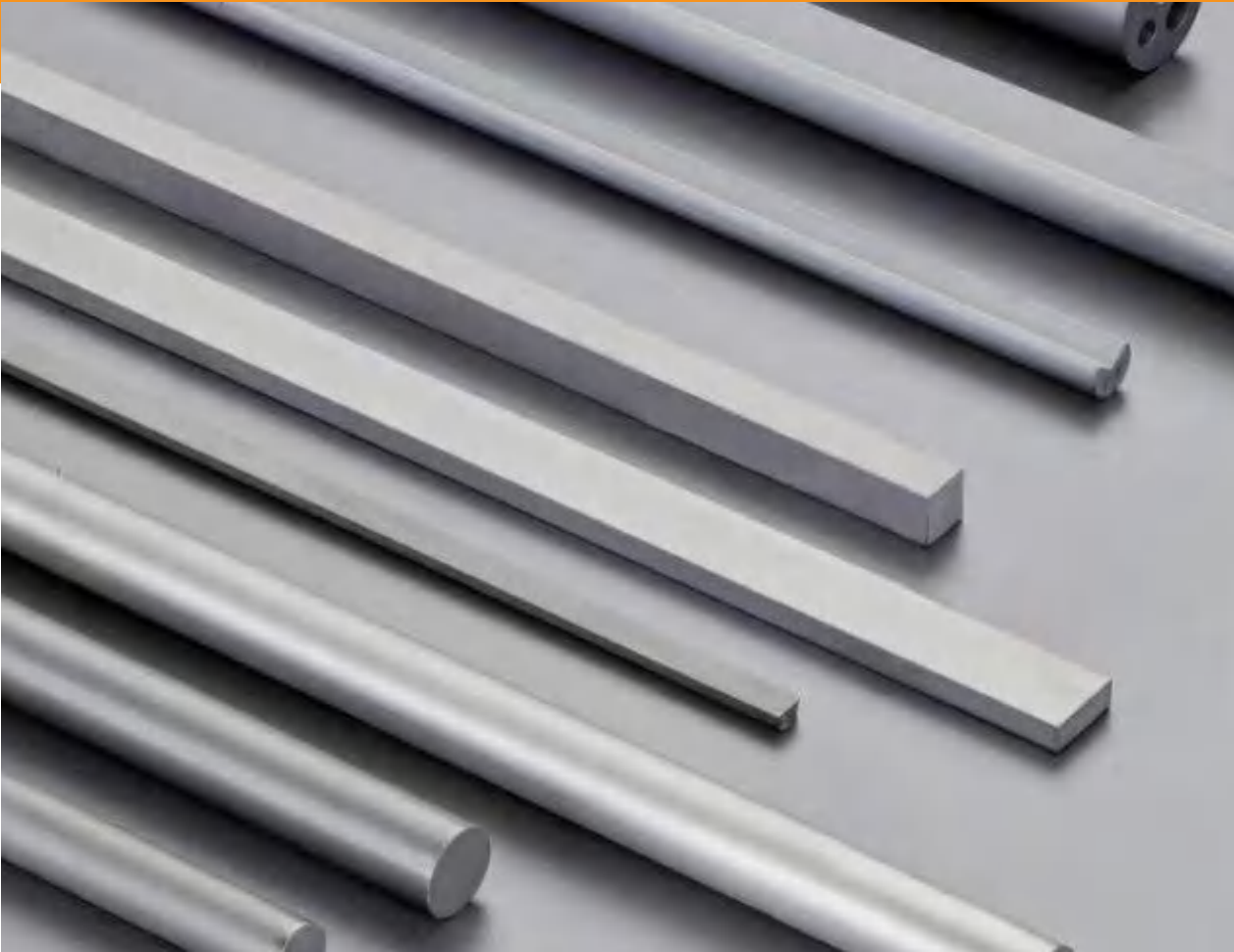
株洲拓辉硬质合金工具有限公司
Zhuzhou Tophigh Hardmetal Tools Co., Ltd.





CATALOG

公司介绍 Company Profile	01
非标定制产品 Customized products	03
硬质合金圆棒 Carbide Round Rod	07
矿山工具 Mining Tools	27
硬质合金长条 Carbide Strips	57
硬质合金模具材料 Carbide Mold Material	62
硬质合金轧辊 Carbide Roll	70
硬质合金切割工具 Tungsten Cutting Tools	76
硬质合金球 Carbide Ball	89
硬质合金铣刀 CARBIDE END MILL	92



About Us

Founded in 2013, we are a professional manufacturer and global supplier of cemented carbide solutions. With over a decade of continuous development, we specialize in high-performance cemented carbide products applied in precision machining, metal cutting, mining, and wear-resistant applications.

Why Choose Us

- 
Advanced Manufacturing
 Integrated production platform for powder preparation, forming, sintering & grinding.
- 
Premium Raw Materials
 High-grade tungsten carbide sourced from top global suppliers.
- 
Strict Quality Control
 ISO 9001 certified, rigorous inspection & consistent quality.

 **2013**
Founded In

 **30+**
Export Countries

 **9001**
Certified Quality

 **100%**
Batch-to-Batch Consistency

Qualification documents



Global Reach & Vision

Today, our products serve partners in over **30** countries worldwide.

Committed to creating long-term value. We build our organization, our processes, and every decision around one core focus: delivering what truly matters to our customers.

非标定制产品

Customized products



Customized Tungsten Carbide Solutions

Tailor-made Carbide Components Designed for Extreme Performance

We deliver fully customized, high-precision non-standard tungsten carbide solutions for oil & gas, mining, mechanical, and other critical industrial wear applications. From design optimization to final production, backed by advanced engineering, flexible production, and strict quality control, our engineering team ensures precision, durability, cost-efficiency, and turns your designs into reliable solutions.

► Engineering Support Services



20+ Experienced Engineers



Design Optimization



Technical Consultation



Rapid Prototyping



Material Selection



DFM (Design for Manufacturing) Support

► Core Advantages

1. Fast & Reliable Delivery

- Standard: 10–15 Days
- Custom: 15–20 Days
- Urgent Orders: As Fast as 1 Week

2. Engineering & Manufacturing Expertise

- 20+ Experienced Engineers
- Design Optimization
- Complex Geometries
- Large Components
- Precision Grinding

3. Cost-Efficient Solutions

- No Mould Fee for Small Batches
- Optimized Cost Control & Low-Cost Solutions
- Competitive Pricing

4. Premium Quality Assurance

- Ultra-Low Scrap Rate
- ISO 9001 Certified Process Control
- Consistent Quality & Performance

► Typical Application Industries



CUSTOMIZED PRODUCTS



非标定制产品

Customized products

Customized Tungsten Carbide Solutions

Tailor-made Carbide Components Designed for Extreme Performance

Product System



Sample Custom Products



CUSTOMIZED PRODUCTS

Core Product Properties

High Hardness

Excellent Wear Resistance

Long Service Life

ISO 9001 Certified

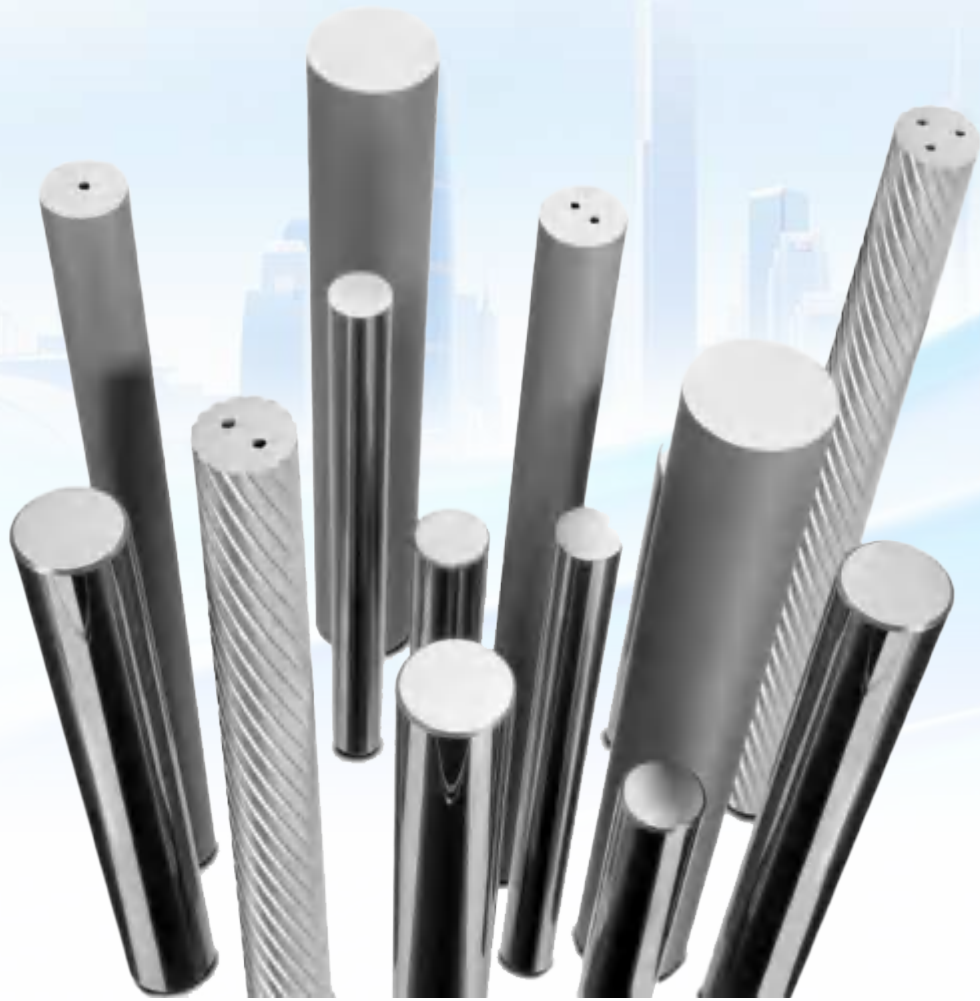
Carbide Round Rod



01

CARBIDE
ROUND ROD

硬质合金圆棒



牌号
Grade

Grade						
牌号 Grade	WC (%)	CO (%)	WC晶粒度 Grain size (um)	比重 Density (g/cm³) ±0.1	硬度 Hardness (HRA) ±0.5	抗折力 TRS (kgf/mm²)
T-06	94	6	0.4	14.85	94	3800
T-08	92	8	0.4	14.65	93.6	4000
T-09	91	9	0.2	14.45	94	4200
T-10.2	90	10	0.6	14.4	92	4100
T-10	90	10	0.7	14.45	91.8	3800
T-12	88	12	0.4	14.25	92.5	4200
T-15	85	15	0.7	14	89	4500

用途推荐 Applications	
材质名称 Grade	用途推荐 Applications
T-06	超细晶粒，具有较好的耐磨性适用于加工镁铝合金、玻璃纤维、碳纤维、木材、硬塑料等材料；推荐用于制作小直径铣钻刀具。 Ultra-fine grain size, with good wear resistant, Suitable for manching aluminum-magnesium alloys,glass fiber,carbon fiber,wood,harden plastic.etc. For making micro tools and drills.
T-08	适用于加工树脂材料、木材、钛合金、不锈钢、铜铝合金及复合材料；推荐用于制作高速钻头、铣刀雕刻刀、Φ0.8mm以下的PCB微钻。 Suitable for manufacturing resin,wood,titanium alloy, stainless steel,copper-aluminum alloy,composite material.For making high speed drill, endmill,graver and micro-drill with diameter less than 0.8mm uerd for machining for PCB
T-09	精选优质0.2um的超细微碳化钨粉末，具有极高的耐磨性和韧性，可用于淬火钢的精加工、石墨、塑料玻纤强化材料及不锈钢、铝合金的高精度高镜面加工，适用于制作0..25mm的铣刀、钻头、镗刀。 Selected high-quality 0.2um ultra-fine tungsten carbide power,with high wear resiatance and toughness,suitable for finishing of hardened steel,high-precision and high mirror processing of graphite,platic,glass fiber reinforced materi-als,stainless steel and aluminum alloy,Suitable for making 0.25mm endmill,drills,boring tools.
T-10.2	适用于普通模具钢、灰口铸铁、奥氏体不锈钢和耐热合金的通用粗加工，半精加工及精加工；推荐用于制作通用加工用钻头，立铣刀。 Suitable for rough finishing,semifinishing and finishing of die steel,gray castiron,austenitic stainless steel and heat-resis- tant alloy. For making normal drill and endmill.
T-10	适用于普通钢材、铸铁、不锈钢的通用粗加工，半精加工；推荐用于制作通用加工用钻头，立铣刀。 Suitable for rough finishing or semifinishing of normal steel,castiron and stainless steel. For making normal dril and endmill.
T-12	超细微碳化物颗粒，兼容了良好的耐磨性和韧性，适用于不锈钢、模具钢、普通钛合金等的半精加工及精加工，推荐用于高速加工用立铣刀、铰刀、雕刻刀。 Ultra-fine grain size, with good wear resistant and toughness,Suitable for semifinishing or finishing of stainless steel,die steel and normal titanium alloy ,etc.For making all types of high speed endmills,reamers and gravers
T-15	亚细微碳化钨颗粒，具有较好的耐磨性和极佳的韧性，适用于制作冲压整体模具，抗震刀杆等。 Sub-fine grain size,with good wear resistant and toughness,suitable for making punching of mould anti-vibration boring bar etc.

CEMENTED CARBIDE FOR WOODWORKING

01/硬质合金圆棒

Carbide Round Rod

制造工艺

Manufacturing Process

01

Grade Design

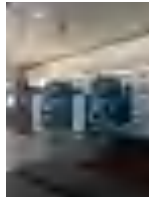
TOPHIGH grades are designed upon application. Our process start with power mixing. Raw materials includes WC, Co and other elements



02

RTP Ball Milling

Wide variety of TOPHIGH designed grades from superfine to coarse grain size are available. Grades with different grain size are ball-milled, sieved, granulated in separated systems to avoid grain contamination.



03

Spray Drying

Spray drying process makes the powder into superior homogeneous particle sizes with good flowability and as a result, the dimension variation on sintered blank is much smaller.



04

Advanced Forming Technologies

We utilize state-of-the-art forming techniques to ensure optimal material integrity and precise dimensions.

- Precision Extrusion
Our automatic extrusion systems deliver highly consistent geometries for various profiles.
Profiles: Solid rods / Straight & Helical hole rods / Gun drill blanks / Tubes & Strips.
- Dry-Bag Cold Isostatic Pressing
Applying highly uniform pressure from all directions, our enclosed CIP technology provides an optimal solution for large blanks and high-performance tools.
Uniform Density: Ensures excellent stress distribution and consistent material density throughout the blank.
Enhanced Integrity: Effectively minimizes the risk of internal cracks and delamination commonly found in traditional pressing.



05.1

Preforming

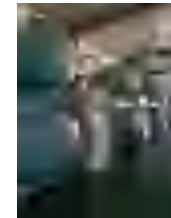
Turning, milling, drilling, cutting can be applied on green blanks in order to pre-form the part to net shape according to customer's drawing, which can greatly enhance customer's productivity for special and complicated tools



05.2

Drying Process

This process removes the plasticizer in the rod blanks using a vacuum drying furnace.



06

Sintering

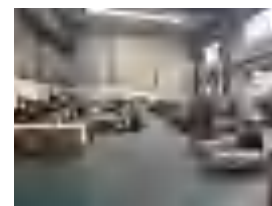
Green blanks are sintered at temperature around 1400 °C (cobalt melting) to become super hard and tough. TOPHIGH utilizes HIP (hot isostatic pressure) sintering furnace which gives carbide maximum toughness to meet the most critical working applications.



07

Machining

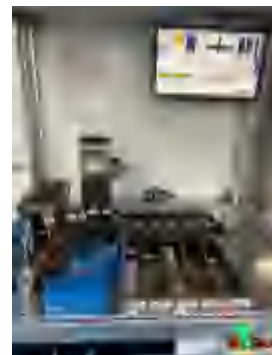
Most of the rod blanks need to be centerless ground, to achieve precision tolerances h5/h6. In addition, length cutting, chamfer, slot, cylindrical grinding service can be offered upon customer request.



08

Inspection

The key properties are monitored from raw material, RTP and raw sintered parts in our laboratory for quality and performance guarantee. Diameter, roundness, run-out, roughness, pitch, TK, concentricity, inspection will be done before the parts are shipped to the customer.



硬质合金圆棒材料性能表征

Properties Characterization of Cemented Carbide Round Rod Material

硬度 (ISO 3788 及 ISO3878)

Hardness (ISO 3788 and ISO3878)

材料抵抗局部塑性变形的能力。硬质合金常用硬度测量方法为洛氏硬度或维氏硬度测量法, 单位为HRA和HV。需注意由于二者测量方法不相同, 两种硬度值的转换应根据测量材料的参照表进行换算。

Hardness is the capability of the material resisting the localized plastic deformation. The hardness of cemented carbide unusually is measured by Rockwell and Vickers. It is important to note that the two methods are different, The converting from one system to other should be take care.

断裂韧性

Fracture toughness

断裂韧性是指材料抵抗内部裂纹失稳扩张的能力。其大小取决于材料的成分、组织等内在因素, 表征材料综合性能。

Fracture toughness is the capability of the material resisting the unstable propagation of crack. The value depends on the material composition, microstructure. It is the representations of the combination properties of combination properties of the materials.

抗弯强度 (ISO 3327)

Transverse rupture strength (ISO 3327)

抗弯强度是指材料抵抗弯曲不断裂的能力。其值为在一个标准的三点弯曲试验中在材料的破断点测得的应力。此试验应用于硬质合金时, 使用一个标准夹具及试样 (Φ3.25mm x 38.7mm)。TRS使用几个测量值的平均值作为测量值。随试样几何形状、表面状态及实验设备的不同。此值可以变化很大。特别要指出的是, 此结果对表面光洁度、表面残留应力、表面腐蚀及材料内部的缺陷很敏感。必须注意, 不能只用TRS值作为牌号选择的标准。

Transverse rupture stress is the ability of the bending and cracking resistance of the materials. It is the stress measured at the ruptured point of a material in the standard three-point bending test. When the test is applied to cemented carbide, a standard loaded fixture and a sample (Φ3.25mm x 38.7mm) is used. The average of several measured values is taken as the measured value. The value can vary much with the surface finishing, surface residual stress, surface corrosion and the internal defects of the material. It should be noted that TRS could not be taken as the only standard for selection of a grade.

密度 (ISO3369)

Density (ISO 3369)

密度是材料的质量与体积的比率, 通常使用液体置换法进行测定。密度在硬质合金工业中通常用于确定一个牌号成分的准确性。与通常的理解不同的是, 现代硬质合金的孔隙度水平不能用测量密度的方法来确定。碳化钨 (WC) 的密度是15.7g/cm³, 钴 (Co) 的密度是8.9g/cm³。因此对于WC-Co牌号来说, 随钴含量的增加, 密度减小。

The density (specific gravity) of a material is the relation mass to volume. It is determined by the water displacement method (Archimedeian Principle). Density is usually used to determine whether the composition of a grade is correct. What differs from common understanding is that the porosity of cemented carbide can not be determined by the measurement of the density. The density of tungsten carbide (WC) is 15.7g/cm³ and density of cobalt is 8.9g/cm³. As regards WC-Co grade, The density will decrease with the increase of cobalt content.

01/硬质合金圆棒

Carbide Round Rod



硬质合金圆棒材料性能表征
Properties Characterization of Cemented Carbide Round Rod Material

直线度

Straightness

5

直线度是表示零件上的直线要素实际形状保持理想直线的状况。也就是通常所说的平直程度。

直线度公差是实际线对理想直线所允许的最大变动量。也就是在图样上所给定的,用以限制实际线加工误差所允许的变动范围。

Straightness is the shape of the actual linear elements on the said parts keeping ideal straight line.General it is know the flatness, The straightness tolerance is the measure of the change of the actual line compared to an ideal straight line.The annotation is given on the drawing,To limit the change of the actual line machining error scope.

圆度

Circularity

6

圆度是表示零件上圆的要素实际形状, 与其中心保持等距的情况。即通常所说的圆整程度。

圆度公差是在同一截面上, 实际圆对理想圆所允许的最大变动量。也就是图样上给定的, 用以限制实际圆的加工误差所允许的变动范围。

Circularity is the shape of the round elements on the actual pat,Which expressed the distance between the point on the shape of the round to the center.General it is know as the roundness.

Circularity tolerance is the measure of the change of the actual round compared to an ideal round in the considered cross-section.The annotation is given on the drawing,to limit the change of the actual round machining error scope.

同心度

Concentricity

7

同心度是表示零件上被测元素圆心相对于基准圆心, 保持在同一点上的状况。

同心度公差是: 被测实际圆心相对于基准圆心所允许的变动量。也就是图样上给出的, 用以限制被测实际圆心偏离由基准圆心所确定的理想位置所允许的变动范围。

Concentricity tolerance zone controls the median points of a feature of size . Concentricity tolerance is a condition in which the elements of a feature’ s surface are common to the center of a datum feature.

A concentricity tolerance specifies a circle tolerance zone whose centre of a circle coincides with a datum centre of a circle.The tolerance zone is equally disposed about the datum centre for concentricity. The concentricity requires that the median points of the controlled feature,regardless of its size,to be within the tolerance zone.

圆跳动

Circular Runout

8

圆跳动是表示零件上的回转表面在限定的测量面内, 相对于基准轴线保持固定位置的状况。

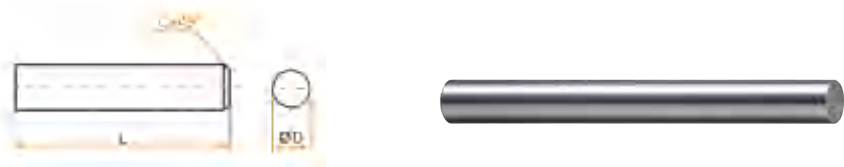
圆跳动误差是: 被测实际要素绕基准轴线, 无轴向移动地旋转一整圈时, 在限定的范围内, 所允许的最大变动量。

Circular Runout zone is limited in the measuring plane perpendicular to the axis by two concentric circles,The common centre of which lies on the datum axis.Also it is can be defined as two-dimensional geometric tolerance that controls the from,orientation,and location of multiple cross sections of a cylindrical part as it rotates.For circular runout,The tolerance zone for each circular element on a surface constructed at right angle to the datum axis.The circular element thruogh a surface point conforms to the circular runout tolerance for a given mating surface if all points of the circular element lie down within some circular runout tolerance zone.Circular run out controls the cumulative variation of circularity (roundness) and coaxiality for features constructed around a datum axis and circular elements of a surface constructed and angle not parallel to the datum axis.The tolerance zone is an annular surface of revolution about the center axis of the circle and perpendicular to the feature surface.

公差等级
Tolerance Grade

公差等级Tolerance Grade			
直径 Diameter	公差Tolerance		
	h5	h6	h7
0--3.0 mm	0.004 mm	0.006 mm	0.010 mm
0--0.11811 in	0.00015 in	0.00024 in	0.00039 in
3.001--6.0 mm	0.005 mm	0.008 mm	0.012 mm
0.11812--0.23622 in	0.00020 in	0.00031 in	0.00047 in
6.001--10.0 mm	0.006 mm	0.009 mm	0.015 mm
0.23623--0.39370 in	0.00024 in	0.00035 in	0.00059 in
10.001--18.0 mm	0.008 mm	0.011 mm	0.018 mm
0.39371--0.70866 in	0.00031 in	0.00043 in	0.00071 in
18.001--30.0 mm	0.009 mm	0.013 mm	0.021 mm
0.90867--1.18110 in	0.00035 in	0.00051 in	0.00083 in
30.001--50.0 mm	0.011 mm	0.016 mm	0.025 mm
1.8111--1.96850 in	0.00043 in	0.00063 in	0.00098 in

英寸实心精磨短棒
Inch Solid Finish Short Rods



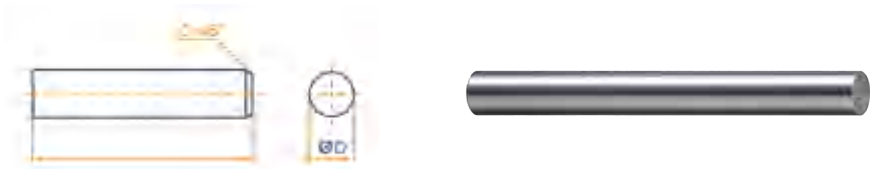
h6 ground chamfered on one end (一端倒角)												
Item No.	Dia	OAL	Dia mm	OAL mm	tolerances	Grade	Grade	Grade	Grade	Grade	Grade	Grade
TOP-10	1/8"	1 1/2"	3.175	38.1	h5/h6	T-06	T-08	T-09	T-10.2	T-10	T-12	T-15
TOP-10	1/8"	2"	3.175	50.8								
TOP-10	1/8"	3"	3.175	76.2								
TOP-10	1/8"	4"	3.175	101.6								
TOP-10	3/16"	1 1/2"	4.7625	38.1								
TOP-10	3/16"	2"	4.7625	50.8								
TOP-10	3/16"	2 1/2"	4.7625	63.5								
TOP-10	3/16"	3"	4.7625	76.2								
TOP-10	1/4"	1 1/2"	6.35	38.1								
TOP-10	1/4"	2"	6.35	50.8								
TOP-10	1/4"	2 1/2"	6.35	63.5								
TOP-10	1/4"	3"	6.35	76.2								
TOP-10	1/4"	3 1/4"	6.35	82.55								
TOP-10	1/4"	4"	6.35	101.6								
TOP-10	5/16"	2"	7.9375	50.8								
TOP-10	5/16"	2 1/2"	7.9375	63.5								
TOP-10	5/16"	3"	7.9375	76.2								
TOP-10	5/16"	3 1/2"	7.9375	88.9								
TOP-10	5/16"	4"	7.9375	101.6								
TOP-10	7/16"	2 1/2"	11.1125	63.5								

01/硬质合金圆棒

Carbide Round Rod

英寸实心精磨短棒

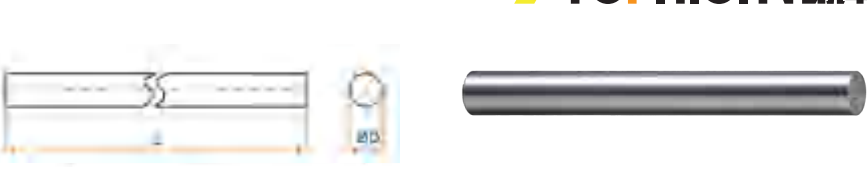
Inch Solid Finish Short Rods



h6 ground chamfered on one end (一端倒角)												
Item No.	Dia	OAL	Dia mm	OAL mm	tolerances	Grade	Grade	Grade	Grade	Grade	Grade	Grade
TOP-10	7/16"	2 3/4"	11.1125	69.85	h5/h6	T-06	T-08	T-09	T-10.2	T-10	T-12	T-15
TOP-10	7/16"	4"	11.1125	101.6								
TOP-10	7/16"	4 1/2"	11.1125	114.3								
TOP-10	7/16"	5"	11.1125	127								
TOP-10	7/16"	6"	11.1125	152.4								
TOP-10	1/2"	2 1/2"	12.7	63.5								
TOP-10	1/2"	3"	12.7	76.2								
TOP-10	1/2"	3 1/2"	12.7	88.9								
TOP-10	1/2"	3 1/8"	12.7	79.375								
TOP-10	1/2"	4"	12.7	101.6								
TOP-10	1/2"	4 1/2"	12.7	114.3								
TOP-10	1/2"	5"	12.7	127								
TOP-10	1/2"	6"	12.7	152.4								
TOP-10	1/2"	8"	12.7	203.2								
TOP-10	9/16"	3"	14.2875	76.2								
TOP-10	9/16"	3 1/2"	14.2875	88.9								
TOP-10	5/8"	2"	15.875	50.8								
TOP-10	5/8"	2 1/2"	15.875	63.5								
TOP-10	5/8"	3"	15.875	76.2								
TOP-10	5/8"	3 1/2"	15.875	88.9								
TOP-10	5/8"	3 1/4"	15.875	82.55								
TOP-10	5/8"	3 3/4"	15.875	95.25								
TOP-10	5/8"	4"	15.875	101.6								
TOP-10	5/8"	4 1/8"	15.875	104.775								
TOP-10	5/8"	5"	15.875	127								
TOP-10	5/8"	6"	15.875	152.4								
TOP-10	3/4"	3"	19.05	76.2								
TOP-10	3/4"	3 1/2"	19.05	88.9								
TOP-10	3/4"	4"	19.05	101.6								
TOP-10	3/4"	5"	19.05	127								
TOP-10	3/4"	6"	19.05	152.4								
TOP-10	3/4"	6 1/2"	19.05	165.1								
TOP-10	7/8"	4"	22.225	101.6								
TOP-10	7/8"	6"	22.225	152.4								
TOP-10	1"	3"	25.4	76.2								
TOP-10	1"	4"	25.4	101.6								
TOP-10	1"	5"	25.4	127								
TOP-10	1"	6"	25.4	152.4								
TOP-10	1"	7"	25.4	177.8								
TOP-10	1 1/4"	4"	31.75	101.6								
TOP-10	1 1/4"	6"	31.75	152.4								
TOP-10	1 1/4"	7 1/2"	31.75	190.5								

英寸实心精磨圆棒

solid carbide ground -Inch



solid carbide ground -Inch												
Item No.	Dia	OAL	Dia mm	OAL mm	tolerances	Grade	Grade	Grade	Grade	Grade	Grade	Grade
TOP-210	1/8"	-	3.175	310/330	h5/h6	T-06	T-08	T-09	T-10.2	T-10	T-12	T-15
TOP-210	3/16"	-	4.7625	310/330								
TOP-210	1/4"	-	6.35	310/330								
TOP-210	5/16"	-	7.9375	310/330								
TOP-210	7/16"	-	11.1125	310/330								
TOP-210	1/2"	-	12.7	310/330								
TOP-210	9/16"	-	14.2875	310/330								
TOP-210	5/8"	-	15.875	310/330								
TOP-210	3/4"	-	19.05	310/330								
TOP-210	7/8"	-	22.225	310/330								
TOP-210	1"	-	25.4	310/330								
TOP-210	1 1/4"	-	31.75	310/330								
												

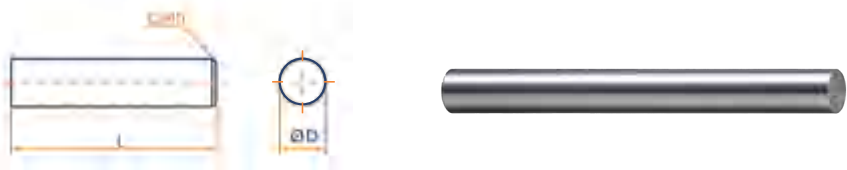
CARBIDE ROUND ROD

01/硬质合金圆棒

Carbide Round Rod

公制实心精磨短棒

Metric Solid Finish Short Rods



h6 ground chamfered on one end (一端倒角)										
Item No.	Dia mm	OAL mm	tolerances	Grade	Grade	Grade	Grade	Grade	Grade	Grade
TOP-20	3	38.3	h5/h6	T-06	T-08	T-09	T-10.2	T-10	T-12	T-15
TOP-20	3	39.5								
TOP-20	3	47.3								
TOP-20	3	52.3								
TOP-20	3	76.2								
TOP-20	4	32.5								
TOP-20	4	40.5								
TOP-20	4	51.0								
TOP-20	4	59.3								
TOP-20	4	63.5								
TOP-20	4	67.5								
TOP-20	4	76.2								
TOP-20	4.5	51.2								
TOP-20	5	51.2								
TOP-20	5	76.2								
TOP-20	6	50								
TOP-20	6	55								
TOP-20	6	60								
TOP-20	6	73.2								
TOP-20	6	75								
TOP-20	6	80								
TOP-20	6	100								
TOP-20	6	150								
TOP-20	6	200								
TOP-20	8	60								
TOP-20	8	100								
TOP-20	8	120								
TOP-20	8	150								
TOP-20	8	200								
TOP-20	10	72								
TOP-20	10	75								
TOP-20	10	100								
TOP-20	10	120								
TOP-20	10	150								
TOP-20	10	200								
TOP-20	12	75								
TOP-20	12	83								
TOP-20	12	100								
TOP-20	12	150								
TOP-20	12	200								
TOP-20	14	83								
TOP-20	14	100								
TOP-20	14	150								
TOP-20	14	200								
TOP-20	16	92								
TOP-20	16	100								
TOP-20	16	150								
TOP-20	16	200								
TOP-20	18	93								
TOP-20	18	100								
TOP-20	18	150								
TOP-20	18	200								
TOP-20	20	100								
TOP-20	20	105								
TOP-20	20	150								
TOP-20	20	200								
TOP-20	25	125								
TOP-20	25	150								
TOP-20	25	200								

公制实心精磨圆棒

Metric Solid Fine Ground Round Rod



h6 ground chamfered on one end (一端倒角)										
Item No.	Dia mm	OAL mm	tolerances	Grade	Grade	Grade	Grade	Grade	Grade	Grade
TOP-30	0.3	310/330	h5/h6	T-06	T-08	T-09	T-10.2	T-10	T-12	T-15
TOP-30	0.4	310/330								
TOP-30	0.5	310/330								
TOP-30	0.6	310/330								
TOP-30	0.7	310/330								
TOP-30	0.8	310/330								
TOP-30	0.9	310/330								
TOP-30	1	310/330								
TOP-30	1.2	310/330								
TOP-30	1.5	310/330								
TOP-30	2	310/330								
TOP-30	2.5	310/330								
TOP-30	3	310/330								
TOP-30	4	310/330								
TOP-30	5	310/330								
TOP-30	6	310/330								
TOP-30	7	310/330								
TOP-30	8	310/330								
TOP-30	9	310/330								
TOP-30	10	310/330								
TOP-30	11	310/330								
TOP-30	12	310/330								
TOP-30	13	310/330								
TOP-30	14	310/330								
TOP-30	15	310/330								
TOP-30	16	310/330								
TOP-30	17	310/330								
TOP-30	18	310/330								
TOP-30	19	310/330								
TOP-30	20	310/330								
TOP-30	21	310/330								
TOP-30	22	310/330								
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TOP-30	25	310/330								
TOP-30	26	310/330								
TOP-30	27	310/330								
TOP-30	28	310/330								
TOP-30	29	310/330								
TOP-30	30	310/330								
TOP-30	31	310/330								
TOP-30	32	310/330								
TOP-30	33	310/330								
TOP-30	34	310/330								
TOP-30	35	310/330								
TOP-30	36	310/330								
TOP-30	37	310/330								
TOP-30	38	310/330								
TOP-30	39	310/330								
TOP-30	40	310/330								

CARBIDE ROUND ROD

01/硬质合金圆棒

Carbide Round Rod



公制实心毛坯圆棒

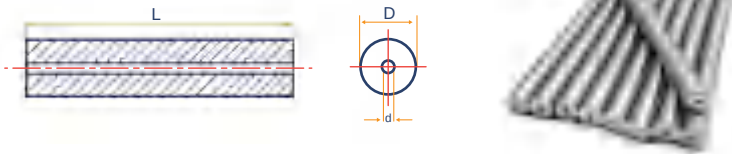
Metric Solid Blank Round Bar



solid carbide unground									
Item No.	Dia mm	OAL mm	Grade	Grade	Grade	Grade	Grade	Grade	Grade
TOP-40	0.3	310/330	T-06	T-08	T-09	T-10.2	T-10	T-12	T-15
TOP-40	0.4	310/330							
TOP-40	0.5	310/330							
TOP-40	0.6	310/330							
TOP-40	0.7	310/330							
TOP-40	0.8	310/330							
TOP-40	0.9	310/330							
TOP-40	1	310/330							
TOP-40	1.2	310/330							
TOP-40	1.5	310/330							
TOP-40	2	310/330							
TOP-40	2.5	310/330							
TOP-40	3	310/330							
TOP-40	4	310/330							
TOP-40	5	310/330							
TOP-40	6	310/330							
TOP-40	7	310/330							
TOP-40	8	310/330							
TOP-40	9	310/330							
TOP-40	10	310/330							
TOP-40	11	310/330							
TOP-40	12	310/330							
TOP-40	13	310/330							
TOP-40	14	310/330							
TOP-40	15	310/330							
TOP-40	16	310/330							
TOP-40	17	310/330							
TOP-40	18	310/330							
TOP-40	19	310/330							
TOP-40	20	310/330							
TOP-40	21	310/330							
TOP-40	22	310/330							
TOP-40	23	310/330							
TOP-40	24	310/330							
TOP-40	25	310/330							
TOP-40	26	310/330							
TOP-40	27	310/330							
TOP-40	28	310/330							
TOP-40	29	310/330							
TOP-40	30	310/330							
TOP-40	31	310/330							
TOP-40	32	310/330							
TOP-40	33	310/330							
TOP-40	34	310/330							
TOP-40	35	310/330							
TOP-40	36	310/330							
TOP-40	37	310/330							
TOP-40	38	310/330							
TOP-40	39	310/330							
TOP-40	40	310/330							

公制单孔精磨圆棒

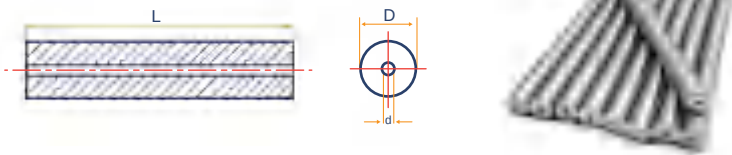
Precision Ground Rod, 1 Straight Hole Centered



Precision Ground Rod, 1 Straight Hole Centered							
Item No.	Grade	OD mm	Tol. mm	L. mm	Tol mm	d mm	Tol mm
TOP-50	T-10.2	4.0	0/-0.008	330	0/+5	0.6	±0.15
TOP-50	T-10.2	6.0	0/-0.008	330	0/+5	1	±0.15
TOP-50	T-10.2	8.0	0/-0.009	330	0/+5	1.3	±0.15
TOP-50	T-10.2	10.0	0/-0.009	330	0/+5	2	±0.20
TOP-50	T-10.2	12.0	0/-0.011	330	0/+5	2	±0.20
TOP-50	T-10.2	14.0	0/-0.011	330	0/+5	2	±0.20
TOP-50	T-10.2	16.0	0/-0.011	330	0/+5	2	±0.20
TOP-50	T-10.2	18.0	0/-0.011	330	0/+5	3	±0.20
TOP-50	T-10.2	20.0	0/-0.013	330	0/+5	3	±0.20
TOP-50	T-10.2	22.0	0/-0.013	330	0/+5	3	±0.20
TOP-50	T-10.2	24.0	0/-0.013	330	0/+5	4	±0.30
TOP-50	T-10.2	25.0	0/-0.013	330	0/+5	4	±0.30

公制单孔毛坯圆棒

Unground Rod, 1 Straight Hole Centered



Unground Rod, 1 Straight Hole Centered							
Item No.	Grade	OD mm	Tol mm	L. mm	Tol mm	d mm	Tol mm
TOP-60	T-10.2	4.3	0/+0.3	330	0/+5	0.6	±0.15
TOP-60	T-10.2	6.3	0/+0.3	330	0/+5	1	±0.15
TOP-60	T-10.2	8.3	0/+0.3	330	0/+5	1.3	±0.15
TOP-60	T-10.2	10.3	0/+0.3	330	0/+5	2	±0.20
TOP-60	T-10.2	12.3	0/+0.4	330	0/+5	2	±0.20
TOP-60	T-10.2	14.3	0/+0.4	330	0/+5	2	±0.20
TOP-60	T-10.2	16.3	0/+0.4	330	0/+5	2	±0.20
TOP-60	T-10.2	18.3	0/+0.5	330	0/+5	3	±0.20
TOP-60	T-10.2	20.3	0/+0.5	330	0/+5	3	±0.20
TOP-60	T-10.2	22.3	0/+0.5	330	0/+5	3	±0.20
TOP-60	T-10.2	24.3	0/+0.5	330	0/+5	4	±0.30
TOP-60	T-10.2	25.3	0/+0.5	330	0/+5	4	±0.30

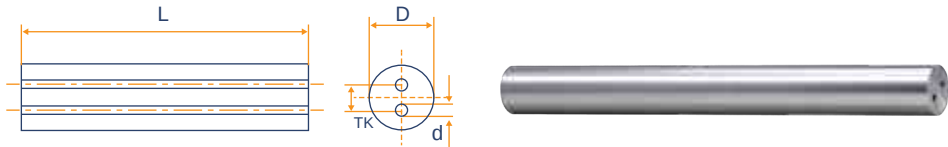
CARBIDE ROUND ROD

01/硬质合金圆棒

Carbide Round Rod

标准双直孔精磨圆棒

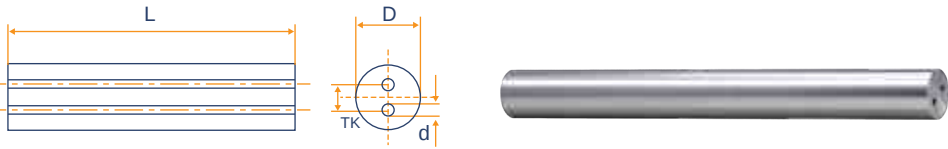
Precision Ground Rod,
2 Straight Hole Standard BC



Precision Ground Rod, 1 Straight Hole Centered									
Item No.	Grade	OD mm	Tol.h6 mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm
TOP-70	T-10.2	6.0	0/-0.008	330	0/+5	3	0/-0.2	1	±0.15
TOP-70	T-10.2	7.0	0/-0.009	330	0/+5	3.5	0/-0.2	1	±0.15
TOP-70	T-10.2	8.0	0/-0.009	330	0/+5	4	0/-0.3	1	±0.15
TOP-70	T-10.2	9.0	0/-0.009	330	0/+5	4	0/-0.3	1.4	±0.15
TOP-70	T-10.2	10.0	0/-0.009	330	0/+5	5	0/-0.3	1.4	±0.15
TOP-70	T-10.2	11.0	0/-0.011	330	0/+5	5	0/-0.3	1.4	±0.15
TOP-70	T-10.2	12.0	0/-0.011	330	0/+5	6	0/-0.3	1.75	±0.15
TOP-70	T-10.2	13.0	0/-0.011	330	0/+5	6	0/-0.3	1.75	±0.15
TOP-70	T-10.2	14.0	0/-0.011	330	0/+5	7	0/-0.3	1.75	±0.15
TOP-70	T-10.2	15.0	0/-0.011	330	0/+5	7	0/-0.3	2	±0.20
TOP-70	T-10.2	16.0	0/-0.011	330	0/+5	8	0/-0.3	2	±0.20
TOP-70	T-10.2	17.0	0/-0.011	330	0/+5	8	0/-0.3	2	±0.20
TOP-70	T-10.2	18.0	0/-0.011	330	0/+5	9	0/-0.3	2	±0.20
TOP-70	T-10.2	19.0	0/-0.013	330	0/+5	9	0/-0.3	2	±0.20
TOP-70	T-10.2	20.0	0/-0.013	330	0/+5	10	0/-0.4	2.5	±0.30

双直缩孔精磨圆棒

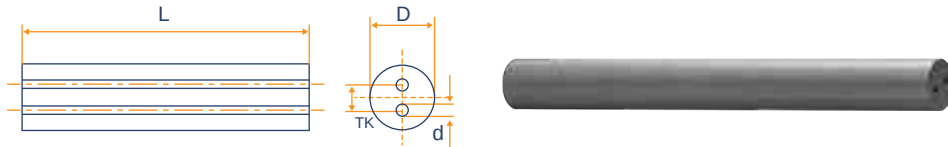
Precision Ground Rod,
2 Straight Hole Reduced BC



Precision Ground Rod, 1 Straight Hole Centered									
Item No.	Grade	OD mm	Tol.h6 mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm
TOP-80	T-10.2	6.0	0/-0.008	330	0/+5	1.5	0/-0.2	0.8	±0.15
TOP-80	T-10.2	7.0	0/-0.009	330	0/+5	1.5	0/-0.2	0.8	±0.15
TOP-80	T-10.2	8.0	0/-0.009	330	0/+5	2.6	0/-0.3	1	±0.15
TOP-80	T-10.2	9.0	0/-0.009	330	0/+5	2.6	0/-0.3	1	±0.15
TOP-80	T-10.2	10.0	0/-0.009	330	0/+5	2.6	0/-0.3	1	±0.15
TOP-80	T-10.2	11.0	0/-0.011	330	0/+5	3.5	0/-0.3	1.2	±0.15
TOP-80	T-10.2	12.0	0/-0.011	330	0/+5	3.5	0/-0.3	1.2	±0.15
TOP-80	T-10.2	13.0	0/-0.011	330	0/+5	3.5	0/-0.3	1.2	±0.15
TOP-80	T-10.2	14.0	0/-0.011	330	0/+5	5	0/-0.3	1.5	±0.15
TOP-80	T-10.2	15.0	0/-0.011	330	0/+5	5	0/-0.3	1.5	±0.15
TOP-80	T-10.2	16.0	0/-0.011	330	0/+5	5	0/-0.3	1.5	±0.20
TOP-80	T-10.2	17.0	0/-0.011	330	0/+5	6.2	0/-0.3	2	±0.20
TOP-80	T-10.2	18.0	0/-0.011	330	0/+5	6.2	0/-0.3	2	±0.20
TOP-80	T-10.2	19.0	0/-0.013	330	0/+5	6.2	0/-0.3	2	±0.20
TOP-80	T-10.2	20.0	0/-0.013	330	0/+5	6.2	0/-0.4	2	±0.30

标准双直孔毛坯圆棒

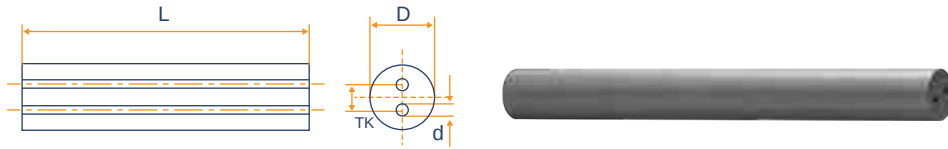
Unground Rod,
2 Straight Hole Standard BC



Unground Rod, 2 Straight Hole Standard BC									
Item No.	Grade	OD mm	Tol mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm
TOP-90	T-10.2	6.3	0/+0.3	330	0/+5	3	0/-0.2	1	±0.15
TOP-90	T-10.2	7.3	0/+0.3	330	0/+5	3.5	0/-0.2	1	±0.15
TOP-90	T-10.2	8.3	0/+0.3	330	0/+5	4	0/-0.3	1	±0.15
TOP-90	T-10.2	9.3	0/+0.3	330	0/+5	4	0/-0.3	1.4	±0.15
TOP-90	T-10.2	10.3	0/+0.3	330	0/+5	5	0/-0.3	1.4	±0.15
TOP-90	T-10.2	11.3	0/+0.4	330	0/+5	5	0/-0.3	1.4	±0.15
TOP-90	T-10.2	12.3	0/+0.4	330	0/+5	6	0/-0.3	1.75	±0.15
TOP-90	T-10.2	13.3	0/+0.4	330	0/+5	6	0/-0.3	1.75	±0.15
TOP-90	T-10.2	14.3	0/+0.4	330	0/+5	7	0/-0.3	1.75	±0.15
TOP-90	T-10.2	15.3	0/+0.4	330	0/+5	7	0/-0.3	2	±0.20
TOP-90	T-10.2	16.3	0/+0.4	330	0/+5	8	0/-0.3	2	±0.20
TOP-90	T-10.2	17.3	0/+0.5	330	0/+5	8	0/-0.3	2	±0.20
TOP-90	T-10.2	18.3	0/+0.5	330	0/+5	9	0/-0.3	2	±0.20
TOP-90	T-10.2	19.3	0/+0.5	330	0/+5	9	0/-0.3	2	±0.20
TOP-90	T-10.2	20.3	0/+0.5	330	0/+5	10	0/-0.4	2.5	±0.30

双直缩孔毛坯圆棒

Unground Rod,
2 Straight Hole Reduced BC



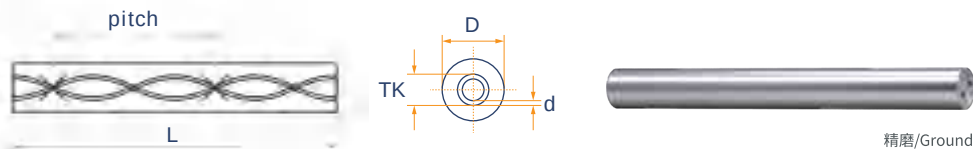
Unground Rod, 2 Straight Hole Reduced BC									
Item No.	Grade	OD mm	Tol mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm
TOP-100	T-10.2	6.3	0/+0.3	330	0/+5	1.5	0/-0.2	0.8	±0.15
TOP-100	T-10.2	7.3	0/+0.3	330	0/+5	1.5	0/-0.2	0.8	±0.15
TOP-100	T-10.2	8.3	0/+0.3	330	0/+5	2.6	0/-0.3	1	±0.15
TOP-100	T-10.2	9.3	0/+0.3	330	0/+5	2.6	0/-0.3	1	±0.15
TOP-100	T-10.2	10.3	0/+0.3	330	0/+5	2.6	0/-0.3	1	±0.15
TOP-100	T-10.2	11.3	0/+0.4	330	0/+5	3.5	0/-0.3	1.2	±0.15
TOP-100	T-10.2	12.3	0/+0.4	330	0/+5	3.5	0/-0.3	1.2	±0.15
TOP-100	T-10.2	13.3	0/+0.4	330	0/+5	3.5	0/-0.3	1.2	±0.15
TOP-100	T-10.2	14.3	0/+0.4	330	0/+5	5	0/-0.3	1.5	±0.15
TOP-100	T-10.2	15.3	0/+0.4	330	0/+5	5	0/-0.3	1.5	±0.15
TOP-100	T-10.2	16.3	0/+0.4	330	0/+5	5	0/-0.3	1.5	±0.20
TOP-100	T-10.2	17.3	0/+0.5	330	0/+5	6.2	0/-0.3	2	±0.20
TOP-100	T-10.2	18.3	0/+0.5	330	0/+5	6.2	0/-0.3	2	±0.20
TOP-100	T-10.2	19.3	0/+0.5	330	0/+5	6.2	0/-0.3	2	±0.20
TOP-100	T-10.2	20.3	0/+0.5	330	0/+5	6.2	0/-0.4	2	±0.30

01/硬质合金圆棒

Carbide Round Rod

双螺旋30° 精磨圆棒

Precision Ground Rod,
2 Helical Hole 30 degree



Precision Ground Rod, 2 Helical Hole 30 degree										
Item No.	Grade	OD mm	Tol.h6 mm	L mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-110	T-10.2	3.0	0/-0.006	330	0/+5	1.6	±0.1	0.4	±0.10	16.32
TOP-110	T-10.2	4.0	0/-0.008	330	0/+5	2.1	±0.1	0.6	±0.10	21.77
TOP-110	T-10.2	5.0	0/-0.008	330	0/+5	2.1	±0.2	0.7	±0.10	27.21
TOP-110	T-10.2	6.0	0/-0.008	330	0/+5	2.4	±0.2	0.7	±0.10	32.65
TOP-110	T-10.2	7.0	0/-0.009	330	0/+5	3.5	±0.2	1	±0.15	38.09
TOP-110	T-10.2	8.0	0/-0.009	330	0/+5	3.8	±0.2	1	±0.15	43.53
TOP-110	T-10.2	9.0	0/-0.009	330	0/+5	4.5	±0.3	1.4	±0.15	48.97
TOP-110	T-10.2	10.0	0/-0.009	330	0/+5	4.5	±0.3	1.4	±0.15	54.41
TOP-110	T-10.2	11.0	0/-0.011	330	0/+5	4.9	±0.4	1.4	±0.15	59.86
TOP-110	T-10.2	12.0	0/-0.011	330	0/+5	5.85	±0.4	1.4	±0.15	65.3
TOP-110	T-10.2	13.0	0/-0.011	330	0/+5	6.1	±0.4	1.75	±0.20	70.74
TOP-110	T-10.2	14.0	0/-0.011	330	0/+5	6.7	±0.4	1.75	±0.20	76.18
TOP-110	T-10.2	15.0	0/-0.011	330	0/+5	7.3	±0.4	1.75	±0.20	81.62
TOP-110	T-10.2	16.0	0/-0.011	330	0/+5	7.9	±0.4	1.75	±0.20	87.06
TOP-110	T-10.2	17.0	0/-0.011	330	0/+5	8.5	±0.4	1.75	±0.20	92.5
TOP-110	T-10.2	18.0	0/-0.011	330	0/+5	9.15	±0.4	2	±0.25	97.95
TOP-110	T-10.2	19.0	0/-0.013	330	0/+5	9.7	±0.4	2	±0.25	103.39
TOP-110	T-10.2	20.0	0/-0.013	330	0/+5	9.9	±0.5	2	±0.25	108.83
TOP-110	T-10.2	22.0	0/-0.013	330	0/+5	11.1	±0.5	2	±0.25	119.71
TOP-110	T-10.2	25.0	0/-0.013	330	0/+5	12.8	±0.5	2	±0.25	136.03
TOP-110	T-10.2	6.0	0/-0.008	330	0/+5	2.7	±0.2	0.8	±0.10	32.65
TOP-110	T-10.2	7.0	0/-0.009	330	0/+5	3.5	±0.2	1	±0.15	38.09
TOP-110	T-10.2	8.0	0/-0.009	330	0/+5	3.4	±0.2	1	±0.15	43.53
TOP-110	T-10.2	9.0	0/-0.009	330	0/+5	4.5	±0.3	1.4	±0.15	48.97
TOP-110	T-10.2	10.0	0/-0.009	330	0/+5	4.8	±0.3	1.3	±0.15	54.41
TOP-110	T-10.2	11.0	0/-0.011	330	0/+5	4.9	±0.4	1.4	±0.15	59.86
TOP-110	T-10.2	12.0	0/-0.011	330	0/+5	6.3	±0.4	1.7	±0.20	65.3
TOP-110	T-10.2	13.0	0/-0.011	330	0/+5	6.1	±0.4	1.75	±0.20	70.74
TOP-110	T-10.2	14.0	0/-0.011	330	0/+5	6.7	±0.4	1.8	±0.20	76.18
TOP-110	T-10.2	15.0	0/-0.011	330	0/+5	7.3	±0.4	1.75	±0.20	81.62
TOP-110	T-10.2	16.0	0/-0.011	330	0/+5	8	±0.4	2	±0.20	87.06
TOP-110	T-10.2	17.0	0/-0.011	330	0/+5	8.5	±0.4	1.75	±0.20	92.5
TOP-110	T-10.2	18.0	0/-0.011	330	0/+5	9	±0.4	2.3	±0.20	97.95
TOP-110	T-10.2	19.0	0/-0.013	330	0/+5	9.7	±0.4	2	±0.25	103.39
TOP-110	T-10.2	20.0	0/-0.013	330	0/+5	10	±0.5	2.5	±0.25	108.83

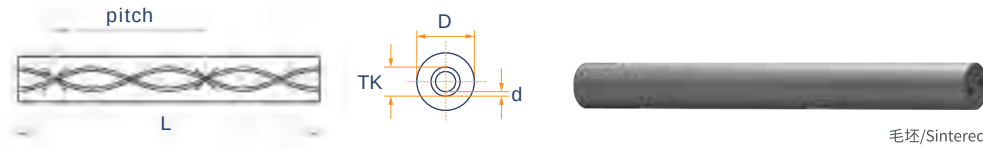
直径 øD	公差 TOL.			孔径 ød	公差 TOL.	孔距 TKø	公差 TOL.	导程 Lead	长度 Length	材质 Grade	备注 Materia
D(mm)	毛坯 Sintered	粗磨 Rough Grind	精磨 Ground	d(mm)	TOL.	TK(mm)	TOL.	PITCH	L(+5mm)	T-10.2	
26.3	+0.8/+1.4	+0.35/+0.65	φ26(h6)	2.00	±0.20	13.30	±0.50	141.48	330	●	
28.3	+0.8/+1.4	+0.35/+0.65	φ28(h6)	2.00	±0.20	9.15	±0.40	152.36	330		
28.3	+0.8/+1.4	+0.35/+0.65	φ28(h6)	2.50	±0.30	13.00	±0.50	152.36	330	●	
28.3	+0.8/+1.4	+0.35/+0.65	φ28(h6)	2.50	±0.30	14.20	±0.50	152.36	330	●	
30.3	+0.8/+1.4	+0.35/+0.65	φ30(h6)	2.50	±0.30	15.40	±0.50	163.24	330	●	
32.3	+0.8/+1.4	+0.35/+0.65	φ32(h6)	3.00	±0.30	16.60	±0.50	174.12	330	●	

提供切断服务
We offer cut-to-length services

●=标准库存
●=Standard Stock

双螺旋30°毛坯圆棒

Unground Rod,
2 Helical Hole 30 degree



Unground Rod, 2 Helical Hole 30 degree										
Item No.	Grade	OD mm	Tol mm	L mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-120	T-10.2	3.3	+0.3/+0.7	330	0/+5	1.6	±0.1	0.4	±0.10	16.32
TOP-120	T-10.2	4.3	+0.3/+0.7	330	0/+5	2.1	±0.1	0.6	±0.10	21.77
TOP-120	T-10.2	5.3	+0.3/+0.7	330	0/+5	2.1	±0.2	0.7	±0.10	27.21
TOP-120	T-10.2	6.3	+0.3/+0.7	330	0/+5	2.4	±0.2	0.7	±0.10	32.65
TOP-120	T-10.2	7.3	+0.3/+0.7	330	0/+5	3.5	±0.2	1	±0.15	38.09
TOP-120	T-10.2	8.3	+0.3/+0.7	330	0/+5	3.8	±0.2	1	±0.15	43.53
TOP-120	T-10.2	9.3	+0.3/+0.7	330	0/+5	4.5	±0.3	1.4	±0.15	48.97
TOP-120	T-10.2	10.3	+0.3/+0.7	330	0/+5	4.5	±0.3	1.4	±0.15	54.41
TOP-120	T-10.2	11.3	+0.4/+0.9	330	0/+5	4.9	±0.4	1.4	±0.15	59.86
TOP-120	T-10.2	12.3	+0.4/+0.9	330	0/+5	5.85	±0.4	1.4	±0.15	65.3
TOP-120	T-10.2	13.3	+0.4/+0.9	330	0/+5	6.1	±0.4	1.75	±0.20	70.74
TOP-120	T-10.2	14.3	+0.4/+0.9	330	0/+5	6.7	±0.4	1.75	±0.20	76.18
TOP-120	T-10.2	15.3	+0.4/+0.9	330	0/+5	7.3	±0.4	1.75	±0.20	81.62
TOP-120	T-10.2	16.3	+0.4/+0.9	330	0/+5	7.9	±0.4	1.75	±0.20	87.06
TOP-120	T-10.2	17.3	+0.4/+1.0	330	0/+5	8.5	±0.4	1.75	±0.20	92.5
TOP-120	T-10.2	18.3	+0.4/+1.0	330	0/+5	9.15	±0.4	2	±0.25	97.95
TOP-120	T-10.2	19.3	+0.4/+1.0	330	0/+5	9.7	±0.4	2	±0.25	103.39
TOP-120	T-10.2	20.3	+0.4/+1.0	330	0/+5	9.9	±0.5	2	±0.25	108.83
TOP-120	T-10.2	22.3	+0.4/+1.0	330	0/+5	11.1	±0.5	2	±0.25	119.71
TOP-120	T-10.2	25.3	+0.4/+1.0	330	0/+5	12.8	±0.5	2	±0.25	136.03
TOP-120	T-10.2	6.3	+0.3/+0.7	330	0/+5	2.7	±0.2	0.8	±0.10	32.65
TOP-120	T-10.2	7.3	+0.3/+0.7	330	0/+5	3.5	±0.2	1	±0.15	38.09
TOP-120	T-10.2	8.3	+0.3/+0.7	330	0/+5	3.4	±0.2	1	±0.15	43.53
TOP-120	T-10.2	9.3	+0.3/+0.7	330	0/+5	4.5	±0.3	1.4	±0.15	48.97
TOP-120	T-10.2	10.3	+0.3/+0.7	330	0/+5	4.8	±0.3	1.3	±0.15	54.41
TOP-120	T-10.2	11.3	+0.4/+0.9	330	0/+5	4.9	±0.4	1.4	±0.15	59.86
TOP-120	T-10.2	12.3	+0.4/+0.9	330	0/+5	6.3	±0.4	1.7	±0.20	65.3
TOP-120	T-10.2	13.3	+0.4/+0.9	330	0/+5	6.1	±0.4	1.75	±0.20	70.74
TOP-120	T-10.2	14.3	+0.4/+0.9	330	0/+5	6.7	±0.4	1.8	±0.20	76.18
TOP-120	T-10.2	15.3	+0.4/+0.9	330	0/+5	7.3	±0.4	1.75	±0.20	81.62
TOP-120	T-10.2	16.3	+0.4/+0.9	330	0/+5	8	±0.4	2	±0.20	87.06
TOP-120	T-10.2	17.3	+0.4/+1.0	330	0/+5	8.5	±0.4	1.75	±0.20	92.5
TOP-120	T-10.2	18.3	+0.4/+1.0	330	0/+5	9	±0.4	2.3	±0.20	97.95
TOP-120	T-10.2	19.3	+0.4/+1.0	330	0/+5	9.7	±0.4	2	±0.25	103.39
TOP-120	T-10.2	20.3	+0.4/+1.0	330	0/+5	10	±0.5	2.5	±0.25	108.83

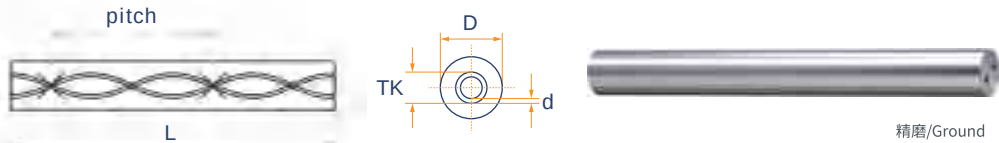
01/硬质合金圆棒

Carbide Round Rod



双螺旋40°精磨圆棒

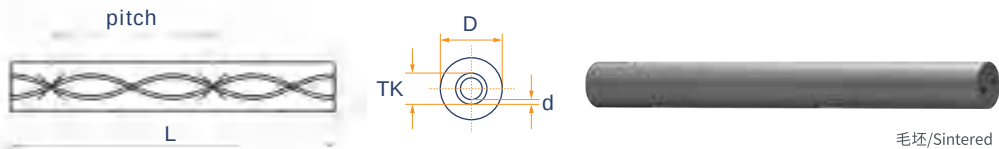
Precision Ground Rod,
2 Helical Hole 40 degree



Precision Ground Rod, 2 Helical Hole 40 degree										
Item No.	Grade	OD mm	Tol.h6 mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-130	T-10.2	6.0	0/-0.008	330	0/+5	1.9	±0.15	0.7	±0.10	22.46
TOP-130	T-10.2	6.0	0/-0.008	330	0/+5	2	±0.15	0.5	±0.10	22.46
TOP-130	T-10.2	8.0	0/-0.009	330	0/+5	2.4	±0.30	0.65	±0.15	29.95
TOP-130	T-10.2	10.0	0/-0.009	330	0/+5	3.1	±0.40	0.8	±0.15	37.44
TOP-130	T-10.2	12.0	0/-0.011	330	0/+5	3.8	±0.40	0.9	±0.15	44.93
TOP-130	T-10.2	14.0	0/-0.011	330	0/+5	4.3	±0.40	1	±0.20	52.42
TOP-130	T-10.2	16.0	0/-0.011	330	0/+5	5.1	±0.40	1.2	±0.20	59.9
TOP-130	T-10.2	18.0	0/-0.011	330	0/+5	5.9	±0.40	1.4	±0.25	67.39
TOP-130	T-10.2	20.0	0/-0.013	330	0/+5	6.6	±0.50	1.5	±0.25	74.88
TOP-130	T-10.2	22.0	0/-0.013	330	0/+5	7.2	±0.50	1.7	±0.25	82.35
TOP-130	T-10.2	25.0	0/-0.013	330	0/+5	7.6	±0.50	1.75	±0.25	93.58

双螺旋40°毛坯圆棒

Unground Rod,
2 Helical Hole 40 degree



Unground Rod, 2 Helical Hole 40 degree										
Item No.	Grade	OD mm	Tol mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-140	T-10.2	6.3	+0.3/+0.7	330	0/+5	1.9	±0.15	0.7	±0.10	22.46
TOP-140	T-10.2	6.3	+0.3/+0.7	330	0/+5	2	±0.15	0.5	±0.10	22.46
TOP-140	T-10.2	8.3	+0.3/+0.7	330	0/+5	2.4	±0.30	0.65	±0.15	29.95
TOP-140	T-10.2	10.3	+0.3/+0.7	330	0/+5	3.1	±0.40	0.8	±0.15	37.44
TOP-140	T-10.2	12.3	+0.4/+0.9	330	0/+5	3.8	±0.40	0.9	±0.15	44.93
TOP-140	T-10.2	14.3	+0.4/+0.9	330	0/+5	4.3	±0.40	1	±0.20	52.42
TOP-140	T-10.2	16.3	+0.4/+0.9	330	0/+5	5.1	±0.40	1.2	±0.20	59.9
TOP-140	T-10.2	18.3	+0.4/+1.0	330	0/+5	5.9	±0.40	1.4	±0.25	67.39
TOP-140	T-10.2	20.3	+0.4/+1.0	330	0/+5	6.6	±0.50	1.5	±0.25	74.88
TOP-140	T-10.2	22.3	+0.4/+1.0	330	0/+5	7.2	±0.50	1.7	±0.25	82.35
TOP-140	T-10.2	25.3	+0.4/+1.0	330	0/+5	7.6	±0.50	1.75	±0.25	93.58

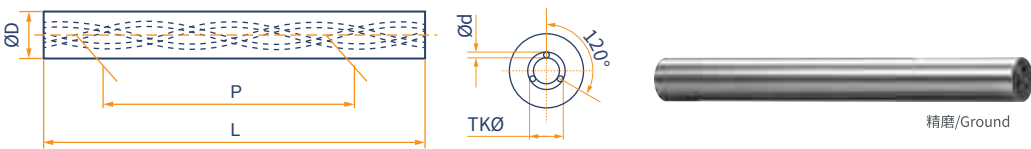
直径 øD	公差 TOL.			孔径 ød	公差 TOL.	孔距 TKø	公差 TOL.	导程 Lead	长度 Length	材质 Grade
D(mm)	毛坯 Sintered	粗磨 Rough Grind	精磨 Ground	d(mm)	TOL.	TK(mm)	TOL.	PITCH	L(+5mm)	T-10.2
28.3	+0.8/+1.4	+0.35/+0.65	φ28(h6)	2.00	±0.20	8.40	±0.40	104.83	330	●
30.3	+0.8/+1.4	+0.35/+0.65	φ30(h6)	2.00	±0.20	8.40	±0.40	112.32	330	●
32.3	+0.8/+1.4	+0.35/+0.65	φ32(h6)	2.00	±0.20	8.40	±0.40	119.81	330	●

提供切断服务
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3螺旋孔棒精磨

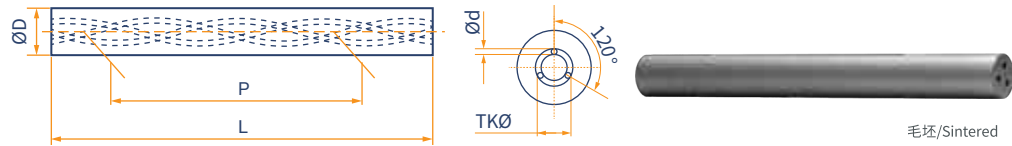
Precision Ground Rod,
3 Helical Hole 30 degree



Precision Ground Rod, 3 Helical Hole 30 degree										
Item No.	Grade	OD mm	Tol. mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-150	T-10.2	6.0	0/-0.008	330	0/+5	2.75	±0.2	0.5	±0.15	32.65
TOP-150	T-10.2	8.0	0/-0.009	330	0/+5	3.85	±0.2	0.7	±0.15	43.53
TOP-150	T-10.2	10.0	0/-0.009	330	0/+5	4.95	±0.3	0.85	±0.20	54.41
TOP-150	T-10.2	12.0	0/-0.011	330	0/+5	6.05	±0.4	1.1	±0.20	65.3
TOP-150	T-10.2	14.0	0/-0.011	330	0/+5	7.05	±0.4	1.4	±0.20	76.18
TOP-150	T-10.2	16.0	0/-0.011	330	0/+5	8.05	±0.4	1.6	±0.20	87.06
TOP-150	T-10.2	18.0	0/-0.011	330	0/+5	9.25	±0.4	1.7	±0.25	97.95
TOP-150	T-10.2	20.0	0/-0.013	330	0/+5	9.85	±0.5	1.9	±0.25	108.83

3螺旋孔圆棒 毛坯

Unground Rod,
3 Helical Hole 30 degree



Unground Rod, 3 Helical Hole 30 degree										
Item No.	Grade	OD mm	Tol mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-160	T-10.2	6.3	+0.3/+0.7	330	0/+5	2.75	±0.20	0.5	±0.15	32.65
TOP-160	T-10.2	8.3	+0.3/+0.7	330	0/+5	3.85	±0.20	0.7	±0.15	43.53
TOP-160	T-10.2	10.3	+0.3/+0.7	330	0/+5	4.95	±0.30	0.85	±0.20	54.41
TOP-160	T-10.2	12.3	+0.4/+0.9	330	0/+5	6.05	±0.40	1.1	±0.20	65.3
TOP-160	T-10.2	14.3	+0.4/+0.9	330	0/+5	7.05	±0.40	1.4	±0.20	76.18
TOP-160	T-10.2	16.3	+0.4/+0.9	330	0/+5	8.05	±0.40	1.6	±0.20	87.06
TOP-160	T-10.2	18.3	+0.4/+1.0	330	0/+5	9.25	±0.50	1.7	±0.25	97.95
TOP-160	T-10.2	20.3	+0.4/+1.0	330	0/+5	9.85	±0.50	1.9	±0.25	108.83

直径 øD	公差 TOL.			孔径 ød	公差 TOL.	孔距 TKø	公差 TOL.	导程 Lead	长度 Length	材质 Grade
D(mm)	毛坯 Sintered	粗磨 Rough Grind	精磨 Ground	小孔/大孔 d(mm)	TOL.	TK(mm)	TOL.	PITCH	L(+5mm)	T-10.2
22.3	+0.8/+1.4	+0.35/+0.65	φ22(h6)	1.7/2.0	±0.20	11.15	±0.50	119.71	330	●
24.3	+0.8/+1.4	+0.35/+0.65	φ24(h6)	1.7/2.0	±0.20	11.75	±0.50	130.59	330	●
25.3	+0.8/+1.4	+0.35/+0.65	φ25(h6)	1.7/2.0	±0.20	12.15	±0.50	136.03	330	●
26.3	+0.8/+1.4	+0.35/+0.65	φ26(h6)	1.7/2.0	±0.20	12.75	±0.50	141.48	330	●
28.3	+0.8/+1.4	+0.35/+0.65	φ28(h6)	2.0/2.5	±0.30	13.65	±0.50	152.36	330	●
30.3	+0.8/+1.4	+0.35/+0.65	φ30(h6)	2.0/2.5	±0.30	14.50	±0.50	163.24	330	●
32.3	+0.8/+1.4	+0.35/+0.65	φ32(h6)	2.5/3.0	±0.30	15.50	±0.50	174.12	330	●

备注: 提供两种孔径供选择, 制作阶梯钻等变径较大的钻头, 推荐小孔径棒料

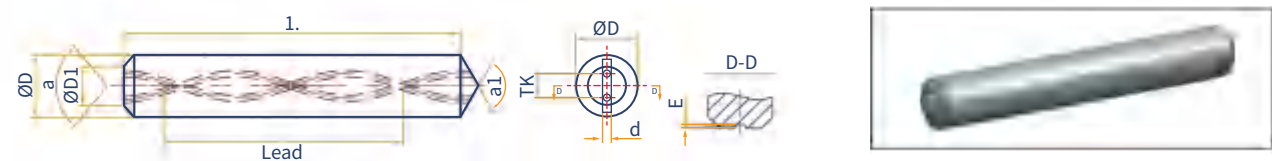
01/硬质合金圆棒

Carbide Round Rod



3倍直径 精磨

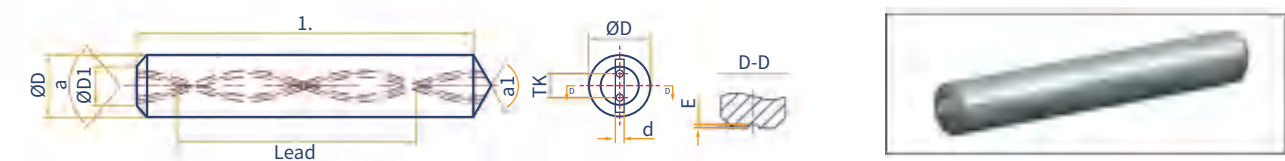
Precision Ground Rod, 3XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot



Precision Ground Rod, 3XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot										
Item No.	Grade	OD mm	Tol.h6 mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-170	T-10.2	6.0	0/-0.008	63	0/+1.5	1.9	±0.15	0.7	±0.10	22.5
TOP-170	T-10.2	6.0	0/-0.008	67	0/+1.5	2.7	±0.20	0.8	±0.10	32.7
TOP-170	T-10.2	8.0	0/-0.009	80.5	0/+1.5	3.4	±0.20	1	±0.15	43.5
TOP-170	T-10.2	10.0	0/-0.009	90.5	0/+1.5	4.8	±0.30	1.3	±0.15	54.4
TOP-170	T-10.2	12.0	0/-0.011	104	0/+1.5	6.3	±0.40	1.7	±0.15	65
TOP-170	T-10.2	14.0	0/-0.011	109	0/+1.5	6.7	±0.40	1.8	±0.20	76.2
TOP-170	T-10.2	16.0	0/-0.011	117.5	0/+1.5	8	±0.40	2	±0.20	87.1
TOP-170	T-10.2	18.0	0/-0.011	125.5	0/+1.5	9	±0.45	2.3	±0.20	98
TOP-170	T-10.2	20.0	0/-0.013	134	0/+1.5	10	±0.50	2.5	±0.20	108.8

8倍直径 精磨

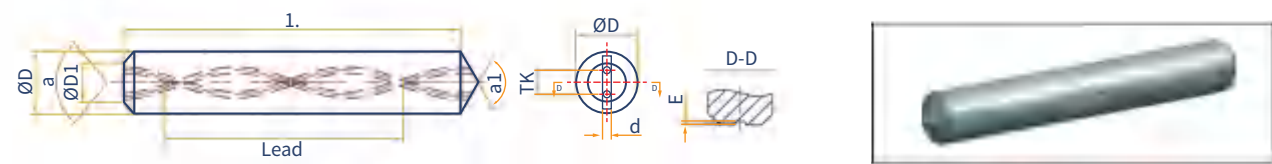
Precision Ground Rod, 8XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot



Precision Ground Rod, 3XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot										
Item No.	Grade	OD mm	Tol.h6 mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-190	T-10.2	6.0	0/-0.008	86	0/+1.5	1.9	±0.15	0.7	±0.10	22.5
TOP-190	T-10.2	6.0	0/-0.008	98	0/+1.5	2.7	±0.20	0.8	±0.05	32.7
TOP-190	T-10.2	8.0	0/-0.009	107.5	0/+1.5	3.4	±0.20	1	±0.05	43.5
TOP-190	T-10.2	8.0	0/-0.009	117.5	0/+1.5	3.4	±0.20	1	±0.05	43.5
TOP-190	T-10.2	10.0	0/-0.009	135.5	0/+1.5	4.8	±0.23	1.3	±0.05	54.4
TOP-190	T-10.2	12.0	0/-0.011	157	0/+1.5	6.3	±0.23	1.7	±0.075	65
TOP-190	T-10.2	14.0	0/-0.011	184.5	0/+1.5	6.7	±0.26	1.8	±0.075	76.2
TOP-190	T-10.2	16.0	0/-0.011	206.5	0/+1.5	8	±0.40	2	±0.075	87.1
TOP-190	T-10.2	18.0	0/-0.011	225.5	0/+1.5	9	±0.45	2.3	±0.075	98
TOP-190	T-10.2	20.0	0/-0.013	247	0/+1.5	10	±0.50	2.5	±0.075	108.8

5倍直径 精磨

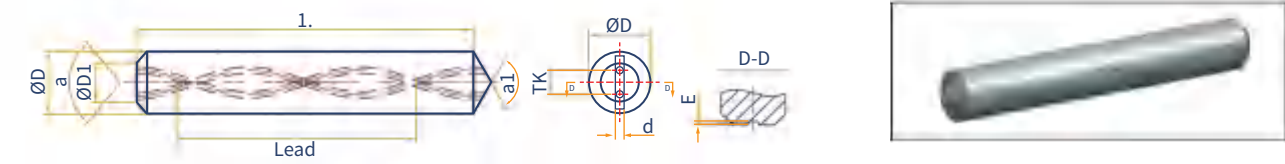
Precision Ground Rod, 5XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot



Precision Ground Rod, 3XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot										
Item No.	Grade	OD mm	Tol.h6 mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-180	T-10.2	6.0	0/-0.008	75	0/+1.5	1.9	±0.15	0.7	±0.10	22.5
TOP-180	T-10.2	6.0	0/-0.008	83	0/+1.5	2.7	±0.20	0.8	±0.10	32.7
TOP-180	T-10.2	8.0	0/-0.009	92.5	0/+1.5	3.4	±0.20	1	±0.15	43.5
TOP-180	T-10.2	10.0	0/-0.009	104.5	0/+1.5	4.8	±0.30	1.3	±0.15	54.4
TOP-180	T-10.2	12.0	0/-0.011	120	0/+1.5	6.3	±0.40	1.7	±0.15	65
TOP-180	T-10.2	14.0	0/-0.011	126.5	0/+1.5	6.7	±0.40	1.8	±0.20	76.2
TOP-180	T-10.2	16.0	0/-0.011	135.5	0/+1.5	8	±0.40	2	±0.20	87.1
TOP-180	T-10.2	18.0	0/-0.011	145.5	0/+1.5	9	±0.45	2.3	±0.20	98
TOP-180	T-10.2	20.0	0/-0.013	156	0/+1.5	10	±0.50	2.5	±0.20	108.8

12倍直径 精磨

Precision Ground Rod, 12XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot



Precision Ground Rod, 12XDiameter Drill, 2 Helical Hole,With Point,Chamfer and Connection Slot										
Item No.	Grade	OD mm	Tol.h6 mm	L. mm	Tol mm	TK mm	Tol mm	d mm	Tol mm	Pitch mm
TOP-200	T-10.2	6.0	0/-0.008	103.5	0/+1.5	1.9	±0.15	0.7	±0.10	22.5
TOP-200	T-10.2	6.0	0/-0.008	122.5	0/+1.5	2.7	±0.20	0.8	±0.05	32.7
TOP-200	T-10.2	8.0	0/-0.009	150	0/+1.5	3.4	±0.20	1	±0.05	43.5
TOP-200	T-10.2	10.0	0/-0.009	183	0/+1.5	4.8	±0.23	1.3	±0.05	54.4
TOP-200	T-10.2	12.0	0/-0.011	208	0/+1.5	6.3	±0.23	1.7	±0.075	65
TOP-200	T-10.2	14.0	0/-0.011	233	0/+1.5	6.7	±0.26	1.8	±0.075	76.2
TOP-200	T-10.2	16.0	0/-0.011	263	0/+1.5	8	±0.40	2	±0.075	87.1
TOP-200	T-10.2	18.0	0/-0.011	288	0/+1.5	9	±0.45	2.3	±0.075	98
TOP-200	T-10.2	20.0	0/-0.013	313.5	0/+1.5	10	±0.50	2.5	±0.075	108.8

02

CARBIDE MINING & CONSTRUCTION PRODUCTS

硬质合金采矿与建筑产品

1-CARBIDE BUTTONS

硬质合金球齿



用于冲击钻头的硬质合金球齿牌号

CARBIDE BUTTONS FOR IMPACT DRILL BIT						
Product Category	Grade	Co	Density	Hardness	TRS	Application area
		(%)	(g/cm³)	(HRA/HV3)	(N/mm²)	
Carbide buttons for high airpressure 高气压用硬质合金球齿	ZZ05	6	14.94	1440	3000	The mainly popularized grade suitable for all kinds of cemented carbide post-button, show-ing good impact resistance and wear resistance, applicable to a wide range of rock stratum, and capable of providing a high drilling rate in soft and medium- hard rock strata drilling. 主要推广的牌号，适用于各类硬质合金后装球齿，具有良好的抗冲击性能和耐磨性。适用于多种岩层，可在软至中硬岩层钻进中提供较高的钻进效率。
	TH10	6.15	14.9	1420	2900	The grade of new composite cemented carbide spherical button, showing high wear resistance and good crack propagation resistance at the same time, further improving the reliability and durability of spherical button products, suitable for all kinds of rock conditions, especially for hard rock stratum and rock stratum with large impact energy. 新型复合硬质合金球齿牌号，具有较高耐磨性和良好的裂纹扩展抗力，同时提高球齿产品的可靠性和耐久性。适用于各种岩层条件，特别是硬岩及高冲击能量的岩层。
	TH20C	7	14.81	1400	3200	complementary grade, with an impact resis-tance better than that of ZZ05, suitable for hard rock stratum.作为补充牌号，其抗冲击性能优于ZZ05，适用于硬岩层。
Carbide buttons for medium and low air pressure 中低气压用硬质合金球齿	TH10H	6	14.93	1410	2800	Suitable for medium and low air pressure DTH bits for drilling of medium and hard rock strata. 适用于中低气压潜孔钻头，用于中硬及硬岩层钻进。
	TH10B	6.5	14.88	1390	2900	Suitable for medium and low air pressure DTH bit, showing good toughness, applicable to the drilling of medium and hard rock strata and conglomerate rock. 适用于中低气压潜孔钻头，具有良好的韧性，适用于中硬岩层及砾岩层钻进。
	TH30D	8	14.71	1310	3000	Suitable for welding drill bit applicable to the drilling of rock stratum of medium hardness and above. 适用于焊接式钻头，用于中等硬度及以上岩层的钻进。
Carbide buttons for high air pressure 高气压用硬质合金球齿	ZZ05A	6	14.9	1520	2800	Special for DTH & TOP HAMMER Bits, as well as for wear parts. 专用于潜孔钻（DTH）和顶锤钻（TOP HAMMER）钻头，同时适用于耐磨零件。
	TH10A	6	14.92	1580	2800	Special for DTH & TOP HAMMER Bits, as well as for wear parts. 专用于潜孔钻（DTH）和顶锤钻（TOP HAMMER）钻头，同时适用于耐磨零件。

CARBIDE MINING & CONSTRUCTION PRODUCTS



三锥钻头硬质合金球齿牌号

CARBIDE BUTTONS FOR TRI-CONE DRILL BITS						
Product Category	Grade	Co	Density	Hardness	TRS	Application area
		(%)	(g/cm ³)	(HRA/HV3)	(N/mm ²)	
Carbide buttons for mining tri-cone drill bits 矿用三牙轮钻头用硬质合金球齿	TH30	10	14.51	88.5	3300	Suitable for assembling mining tri-cone drill bits with both high wear resistance and toughness. 适用于矿用三牙轮钻头装配，具有优异的耐磨性和韧性。
	TH40E	10	14.5	87.6	2900	Suitable for assembling mining tri-cone drill bits. 适用于矿用三牙轮钻头装配。
	YG11C	11.5	14.36	87.2	3000	Suitable for assembling mining tri-cone drill bits, used in medium to hard rock formations. 适用于矿用三牙轮钻头装配，用于中硬至硬岩层。
Carbide buttons for oil field tri-cone drill bits 油田三牙轮钻头用硬质合金球齿	YG13C	13	14.22	86.7	3000	Suitable for assembling mining tri-cone drill bits, used in medium to hard rock formations. 适用于矿用三牙轮钻头装配，用于中硬至硬岩层。
	TH10F	6	14.92	90.8	2670	Suitable for assembling mining tri-cone drill bits. 适用于油田三牙轮钻头装配。
	TH30F	11	14.43	88.8	2600	Suitable for assembling mining tri-cone drill bits. 适用于油田三牙轮钻头装配。
	TH40F	10	14.53	88.1	2840	Suitable for assembling mining tri-cone drill bits. 适用于油田三牙轮钻头装配。
	TH60F	12	14.3	86.2	2520	Suitable for assembling mining tri-cone drill bits. 适用于油田三牙轮钻头装配。
	TH60C	12	14.3	85.5	2400	Suitable for assembling mining tri-cone drill bits. 适用于油田三牙轮钻头装配。
	TH50C	14	14.12	86.1	2430	Suitable for assembling mining tri-cone drill bits. 适用于油田三牙轮钻头装配。
	TH60D	16	13.9	83.8	2350	Suitable for assembling mining tri-cone drill bits. 适用于油田三牙轮钻头装配。

CODE KEY FOR TYPES OF BUTTONS

Buttons are divided into the following 8 categories based on the shape of the top part

Q	Spherical 球形	Z	Conical 锥形	D	Parabolic 抛物线形	P	Flat top 平顶形
T	Flat cone 平锥形	X	Wedged 楔形	B	Side wedged 侧楔形	S	Spoon 勺形

The types of buttons are indicated with capital letters "s" or "y" and the letter indicating the shape of the top part plus numerals.

齿体型号标注规则：以大写字母 S 或 Y 开头，后跟表示顶部形状的字母及数字组合。

- 1 Finish grinding
精磨处理(表面经过精磨加工)。
- 2 Specification of series: "s" indicates the series of imported cemented carbide buttons with their dimensional specifications and "y" indicates the series of cemented carbide buttons in accordance with the dimensional specifications specified by customers.
系列规格说明 S:表示采用进口硬质合金球齿尺寸规格系列。Y:表示按照客户指定尺寸规格生产的硬质合金球齿系列。
- 3 It indicates the shape of the top part of the buttons See l above.
表示球齿顶部的形状(具体形状见上方图示说明)。
- 4 It indicates the diameter of the buttons in mm. Only 2-digit integers are to be taken and zero is added before the integer if there is only 1 digit.
表示球齿的直径尺寸。仅使用 2 位整数表示:如果直径只有 1 位数,则在前面补 0。
例如:6 mm → 06 , 12 mm → 12
- 5 It indicates the height of the button in mm. Only 2-digit integers are to be taken and a zero is added before one integer if there is only 1 digit.
表示球齿的高度尺寸。同样使用 2 位整数表示:如果只有 1 位数,需在前面补 0。
例如:8 mm → 08 , 15 mm → 15

- 6 It indicates the angle of the chamfered bottom of the button.

E- The included angle in relation to the axle center line is 15-18 degrees;

F- The included angle in relation to the axle center line is 30 degrees (Exceptional example: F2 indicates 0.7×30%);

G- The included angle in relation to the axle center line is 45 degrees;

X- The included angle in relation to the axle center line is other values or other bottom shapes.

用于表示球齿底部倒角与轴线中心的夹角：

E:夹角 15°-18°

F:夹角 30° (特殊示例:F2 表示 0.7 × 30°)

G:夹角 45°

X:其他角度或其他底部结构形式
- 7 It indicates the height of the bottom chamfer and numerals are 10 times that of height in mm and zero is added before the integer if there is only 1 digit.表示底部倒角的高度。数值为 实际高度 (mm) 的 10倍, 并以 两位整数表示: 若只有 1位数, 前面补 0。
- 8 It indicates the status of the gas containing hole at the bottom of the button. Q-Spherical hole, Z-Conical hole, J- Sharp hole, No letter here if there is no hole.

表示球齿底部是否带孔以及孔型: Q-球形孔, Z-锥形孔, J-尖形孔, 无字母-无底孔
- 9 Code for non-standard product, to be set by manufacturer as needed.

用于表示非标准产品, 代码由制造商根据需要自行设定。

Note: If Digit 5 and Digit 6 are both defaulted, it means a post-button product with double chamfers.

备注: 如果 第⑤位 (高度) 和 第⑥位 (底角) 同时省略, 则表示该产品为: 双倒角柱齿 (Post Button with Double Chamfers)

(G)S Q 18 26 - E 15 Q / A

①②③④⑤⑥⑦⑧⑨

(G)Y Z 18.2 25 - X 12 Q / A

Tolerances For Diameters And Heights of Buttons

Diameter (D)		Height (H)	
Nominal size	Allowed tolerance	Nominal size	Allowed tolerance
≤10	+0.10	≤11	±0.10
		11~18	±0.15
>10	+0.15	18~25	±0.15
		>25	±0.20

Q TYPES (SPHERICAL)

Type	Basic dimensions		
	D	H	h
SQ0812	8.25	12.30	2.67
SQ1015	10.25	15.00	3.31
SQ1217	12.35	17.10	4.07
SQ1420	14.35	20.00	4.71
SQ1621	16.35	21.00	5.35
SQ1826	18.35	26.10	7.81
SQ1928	19.35	28.50	8.07
SQ2028	20.50	28.00	7.61
SQ2230	22.25	30.12	9.20
SQ2435	24.35	35.00	10.39
SQ2536	25.50	36.00	10.90

The dimensions and shapes can be customized according to the customer's requirements.

The product can be used on impact bits for rock drilling, DTH bits, tri-cone drill bits, and is applicable to the drilling of extremely hard rock stratum.

尺寸与形状可根据客户需求进行定制。该产品适用于 凿岩冲击钻头、潜孔钻头、三牙轮钻头, 可钻进极坚硬岩层。

Z TYPES (CONICAL)

Type	Basic dimensions		
	D	H	h
S20812	8.25	12.20	3.52
SZ1016	10.25	16.30	5.22
SZ1320	13.35	22.20	5.85
SZ1424	14.38	24.00	8.27
SZ1520	15.00	20.00	8.91
SZ1625	16.30	25.00	8.80
SZ1828	18.25	28.00	10.14
SZ1925	19.00	25.00	6.50
SZ2536	25.77	36.00	18.45

The dimensions and shapes can be customized according to the customer's requirements.

The product can be used on impact bits for rock drilling, DTH bits, tri-cone drill bits, and is applicable to the drilling of extremely hard rock stratum.

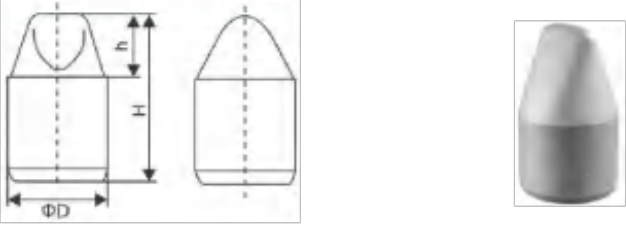
尺寸与形状可根据客户需求定制。本产品适用于 异形潜孔钻头、三牙轮钻头, 可实现软岩层的高速钻进, 且齿体断裂概率低。

D TYPES (PARABOLIC)

			
Type	Basic dimensions		
	D	H	h
SD0711	7.25	11.00	3.93
SD0913	9.25	13.00	5.00
SD1117	11.30	17.00	6.13
SD1218	12.35	18.00	7.60
SD1422	14.35	22.00	7.40
SD1625	16.33	24.60	9.77
SD1829	18.25	29.00	10.44
SD1930	19.22	30.00	9.95
SD2032	20.28	32.12	12.50
SD2233	22.31	33.00	12.76

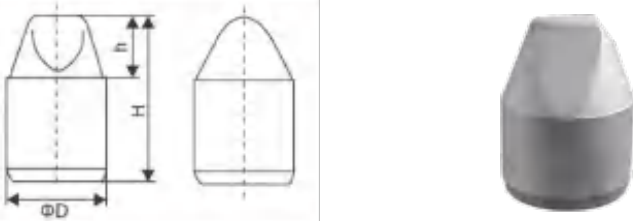
The dimensions and shapes can be customized according to the customer's requirements.
The product can be used on DTH bits, tri-cone drill bits, and is applicable to the drilling of middle hard rock stratum.
尺寸与形状可根据客户需求定制。
本产品适用于潜孔钻头、三牙轮钻头,可钻进中硬岩层。

X TYPES (WEDGED)

			
Type	Basic dimensions		
	D	H	h
SX1014-E18	10.37	14.00	6.00
SX1318-E17Z	13.15	18.00	7.50
SX1418A-E20	14.30	18.00	8.00
SX1620A-E20	16.35	19.50	10.00
SX1724-E18Z	17.20	24.00	11.50
SX1827-E19	18.37	27.00	12.00
SX2236	22.47	36.00	18.00

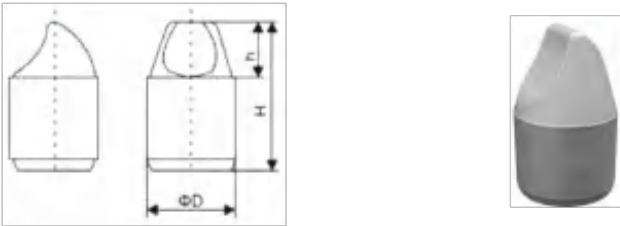
The dimensions and shapes can be customized according to the customer's requirements.
The product can be used on special-shaped DTH bits,tri-cone drill bits and is applicable to the high-speed drilling of soft rock stratum with a low probability of button breakage.
尺寸与形状可根据客户需求定制。
本产品适用于异形潜孔钻头、三牙轮钻头,可实现软岩层的高速钻进,且齿体断裂概率低。

B TYPES (SIDE WEDGED)

			
Type	Basic dimensions		
	D	H	h
SB1215A-E15	12.35	15.00	6.00
SB1418-E18	14.37	18.00	5.50
SB1419-E14Q	14.30	19.60	8.40
SB1620-E19	16.37	20.60	7.20
SB1825-E20Q	18.25	25.20	10.80
SB1924-E21	19.38	24.05	9.05
SB2333B-E22	23.37	33.50	15.00
SB2941	28.90	42.00	20.91

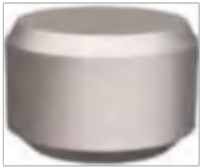
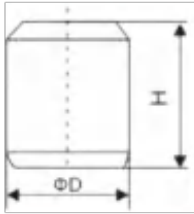
The dimensions and shapes can be customized according to the customer's requirements.

S TYPES (SPOON)

			
Type	Basic dimensions		
	D	H	h
SS1418-E20	14.30	18.00	8.10
SS1620-E20	16.35	19.50	11.10
SS2444-E22	24.37	44.00	22.00

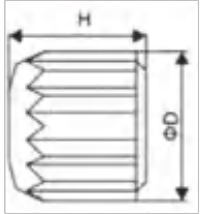
The dimensions and shapes can be customized according to the customer's requirements.
The product can be used on tri-cone drill bits and is applicable to the high-speed drilling of soft rock stratum;
本产品适用于三牙轮钻头,可实现软岩层的高速钻进。

P TYPES (FLAT TOP)

		
Type	Basic dimensions	
	D	H
SP0807-E15	8.25	6.90
SP1010-E20	10.35	10.00
SP1212-E18	12.37	12.00
SP1515-G15	15.00	15.00

The dimensions and shapes can be customized according to the customer's requirements.
The product can be used on tri-cone drill bits, diamond bits, and hole stabilizers, etc. to reduce the wear of friction surface.
本产品可适配三牙轮钻头、金刚石钻头及孔眼稳定器等设备,有效降低摩擦面的磨损损耗。

SERRATED INSERTS

		
Type	Basic dimensions	
	D	H
YP08.107-F	8.17	7.40
YP9.708-F	9.75	8.00
YP14.813-F	14.80	13.70

The dimensions and shapes can be customized according to the customer's requirements.

2-CARBIDE ENGINEERING BUTTONS

硬质合金工程球齿





工程挖掘工具用硬质合金齿

CARBIDE ENGINEERING BUTTONS FOR EXCAVATING TOOLS						
Product Category	Grade	Co	Density	Hardness	TRS	Application area
		(%)	(g/cm³)	(HRA/HV3)	(N/mm²)	
For pavement milling inserts 路面铣刨刀用硬质合金齿	TG30	6	14.93	87.5	2200	Milling of asphalt pavement and cement stabilized base. 适用于沥青路面和水泥稳定基层的铣刨作业。
	TG35	6	14.93	88.1	2300	Milling of cement pavement. 适用于水泥路面的铣刨作
	TG60	10	14.49	85.8	2300	Rotary excavating under general working conditions.业。 适用于一般工况下的旋转挖掘作业。
For excavation and Wear-resistant accessories 挖掘及耐磨工程配件用硬质合金齿	TG55	9	14.6	86.6	2400	Rotary excavating of intact medium-hard rock stratum. 适用于完整中硬岩层的旋转挖掘作业。
	TP60	8.5	14.65	85.3	1950	Rotary excavating in complex hard rock stratum. 适用于复杂硬岩地层的旋转挖掘。
	TP55	5.5	86.5	14.93	1600	Suitable for coal nining and roadway excavation un-der complex working conditions of super hard rock. 适用于超硬岩复杂工况下的煤矿开采和巷道掘进。
	YG11C	11.5	14.36	87	3000	Requiring engineering accessories with high wear resistance. 适用于要求高耐磨性的工程配件。
	YG13C	13	14.22	86.3	3000	Wear-resistant and impact-resistant engineering accessories for bits of small tunneling and hori- zontal directional drills. 适用于小型隧道掘进钻头及水平定向钻工具的耐磨、抗冲击工程配件。
	YG15C	15	14.02	85.7	2900	Engineering accessories for casing drill bits and double-wheel milling plate teeth. 适用于套管钻头及双轮铣槽机刀板等工程配件。

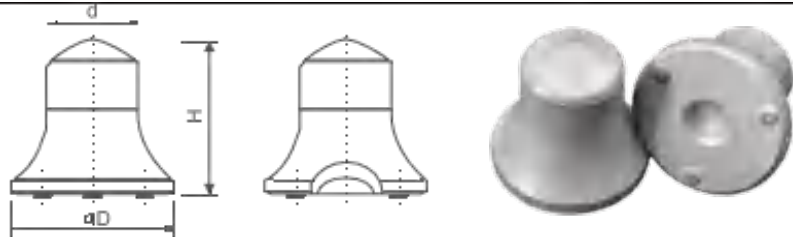
CODE KEY FOR TYPES OF ENGINEERING BUTTONS



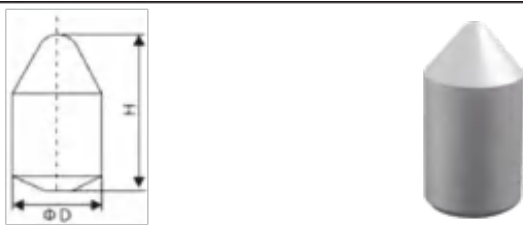
- Series type: "S" refers to regular models, "Y" indicates cemented carbide engineeringbutton series customized according to the dimensional requirements specified bycustomers, and "X" refers to the cemented carbide pavement milling product series.
系列类型：“S”表示常规型号；“Y”表示根据客户指定尺寸要求定制的硬质合金工程齿系列；“X”表示硬质合金路面铣刨产品系列。
- Indication: Type J - engineering button, Type L - pavement asphalt milling series, Type S - cement pavement milling series.
类型标识：J 型：工程齿；L 型：路面沥青铣刨系列；S 型：水泥路面铣刨系列。
- Engineering button diameter in mm: expressed by two integers with one decimal, with : "0" in the front in case of less than two integers.
工程齿直径 (mm) : 以 “两位整数 + 一位小数” 的形式表示, 若整数部分不足两位, 则在前面补 “0”。
- Engineering button height in mm: two integers only, with "0" in the front in case of less than two integers.
工程齿高度 (mm) : 仅以两位整数表示, 若不足两位, 则在前面补 “0”。
- Chamfer angle at the bottom of the engineering buttons.
E - an included angle of 15° or 18° with the axis.
F - an included angle of 30° with the axis. G - an included angle of 45° with the axis.
X - an included angle of other values with the axis, or other bottom shapes.
工程齿底部倒角角度：
E: 与轴线夹角为 15° 或 18°；
F: 与轴线夹角为 30°；
G: 与轴线夹角为 45°；
X: 与轴线夹角为其他值, 或底部为其他形状。
- Chamfer height at the bottom of the engineering button, expressed by a number 10 times the height (in mm), and with "0" in the front in case of less than two digits.
工程齿底部倒角高度: 以高度 (mm) 的 10 倍数值表示, 若不足两位, 则在前面补 “0”。
- Air hole at the bottom of the engineering buttons.
Q - spherical hole, using default value when there is no air hole.
工程齿底部气孔：
Q: 球形孔; 无气孔时使用默认值。



PAVEMENT MILLING BUTTONS
路面铣刨刀用硬质合金齿

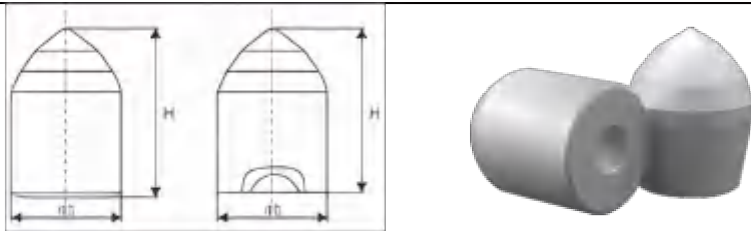
			
Type	Basic dimensions		
	D	H	d
YJ15.615	15.60	15.00	8.50
YJ16.016	16.00	16.50	8.50
YJ17.517	17.50	17.00	9.50
YJ18.417	18.40	17.30	10.50
YJ18.817	18.80	17.50	10.50
YJ19.018	19.00	18.00	11.50
YJ19.518	19.00	17.50	11.50
YJ20.020	20.00	19.50	11.50
YJ20.420	20.40	20.30	11.00
YJ20.620	20.60	19.50	11.70
YJ20.820	20.80	19.80	11.70
YJ22.023	22.00	23.00	11.50

The dimensions and shapes can be customized according to the customer's requirements.

		
Type	Basic dimensions	
	D	H
YJ12.018	12.00	18.00
YJ12.724	12.70	24.50
YJ13.024	13.00	24.50
YJ13.025	13.00	25.00
YJ13.425	13.40	25.00
YJ14.025	14.00	25.00
YJ15.326	15.30	26.50

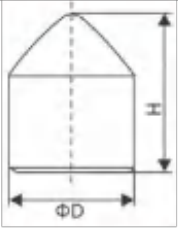
The dimensions and shapes can be customized according to the customer's requirements.

ENGINEERING ROTARY EXCAVATING BUTTONS
工程旋挖用硬质合金齿

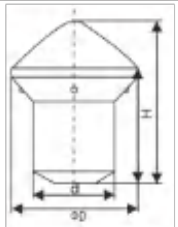
		
Type	Basic dimensions	
	D	H
YJ17.023	17.00	23.00
YJ18.024	18.00	24.00
YJ19.025	19.00	25.00
YJ20.026	20.00	26.00
YJ20.527	20.50	27.00
YJ21.027	21.00	27.00
YJ22.028	22.00	28.00
YJ23.530	23.50	30.00
YJ24.032	24.00	32.00
W25031	2500.00	31.00
YJ25.532	25.50	32.00
YJ28.035	28.00	35.00
Y29.5036	29.50	36.00
YJ30.038	30.00	38.00

The dimensions and shapes can be customized according to the customer's requirements.

MINING BUTTONS
矿用硬质合金球齿

		
Type	Basic dimensions	
	D	H
YJ16.026	16.00	26.00
YJ17.030	17.00	30.00
Y19.032	19.00	19.00
YJ20.032	20.00	32.00
YJ22.034	22.00	34.00
YJ25.040	25.00	40.00
Y27.036	27.00	36.00
YJ30.044	30.00	44.00

The dimensions and shapes can be customized according to the customer's requirements.

			
Type	Basic dimensions		
	D	H	d
YJ18.533	18.50	33.00	12.00
YJ20.025	20.00	25.00	15.00
YJ22.028	22.00	28.00	14.00
YJ24.934	24.90	34.00	17.20
YJ25.028	25.00	28.00	20.00
YJ30.035	30.00	35.00	24.50
YJ33.039	33.00	39.00	24.60
YJ35.045	35.00	45.00	28.40

The dimensions and shapes can be customized according to the customer's requirements.

3-CARBIDE SUBSTRATES

硬质合金复合片基体





PDC钻头用硬质合金基体

CARBIDE SUBSTRATES FOR PDC BITS						Application area
Product Category	Grade	Co (%)	Density (g/cm³)	Hardness (HRA/HV3)	TRS (N/mm²)	
Carbide substrate for cutting and oil 切削及石油行业用硬质合金基体	TZ20	13	14.26	88.6	3500	The mainly popularized grade, suitable for the diamond composite sheet substrate for oil fields and cutting. 主要推广牌号，适用于油田用金刚石复合片（PDC）基体及切削工具基体。
	ZZ-10.1	11.5	14.41	88.5	3300	Suitable for the diamond composite sheet substrate for oil fields and cutting. 适用于油田用金刚石复合片（PDC）基体及切削工具基体。
	TZ25A	8	14.71	88.9	3140	Suitable for the diamond composite sheet substrate for oil fields and cutting. 适用于油田用金刚石复合片（PDC）基体及切削工具基体。
	TH30	10	14.51	88.4	3130	Suitable for the diamond composite sheet substrate for oil fields and cutting. 适用于油田用金刚石复合片（PDC）基体及切削工具基体。
Carbide substrate for mines 矿山用硬质合金基体	TZ65	16.5	113.88	85.2	2900	The mainly popularized grade, suitable for the diamond composite sheet substrate for mines. 主要推广牌号，适用于矿山用金刚石复合片（PDC）基体。

GRID SUBSTRATES
网格结构硬质合金基体

Type	Basic dimensions		
	D	H	h
ZYQ9.25x7.6W	9.25	7.60	0.60
ZYQ11.35x7.0W	11.35	7.00	0.60
ZYQ14.7x12.5W	14.70	12.50	1.00
ZYQ15.0x12.2W	15.00	12.20	0.55
ZYQ18.0x12.5W	18.00	12.50	1.00
ZYQ20.9x15.8W	20.90	15.80	1.00
ZYQ23.6x12.5W	23.60	18.00	0.50
ZYQ34.2x17.8W8	24.40	17.90	0.55

The dimensions and shapes can be customized according to the customer's requirements. It is suitable for the diamond composite sheet substrate.
适用于金刚石复合片基体

LINEAR SUBSTRATES
线性基底

Type	Basic dimensions		
	D	H	h
ZYQ14.6x4.2Z2	14.60	4.20	1.80
ZYQ14.6x12.5Z2	14.60	12.50	1.80
ZYQ18.0x12.9Z	18.00	12.90	0.60
ZYQ20.3x8.3Z5	20.70	8.30	1.60
ZYQ37.2x5.0Z1	37.45	4.00	0.32

The dimensions and shapes can be customized according to the customer's requirements.

PLANAR SUBSTRATES
平面基底

Type	Basic dimensions	
	D	H
ZYQ9.5x7.8P	9.5	7.6
ZYQ11.0x5.5P	11.0	5.5
ZYQ13.7x3.8P	13.7	3.8
ZYQ14.6x4.1P	14.6	4.1
ZYQ15.5x4.0P	15.5	4.0
ZYQ33.9x7.0P	33.9	7.0
ZYQ45.0x3.9P	45.0	3.9
ZYQ55.0x3.5P	55.0	3.5
ZYQ62.0x3.5P	62.0	3.5
ZYQ64.6x3.5P	64.6	3.5
ZYQ77.4x6.0P	77.4	6.0

The dimensions and shapes can be customized according to the customer's requirements.



RADIAL SUBSTRATES
径向基体

Type	Basic dimensions		
	D	H	h
ZYQ14.6x4.8F	14.60	4.8	1.6
ZYQ14.6x7.5F	14.60	7.5	1.6
ZYQ16.76x12.0F	16.76	12	1.6
ZYQ21.0x7.8F1	21.00	7.8	1.6

The dimensions and shapes can be customized according to the customer's requirements.

ANNULAR SUBSTRATES
环形基体

Type	Basic dimensions		
	D	H	h
ZYQ15.0x12.2H2	15.1	12.3	0.863
ZYQ17.65x12.5HL	17.75	12.6	0.7
ZYQ17.8x12.2H	17.9	12.3	1.024

The dimensions and shapes can be customized according to the customer's requirements.

SPECIAL SHAPE SUBSTRATES
特殊形状基底

Type	Basic dimensions		
	D	H	h
ZYQ14.7x12.5S	14.7	12.5	0.9
ZYQ14.8x12.5S1	14.8	12.5	1
ZYQ18.0x12.5S1	18	12.5	1
ZYQ21.0x12.8S3	21.1	12.8	1

The dimensions and shapes can be customized according to the customer's requirements.

4-CARBIDE STUDS FOR HPGR

硬质合金柱钉



CARBIDE STUDS FOR HPGR						
Product Category	Grade	Co	Density	Hardness	TRS	Recommended applications
		(%)	(g/cm³)	(HRA/HV3)	(N/mm²)	
Carbide Studs 硬质合金柱钉	YG11	11	14.43	88	3200	Suitable for crushing iron ore, steelslag and pebbles.适用于铁矿石、钢渣和卵石的破碎
	TD35	15	13.95	88	3500	Suitable for crushing and fine grinding of iron ore and sintered agglomerates.适用于铁矿石和烧结矿团的破碎及细磨
	YG15	14.9	14.05	87	3300	Suitable for occasions where the size of the pressure roller is large and bears a large load.适用于压辊尺寸大、承载负荷大的场合
	TD45	18	13.79	87	3400	Suitable for crushing cement raw meal, clinkel, mixture, bauxite.适用于水泥生料、熟料、铝土矿的破碎
	YG15C	15	14.02	85.5	2900	Suitable for crushing cement mixture, steel slag, iron ore, bauxite.适用于水泥混合料、钢渣、铁矿石、铝土矿的破碎
	Yg20	20	13.56	85	3400	Suitable for crushing raw cement, steel slag and mixture.适用于水泥生料、钢渣混合料的破碎

TYPES OF CARBIDE STUDS FOR HPGR

				
Type	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
ZCH095569	16	-0.06~-0.04	40	±0.2
ZCH095568	16	-0.06~-0.04	45	±0.2

				
Type	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
ZCH125141	16.55	±0.009	36	±0.2
ZCH125142	17.05	±0.01	40	±0.2

TYPES OF CARBIDE STUDS FOR HPGR

				
Type	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
ZCH125101	16	-0.06~-0.04	40	-0.5~0
ZCH125102	16	-0.06~-0.04	45	-0.5~0

				
Type	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
ZCH115161	20	-0.04~0.02	40	±0.2

				
Type	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
ZCH135050	16	-0.06~-0.04	45	±0.2

				
Type	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
ZCH125087	15	±0.046~+0.028	30	±0.1



5-CARBIDE INSERTS FOR TUNNEL BORING MACHINE TOOLINGS

盾构机硬质合金刀片

SELECTION OF MATERIAL GRADES FOR THE TOOLINGS

Different mateial grades for toothed toolings (scrapers) are selected based on the different geological conditions and the performances of the toolings on the tool body. There is a wide range of grades for excavating applications developed by the corporation for customers to choose. Listed below are only the properties of some conventional grades for tunnel boring machine toolings.

齿状刀具(刮刀)的不同材质牌号需根据不同地质条件及刀具在刀体上的使用性能进行选择。本公司针对采掘作业场景,开发了多种牌号的材质供客户挑选。以下仅列出部分应用于隧道掘进机刀具的常规牌号及其性能参数。

Product Category	Grade	Co	Density	Hardness	TRS	Application area
		(%)	(g/cm ³)	(HRA/HV3)	(N/mm ²)	
Carbide Studs	YG8	7.8	14.74	89	≥2350	For making inserts for rock drilling bits and excavating tools. 用于制造凿岩钻头和挖掘工具用的硬质合金齿
	YG11C	11.3	14.4	86.5	≥2260	
	YG13C	13	14.35	85.5	≥2500	

TUNNEL BORING MACHINE TOOLINGS

盾构机刀具

Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
ZMH097043	20	0 -1	35	+1 0	37	+1 0	15	+0.6 0	55°	19°45'	141.06

Dimensions (mm)

Type	L		H		S		β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance		
ZMH097055	33.3	0 -1	45.3	±0.5	15	+0.6 0	55°	215.29

Dimensions (mm)

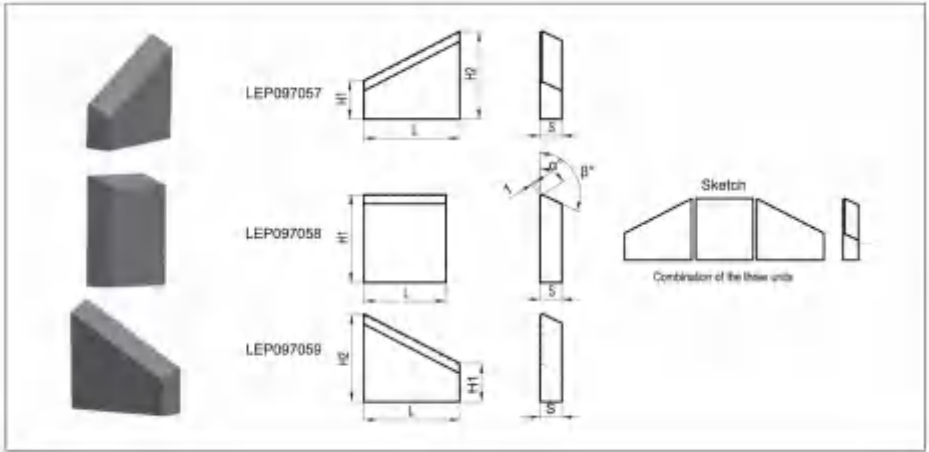
TUNNEL BORING MACHINE TOOLINGS

Type	L		H1		H2		S		α°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance		
ZMH097056	33.3	0 -1.3	45.3	±0.5	54.58	±0.5	15	+1 0	55°	339.85

Dimensions (mm)

02/矿山工具

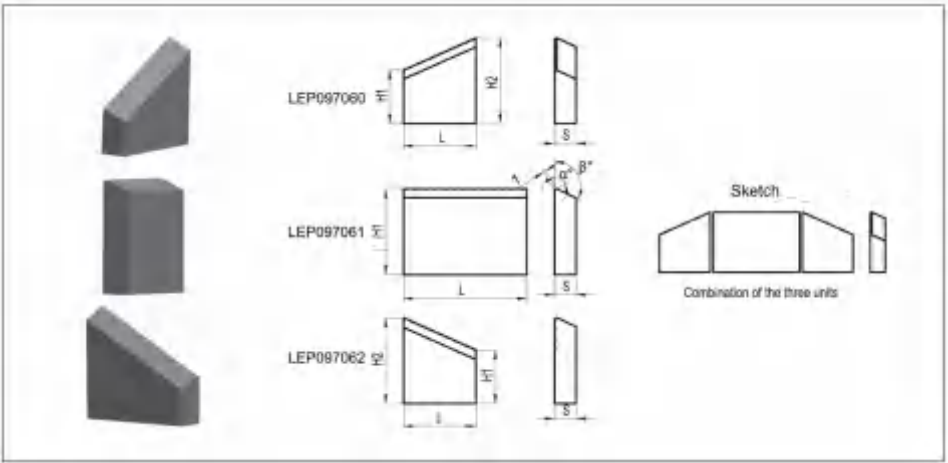
CARBIDE MINING & CONSTRUCTION PRODUCTS



Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
ZMH097057	35	0 -1	14	+1.2 0	32	+1.2 0	8	+0.4 0	58°	115°	96.82
ZMH097058	30	0 -1	32	+0.8 -0.4			8	+0.4 0			114.63
ZMH097059	35	0 -1	14	+1.2 0	32	+1.2 0	8	+0.4 0			96.82

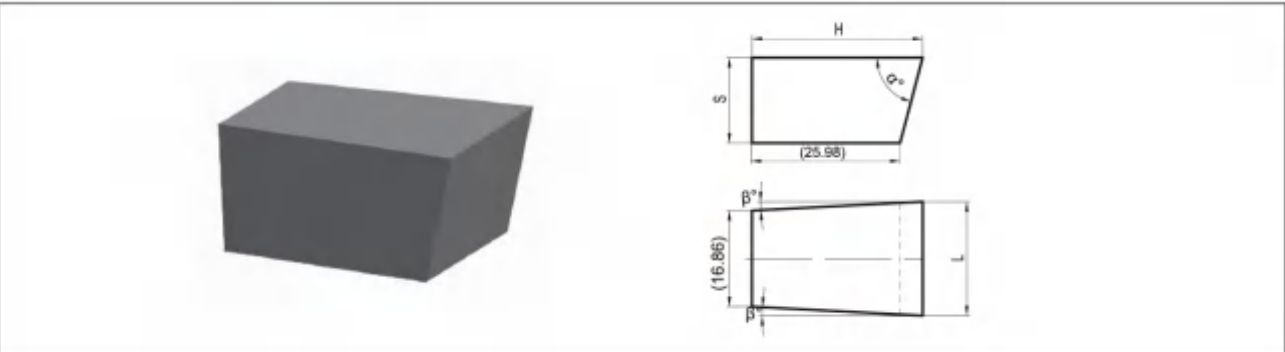
Dimensions (mm)

TUNNEL BORING MACHINE TOOLINGS



Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
ZMH097060	27	0 -1	20	+0.8 0	32	+0.8 -0.4	8	+0.4 0	58°	115°	83.90
ZMH097061	46	0 -1.2	32	+0.8 -0.4			8	+0.4 0			176.42
ZMH097062	27	0 -1	20	+0.8 0	32	+0.8 -0.4	8	+0.4 0			83.90

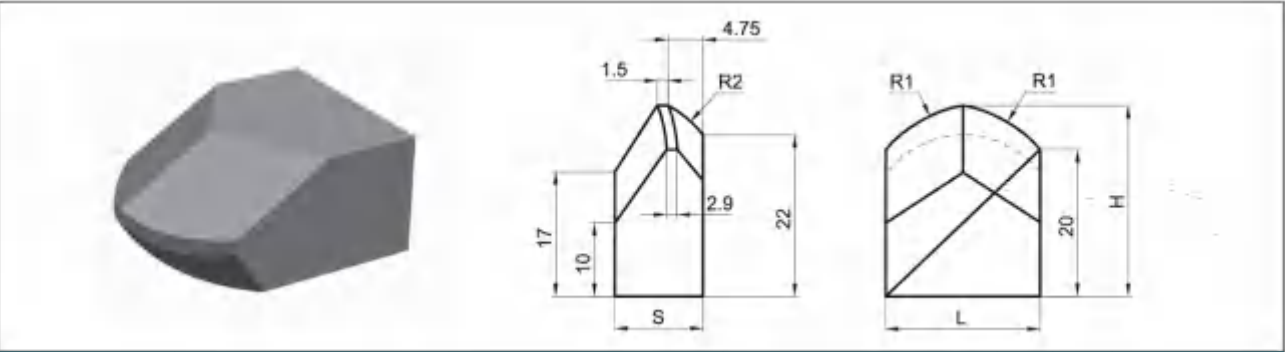
Dimensions (mm)



Type	L		H		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
ZMH107020	20	0 -1	30	+1 0	15	+0.6 0	75°	3°	112.15

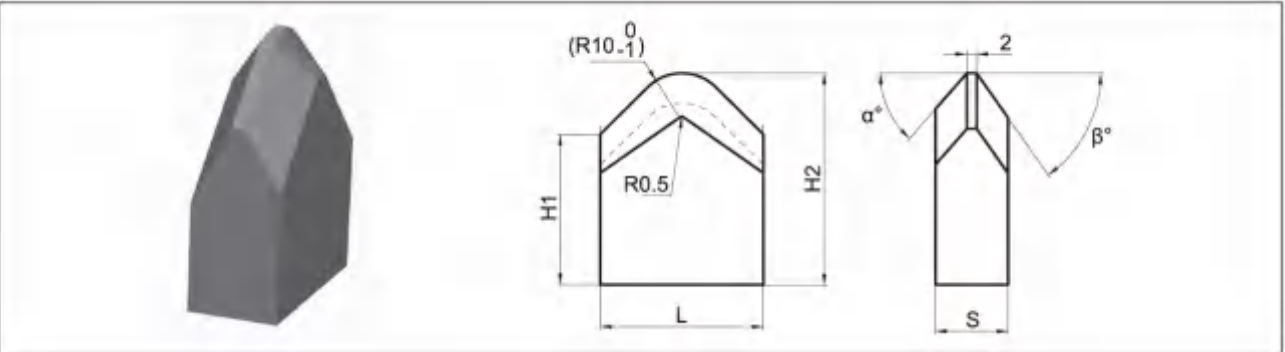
Dimensions (mm)

TUNNEL BORING MACHINE TOOLINGS



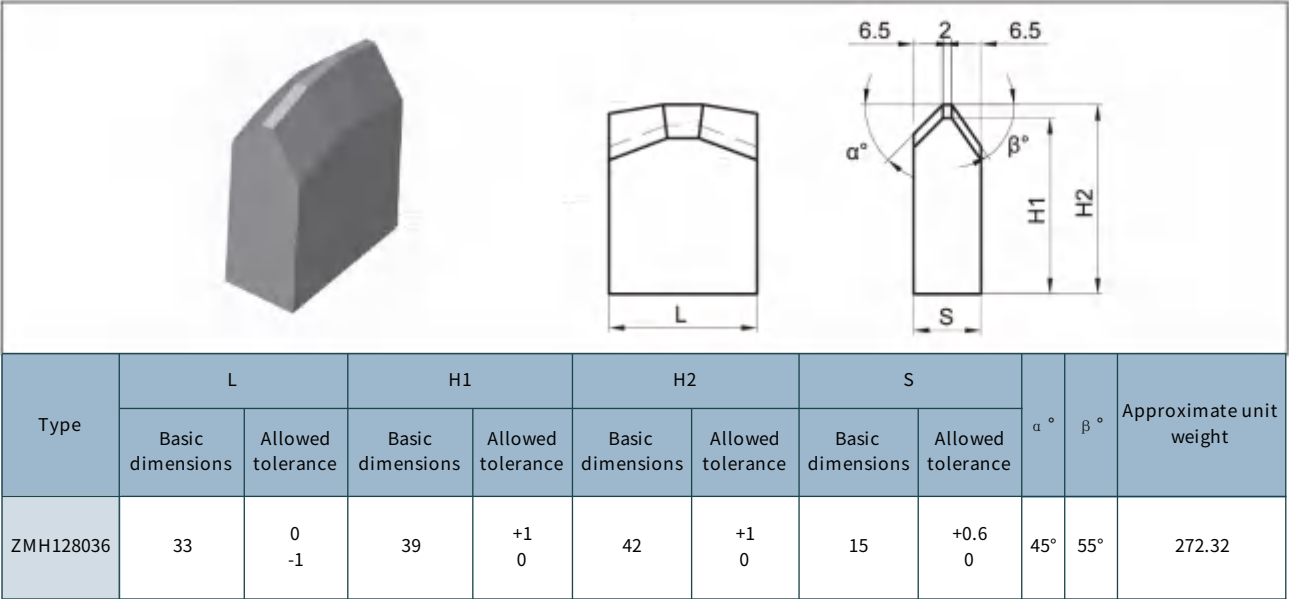
Type	L		H		S		R1	R2	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
ZMH128034	21	0 -1	26	+1 0	12	+0.6 0	18	15	75.59

Dimensions (mm)

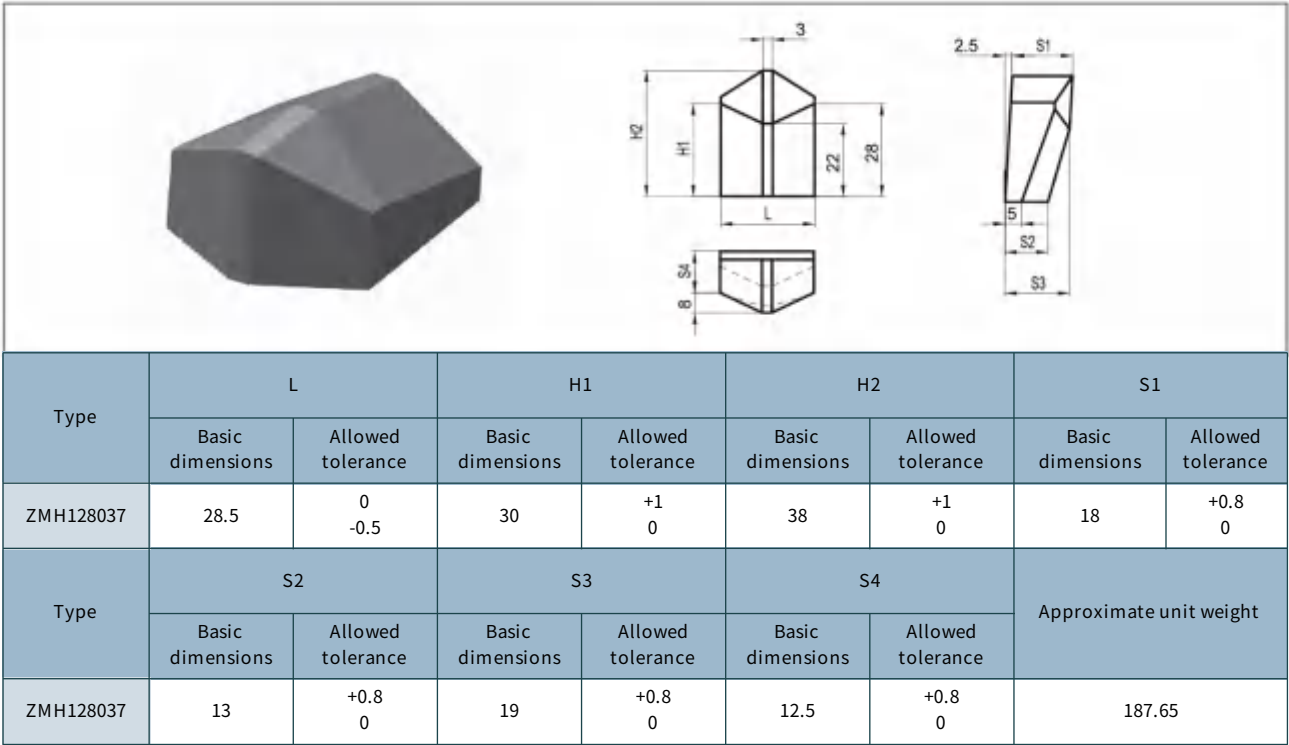


Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
ZMH128035	33.7	0 -1	30.9	+1 0	43.5	+1 0	15	+0.6 0	47°	55°	252.85

Dimensions (mm)

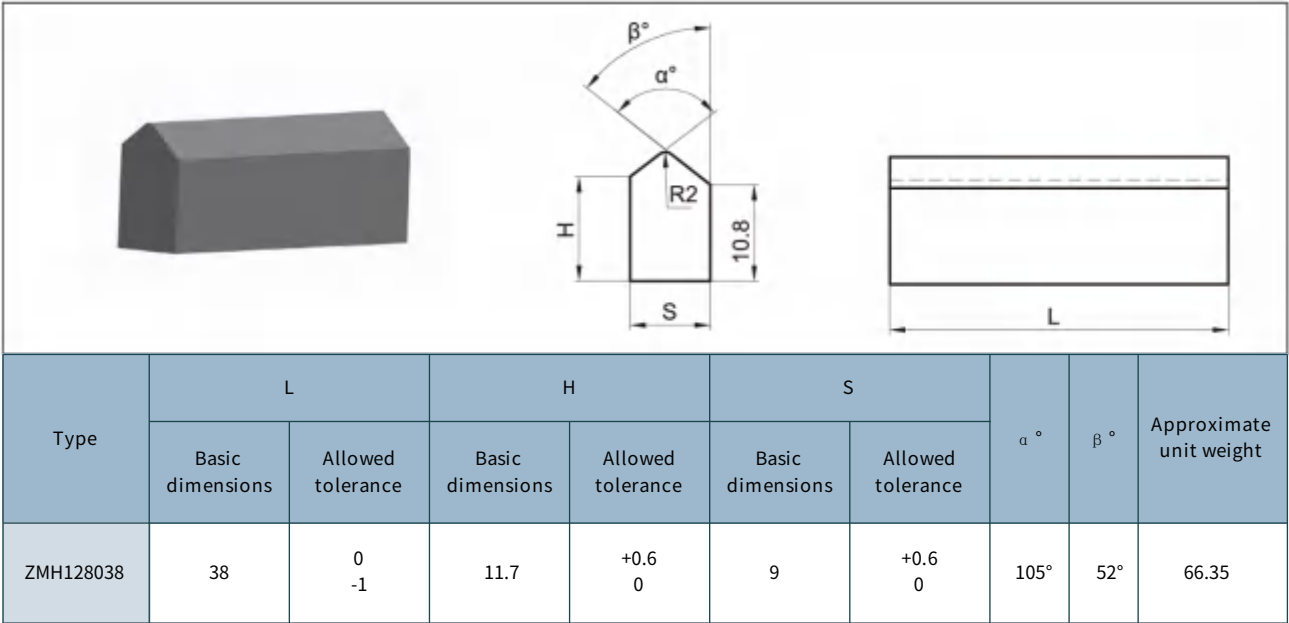


Dimensions (mm)

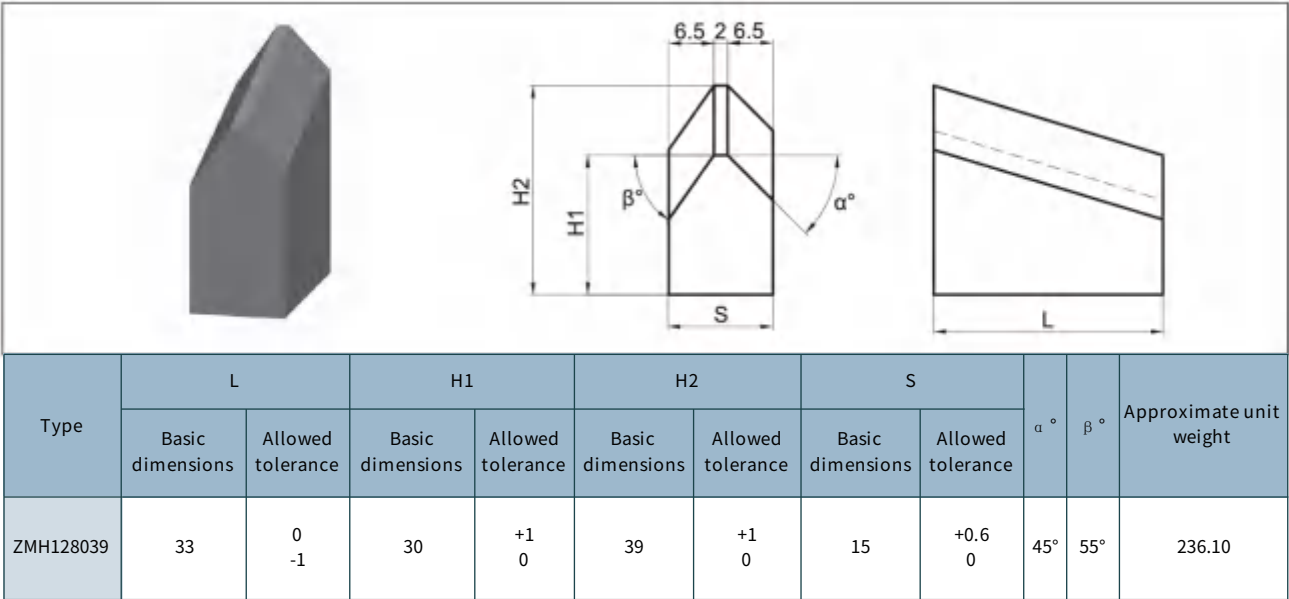


Dimensions (mm)

TUNNEL BORING MACHINE TOOLINGS

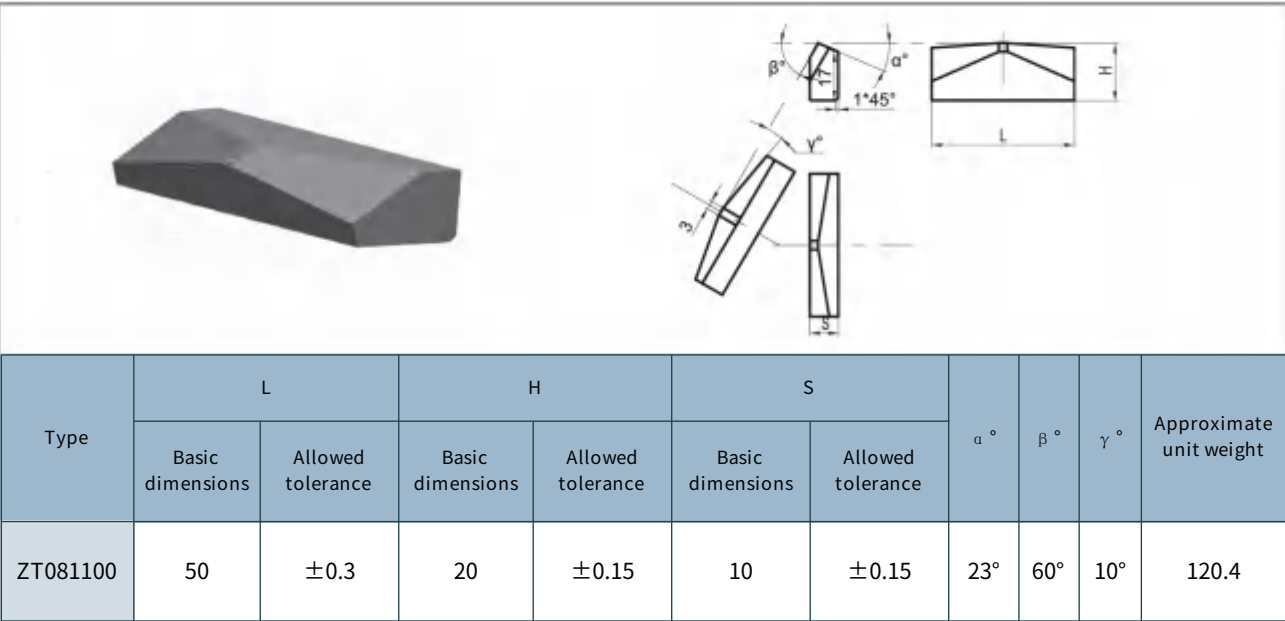
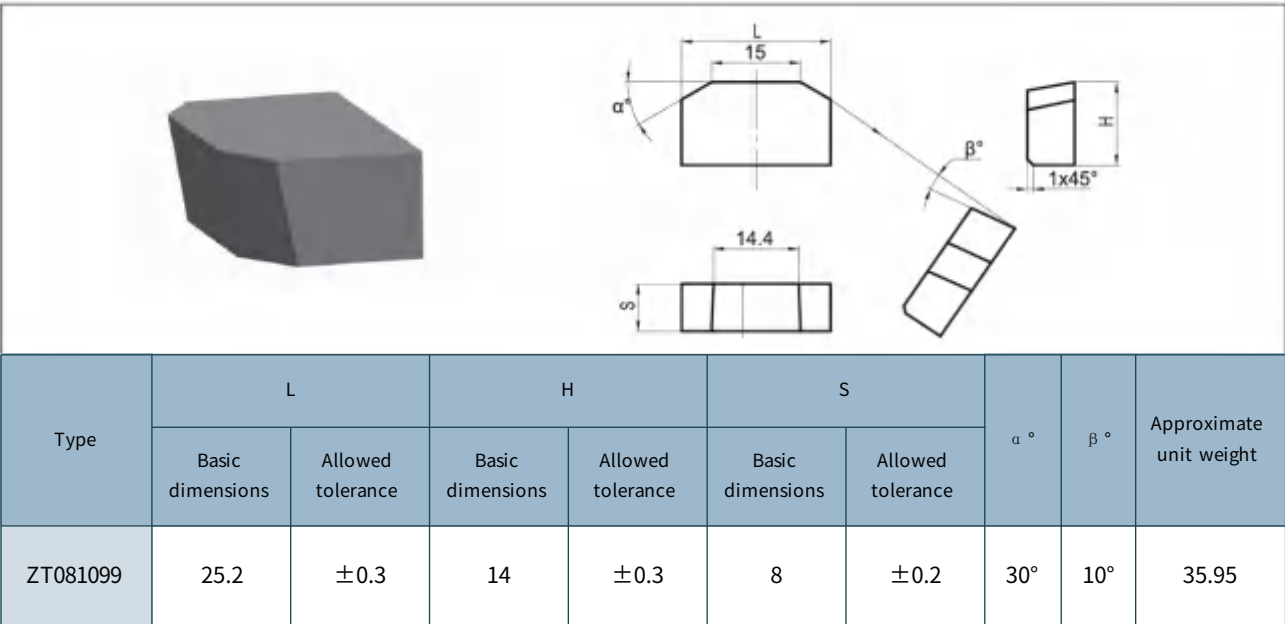


Dimensions (mm)



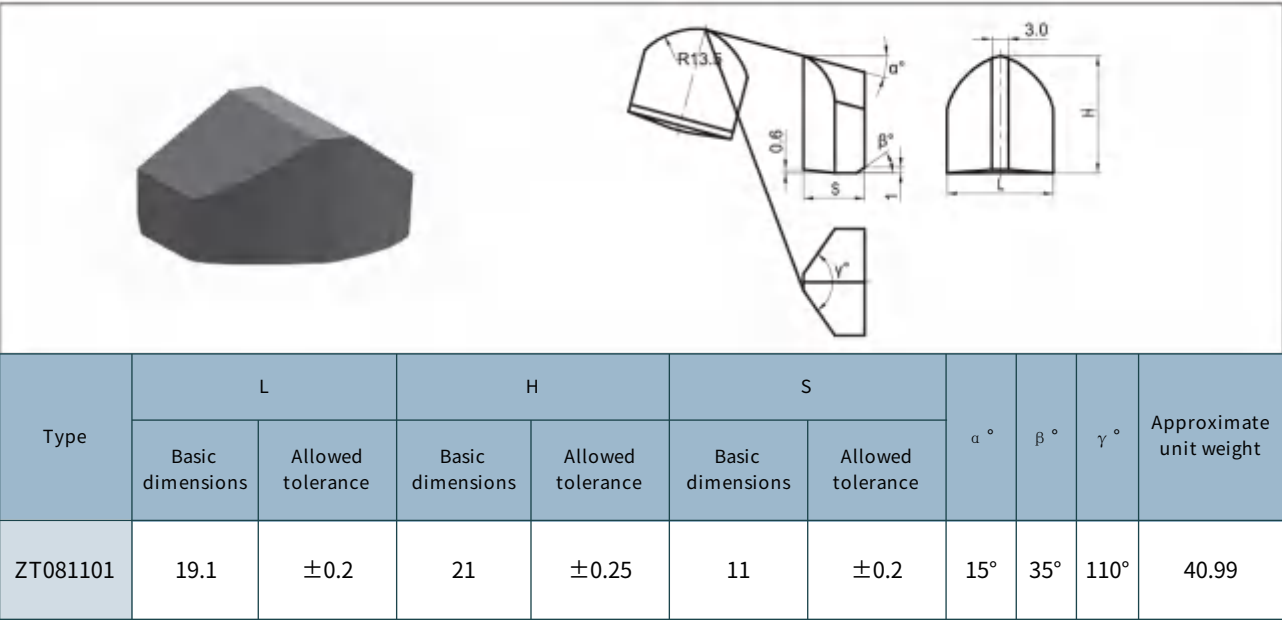
Dimensions (mm)

TUNNEL BORING MACHINE TOOLINGS

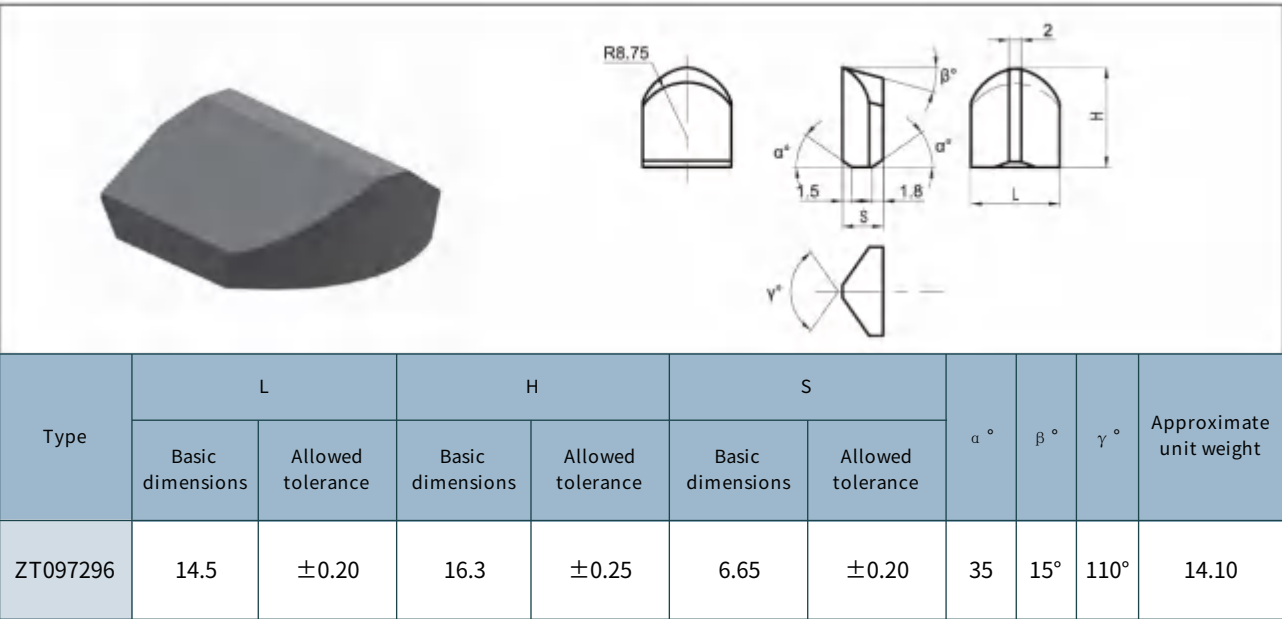


Dimensions (mm)

TUNNEL BORING MACHINE TOOLINGS



Dimensions (mm)



Dimensions (mm)

03

CARBIDE STRIPS

硬质合金长条



材料性能和适用范围

Materials properties and their scope of applications

Materials properties and their scope of applications									
牌号 Grade	钴含量 CO percent (%)	WC (%)	Ni (%)	other	WC晶粒度 grain size of WC	硬度 Hardness	密度 Density	抗弯强度 TRS	适用范围 Applications
YG6	6.5	92.5		1	1	91.4	14.8	3100	加工实木、密度板、灰口铸铁、有色金属材料等。 Suitable to Process Solid Wood, MDF, Gray Cast Iron, Nonferrous Materials, etc
YG8	8	91		1	1	91	14.6	3200	综合性能好, 加工实木、密度板、刨花板及灰口铸铁、有色金属等材料。 of Comprehensive Performance, Suitable to Process Wood, MDF, Particle Board, Gray Cast Iron, Nonferrous Materials etc
YL10.2	10	89		1	0.6	91.8	14.3	3600	通用性强, 加工实木、密度板、灰口铸铁、有色金属等材料 Suitable to Process Wood, MDF, Gray Cast Iron, Nonferrous Materials etc
YG15X	15	84		1	1	89.7	14	4500	适用于汽车模具冲压以及冲硅钢片、冲针领域的使用。 It is suitable for the stamping of automobile molds, silicon steel sheets and punching needles.
YN30	3.5	88	7	1.5	0.5	91.4	14.3	3000	硬质合金刀片适用于皮带清洁剂, 可将每个刀片独立地焊接到皮带上。 这种简单但耐腐蚀的刀片并提供了高质量的清洁性能。是有限空间应用的绝佳选择。适用比较坚硬的环境 Carbide strips are suitable for belt cleaners and each strip can be individually welded to the belt. This simple, corrosion-resistant long blade provides high-quality cleaning performance. This is an excellent choice for limited space applications. Applicable to relatively hard environment
YN06	3	92	3.5	1.5	0.5	92.6	14.85	3000	硬质合金刀片适用于皮带清洁剂, 可将每个刀片独立地焊接到皮带上。具有高效清洁和长时间耐磨的性能, 适用软环境下。 Carbide strips are suitable for belt cleaners and each blade can be independently welded to the belt. It has high-efficiency cleaning and long-term wear-resistant performance, and is suitable for soft environments.

03/硬质合金长条

Carbide Strips

材料性能和适用范围

Materials properties and their scope of applications

Materials properties and their scope of applications									
牌号 Grade	钴含量 CO percent (%)	WC (%)	Ni (%)	other	WC晶粒度 grain size of WC	硬度 Hardness	密度 Density	抗弯强度 TRS	适用范围 Applications
YN09	6.5	88	4	1.5	0.5	92	14.6	3300	硬质合金刀片适用于皮带清洁剂, 可将每个刀片独立地焊接到到皮带上。 清洁效率更高。最佳情况下, 薄而坚硬的刀片将提供卓越的清洁性能。 Carbide strips are suitable for belt cleaners and each blade can be independently welded to the belt.Cleaning efficiency is higher. Ideally, a thin, tough blade will provide superior cleaning performance.
YN10	8	87.5	3	1.5	0.5	91.9	14.45	3500	硬质合金刀片适用于皮带清洁剂, 可将每个刀片独立地焊接到到皮带上。这种卓越的复合材料使我们的硬质合金刀片持久耐用, 耐冲击。适用比较坚硬的环境 Carbide strips are suitable for belt cleaners and each strip can be individually welded to the belt.This superior composite material makes our carbide inserts durable and impact resistant.Applicable to relatively hard environment

板条(倒角)

Strips (Chamfered)

Strips (Chamfered)						
规格 Type	尺寸 SIZE					
	厚度	公差	宽度	公差	长度	公差
	T mm	Tol.(mm)	W mm	Tol.(mm)	L mm	Tol.(mm)
2x3x330	2	+0.10~+0.30	3	+0.20~+0.40	330	+0.10~+0.20
3x5x330	3	+0.10~+0.30	5	+0.20~+0.40	330	+0.10~+0.20
3x8x330	3	+0.10~+0.30	8	+0.20~+0.40	330	+0.10~+0.20
3x10x330	3	+0.10~+0.30	10	+0.20~+0.40	330	+0.10~+0.20
3x12x330	3	+0.10~+0.30	12	+0.20~+0.40	330	+0.10~+0.20
4x8x330	4	+0.10~+0.30	8	+0.20~+0.40	330	+0.10~+0.20
4x10x330	4	+0.10~+0.30	10	+0.20~+0.40	330	+0.10~+0.20

*可接受定制规格 To Customer Specification

板条

Strips						
规格 Type	尺寸 SIZE					
	厚度	公差	宽度	公差	长度	公差
	T mm	Tol.(mm)	W mm	Tol.(mm)	L mm	Tol.(mm)
2x3x330	2	+0.10~+0.30	3	+0.20~+0.40	330	+0.10~+0.20
2x4x330	2	+0.10~+0.30	4	+0.20~+0.40	330	+0.10~+0.20
2x6x330	2	+0.10~+0.30	6	+0.20~+0.40	330	+0.10~+0.20
2x10x330	2	+0.10~+0.30	10	+0.20~+0.40	330	+0.10~+0.20
2x16x330	2	+0.10~+0.30	16	+0.20~+0.40	330	+0.10~+0.20
2x20x330	2	+0.10~+0.30	20	+0.20~+0.40	330	+0.10~+0.20
3x3x330	3	+0.10~+0.30	3	+0.20~+0.40	330	+0.10~+0.20
3x5x330	3	+0.10~+0.30	5	+0.20~+0.40	330	+0.10~+0.20
3x6x330	3	+0.10~+0.30	6	+0.20~+0.40	330	+0.10~+0.20
3x10x330	3	+0.10~+0.30	10	+0.20~+0.40	330	+0.10~+0.20
3x16x330	3	+0.10~+0.30	16	+0.20~+0.40	330	+0.10~+0.20
3x20x330	3	+0.10~+0.30	20	+0.20~+0.40	330	+0.10~+0.20
3x25x330	3	+0.10~+0.30	25	+0.20~+0.40	330	+0.10~+0.20
4x5x330	4	+0.10~+0.30	5	+0.20~+0.40	330	+0.10~+0.20
4x8x330	4	+0.10~+0.30	8	+0.20~+0.40	330	+0.10~+0.20
4x10x330	4	+0.10~+0.30	10	+0.20~+0.40	330	+0.10~+0.20
4x15x330	4	+0.10~+0.30	15	+0.20~+0.40	330	+0.10~+0.20
4x20x330	4	+0.10~+0.30	20	+0.20~+0.40	330	+0.10~+0.20
4x30x330	4	+0.10~+0.30	30	+0.20~+0.40	330	+0.10~+0.20
	5	+0.10~+0.30	5~40	+0.20~+0.40	330	+0.10~+0.20
	6	+0.10~+0.30	6~40	+0.20~+0.40	330	+0.10~+0.20
	7	+0.10~+0.30	7~20	+0.20~+0.40	330	+0.10~+0.20
	8	+0.10~+0.30	8~20	+0.20~+0.40	330	+0.10~+0.20
	10	+0.10~+0.30	10~10	+0.20~+0.40	330	+0.10~+0.20

*可接受定制规格 To Customer Specification

非标尺寸

Special sizes						
规格 Type	尺寸 SIZE					
	厚度	公差	宽度	公差	长度	公差
	T mm	Tol.(mm)	W mm	Tol.(mm)	L mm	Tol.(mm)
25x25x345	25	+0.10~+0.30	25	+0.20~+0.40	345	+0.10~+0.20
30x30x345	30	+0.10~+0.30	30	+0.20~+0.40	345	+0.10~+0.20
12x12x400	12	+0.10~+0.30	12	+0.20~+0.40	400	+0.10~+0.20
15x15x400	15	+0.10~+0.30	15	+0.20~+0.40	400	+0.10~+0.20
20x20x400	20	+0.10~+0.30	20	+0.20~+0.40	400	+0.10~+0.20
25x25x400	25	+0.10~+0.30	25	+0.20~+0.40	400	+0.10~+0.20
25x25x450	25	+0.10~+0.30	25	+0.20~+0.40	450	+0.10~+0.20
30x30x450	30	+0.10~+0.30	30	+0.20~+0.40	450	+0.10~+0.20
15x15x500	15	+0.10~+0.30	15	+0.20~+0.40	500	+0.10~+0.20
20x20x500	20	+0.10~+0.30	20	+0.20~+0.40	500	+0.10~+0.20
3x4x1005	3	+0.10~+0.30	4	+0.20~+0.40	1005	+0.10~+0.20
3x5x1005	3	+0.10~+0.30	5	+0.20~+0.40	1005	+0.10~+0.20
4x5x1005	4	+0.10~+0.30	5	+0.20~+0.40	1005	+0.10~+0.20
5x5x1005	5	+0.10~+0.30	5	+0.20~+0.40	1005	+0.10~+0.20
3.5x3.5x1005	3.5	+0.10~+0.30	3.5	+0.20~+0.40	1005	+0.10~+0.20
4.5x4.5x1005	4.5	+0.10~+0.30	4.5	+0.20~+0.40	1005	+0.10~+0.20
4.5x4.5x1505	4.5	+0.10~+0.30	4.5	+0.20~+0.40	1505	+0.10~+0.20
4.5x4.5x2000	4.5	+0.10~+0.30	4.5	+0.20~+0.40	2000	+0.10~+0.20

*可接受定制规格 To Customer Specification

03/硬质合金长条

STB条



STB strip							
规格 Type	尺寸Dimension			规格 Type	尺寸Dimension		
	厚度	宽度	长度		厚度	宽度	长度
	T	W	L		T	W	L
STB12	0.8	1.6	25.4	STB420	3.2	15.9	152.4
STB13	1.2	2.4	25.4	STB424	3.2	19.1	152.4
STB13A	1.2	2.4	20.6	STB428	3.2	22.2	152.4
STB14	2	3.2	28.6	STB432	3.2	25.4	152.4
STB206	1.6	4.8	152.4	STB436	3.2	28.7	152.4
STB208	1.6	6.4	152.4	STB440	3.2	31.8	152.4
STB210	1.6	7.9	152.4	STB448	3.2	38.1	152.4
STB212	1.6	9.5	152.4	STB46	3.2	4.8	152.4
STB216	1.6	12.7	152.4	STB48A	3.2	6.4	25.4
STB220	1.6	15.9	152.4	STB48B	3.2	6.4	31.8
STB224	1.6	19.1	152.4	STB48C	3.2	6.4	57.2
STB228	1.6	22.2	152.4	STB48D	3.2	6.4	76.2
STB24A	1.6	3.2	25.4	STB48E	3.2	6.4	152.4
STB24B	1.6	3.2	76.2	STB510	4	7.9	152.4
STB24C	1.6	3.2	31.8	STB512	4	9.5	152.4
STB26A	1.6	4.8	25.4	STB516	4	12.7	152.4
STB26C	1.6	4.8	76.2	STB520	4	15.9	152.4
STB28A	1.6	6.4	25.4	STB524	4	19.1	152.4
STB28B	1.6	6.4	31.8	STB528	4	22.2	152.4
STB28D	1.6	6.4	76.2	STB532	4	25.4	152.4
STB310A	2.4	7.9	50.8	STB536	4	28.7	152.4
STB310B	2.4	7.9	76.2	STB540	4	31.8	152.4
STB310C	2.4	7.9	127	STB610	4.8	7.9	152.4
STB312	2.4	9.5	127	STB610A	4.8	7.9	76.2
STB316	2.4	12.7	152.4	STB612	4.8	9.5	152.4
STB320	2.4	15.9	152.4	STB612A	4.8	9.5	76.2
STB324	2.4	19.1	152.4	STB616	4.8	12.7	152.4
STB328	2.4	22.2	152.4	STB616A	4.8	12.7	76.2
STB332	2.4	25.4	152.4	STB620	4.8	15.9	152.4
STB336	2.4	28.7	152.4	STB620A	4.8	15.9	76.2
STB34	2.4	3.2	127	STB624	4.8	19.1	152.4
STB340	2.4	31.8	152.4	STB628	4.8	22.2	152.4
STB348	2.4	38.1	152.4	STB632	4.8	25.4	152.4
STB36	2.4	4.8	28.6	STB636	4.8	28.7	152.4
STB36A	2.4	4.8	31.8	STB640	4.8	31.8	152.4
STB38A	2.4	6.4	25.4	STB648	4.8	38.1	152.4
STB38B	2.4	6.4	38.1	STB68	4.8	6.4	152.4
STB38D	2.4	6.4	127	STB68A	4.8	6.4	76.2
STB410	3.2	7.9	152.4	STB812	6.4	9.5	152.4
STB410A	3.2	7.9	38.1	STB812A	6.4	9.5	76.2
STB410B	3.2	7.9	76.2	STB816	6.4	12.7	152.4
STB412A	3.2	9.5	50.8	STB816A	6.4	12.7	76.2
STB412B	3.2	9.5	76.2	STB820	6.4	15.9	152.4
STB412C	3.2	9.5	152.4	STB820A	6.4	15.9	76.2
STB412D	3.2	9.5	25.4	STB824	6.4	19.1	152.4
STB416	3.2	12.7	152.4	STB824A	6.4	19.1	76.2
STB416A	3.2	12.7	25.4	STB828	6.4	22.2	152.4
STB416B	3.2	12.7	38.1	STB832	6.4	25.4	152.4
STB416C	3.2	12.7	76.2	STB836	6.4	28.7	152.4
STB848	6.4	38.1	152.4	STB840	6.4	31.8	152.4

04 CARBIDE MOLD MATERIAL

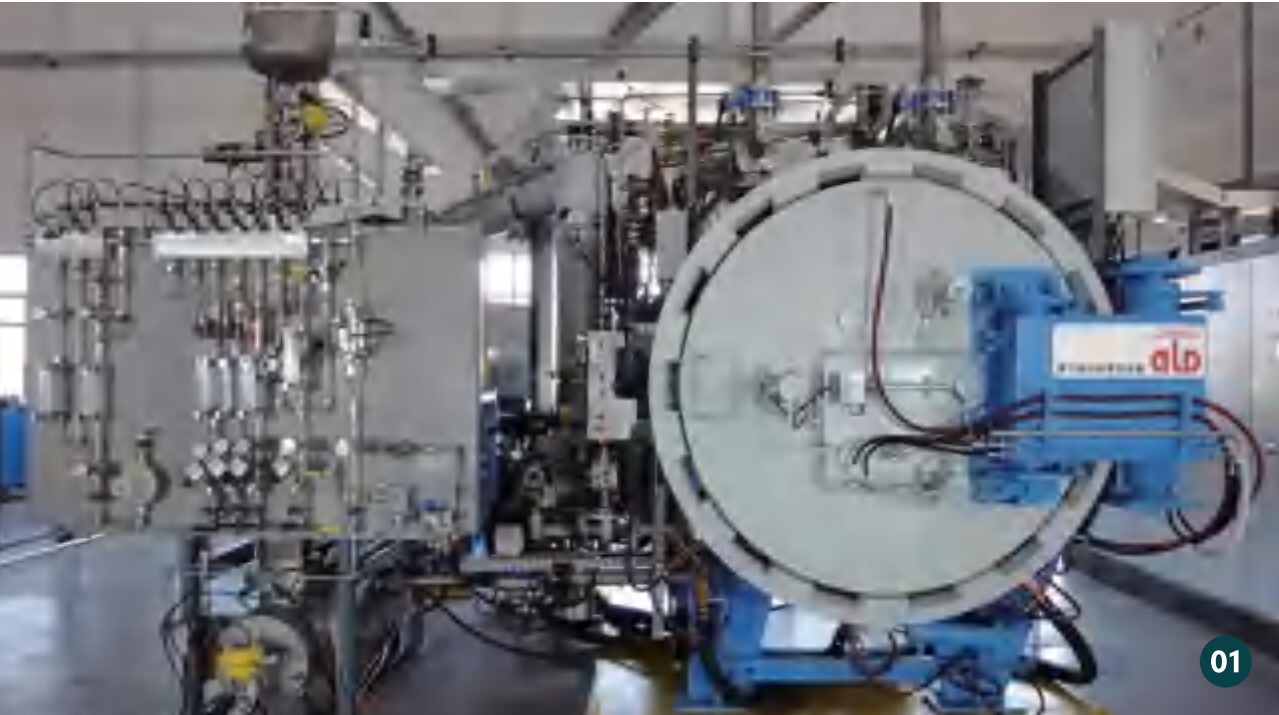
硬质合金模具材料





先进设备

Advanced Equipment



01



03



02

- 01 压力烧结炉
VACUUM PRESSURIZATION SINTERING FURNACE
- 02 超深冷处理机
CRYOGENIC TREATMENT MACHINE
- 03 TPA压力机
TPA PRESSING MACHINE

硬质合金电机模用级进模具材料

Cemented Carbide Motor Progressive die

材料性能和适用范围 Material performance and application area							
牌号 Grade	钴含量 (Co)	WC晶粒度 Grain size of WC (μm)	硬度 Hardness (HRA)	密度 Density (g/cm ³)	抗弯强度 Flexral strength (Mpa)	冲击韧性 Impact toughness (kgf-m/cm ²)	适用范围 Applications
TH12	12	1.6	89.5	14.25	3400	0.63	硅钢片(上模);冷轧板(上、下模) silicon steel sheets(upper mould);cold rolled sheet(upper and lower mould)
TH15	15	1.6	88.3	14	3550	0.7	硅钢片、冷轧板材料的上、下模 silicon steel sheets and cold rolled sheets upper and lower mould
TH18	18	1.2	87	13.75	3600	0.78	硅钢片(上、下模)[伴随厚板及较大冲击时的利息选用] silicon steel sheets(upper and lower mould)[its an ieal selection for plates and comparatively large impact]
TH15A	15	1	89.5	13.85	4100	0.6	EI片, SPCC、ST12等超软材料(上、下模) super soft material such as EI, SPCC、ST12 (upper and lower mould)
TH20	20	2	85	13.45	2600	0.8	超厚材料冲压(上、下模) ultra thick plate material stamping (upper and lower mould)
TH24	24	2	83.5	13.1	2400	0.9	

模具材料常用规格表Dimension

长度 Length (mm)	宽度 Width (mm)	厚度 Thick nrss (mm)
150	150	20~60
200	200	20~40
250	250	20~40
300	300	20~40

供货态:上下面平磨,HIP及去应力处理
As Supplied:Top and botton flat grinding,stress released,hip treated.

厚度公差:+0.3~+0.5mm
T Tolerance:+0.3~+0.5mm



04/硬质合金模具材料

CARBIDE MOLD MATERIAL



硬质合金IC模用级进模具材料

Cemented Carbide IC Model Progressive Die

材料性能和适用范围 Material performance and application area							
牌号 Grade	钴含量 (Co)	WC晶粒度 Grain size of WC (μm)	硬度 Hardness (HRA)	密度 Density (g/cm³)	抗弯强度 Flexral strength (Mpa)	冲击韧性 Impact toughness (kgf-m/cm²)	适用范围 Applications
TH10	10	0.6	91.5	14.5	4000	0.38	铜、铝等薄片 flake like copper,aluminium
TH20	13	0.6	91	14.25	4150	0.5	通用性强,铜片、铝片等 with general purpose,such as copper sheet,aluminium flake
TH650	15	0.8	90	14	4100	0.55	EI片、SPCC、不锈钢板等 EI、SPCC, stainless steel and so on
TH15	6	0.6~5.0	90.5	14.9	2800	0.45	独特配方,超高寿命,铜、铝薄片 unique formula,ultra long life,copper, aluminium stice stamping.

模具材料常用规格表Dimension			
长度 Length (mm)	宽度 Width (mm)	厚度 Thick nrss (mm)	
105	105	2.0~20	
120	120	2.0~20	
150	150	20~60	
供货态:上下面平磨, HIP及去应力处理 As Supplied:Top and botton flat grinding, stress released,hip treated. 厚度公差: +0.2~+0.4mm T Tolerance: +0.2~+0.4mm			

圆环

Rings

特点:圆环同心度好,尺寸控制精准,提高客户加工效率 Specification:Ring possesss its unique characteristics including excellent concentricity,prcise size control,which xtremely improve the machining efficiency for customers,		
供货态 As Supplied	上下面平磨, HIP及去应力处理 Top and botton flat grinding, stress released,hip treated.	
厚度公差 T Tolerance	+0.3~+0.5mm	
外圆直径公差 Outside Diameter of Ring Tolerance	+0.3~+0.6mm	
内圆直径公差 The inner Diameter of Ring Tolerance	-0.6~+0.3mm	

预成型件

Preforms

烧结螺纹孔Sintered Thread Holes		
	长度 Length (mm)	宽度 Width (mm)
	M4	12
	M5	15
	M6	20
	M8	25
	M10	30
	M12	40

CARBIDE MOLD MATERIAL

04/硬质合金模具材料

CARBIDE MOLD MATERIAL



粉末压制模

Powder pressing die

材料性能和适用范围 Material performance and application area							
牌号 Grade	钴含量 (Co)	WC晶粒度 Grain size of WC (μm)	硬度 Hardness (HRA)	密度 Density (g/cm ³)	抗弯强度 Flexral strength (Mpa)	冲击韧性 Impact toughness (kgf-m/cm ²)	适用范围 Applications
TH16	6	1.6	90.5	14.9	2900	0.28	耐磨性好, 适合制作成型简单的模具 With high wear resistance,suitable for producing simple shaping die
TH03	9	1.6	90	14.55	3100	0.52	较好的总会性能, 一般的粉末压制成型模具 High comprehensive performance,suitable for normal powder pressing die
TH05	12	1.6	89	14.25	3400	0.63	较高的强韧性, 用于形状复制的模具, 如齿轮模等 High wear resistance,suitable for comlex shape die,Such as gear die
TH06	14	1.6	88.3	14.15	3550	0.7	
TH09	9	0.8	91.3	14.4	3000	0.2	适用于磁性材料的成型模具 Suitable for producing mold of magetic material
TH15B	16	1.6	87	14.15	2800	0.39	

模具材料常用规格表Dimension		
外径 Outside Diameter (mm)	内径 Inner Diameter (mm)	高度 Height (mm)
≤Φ18	≤Φ7	10~50
Φ18~30	Φ5~10	10~80
Φ30~50	Φ10~20	10~80
Φ50~80	Φ20~35	10~80
>Φ80	>Φ35	>80
供货态: 上下面平磨, HIP及去应力处理 As Supplied:Top and botton flat grinding, stress released,hip treated. 厚度公差: +0.3~+0.5mm T Tolerance:+0.3~+0.5mm 外圆直径公差: +0.3~+0.6mm Outside Diameter of Ring Tolerance:+0.3~+0.6mm 内圆直径公差: -0.6~+0.3mm The inner Diameter of Ring Tolerance:-0.6~+0.3mm		

硬质合金冷热锻材料

Carbides for hot and cold heading material

材料性能和适用范围 Material performance and application area						
牌号 Grade	钴含量 (Co)	WC晶粒度 Grain size of WC (μm)	硬度 Hardness (HRA)	抗弯强度 Flexral strength (Mpa)	冲击韧性 Impact toughness (kgf-m/cm ²)	适用范围 Applications
TH30	15	3	86.5	>2600	0.78	缩杆和单次变形小的多模与多冲 With high wear resistance,suitable for producing simple shaping die
TH40A	20	2	85	>2600	0.8	直杆、六片模等, 主要用于对不锈钢及部分有色金属如铜、铝等 Suitable for Straight rod,six pate mold,Mainly for stainless steel and part of nonferrous metal,such as copper and aluminum,etc
TH40	20	2.8	84	>2500	0.85	直杆、螺丝与螺帽等 Suitable for straight rod,screw and nut,etc
TH46	22	3	82.5	>23500	0.9	优异的综合性能, 用于沉头、三角、介子模与直杆等 With high comprehensive performanc,suitable for counter sunk head,triangle meson die and straight rod
TH50	25	3	81.5	>2050	0.95	沉头、螺帽、干壁钉、大型号标准件模具及高碳钢的锻压 Suitable for counter sunk head,nut,dry wall nail,big size fastener mold and upsetting and punching for high carbon steel
TH400	14	1.6	85.5	>2250	0.7	螺丝螺帽工具行业用的热锻、热压、热冲用模具 Suitable for hot upsetting,hot pressing,hot punching die for Screw and nut
TH600	16	1.6	83.5	>2450	0.8	
TH1000	20	3	82	>2750	0.92	

产品规格Specifications		
外径 Outside Diameter (mm)	内径 Inner Diameter (mm)	高度 Height (mm)
≤Φ18	≤Φ7	10~50
Φ18~30	Φ5~10	10~80
Φ30~50	Φ10~20	10~80
Φ50~80	Φ20~35	10~80
>Φ80	>Φ35	>80

CARBIDE MOLD MATERIAL

04/硬质合金模具材料

CARBIDE MOLD MATERIAL

制砂耐磨条

Sand breaking strip

材料性能和适用范围 Material performance and application area				
物理坚硬级别 Hardness level	代表性物料 Name of rock	硬度级别 (莫氏) 范围 Mohs haedness range	物理坚硬级别 Hardness level	
最坚硬 highest	鹅卵石, 石英岩, 碳化硅, (棕) 刚玉 花岗岩长英岩等 cobble, quartzite, silicon carbide, (gray) corundum Granite, etc	8.0以上 8.0 above	高档 high	普通 normal
			DK1000	YK25 YG11C
中坚硬 midium level	石榴石, 铝矾土 (矿), 钒铅矿, 长石, 花岗岩, 石英岩, 硅石, 砾石等 Garnet, Bauxite, Vanadinite, Feldspar Granite, Quartzite, Silica, Gravel, tc	5.0-8.0	高档 high	普通 normal
			DK600 DK800	YG8C
低 (软) 硬 lowlevel	石灰石, 砂岩, 白云石, 板石等 Limestone, Sandstone DolomiteSlate, etc	5.0以下 5.0 lower	HDK900 (经济型) Economical type	

牌号 Grade	密度 (g/cm ³)	硬度 (HRA)	抗弯强度 (Mpa)	WC晶粒度 (μm)	冲击韧性 (kgf-m/cm ²)
TK1000	14.5	88.0~89.0	≥3200	1.2~3.2	0.7
TK800	14.8	89.0~90.0	≥2650	1.2~3.2	0.67
TK600	14.9	89.2~90.2	≥2550	1.2~3.2	0.65
TK25	14.5	87.0~88.0	≥2550	≥2.4	0.72
TG8C	14.8	88.0~89.0	≥2100	≥2.4	0.65
TG11C	14.4	86.5~87.5	≥2400	≥2.4	0.72
TDK900	14.5	88.0~89.0	≥2260	1.6	0.63

05 CARBIDE ROLL
硬质合金轧辊



CARBIDE ROLL

05/硬质合金轧辊

Carbide Roll



硬质合金辊环的使用要求

Requirements for the use of cemented carbide roller rings

硬质合金辊环是由碳化钨和粘结金属组成的高硬度、高耐磨性的工具材料,要使用硬质合金辊环在高速线材轧制中充分发挥其高耐磨性、长寿命、高效率的优点,在采购和使用硬件合金辊环时,需注意处理好以下事项:

Cemented carbide roll ring is a kind of tool material which consists of tungsten carbide and cobalt with high hardness and wear resistance. To take advantage of high wear resistance,long life and high efficiency of cemented carbide roll rings during the high speed rolling,attention should be paid as follows when purchasing and using cemented carbide roll rings.

1 牌号选择 Grades selection

全面了解各牌号硬质合金的性能是正确选择各机架所用硬质合金辊环的牌号的依据,实现各机架牌号的最佳匹配的需要。

An overall understanding of cemented carbide grades is a basis for correctly selecting the grades for roll rings used in the stands of rolling mills and an optimal combination of grades is required for the various stands of rolling mills.

2 辊环安装 Roll rings installation

辊环的镶套和上机组装严格设计工艺要求的精度进行,辊环与机架辊轴及锥套之间要求合适的配合,不能过紧或过松;过紧时使辊环处于大的张力状态,稍大的轧制力波动使辊环破裂;过松使轧制中的辊环与轴、锥套造成相对滑动,刮坏锥套、辊轴从而引起破裂。上机前需检查辊环是否合乎要求,并且辊环及锥套、轴的装配面需仔细擦洗干净,上机时严禁用铁锤或其他硬物敲打辊环,运输、安装过程严禁辊环的相互碰撞,以防损坏辊环。

Steel-case mounting and assembly of roll rings should be strictly performed according to the precision required by the design process.Proper fitting is needed for the roll rings,roll mandrel for stands and conical sleeves,which can not be over tight or loose,When it is too tight,the roll rings are in a tensile state and more fluctuation of rolling force will make the roll rings break.When it is loose,it causes leads the roll rings,roll mandrel and conical sleeve to slide relatively during rolling,which scratches conical sleeves and roll mandrel so resulting in cracks.Before running the mill make a check if the roll rings meets the needs and roll rings,the assembling faces of the conical sleeve and the roll mandrel need to be cleaned.It is forbidden to knock at the roll rings with a hammer or other hard materials when running the mill.It is forbidden for the roll rings to impact each other during the transportation and installation to prevent roll rings from damage.

3 冷却及冷却水质 Cooling and cooling water quality

冷却是为了减少辊环轧制时的热腐蚀、热疲劳及热应力对辊环的作用,防止辊环破裂,延缓裂纹的扩散,延长轧槽寿命,对硬件合金辊环效果的发挥非常重要,冷却的参考规范如下:冷却水的温度低于25℃,冷却水的压力(5-6)巴、水量(24-30)m³/小时架,喷水应为径向,与辊环的选择方向成(15-30)度的角,水柱宽度为轧槽的两倍,应直接喷入轧槽,水不能散射或呈雾状。

Cooling is intended to reduce the influence on roll rings of thermal corrosion,fatigue and stress during milling.It can prevent the roll rings from cracking and slow down the diffusion of cracks,prolong the life time of grooves,It plays an important role in optimizing the performances of roll rings.The reference date for cooling are as follows:The temperature of cooling water is below 25℃,pressure of cooling water is 5-6 bar with a water volume of 24-30m³/hr/stand,The water is jetted in a radial direction and the angle between the water jet and the rotating direction of roll rings is 15-30 degrees.The width of the water column is 2 times that of the groove and the water should be jetted directly into the grooves and the water

水质要求:

YGH系列需用于PH≥7.2的中性或弱碱性水质,YGR系列可用PH≥7.2中性或弱碱性水质或≤7.2的微酸性水质,水中固体粒子含量<15毫克/升

Water quality requirement: For YGH series PH≥7.2medium or weak alkali water, For YGR series PH≥7.2medium or weak alkali water or PH≤

7.2weak acid water, The content of solid particles in the water<15milligram/litre

硬质合金辊环的使用要求

Requirements for the use of cemented carbide roller rings

4 合理的轧制量 Reasonable rolled quantity

轧制时轧槽出现微裂纹是不可避免的,达到一定深度(一般控制在0.2mm)时需修磨。过量轧制,刀子微裂纹深度较快扩大,碎辊的危险增大,应该防止。建议正常轧制量选择范围如下:

During rolling microcracks in grooves can not be avoided,and they need to be reground when they are at a certain depth (normally controlled at 0.2mm).Excess rolling causes the depth of microcracks to extend rapidly and dangers of crushed rolls increase,which should be prevented.The volume of material to be rolled normally after each regrinding is as follows.

预精轧机架: Stands of pre-finishing rolling mill:	(3500--4000) 吨 (3500--4000)tons	精轧7-8架: 7-8 Stands of finishing rolling mill:	(1500--2000) 吨 (1500--2000)tons
精轧1-2架: 1-2 Stands of finishing rolling mill:	(1800-2500) 吨 (1800-2500)tons	精轧9-10架: 9-10 Stands of finishing rolling mill:	(600--1200) 吨 (600--1200)tons
精轧3-4架: 3-4 Stands of finishing rolling mill:	(1800--2500) 吨 (1800--2500)tons	减定径机架: Stands for reducing diameters:	(600--1200) 吨 (600--1200)tons
精轧5-6架: 5-6 Stands of finishing rolling mill:	(1500--2000) 吨 (1500--2000)tons		

5 轧槽的修磨 Regrinding of grooves

轧槽轧制到一定时间会出现微裂纹,当微裂纹延长加深至0.2mm时应下机修磨。修磨时需彻底磨去微裂纹,否则未磨尽的微裂纹将会使下次轧制时微裂纹更快扩大,使辊环碎裂。正常轧制的修磨量建议控制如下:

Microcracks will occur after the rolling of the groove for some time and when the microracks extend to 0.2mm the roll ring has to be reground .Microcracks must be reground thoroughly when regrinding,otherwise the unground microcracks will make the microracks extend more rapidly during the next rolling and probably make the roll ring crack.The recommended amount of regrinding after normal rolling is as follows.

精轧机(9--10)架辊环(0.4--0.60mm) Roll rings for stands 9-10 of finishing rolling mill (0.4--0.6)mm
精轧机(1--8)架辊环(0.7--1.2) mm Roll rings for stands 1--8 of finishing rolling mill (0.7--1.2)mm
预精轧机辊环(1.2--2.0) mm Roll rings for stands of pre-finishing rolling mill 91.2--2.0)mm

6 辊环行位允许偏差 The allowable deviation of carbide roll rings

The allowable deviation of carbide roll rings					
槽的径向跳动 Radial runout of groove	≤0.013mm	端面跳动 End face runout	≤0.02mm	端面平行度 End face of parallelism	≤0.01mm
外圆径向跳动 Radial runout of periphery	≤0.013mm	端面平面度 End face planeness	≤0.01mm	内孔圆柱度 Inner hole cylindricity	≤0.01mm

7 辊环粗糙度 Roughness of carbide rolls

Roughness of carbide rolls					
内孔粗糙度 Inner hole roughness	0.4μm	外圆粗糙度 Periphness roughness	0.4μm	端面粗糙度 End face roughness	0.4μm
外径、内径、高度的允许偏差可根据用户要求另定。 The allowed deviation in external diameter,Internal and height is to be determined based on customers' needs.					

05/硬质合金轧辊

Carbide Roll



硬质合金轧辊牌号推荐

Hard alloy roll grade recommendation

Hard alloy roll grade recommendation	
牌号 Grade	推荐用途 Recommended applications
TG20	具有高的耐磨性和耐腐蚀性,用于精轧机倒数第1--2架 High wear resistance and corrosion resistance.Use in the last 1--2stands of finishing mills
TG25	具有高的耐磨性和耐腐蚀性,用于精轧机倒数第1--3架 High wear resistance and corrosion resistance.Use in the last 1--3stands of finishing mills
TG30	具有较好的韧性、耐磨性、抗腐蚀性和抗热裂纹性能,用于精轧机中间机架和后部机架。 Good toughness,wear resistance,corrosion resistance and thermal crack resistance.Used in the middle and rear stands of finishing mills.
TG40	具有较好的韧性和抗热裂纹性能,通用性较好,用于精轧机大部分机架和一般轧机后部机构。 Good toughness and thermal crack resistance,good for general purposes.Used in most stands of the finishing mills and in the rear stands of common mills
TG45	具有良好的韧性和抗热裂纹性能,用于精轧机前部机架 Good toughness and thermal crack resistance,Used in the front stands of finishing mills
TG55	具有良好的抗冲击性能,用于螺纹钢热轧和预精轧机架,可进行车、铣削加工 Good impact resistance.Used in the stands of pre-finishing rolling mills for hot rolling ribbed steel bars and they can be machined with turning and milling
TG60	具有良好的抗冲击性能,用于热轧螺纹钢和预精轧机前部第1--2架。 Good impact resistance.Used for hot rolling ribbed steel bars and in the last 1--2stands of pre-finishing rolling mills.
TG05	碳化钨 (WC)含量高于其它高速线材用牌号,具有硬度高、耐磨性能好等特点。因为碳化钨具有非常好的热传导性能,碳化钨含量高将显著提高轧环抗热裂纹的能力。牌号的这些特点使得线材成品形状规整,表面质量好。高的断裂韧性使得轧环的强度足以承受轧制过程中的机械应力。 The WC content of the grades is higher than that of other roll grades used in high-speed wire mills.They have higher hardness and wear resistance properties.Because tungsten carbide has excellent heat transfer property,The high WC content will increase the ability of hot cracking resistance,These characteristics of the grades can make the rolled wires with regular shape and good surface quality.At the time,the fracture toughness make them enough to bear mechanical stress during rolling.
TG10	

轧环牌号性能表及相关参数

Roller ring grade performance table and related parameters

牌号 Grade	化学成分%		力学物理性能				物理性能	
	Co+Ni	WC	硬度 HRA	抗弯强度 N/mm²	抗压强度 N/mm²	杨氏弹性 模量 KN/mm²	密度 g/cm³	导热率 Sec/°C
TG05	6	94	≥83.0	≥2360	3200	530	13.8--14.3	0.2
TG10	8	92	≥82.0	≥2400	3200	430	13.5--13.9	0.2
TG20	10	90	≥86.0	≥2500	3500	560	14.2--14.5	0.2
TG25	12	80	≥84.0	≥2300	3400	550	14.0--14.3	0.21
TG30	15	85	≥83.5	≥2520	3300	540	13.8--14.2	0.2
TG40	18	82	≥83.0	≥2570	3200	500	13.4--13.9	0.19
TG45	20	80	≥82.0	≥2570	3100	480	13.3--13.9	0.18
TG55	26	74	≥81.0	≥2570	3000	450	12.6--13.2	0.17
TG25	12.5	87.5	≥83.0	≥2270	3300	540	14.0--14.3	0.22
TG30	15	85	≥83.0	≥2360	3200	530	13.8--14.3	0.2
TG40	18	82	≥82.0	≥2400	3200	430	13.5--13.9	0.2
TG45	20	80	≥80.5	≥2250	3000	480	13.4--13.9	0.18
TG55	25	75	≥79.0	≥2400	2800	420	13.9--13.4	0.17
TG60	30	70	≥78.5	≥2200	2600	300	12.6--13.1	0.16
PA10	10	90	≥80.5	≥2250	3000	480	13.4--13.9	0.18
PA20	15	85	≥79.0	≥2400	2800	420	12.9--13.4	0.17
PA30	20	80	≥78.5	≥2200	2600	300	12.6--13.1	0.16

注:1.物理力学性能为基本参考值,其波动范围按国家或企业有关标准
2.相关参数
Note:1.Physical&mechanical properties are for reference only and their variations are as per national or enterprises’ standards
2.Related date"

轧环精坯尺寸及精度

Roll ring blank size and precisionmm

外径范围 (D) Rang of O.D.	内径范围 (D) Rang of I.D.	高度范围 (H) Rang of height
145--450 mm	87--280 mm	62--210 mm

注:可按用户提供图样加工。
Note:We can supply them according to the drawing provided by customers.

轧环外径、内径、高度允许偏差

Tolerances allowed for O.D、 I.D、 and height of roll ringsmm

精度等级Precision class	1级	2级	3级	4级	特殊要求 Specialrequirements
外径 (±) O.D. (±)	0.02	0.05	0.1	0.15	
内径 (±) I.D. (±)	IT5	IT6	IT7	IT8	
高度 (—) Height (—)	0.03	0.1	0.2	0.5	

05/硬质合金轧辊

Carbide Roll

标准轧辊尺寸

Standard Roll Size

- 硬质合金辊环，即硬质合金冷轧辊，用于轧制低碳，中碳，高碳光圆及轧带肋钢筋（冷轧螺纹钢），广泛用于房屋。道路，桥梁。隧道等基础设施建设。冷轧螺纹钢线径为3mm到14mm。
Tungsten carbide cold roll is for processing steel wire rod into smooth reinforcing wire or ribbed steel wire rod for the construction industry such as buikding house,road,bridge and tunnel.The wire diameter ranges from 3mm to 14mm.
- 我们工厂拥有齐全的模具，标准尺寸毛坯备用库存，订单生产周期短。
Our factory has a complete set of molds,Standard size blank backup stock, short order production cycle.
- 硬质合金辊环，即硬质合金冷轧辊，用于轧制低碳，中碳，高碳光圆及轧带肋钢筋（冷轧螺纹钢），广泛用于房屋。道路，桥梁。隧道等基础设施建设。冷轧螺纹钢线径为3mm到14mm。
Tungsten carbide cold roll is for processing steel wire rod into smooth reinforcing wire or ribbed steel wire rod for the construction industry such as buikding house,road,bridge and tunnel.The wire diameter ranges from 3mm to 14mm.
- 常见的类型有平辊，减径辊，成型辊，花辊。
Tungsten carbide cold rolls,also tungsten carbide roller is including
Profiling rolls、Oval reducing rolls、Round reducing rolls、Forming rolls、Sizing rolls

牌号性能表

Chemical Composition And Properties Of Grade Using

CHEMICAL COMPOSITION AND PROPERTIES OF GRADE USING					
牌号 Grade	钨含量 Wc content %	钴含量 Co content %	抗压强度 TRS N/mm²	密度 Density G/Cm³	硬度 Hardness HRA
YG15	85	15	≥2020	13.9-14.1	≥86
YGH30	85	15	≥2700	14.02	≥84.9

标准尺寸

Standard Tungsten Carbide Roll Dimension

STANDARD TUNGSTEN CARBIDE ROLL DIMENSION			
线径范围 WIRE RANGE	外圆 OUTSIDE mm	内圆 INSIDE mm	厚度 THICKNESS mm
4-8.5	123	82	15
9-12	123	82	20
4-8.5	125	82	15
9-12	125	82	20
4-8.5	140	90	15
9-12	140	90	20
4-8.5	150	90	15
9-12	150	90	20



06 TUNGSTEN CUTTING TOOLS
硬质合金切割工具



TUNGSTEN CUTTING TOOLS

06/硬质合金切割工具

Tungsten Cutting Tools



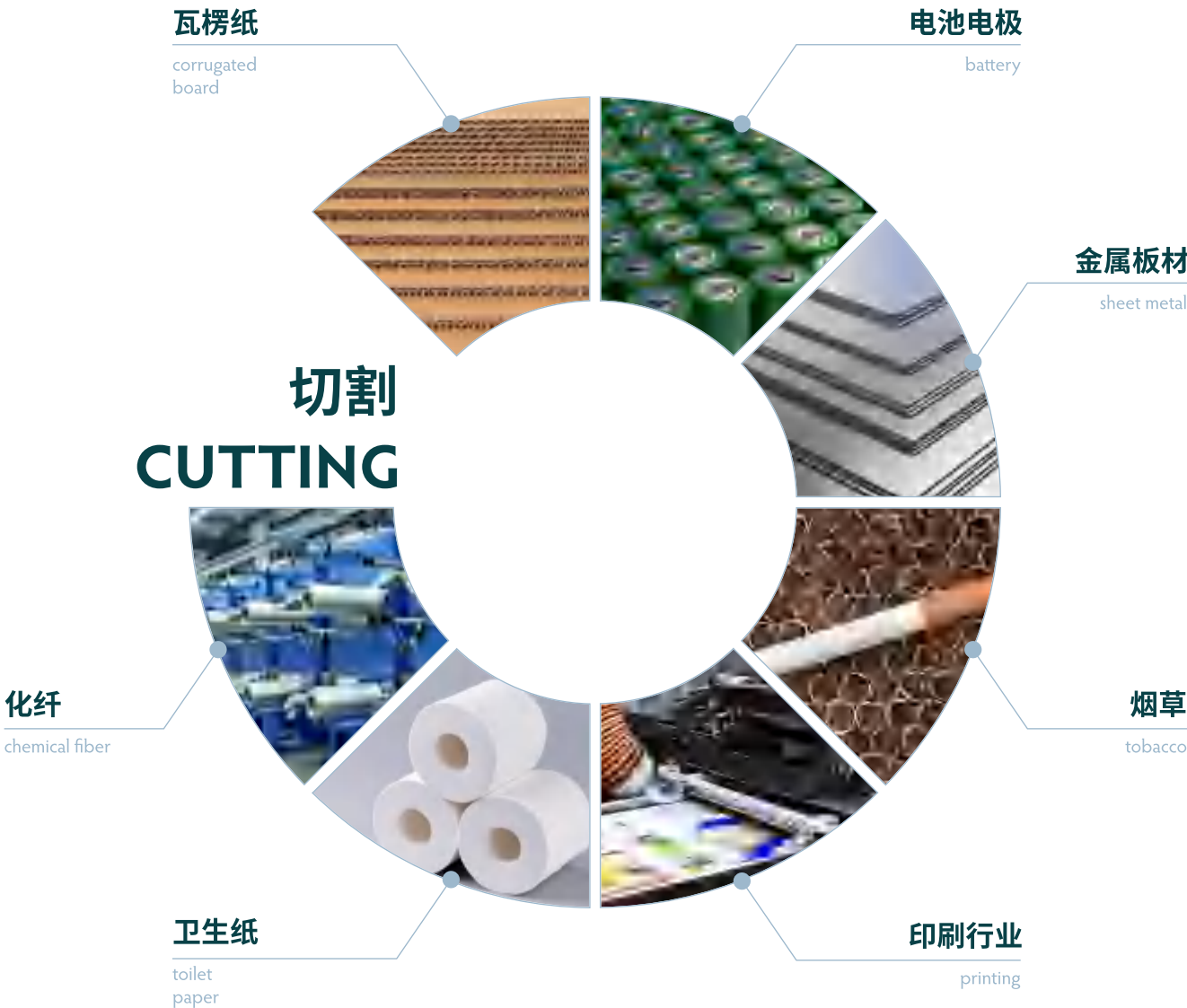
产品应用领域

APPLICATIONS

通过金属粉末冶金制成的硬质合金刀片具有超高的硬度和耐磨性，并且同时拥有良好的耐热，耐腐蚀性。良好的性能让硬质合金切割刀具广泛应用于纸，化纤，塑料，复合材料等非金属材料 and 金属材料的切割。

硬质合金由硬质相碳化钨和粘结相钴组成。通过调节硬质相和粘结相的比例和碳化钨粒度的大小，我们可以获得不同性能的硬质合金，以满足不同生产领域的需求。

Because of the high hardness, wear resistance and corrosion resistance, the tungsten carbide cutting and slitting knives what made by powder metallurgic method are widely used for the cutting of non-ferrous metal, paper, chemical fiber, graphite and plastic ...
The components of tungsten carbide are WC (hard phase) and cobalt (binder phase). The physical properties of alloy depend on the grain size of WC and the percentage of hard phase and binder phase, we have dozens of material grades for your different applications.



我们提供用于生产刀具的钨钢材料

Our Tungsten Carbide Materials For Your Option

Our Tungsten Carbide Materials For Your Option					
规格	颗粒度	密度	硬度	抗弯强度	适用切割材料
Type	Grain size	Density g/cm3	HRA	TRS (N/m m2)	Suitable for cutting
TH05M	中颗粒 medium	14.90-15.00	90.9-91.3	2400	膜 Film
TH15M	中颗粒 medium	14.55-14.70	89.7-90.2	2800	石棉材料 Asbestos
TH25M	中颗粒 medium	14.20-14.40	88.5-89.0	3000	塑料 Plastics
TH30M	中颗粒 medium	14.00-14.10	87.2-87.6	3000	纸 有色金属 Paper Nonferrous metals
TH35M	中颗粒 medium	13.75-13.85	86.0-86.5	3200	金属板材 Sheet metal
TH25K	细颗粒 fine	14.20-14.40	89.5-90.0	3300	塑料 纸 Plastics Paper
TH30K	细颗粒 fine	14.00-14.10	88.5-89.0	3200	有色金属 Nonferrous metals
TH05U	亚细颗粒 Sub-fine	14.75-15.00	92.8-93.2	2500	纸板, 光纤, 皮革 Paperboard Fiber optic Leather
TH10U	亚细颗粒 Sub-fine	14.60-14.80	92.0-92.5	2500	复合材料 Composite materials
TH30U	亚细颗粒 Sub-fine	13.85-14.00	89.7-90.2	3200	纸板 Paperboard
TH20U	亚细颗粒 Sub-fine	14.35-14.50	91.4-91.8	3200	瓦楞纸 化纤, 塑料, 皮革 Corrugated board , Chemical fiber , Plastics, Leather
TH26U	亚细颗粒 Sub-fine	14.00-14.10	90.4-90.8	3500	瓦楞纸 电池极片 Corrugated board, Battery pole pieces
TH25UF	超细颗粒 Super fine	14.00-14.20	92.4-93.0	3500	瓦楞纸 纸板 皮革, 复合材料 Corrugated board , Paperboard , Leather, Composite materials

注1: 材料推荐用途基于我们以往的经验, 供客户参考。客户可提出自己的材料要求。
Note 1: The recommended application of materials is for your reference. Your requirements of materials are available.



瓦楞纸纵切圆刀

FOR CORRUGATED BOARD CUTTING

模具材料常用规格表Dimension			
编号 Items	常见尺寸 Common sizes OD*ID*T (mm)	是否带孔 Holes	
1	Φ200xΦ122x1.2		
2	Φ210xΦ110x1.5		
3	Φ210xΦ122x1.3		
4	Φ230xΦ110x1.3		
5	Φ230xΦ130x1.5		
6	Φ250xΦ105x1.5	6(孔 holes)xΦ11	
7	Φ250xΦ140x1.5		
8	Φ260xΦ112x1.5	6(孔 holes)xΦ11	
9	Φ260xΦ114x1.6	8(孔 holes)xΦ11	
10	Φ260xΦ140x1.5		
11	Φ260xΦ158x1.5	8(孔 holes)xΦ11	
12	Φ260xΦ112x1.4	6(孔 holes)xΦ11	
13	Φ260xΦ158x1.5	3(孔 holes)*Φ9.2	
14	Φ260xΦ168.3x1.6	8(孔 holes)*Φ10.5	
15	Φ260xΦ170x1.5	8(孔 holes)*Φ9	
16	Φ265xΦ112x1.4	6(孔 holes)*Φ11	
17	Φ265xΦ170x1.5	8(孔 holes)*Φ10.5	
18	Φ270xΦ168x1.5	8(孔 holes)*Φ10.5	
19	Φ270xΦ168.3x1.5	8(孔 holes)*Φ10.5	
20	Φ270xΦ170x1.6	8(孔 holes)*Φ10.5	
21	Φ280xΦ168x1.6	8(孔 holes)*Φ12	
22	Φ290xΦ112x1.5	6(孔 holes)*Φ12	
23	Φ290xΦ168x1.5/1.6	6(孔 holes)*Φ12	
24	Φ300xΦ112x1.5	6(孔 holes)*Φ11	

瓦楞纸纵切圆刀(国外机型部分)

Knives for corrugated board cutting (for oversea machines)

模具材料常用规格表Dimension			
编号 Items	常见尺寸 Common sizes OD*ID*T (mm)	是否带孔 Holes	适用机型 Available for machine
1	Φ230*Φ110*1.1	6 (孔 holes) *Φ9	FOSBER
2	Φ230*Φ135*1.1	4 键槽 key slots	FOSBER
3	Φ220*Φ115*1	3(孔holes) *Φ9	AG N ATI
4	Φ240*Φ32*1.2	2(孔holes)*Φ8.5	BHS
5	Φ240*Φ115*1	3(孔holes)*Φ9	AG N ATI
6	Φ250*Φ150*0.8		PETERS
7	Φ257*Φ135*1.1		FOSBER
8	Φ260*Φ112*1.5	6(孔holes)*Φ11	ORANDA
9	Φ260*Φ140*1.5		ISOWA
10	Φ260*Φ168.3*1.2	8(孔holes)*Φ10.5	MARQUIP
11	Φ270*Φ168.3*1.5	8(孔holes)*Φ10.5	HSEIH
12	Φ270*Φ140*1.3	6(孔holes)*Φ11	VATANMAKEINA
13	Φ270*Φ170*1.3	8(孔holes)*Φ10.5	
14	Φ280*Φ160*1	6(孔holes)*Φ7.5	MITSUBISHI
15	Φ280*Φ202*1.4	6(孔 holes)*Φ8	MITSUBISHI
16	Φ291*Φ203*1.1	6(孔holes)*Φ8.5	FOSBER
17	Φ300*Φ112*1.2	6(孔holes)*Φ11	TCY

注:接受产品定制。
Note: Acceptable for customers' design.

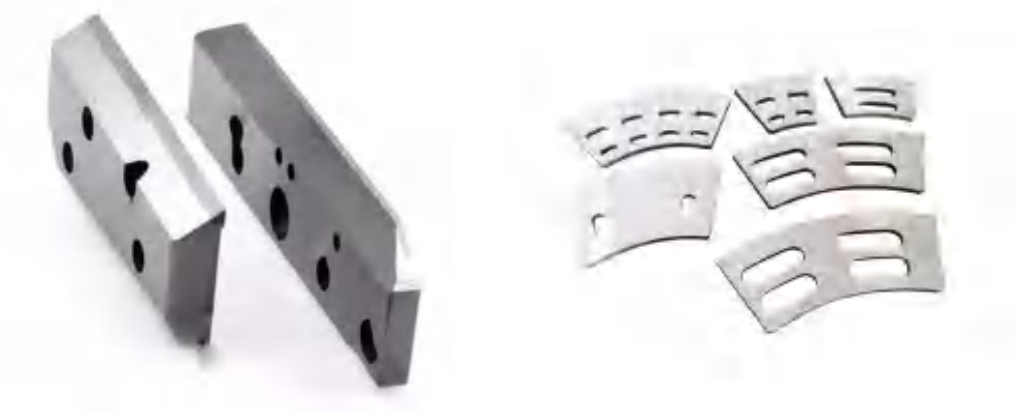
06/硬质合金切割工具

Tungsten Cutting Tools



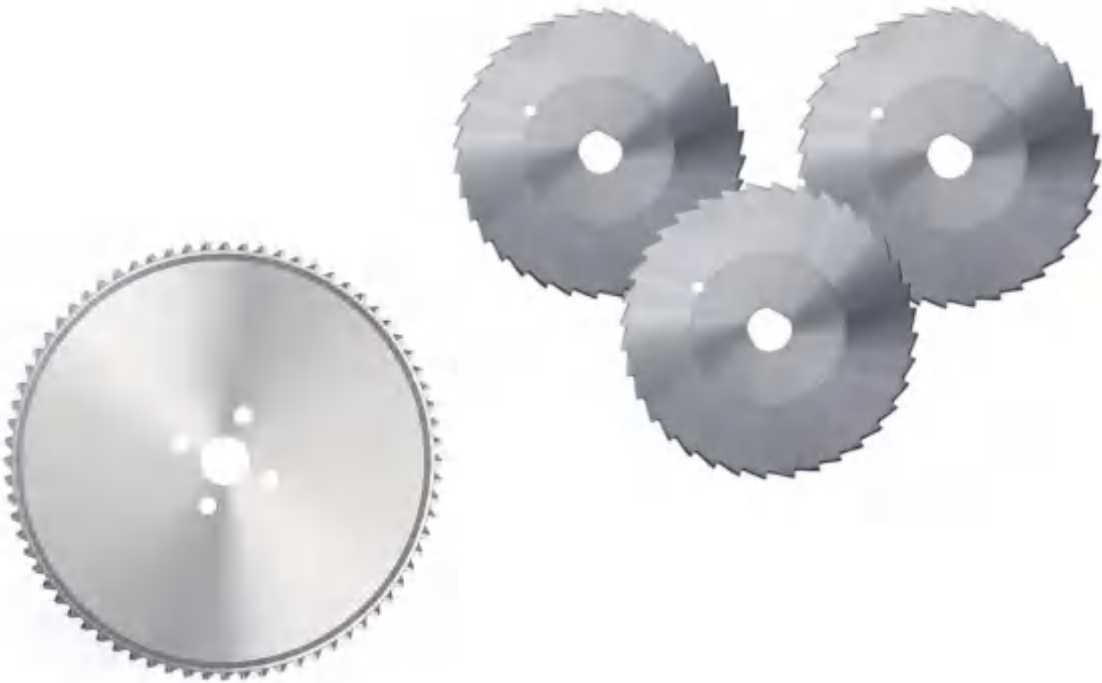
包装印刷用刀

AND PACKING INDUSTRIES

钨钢铣刀Tungsten carbide milling cutter for paper industry			
编号 Items	常见尺寸 Common sizes OD*ID*T (mm)	编号 Items	常见尺寸 Common sizes OD*ID*T (mm)
1	20.8*8*5	11	50*14.5*4
2	32*14*3.7	12	51*13.97*3.5
3	32.3*14*3.8	13	63*14*4
4	35*10.3*3.2	14	63*20*20
5	38*15*3	15	63.5*14*4
6	39*14*3.5	16	64*18*18
7	42.4*18.8*4.59	17	65*18*5
8	44.45*18.65*4.76	18	71*14*3.5
9	45*15*3	19	72*14*9
10	50*14*3.5	20	72*14*4
			

钨钢圆盘锯齿刀

Tungsten carbide milling circular knives for paper industry

Tungsten carbide milling circular knives for paper industry		
编号 Items	常见尺寸 Common sizes OD*ID*T (mm)	备注 Notes
1	Φ308*Φ225*8	锯齿刀 serrated circular knives
2	Φ150*Φ32*0.7	锯齿刀 serrated circular knives
3	Φ35*Φ18*1	锯齿刀 serrated circular knives
		

注:接受产品定制。
Note: Acceptable for customers' design.

TUNGSTEN CUTTING TOOLS



复卷机用刀

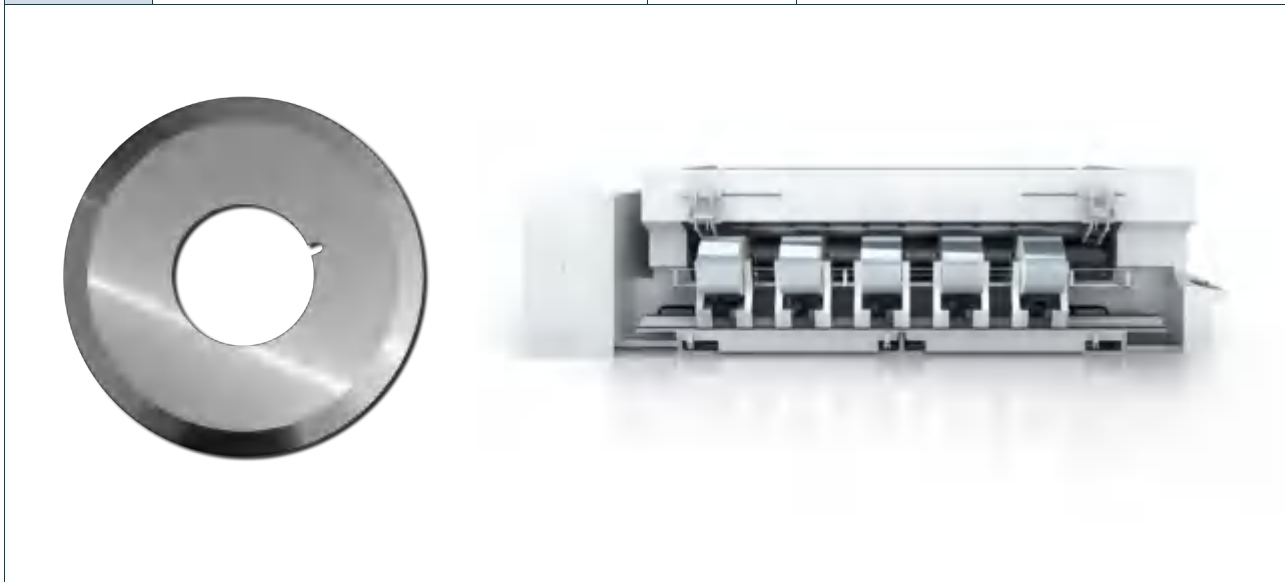
Rewinder Knife

复卷机用刀为公司一大特色重点类产品, 包括单面镶环和双面镶环。该系列产品镶环牢固可靠, 不脱落, 耐磨损, 寿命长。

Knives for rewinder machines is one of our key products what inset with tungsten carbide rings (single or double).

This kind of products is strong, high wear resistance and long working life.

Rewinder Knife			
编号 Items	常见尺寸 Common sizes OD*ID*T (mm)	编号 Items	常见尺寸 Common sizes OD*ID*T (mm)
1	Φ58*Φ35*30	13	Φ190*Φ138*15
2	Φ75*Φ45*20	14	Φ202*Φ155*38
3	Φ105*Φ60*12	15	Φ210*Φ150*25
4	Φ105*Φ60*49	16	Φ230*Φ115*20
5	Φ142.88*Φ101.6*14.73	17	Φ240*Φ188*13.8
6	Φ144.5*Φ92*50	18	Φ250*Φ140*20
7	Φ150*Φ100*40	19	Φ250*Φ140*25
8	Φ160*Φ50*25	20	Φ250*Φ188*15
9	Φ160*Φ100*40	21	Φ250*Φ188*15.5
10	Φ170*Φ100*16	22	Φ250*Φ188*25
11	Φ180*Φ120*30	23	Φ305*Φ230*37
12	Φ185*Φ65*25		



注:接受产品定制。
Note: Acceptable for customers' design.

金属切割用刀具

FOR METAL CUTTING

金属板材分条圆刀(滚剪刀) Circular knives for sheet metal slitting (Rolling shear knives)			
编号 Items	常见尺寸 Common sizes OD*ID*T (mm)	编号 Items	常见尺寸 Common sizes OD*ID*T (mm)
1	Φ150.1*Φ125*10	13	Φ250*Φ125*10.1
2	Φ160*Φ55*10.1	14	Φ250*Φ125*15.1
3	Φ162.1*Φ95*22.375	15	Φ250.1*Φ125*5
4	Φ181*Φ109*10.1	16	Φ250.1*Φ160*7
5	Φ185.06*Φ90*10	17	Φ250.3*Φ160*15
6	Φ185.15*Φ175*30	18	Φ253*Φ159*14.1
7	Φ194*Φ145.4*22.22	19	Φ255*Φ160*10
8	Φ201*Φ135*10	20	Φ260*Φ160*10
9	Φ204*Φ126*5.08	21	Φ280.15*Φ175*30
10	Φ220*Φ130*4.5	22	Φ300.15*Φ50*5
11	Φ249.6*Φ160*8	23	Φ315*Φ280*20
12	Φ250*Φ160*10	24	Φ340*Φ225*20



注:接受产品定制。
Note: Acceptable for customers' design.

电池行业用刀

KNIVES FOR BATTERY INDUSTRY

我们的电池电极切割用高精度铝钢分切圆刀通过了科技成果鉴定,该系列产品选择超细颗粒碳化铝粉生产坯料并特殊处理后,经过专业的磨削设备加工而成。产品外观好,精度高,换刀频次少,寿命长,具有极高的性价比。

Our high precise cutting knives for battery industry of the won the technology achievement award of hunan province. This kind of knives is made by virgin tungsten carbide powders.After the processes of powder metallurgy and precise machining, our knives have very high tolerance and long working life. Each knife was inspected by cutting edge amplification test.

电极隔膜刀Knife for diaphragm of battery poles cutting			
编号 Items	常见尺寸 Common sizes L*W*H(mm)		
1	43*22*0.2/0.3/0.4		
极片分切刀pole slice cutter			
编号 Items	常见尺寸 Common sizes OD*ID*T(mm)	备注 Notes	
1	Φ68/72/76*Φ46*0.5/1	上刀	
	Φ60*Φ40*5	下刀	
编号 Items	常见尺寸 Common sizes OD*ID*T(mm)	备注 Notes	
2	Φ98*Φ66*0.7蝶形Dish	上刀	
	Φ80*Φ55*5	下刀	
编号 Items	常见尺寸 Common sizes OD*ID*T(mm)		
3	Φ100*Φ65*0.7	Φ100*Φ65*1	
	Φ100*Φ65*2	Φ100*Φ65*3	
编号 Items	常见尺寸 Common sizes OD*ID*T(mm)		
4	Φ110*Φ90*1	Φ110*Φ90*3	
	Φ110*Φ75*3		
编号 Items	常见尺寸 Common sizes OD*ID*T(mm)		
5	Φ130*Φ88*1	Φ130*Φ97*0.8	
	Φ130*Φ70*3	Φ130*Φ95*4	



化纤切割用薄刀片

FOR CHEMICAL FIBER CUTTING

金属板材分条圆刀(滚剪刀) Circular knives for sheet metal slitting (Rolling shear knives)	
编号 Items	常见尺寸 Common sizes L*W*H(mm)
1	74.5*15.5*0.88
2	95*19*0.9
3	117.5*15.5*0.9
4	120*15.8*0.9
5	135.5*19.05*1.4
6	140*19*0.884
7	163*22.4*0.23
8	170*19*0.884
9	213*24.4*1



注:接受产品定制。
Note: Acceptable for customers' design.

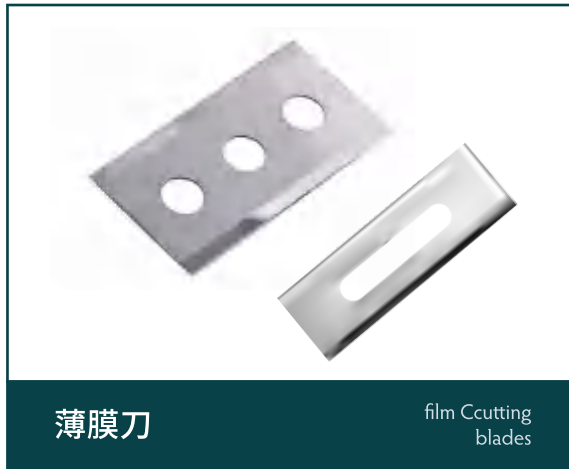


其它行业用刀

KNIVES FOR OTHER INDUSTRIES

我公司有很强的产品开发能力,可承接薄膜,塑料,橡胶,复合材料,有色金属等各种不同行业用硬质合金刀具。

We have the capacity for products development. Available for the customers' design products what used in films, rubbers, woods and non-ferrous metals industries etc.



公差等级

Carbide Rod Tolerances

精磨外径公差 Tol. of Ground Rods' Diameter				
外径 Diameter	h4	h5	h6	h7
0-3.0mm 0-0.1181 in.	0.003mm 0.00012 in.	0.004 mm 0.00015 in.	0.006 mm 0.00024 in.	0.010 mm 0.00039 in.
3.001-6.0mm 0.1181 - 0.2362 in.	0.004mm 0.00015 in.	0.005 mm 0.00020 in.	0.008 mm 0.00031 in.	0.012 mm 0.00047 in.
6.001-10.0 mm 0.2363 - 0.3937 in.	0.004mm 0.00015 in.	0.006 mm 0.00024 in.	0.009 mm 0.00035 in.	0.015 mm 0.00059 in.
10.001-18.0 mm 0.3938 - 0.7087 in.	0.005mm 0.00020 in.	0.008 mm 0.00031 in.	0.011 mm 0.00043 in.	0.018 mm 0.00071 in.
18.001-30.0 mm 0.7088 - 1.1811 in.	0.006mm 0.00024 in.	0.009 mm 0.00035 in.	0.013 mm 0.00051 in.	0.021 mm 0.00083 in.
30.001-50.0 mm 1.1812 - 1.9685 in.	0.007mm 0.00028 in.	0.011 mm 0.00043 in.	0.016 mm 0.00063 in.	0.025 mm 0.00098 in.

“h”的公差均为+0.0/-
“h”Tolerance is +0.0/-

棒材表面粗糙度 Surface Roughness of Rods	
类型 Type	精度 Accuracy
镜面棒材 Polished Rods	0.00-0.05 μm
精磨棒材 Ground Rods	0.00-0.10 μm
亚光洁度 Dull Finished	0.10-0.20 μm

圆度 Roundness Tolerance
不论外径、长度,精磨圆棒圆度标准均为0.002 mm The standard roundness tolerance of the ground rod is 0.002 mm.

07

CARBIDE BALL

硬质合金球



硬质合金球牌号、性能及用途

Grades,properties and applications of tungsten carbide balls

Grades,properties and applications of tungsten carbide balls						
牌号 Grade	钴含量 CO percent (%)	其他含量 other perent (%)	密度 Density g/cm ³	硬度 Hardness (HRA)	抗弯强度 T.R.S (Mpa)	性能 specifications
YG6	6	94%WC	14.9	90.5	2400	硬质合金球硬度高, 耐磨, 抗腐蚀、抗弯曲、使用环境恶劣, 可代替一切钢珠类产品。特别是YN6, 含Ni2%,抗腐蚀性能强 With high hardness,wear resistance corrosion resistance,anti-bnding tungsten carbide ball is used toreplace steel ball,Especially YN6,containing Ni 2%,corrosion resistance is more excellent
YG8	8	92%WC	14.8	89.5	2800	
YG6X	6	94%WC	14.5	92	2300	
YN6	6	92%WC+Ni	14	90	1400	

用途:毛坏球适用于研磨, 精磨球适用于精密件冲孔拉伸、精磨轴承、仪器、仪表、制笔、喷涂机、水泵、机械配件、密封阀、制动泵、冲挤孔、油田、盐酸实验室、硬度测量仪、渔具、配重、装饰、精加工等等高端行业！

Usages: the unground ball is suitable for milling all kinds materials,the grinding balls is suitable for precision punching member stretche,precision bearings,instruments,meters,Pen,spraying machines,pumps,machinery parts, valve sealsbrake pump,squeeze-hole punch,oil,hydrochloric acid laboratory,hardness measuring instrument,finising gear with heavy, ornamented,finished,thehigh-end industry!

常用精磨直径 (mm)

Common diameters for grinding and polishing carbide balls

Common diameters for grinding and polishing carbide balls							
0.4	0.5	0.8	1	1.2	1.5	1.588	1.6
1.98	1.9844	2	2.38125	2.5	2.7781	3	3.175
3.5	3.969	4	4.5	4.7625	5	5.5526	5.963
6	6.35	6.5	6.747	7	7.144	7.5	7.938
8	8.5	9	9.5	9.525	10	10.319	10.5
11	11.1125	12	12.303	12.7	13	13.494	14
14.2875	15	15.081	15.875	16	17.4625	18	19
19.05	19.844	20	22.225	25	25.4	30	30.163
34.925	31.75	38	38.1	40	42.8625	45	50
50.4	53.963	60	70	80	90	100	110
120	130	140	150	160	170	180	190
200	210	220	230	240	250	260	270
280	290	300	310	320	330	340	350

07/硬质合金球

CARBIDE BALL

公制精度等级
Metric Accuracy Classes

Metric Accuracy Classes					
Grade	Allowable Ball	Deviation	Surface	Basic	Allowable
	Diameter	From	Roughness	Diameter	Lot
	Variation	Spherical	Arithmetical	Tolerance	Diameter
		Form	Average		Variation
	直径允许误差	形状圆度误差	表面粗糙度误差	基础直径误差	批次直径误差
3	0.0762μm (0.000003")	0.0762μm (0.000003")	0.0127μm (0.0000005")	±0.762μm (±0.00003")	0.127μm (0.000005")
5	0.127μm (0.000005")	0.127μm (0.000005")	0.02μm (0.0000008")	±1.27μm (±0.00005")	0.254μm (0.00001")
10	0.254μm (0.00001")	0.254μm (0.00001")	0.0254μm (0.000001")	±2.54μm (±0.0001")	0.508μm (0.00002")
15	0.381μm (0.000015")	0.381μm (0.000015")	0.0254μm (0.000001")	±2.54μm (±0.0001")	0.762μm (0.00003")
16	0.4064μm (0.000016")	0.4064μm (0.000016")	0.0254μm (0.000001")	±2.54μm (±0.0001")	0.8128μm (0.000032")
24	0.6096μm (0.000024")	0.6096μm (0.000024")	0.0508μm (0.000002")	±2.54μm (±0.0001")	1.2192μm (0.000048")
25	0.635μm (0.000025")	0.635μm (0.000025")	0.0508μm (0.000002")	±2.54μm (±0.0001")	1.27μm (0.00005")
48	1.2192μm (0.000048")	1.2192μm (0.000048")	0.0762μm (0.000003")	±5.08μm (±0.0002")	2.4384μm (0.000096")
50	1.26μm (0.00005")	1.26μm (0.00005")	0.0762μm (0.000003")	±7.6μm (±0.0003")	2.54μm (0.0001")
100	2.54μm (0.0001")	2.54μm (0.0001")	0.127μm (0.000005")	±12.7μm (±0.0005")	5.08μm (0.0002")
200	5.08μm (0.0002")	5.08μm (0.0002")	0.2032μm (0.000008")	±25.4μm (±0.001")	10.16μm (0.0004")
300	7.62μm (0.0003")	7.62μm (0.0003")		±25.4μm (±0.001")	15.24μm (0.0006")
500	12.7μm (0.0005")	12.7μm (0.0005")		±50.8μm (±0.002")	25.4μm (0.001")
1000	25.4μm (0.001")	25.4μm (0.001")		±127.0μm (±0.005")	50.8μm (0.002")
2000	50.8μm (0.002")	50.8μm (0.002")		±127.0μm (±0.005")	101.6μm (0.004")
3000	76.2μm (0.003")	76.2μm (0.003")		±127.0μm (±0.005")	152.4μm (0.006")



08 CARBIDE
END MILL
硬质合金铣刀



CARBIDE MILLING CUTTER

08/硬质合金铣刀

CARBIDE MILLING CUTTER



规格 (specifications)	HRC55° 紫红、古铜、铝用刀 HRC55° series (Purple/Bronze Coated) & Aluminum End Mills			动态铣系列 Dynamic Milling series		U槽七彩铝用刀 U-Flute Rainbow Coated Aluminum End Mills
	平刀 square End Mill	球刀 Ball Nose End Mill	圆鼻 Corner Radius End Mill	平刀 square End Mill	圆鼻 Corner Radius End Mill	平刀 square End Mill
4*12*50	▲	▲	▲	▲	▲	▲
6*18*50	▲	▲	▲	▲	▲	▲
8*24*60	▲	▲	▲	▲	▲	▲
10*30*75	▲	▲	▲	▲	▲	▲
12*36*75	▲	▲	▲	▲	▲	▲
14*45*100	▲	▲	▲	▲	O	▲
16*45*100	▲	▲	▲	▲	O	▲
18*45*100	▲	▲	▲	▲	O	▲
20*45*100	▲	▲	▲	▲	O	▲
4*15*75	▲	▲	▲	▲	▲	▲
6*25*75	▲	▲	▲	▲	▲	▲
8*30*75	▲	▲	▲	▲	▲	▲
4*20*100	▲	▲	▲	▲	▲	▲
6*30*100	▲	▲	▲	▲	▲	▲
8*35*100	▲	▲	▲	▲	▲	▲
10*40*100	▲	▲	▲	▲	▲	▲
12*45*100	▲	▲	▲	▲	▲	▲
6*35*150	▲	▲	O	▲	O	▲
8*45*150	▲	▲	O	▲	O	▲
10*55*150	▲	▲	O	▲	O	▲
12*65*150	▲	▲	O	▲	O	▲
14*70*150	▲	▲	O	▲	O	▲
16*70*150	▲	▲	O	▲	O	▲
18*70*150	▲	▲	O	▲	O	▲
20*70*150	▲	▲	O	▲	O	▲

▲=库存
▲= Indicates In Stock

O=支持定制
O=Customization Available

规格 (specifications)	通用系列 / 不锈钢系列 General Purpose series / stainless steel series		65度高硬系列 HRC65 High Hardness series		定点倒角刀 spot Drill & Chamfer Mill		波刃铣刀 Roughing End Mill (serrated Edge)
	平刀 / 球刀 square End Mill / Ball Nose End Mill		平刀 / 球刀 square End Mill / Ball Nose End Mill		铝用 For Aluminum		铝用 / 涂层 → For Aluminum / Coated
4*12*50	▲	▲	▲	▲	▲	▲	▲
6*18*50	▲	▲	▲	▲	▲	▲	▲
8*24*60	▲	▲	▲	▲	▲	▲	▲
10*30*75	▲	▲	▲	▲	▲	▲	▲
12*36*75	▲	▲	▲	▲	▲	▲	▲
14*45*100	▲	O	▲	O	O	O	▲
16*45*100	▲	O	▲	O	O	O	▲
18*45*100	▲	O	▲	O	O	O	▲
20*45*100	▲	O	▲	O	O	O	▲
4*15*75	▲	▲	▲	▲	▲	▲	O
6*25*75	▲	▲	▲	▲	▲	▲	▲
8*30*75	▲	▲	▲	▲	▲	▲	▲
4*20*100	▲	▲	▲	▲	▲	▲	O
6*30*100	▲	▲	▲	▲	▲	▲	▲
8*35*100	▲	▲	▲	▲	▲	▲	▲
10*40*100	▲	▲	▲	▲	▲	▲	▲
12*45*100	▲	▲	▲	▲	▲	▲	▲
6*35*150	▲	O	▲	O	O	O	O
8*45*150	▲	O	▲	O	O	O	O
10*55*150	▲	O	▲	O	O	O	O
12*65*150	▲	O	▲	O	O	O	O
14*70*150	▲	O	▲	O	O	O	O
16*70*150	▲	O	▲	O	O	O	O
18*70*150	▲	O	▲	O	O	O	O
20*70*150	▲	O	▲	O	O	O	O

▲=库存
▲= Indicates In Stock

O=支持定制
O=Customization Available

CARBIDE MILLING CUTTER