



ZGCC

硬质合金—地矿合金  
MINING USE  
TUNGSTEN CARBIDE



自贡硬质合金有限责任公司  
Zigong Cemented Carbide Corp., Ltd.



# 品质成就未来

QUALITY ACCOMPLISHES THE FUTURE

## 自贡硬质合金有限责任公司

- 世界500强企业中国五矿集团的核心成员
- 中国第一家自主设计建设的大型硬质合金企业
- 国内领先的硬质合金及配套工具制造商
- 世界先进水平的硬面材料及其应用服务提供者
- 国内领先的钨钼制品制造商

### ZIGONG CEMENTED CARBIDE CO., LTD.

- Zigong Cemented Carbide Co., Ltd (ZGCC) is a core member of China Minmetals Group which is one of the world 500 top companies.
- ZGCC is the first home-designed and built large scale cemented carbide manufacturing enterprise in China.
- It is one of the leading manufacturers of cemented carbides and related tools at home.
- It is a reliable supplier of the hard-facing materials with advanced work levels and their application services.
- It holds the leadership position in the tungsten and molybdenum product manufacture in China.



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CN-000000000000  
IS09001  
CEC  
CN-000000000000



ISO9001  
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体系认证  
CNAS C081-Q

# 我们的优势

## Our superiorities

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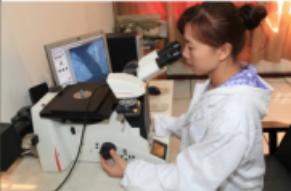
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- 50年专注于专业领域的持续努力
- 高品质，完整的产业链，丰富的产品系列，粗晶系列齿类产品形成新的竞争优势。
- 国家级高新技术企业，设有博士后科研工作站
- 致力于不断寻找新的材质以提高产品性能、新的加工方法以提高加工效率和灵活度

- ZGCC has been concentrating on the specialized fields for 50 years.
- Of high quality, complete operation chains, full series of products available. The carbide buttons in coarse grain are prevailing in the market.
- ZGCC is a state-rank high tech company, having a postdoctoral scientific research workstation.
- Sparing no efforts to develop and seek for new materials to improve product quality and new processing methods to maximize machining practice.



## 一、应用领域 Applications

地矿合金主要用于生产各类凿岩钻具及钻掘工具，广泛应用与各类矿产开采、能源设施基础工程施工、交通道路的发展建设等多个领域。

Mining use tungsten carbides are used for making various mining and construction tools, they are widely applied to mining, energy construction, engineering construction, road construction and many fields.

## 二、主要产品性能及应用范围推荐 Properties and recommendations

不同的凿岩钎（钻）具，在钻掘过程中的受力状况，对岩石的破碎方式、合金的磨损机理都存在极大的不同。因此根据凿岩钎(钻)具的不同类型，必须选择合适的合金材质及形状，以能使钎(钻)具获得更高的钻掘效率及更长的使用寿命，从而降低钻掘成本。

Application, working conditions, forced states, and wear of tools are different, so a suitable size and material tungsten carbide tip is important to enhance work performance and life time, thereby reduce operation costs.



## 1. 截齿工具用合金 Tips for milling

截齿工具用合金主要有以下几类：路面冷铣刨机用截齿、旋挖机械用截齿、煤矿综采机用截齿、井巷及隧道掘进机械用截齿、沟槽开挖机械用截齿等，广泛用于破碎岩石，或者铣削岩土，截齿是矿业采掘和岩土工程中使用量很多的凿岩工具产品。

Our tips for milling include: Tips for road milling, Tips for rotary drilling rig, Tips for coal mining, Tips for tunnelling, Tips for trenching and etc. In general, this kind of Tips is used for rock cutting and milling with large consumption.

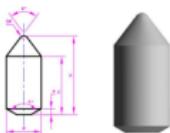
### 1.1 路面铣刨用齿 Tips for road milling



### 路面铣刨用齿牌号推荐 Grade

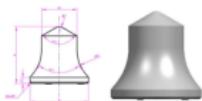
牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD05B	粗 Coarse	89.0	2500	14.90	适用于路面铣刨工具，用于水泥路面的拉毛处理。 Suitable for making road milling tools, apply to rough milling of concrete pavement.
ZD05T	粗 Coarse	88.2	2500	14.90	适用于路面铣刨工具，用于沥青路面的冷铣刨及， 水泥路面拉毛处理。 Suitable for making road milling tools, apply to cold milling of bituminous pavement and texturing machining of concret pavement.
ZD10T	超粗 Super coarse	87.3	2400	14.90	适用于路面铣刨工具，用于沥青路面的深层铣刨。 Suitable for making road milling tools, apply to deep milling of bituminous pavement.
YG6K	粗 Coarse	89.8	2800	14.93	适用于金刚石复合铣刨刀头基体。 Suitable for making matrix of diamond composite milling bits.

## 路面铣刨用齿型号示例 Size



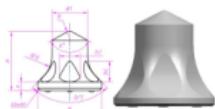
单位: mm

型号及基本尺寸规格 Type	直径 $\phi$	总高 $H$	SR
EW-16301	10.00	25.00	1.50
EW-16004	12.00	26.80	1.50
EW-15001	12.00	22.00	1.50
EW-15303	17.65	28.50	2.50



单位: mm

型号及基本尺寸规格 Type	直径 $\phi_1$	直径 $\phi_2$	总高 $H$	柱高 $h$
EW-13006	18.70	10.50	17.70	1.20
EW-13004	19.00	11.50	18.50	1.50
EW-12307	19.00	11.50	18.50	1.60
EW-16001	19.00	11.50	18.50	2.00



单位: mm

型号及基本尺寸规格 Type	直径 $\phi_1$	直径 $\phi_2$	总高 $H$	柱高 $h$
EW-16002	18.50	10.60	17.50	1.50

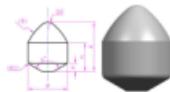
## 1.2 旋挖钻用齿 Tips for rotary drilling rig



## 旋挖钻用齿牌号推荐 Grade

牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD20T	超粗 Super coarse	86.5	2300	14.70	适用于旋挖进齿及煤层开采，岩层偏软施工，抗热疲劳性能优异。 Suitable for making rotary drilling rig tools, apply to coal mining in incompetent bed. Good thermal fatigue resistance.
ZD25T	超粗 Super coarse	86.0	2400	14.60	用于制作旋挖钻掘工具，适用砂土、粘性土、粉质土等土层施工，抗热疲劳性能优异。 Suitable for making rotary drilling rig tools. Working in sandy soil, cohesive soil and silty soil. Good thermal fatigue resistance.
ZD30T	超粗 Super coarse	85.6	2400	14.45	用于制作旋挖钻掘工具，适用砂土、粘性土、粉质土等含有少量石块土层施工。 Suitable for making rotary drilling rig tools. Working in sandy soil, cohesive soil and silty soil (with a little stones).
ZD30B	粗 Coarse	86.4	2500	14.43	用于制作旋挖钻掘工具，适用砂土、粘性土、粉质土等含有少量硬岩层施工。 Suitable for making rotary drilling rig tools. Working in sandy soil, cohesive soil and silty soil (with a little hard rock stratum).
YG11C	粗 Coarse	87.0	2600	14.35	用于制作旋挖钻掘工具，适用砂土、粘性土、粉质土中一定厚度的中硬岩土层施工。 Suitable for making rotary drilling rig tools. Working in sandy soil, cohesive soil and silty soil (with medium to hard rock stratum).

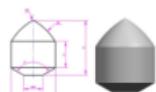
## 旋挖钻用齿型号示例 Size

直径  $\phi$ 

总高 H

单位: mm

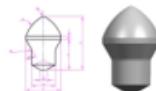
型号及基本尺寸规格 Type	直径 $\phi$	总高 H	SR
MX-15302	30.00	38.00	5.00
MX-15303	34.00	46.00	5.00
MX-16004	25.00	31.00	5.00

直径  $\phi$ 

总高 H

单位: mm

型号及基本尺寸规格 Type	直径 $\phi$	总高 H	SR
MX-12001	23.90	30.75	3.00
MX-16008	24.50	32.00	1.50
MX-14004	25.00	32.00	3.00
MX-14007	25.00	35.00	3.00
MX-15003	28.30	36.65	5.50

直径  $\phi$ 

总高 H

单位: mm

型号及基本尺寸规格 Type	直径 $\phi$	总高 H	SR
EW-08009	19.20	31.40	2.70
EW-07003	20.00	27.00	1.50
EW-08008	22.00	30.00	2.00
EW-08007	25.00	38.00	2.00

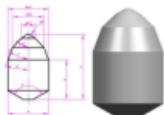
## 1.3 煤矿开采用齿 Tips for coal mining



## 煤矿开采用齿牌号推荐 Grade

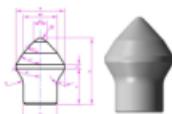
牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD20T	超粗 Super coarse	86.5	2300	14.75	用于制造煤炭采掘工具，开采煤矸石较少的煤层，具有较好的抗热疲劳性能。 Suitable for making coal mining tools.Working in the coal seam with a little gangue.
ZD25T	超粗 Super coarse	86.0	2400	14.60	用于制造煤炭采掘工具，开采煤矸石较少的煤层，具有较高的韧性。 Suitable for making coal mining tools.Working in the coal seam with a little gangue. Good toughness.
ZD30T	超粗 Super coarse	85.6	2400	14.45	适用于采煤机截齿，开采夹层岩石情况较多的煤层。 Suitable for making coal mining tools.Working in the coal seam with a little gangue. Good toughness.
ZD40T	超粗 Super coarse	85.3	2400	14.35	适用于采煤机截齿，开采夹层岩石情况较为复杂的煤层。 Suitable for making coal mining tools.Working in the coal seam with complicated interlayer rock.
ZD30B	粗 Coarse	86.4	2500	14.43	适用于采煤机截齿，开采夹层岩石较少，有一定厚度硬岩的煤层。 Suitable for making coal mining tools.Working in the coal seam with a little interlayer rock and hard rock stratum.
YG11C	粗 Coarse	87.0	2800	14.35	适用于采煤机截齿，开采煤矸石较少，夹层有一定厚度的煤层。 Suitable for making coal mining tools.Working in the coal seam with a little gangue and hard rock stratum.
YG13C	粗 Coarse	86.3	2800	14.20	适用于采煤机截齿，开采煤矸石较多，夹层有一定厚度的煤层。 Suitable for making coal mining tools.Working in the thick coal seam with many gangue.

## 煤矿开采用齿型号示例 Size



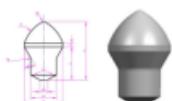
单位: mm

型号及基本尺寸规格 Type	直径 $\phi$	总高 H	柱高 h
MX-12302	17.95	28.50	17.90
MX-14008	20.65	30.00	17.00
MX-08003	20.65	33.00	20.00
MX-08008	21.75	37.00	24.00
MX-12303	22.00	34.50	22.30



单位: mm

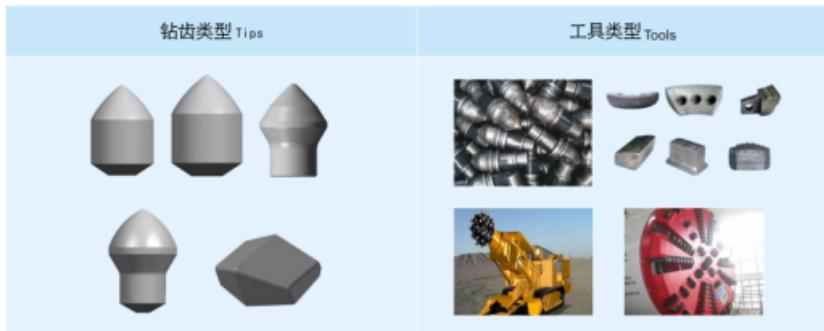
型号及基本尺寸规格 Type	直径 $\phi 1$	直径 $\phi 2$	总高 H	柱高 h
MX-15304	14.00	9.00	21.00	11.65
MX-15305	16.00	11.00	22.00	11.31
MX-14009	17.50	11.80	27.50	13.40
MX-15004	17.50	11.80	23.50	10.40
MX-15019	18.90	12.22	28.83	14.10
MX-15018	24.92	17.25	34.22	18.47



单位:mm

型号及基本尺寸规格 Type	直径 $\phi 1$	直径 $\phi 2$	总高 H	柱高 h
MX-08011	22.00	14.00	30.00	15.40

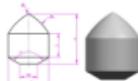
## 1.4 巷道掘进用齿 Tips for tunnelling



## 巷道掘进用齿牌号推荐 Grade

牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD20T	超粗 Super coarse	86.5	2300	14.70	适用于巷道掘进截齿，岩石夹层软。 Suitable for making rotary drilling rig tools, apply to coal mining in incompetent bed. Good thermal fatigue resistance.
ZD25T	超粗 Super coarse	86.0	2400	14.60	适用于巷道掘进截齿，岩石夹层软，含少量石块。 Suitable for making tunnelling tips. Working in weak interlayer rock with a little stones.
ZD30T	超粗 Super coarse	85.6	2400	14.45	适用于巷道掘进截齿，岩石夹层中软偏硬，含少量较大石块。亦适用于锯齿滚刀中的翼形齿及球形齿，亦用于盾构设备刮刀、齿刀、先行刀等刀具中的刀头。 Suitable for making tunnelling tips. Working in weak to medium interlayer rock with a little big size stones. Suitable for making button inserts and wing inserts of inserted blade gear hob. Also suitable for making teeth cutter and scraper of shield tunnelling machine.
ZD50T	超粗 Super coarse	84.5	2200	14.05	适用于锯齿滚刀中的翼形齿及球形齿，亦用于盾构设备刮刀、齿刀、先行刀等刀具中的刀头。 Suitable for making button inserts and wing inserts of inserted blade gear hob. Also suitable for making teeth cutter and scraper of shield tunnelling machine.
YG8C	粗 Coarse	88.3	2600	14.68	适用于小型顶管设备用合金刀头。 Suitable for making alloy tool bit of tube push bench.
YG9C	粗 Coarse	87.8	2700	14.58	
YG11C	粗 Coarse	87.0	2800	14.35	适用于盾构周边刮刀、方柄齿刀中的平顶耐磨损。 suitable for making wear resistance teeth cutter and scraper of shield tunnelling machine.
YG13C	粗 Coarse	86.5	2800	14.20	适用于盾构锯齿滚刀中的翼形齿及球形齿，亦用于刮刀、齿刀、先行刀等刀具中的刀头，亦适用于巷道掘进截齿，岩层有一定厚度的中硬岩。 Suitable for making button inserts and wing inserts of inserted blade gear hob. Also suitable for making tunnelling tips. Working in thick medium to hard rock stratum.
YG15C	粗 Coarse	85.6	2900	14.00	

## 巷道掘进用齿型号示例 Size



单位: mm

型号及基本尺寸规格 Type	直径 $\phi$	总高 H	SR
MX-12301	16.00	22.00	1.50
MX-14012	18.60	21.00	2.00
MX-14004	25.00	32.00	3.00
MX-15017	25.50	35.00	4.00



单位: mm

型号及基本尺寸规格 Type	直径 $\phi 1$	直径 $\phi 2$	总高 H	柱高 h
MX-08011	22.00	14.00	30.00	15.40



单位: mm

型号及基本尺寸规格 Type	直径 $\phi 1$	直径 $\phi 2$	总高 H	柱高 h
MX-14009	17.50	11.80	27.50	13.40
MX-15004	17.50	11.80	23.50	10.40
MX-15019	18.90	12.22	28.83	14.10
MX-15018	24.92	17.25	34.22	18.47



单位: mm

型号及基本尺寸规格 Type	L	H	B
MX-11501	28.58	19.05	12.67

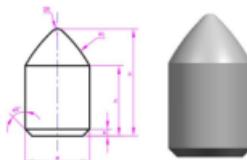
## 1. 5 沟槽开挖 Tips for trenching



## 沟槽开挖用齿牌号推荐 Grade

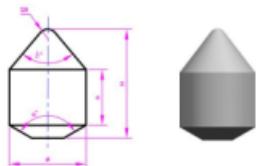
牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD05B	粗 Coarse	89.0	2500	14.9	用于水泥路面的沟槽开挖处理及软岩层开挖。 Apply to trenching of concrete pavement and weak rock stratum.
ZD05T	粗 Coarse	88.2	2500	14.9	用于沥青路面的沟槽开挖及含少量砾石水泥路面沟槽开挖。 Apply to trenching of bituminous pavement and concrete pavement with a little gravels.
ZD10T	超粗 Super coarse	87.5	2400	14.75	适用于路面沟槽开挖工具，用于含有较多砾石的路面开挖。 Suitable for making trenching tools. Apply to trenching of pavement with many gravels.
ZD20T	超粗 Super coarse	86.5	2300	14.70	适用于路面沟槽开挖工具，用于含有少量石块的路面开挖。 Suitable for making trenching tools. Apply to trenching of pavement with a little stones.
ZD30T	超粗 Super coarse	85.6	2400	14.45	适用于复杂路面沟槽开挖工具，用于含有较多石块的路面开挖。 Suitable for making trenching tools. Apply to trenching of pavement with many stones.
ZD40T	超粗 Super coarse	85.5	2400	14.35	适用于复杂路面沟槽开挖工具，用于含有较多大石块的路面开挖。 Suitable for making trenching tools. Apply to trenching of pavement with many big size stones.

## 沟槽开挖用齿型号示例 Size



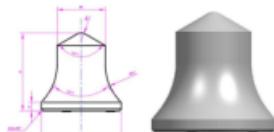
单位: mm

型号及基本尺寸规格 Type	直径 $\phi$	总高 H	SR
MX-14003	24.85	38.00	1.50
MX-14005	19.00	30.00	2.00



单位: mm

型号及基本尺寸规格 Type	直径 $\phi$	总高 H	SR
EW-15303	17.65	28.50	2.50
EW-14001	12.20	25.00	1.50



单位:mm

型号及基本尺寸规格 Type	直径 $\phi 1$	直径 $\phi 2$	总高 H	柱高 h
EW-15306	13.50	11.00	17.50	1.60
EW-15302	15.00	11.00	21.30	1.50
EW-15308	20.00	11.40	21.20	1.60
EW-15002	20.00	11.40	20.00	1.60



## 2. 矿山凿岩用合金 Tips for drilling

### 2.1 潜孔钻用齿 Tips for rock down-hole drilling

该系列工程齿及钻头与潜孔冲击器配套使用在岩石上进行钻孔的设备，应用于城市建筑、铁路、公路、河道、水电等工程中钻凿岩石锚索孔、锚杆孔、爆破孔、注浆孔等钻凿施工。

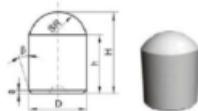
This kind of tips is used with impactor to drill the hole in the rock. Apply to hole drilling of engineering construction, railway construction, road construction, hydropower construction and river regulation.



#### 潜孔钻用齿牌号推荐 Grade

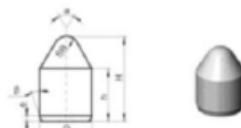
牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD05	中 Medium	90.3	2800	14.95	适用于低风压潜孔钻头用齿，钻凿中硬及以下岩层，亦可用于中高风压潜孔钻头用齿，钻凿软岩层。 Suitable for making low pneumatic DTH drill bit, apply to drilling of medium to hard rock. Also suitable for making high pneumatic DTH drilling bit to drill weak rock.
ZD10	中 Medium	90.0	2900	14.95	适用于中高风压潜孔钻头用齿，钻凿中硬及坚硬岩层。 Suitable for making high pneumatic DTH drilling bit to drill medium to hard rock.
ZD15	粗 Coarse	89.0	3000	14.75	适用于中高风压潜孔钻头用齿，钻凿坚硬、极坚硬岩层。 Suitable for making high pneumatic DTH drilling bit to drill hard or extra hard rock.
ZD15N	中 Medium	89.5	3000	14.72	适用于中高风压潜孔钻头用齿，钻凿坚硬、极坚硬岩层。 Suitable for making high pneumatic DTH drilling bit to drill hard or extra hard rock.

## 潜孔钻用齿型号示例 Size



单位: mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR
EQQ-10007	12.00	15.00	11.00	6.60
EQQ-08003	14.10	21.00	16.00	7.40
EQQ-12006	16.50	28.00	22.00	8.50
EQQ-14007	18.07	25.00	17.70	9.20



单位: mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR	夹角 α
EQZ-14006	12.00	16.00	8.00	3.40	51.6
EQZ-14012	14.00	19.00	8.30	1.50	60.0
EQZ-13011	16.00	20.50	10.00	3.40	60.0
EQZ-08009	18.10	25.00	13.00	5.00	53.0



单位:mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR
EQD-15014	7.00	11.00	7.25	2.50
EQD-15016	9.10	12.00	7.20	2.00
EQD-15017	10.10	14.00	8.50	2.50
EQD-15012	13.07	19.00	13.00	3.00
EQD-15009	14.07	20.00	12.20	4.00

## 2.2 柱齿钎头用齿 Tips for mining drilling

该系列工程齿及钻头主要是与液压凿岩机（风动凿岩机）及液压钎杆（风动钎杆）配套使用，通过不同形式的螺纹与钎杆配合，进行凿孔作业，主要用于地下矿山的开采，露天矿的开采，钢厂的高炉开口等领域。

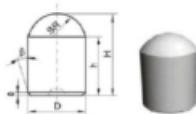
This kind of tips is used with hydraulic rock drill and hydraulic drill rod to drill hole on rock. Apply to underground mining and strip mining.



### 柱齿钎头牌号推荐 Grade

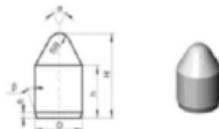
牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD05	中 Medium	90.3	2800	14.95	适用于圆齿方式为冷压式、热镶式的柱齿钎头用齿。 钻凿中硬以下岩层。 Suitable for making drill bit by cold pressed and thermal inset. Working in medium to weak rock.
ZD10	中 Medium	90.0	2900	14.95	适用于圆齿方式为冷压式、热镶式的柱齿钎头用齿。 钻凿各类岩层。 Suitable for making drill bit by cold pressed and thermal inset. Working in any kind of rock stratum.
ZD20	粗 Coarse	89.0	3000	14.70	适用于焊接式圆齿方式的柱齿钎头用齿，钻凿各类岩层。 Suitable for making drill bit by welding. Working in any kind of rock stratum.

## 柱齿钎头用齿型号示例 Size



单位: mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR
EQQ-10007	12.00	15.00	11.0	6.60
EQQ-15008	14.12	18.00	13.00	7.40
EQQ-15011	16.06	24.00	17.60	8.30
EQQ-15013	16.78	26.00	20.30	8.80



单位: mm

型号及基本尺寸规格 Type	直径-D	总高 H	柱高 h	SR	夹角 α
EQZ-14002	8.00	12.00	8.10	3.00	60.0
EQZ-16002	11.00	14.00	7.00	2.00	64.2
EQZ-13027	14.00	18.00	11.00	4.20	71.3
EQZ-08010	16.10	22.00	11.50	4.70	52.0
EQZ-13012	19.00	23.00	11.70	7.00	47.0



单位:mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR
CX-05003	9.00	14.00	9.30	3.00
CX-05004	11.00	17.50	11.80	4.00
CZ-03002	14.00	18.00	10.00	3.90
CZ-03003	16.00	21.00	10.00	4.78
CZ-03004	16.00	23.00	12.00	4.78

## 2.3 矿山牙轮钻用齿 Tips for mining tri-cone bits

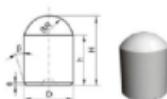
应用于各类矿山开采领域。



## 矿山牙轮钻用齿牌号推荐 Grade

牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD35.2	中 Medium	88	3300	14.40	适用于矿山牙轮钻头用合金齿，钻进中硬以下岩层。 Suitable for making mining tri-cone bit. Working in medium to weak rock stratum.
ZD30	粗 Coarse	87.8	2800	14.45	适用于矿山牙轮钻头用合金齿，钻进中硬岩层。 Suitable for making mining tri-cone bit. Working in medium to hard rock stratum.
YG11C	粗 Coarse	87.0	2700	14.35	适用于矿山牙轮钻头用合金齿，钻进中硬及坚硬岩层。 Suitable for making mining tri-cone bit. Working in medium to hard and extra hard rock stratum.

## 矿山牙轮钻用齿型号示例 Size



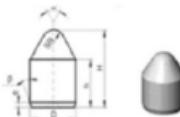
单位: mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR
CQ0810	8.00	10.00	7.50	4.60
CQ0911	9.00	11.00	6.50	4.00
CQ1214	12.00	14.00	10.10	6.70
CQ1622	16.00	22.00	14.00	8.00
CQ1623	16.00	23.00	17.00	8.30



单位: mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	R
CB1215	12.00	15.00	10.00	2.00
CB1418	14.00	18.00	12.00	2.50
CB1520	15.00	20.00	12.50	2.00
CB1621	16.00	21.00	13.50	2.50
CB1924	19.00	24.00	15.00	3.50



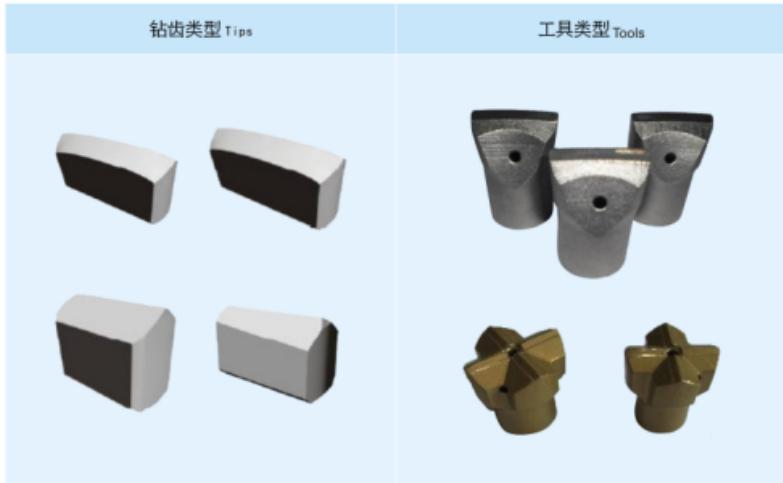
单位:mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR
CZ1217	12.00	17.00	10.00	3.40
CZ1418	14.00	18.50	10.00	3.60
CZ1621	16.00	21.50	14.30	7.50
CZ1625	16.00	25.00	15.50	4.00
CZ1926	19.00	26.00	14.70	7.50



## 2. 4钎片 Tips for rock drilling bit

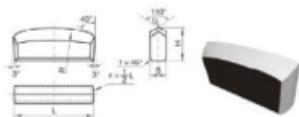
用于片状合金镶嵌的凿岩钎头，广泛应用于各类采掘、石方工程等领域。



### 钎片牌号推荐 Grade

牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
YG8C	粗 Coarse	88.1	2800	14.66	适用于钻凿中硬以下岩层。 Apply to drilling of medium to weak rock stratum.
YG9C	粗 Coarse	87.8	2800	14.58	适用于钻凿中硬岩层。 Apply to drilling of medium to hard rock stratum.
ZD30	粗 Coarse	87.5	2900	14.50	适用于钻凿中硬及坚硬岩层,通用性好。 Apply to drilling of medium to hard and extra hard rock stratum. Good for general using.
YG11C	粗 Coarse	87.0	2900	14.34	适用于钻凿坚硬、极坚硬岩层。 Apply to drilling of medium to hard and extra hard rock stratum.
ZD35K	粗 Coarse	87.5	2500	14.40	经济型牌号,适用于钻凿中硬及中硬以下岩层。 Economic grade, apply to drilling of medium to weak rock stratum.

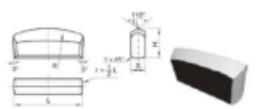
## 钎片型号示例 Size



K0型

单位: mm

型号及基本尺寸规格 Type	L	H	S	R
K026	26.00	18.00	8.00	180
K032	32.00	18.00	8.00	180
K038B	38.00	15.00	10.00	180
K042	42.00	18.00	10.00	180
K044	44.00	18.00	10.00	180



K10型

单位: mm

型号及基本尺寸规格 Type	L	H	S	R
K1016	16.00	12.00	6.00	30
K1024	24.00	12.00	6.00	50
K1032	32.00	15.00	8.00	80
K1040	40.00	15.00	8.00	120
K1046	46.00	15.00	10.00	160



K20型

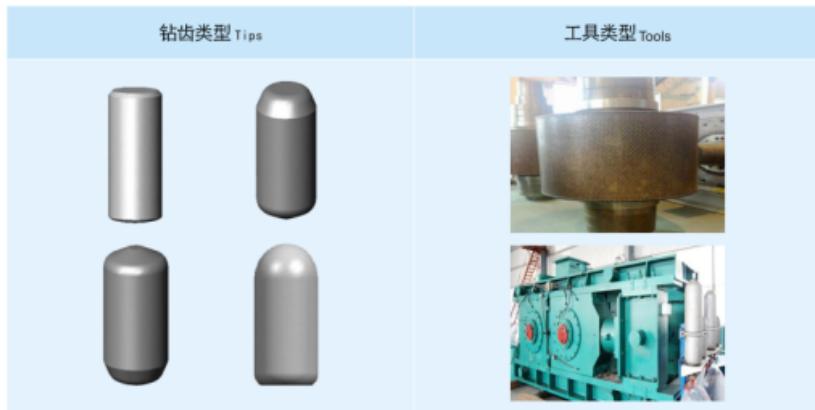
单位: mm

型号及基本尺寸规格 Type	L	H	S	R
K2013	13.00	12.00	8.00	16
K2015	15.00	12.00	8.00	20

### 3. 高压辊磨设备用柱钉 Roller mill

在辊磨设备的更新换代过程中，通过将硬质合金柱钉镶嵌在辊面形成辊面耐磨损层的工艺方法，推进了辊压机的技术革新，同时也使辊压机适应能力更强，应用领域得以拓展。在国内、外已普遍应用于水泥行业的粉碎、化工行业的造粒，以及球团矿增加比表面积的细磨。用于金属矿石的破碎，以实现简化碎矿流程、多碎少磨、提高系统生产能力、改善磨矿效果或选别指标等不同目的生产实践。

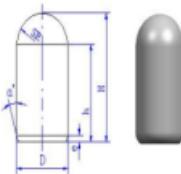
Along with the development of roller mill, tungsten carbide insert was used on the surface of roll in order to enhance adaptive capacity of roll mill machine. Now-a-day, roll milling machine with tungsten carbide inserts is used for milling of concret, mines, chemical products and etc.



#### 辊磨设备用齿牌号推荐 Grade

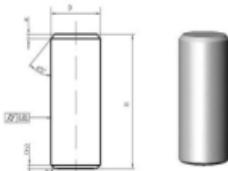
牌号 Grade	晶粒度 Grain Size	物理机械性能 Physical properties			牌号应用范围 Recommended application
		硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
YG15C	粗 Coarse	85.3	2500	14.00	水泥原料矿石及其他矿石辊磨破碎，有一定通用性。 Suitable for milling concret and some mines. General using.
ZD45.3	粗 Coarse	85.9	2600	14.02	适用于铁矿石辊磨破碎，抗磨粒磨损高于YG15C。 Suitable for milling iron ore, higher wear resistance than YG15C.
YG20	中 Medium	86.9	2800	13.49	适用于铁矿石、铝土矿的辊磨破碎。 Suitable for milling iron ore and bauxite.
YG15	中 Medium	87.3	2800	14.04	适用于复合铁矿石辊磨破碎。 Suitable for milling iron ore.
ZD45.1	中 Medium	87.9	2900	14.03	适用于铁矿石辊磨破碎。 Suitable for milling iron ore.

## 辊磨设备用齿型号示例 Size



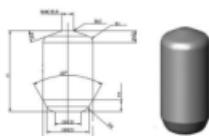
单位: mm

型号及基本尺寸规格 Type	直径 D	总高 H	柱高 h	SR
EEX-10001	5.00	12.00	9.50	2.60
EG-13003	8.00	20.00	16.00	4.00
EG-12007	10.00	22.00	17.00	5.00
EG-13007	16.00	50.00	42.00	8.00
EEX-10002	20.00	40.00	30.00	10.00



单位: mm

型号及基本尺寸规格 Type	D	H
EG-14002	16.00	40.00
EG-15011	20.00	35.00
EG-16010	16.00	45.00

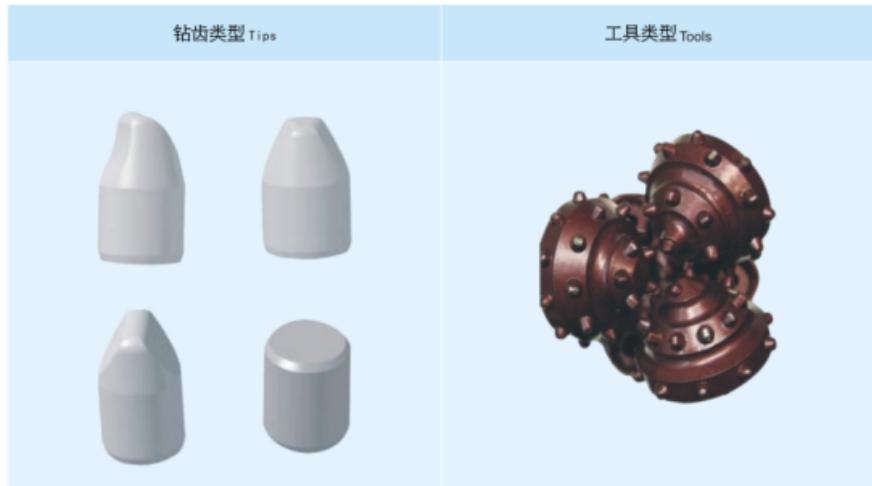


单位:mm

型号及基本尺寸规格 Type	D1	D2	D3	H
EG-1602	21.90	18.44	11.51	35.00

## 4.油田牙轮钻用齿 Tips for oil drilling tri-cone bits

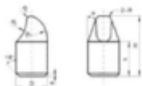
应用于油气开采领域



## 油田牙轮钻用齿牌号推荐 Grade

牌号 Grade	物理机械性能 Physical properties			牌号应用范围 Recommended application
	硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
YG13C	86.2	2400	14.20	适用于油用牙轮钻头的主切削齿，钻进各类岩层，可适应较高钻压。 Suitable for making cutting tip of oil drilling tri cone bit. Working in any kind of rock stratum, and good performance under high bit pressure.
YG15C	85.3	2500	14.00	
ZD35.2	88.0	3300	14.40	适用于油用牙轮钻头的主切削齿，钻凿腐蚀性较高的岩层，适应中低钻压、高钻速钻进。
ZD40	87.0	2900	14.15	Suitable for making cutting tip of oil drilling tri cone bit. Working in high corrosion rock stratum, and good performance under low bit pressure and high drilling speed.
ZD45	86.5	2900	13.95	

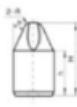
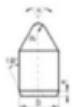
## 油田牙轮钻用齿型号示例 Size



CS 型

单位: mm

型号及基本尺寸规格 Type	D	H	h
CS1115	11.00	15.00	8.00
CS1421	14.00	21.00	12.00
CS1623	16.00	23.00	12.00
CS1933	19.00	33.00	17.00
CS2545	25.00	45.00	23.00



CE 型

单位: mm

型号及基本尺寸规格 Type	D	H	h
CE0811	8.00	11.00	7.50
CE1217	12.00	17.00	10.50
CE1419	14.00	19.00	11.00
CE1623	16.00	23.00	12.00
CE1929	19.00	29.00	17.00

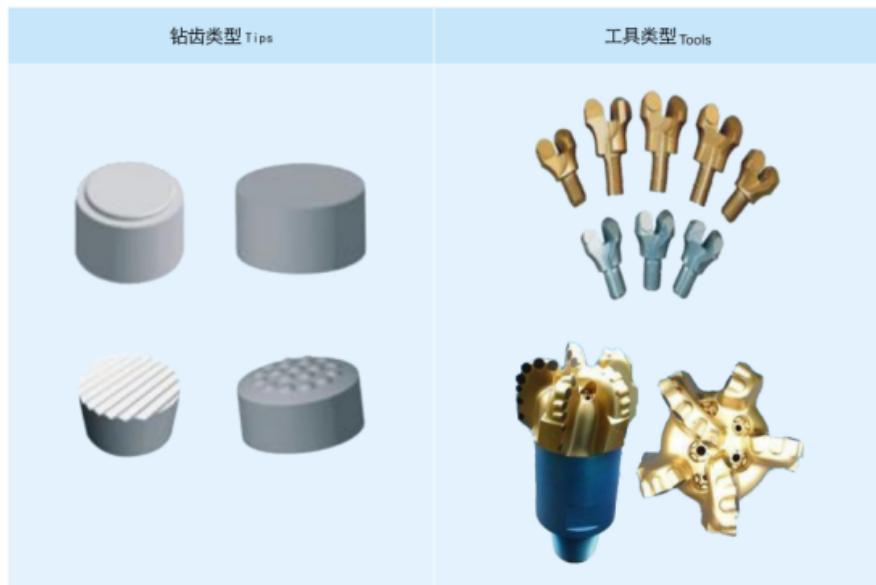


CB 型

单位: mm

型号及基本尺寸规格 Type	D	H	h
CB1418	14.00	18.00	12.00
CB1520	15.00	20.00	12.50
CB1621	16.00	21.00	13.50
CB1924	19.00	24.00	15.00
CB2230	22.00	30.00	17.00

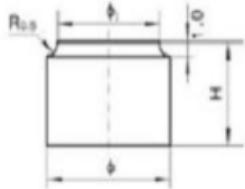
## 5. 金刚石复合片基体合金 Diamond composite plates



## 复合片基体牌号推荐 Grade

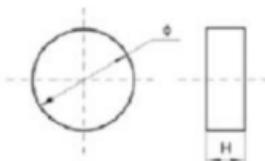
牌号 Grade	物理机械性能 Physical properties			牌号应用范围 Recommended application
	硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
ZD25U	89.6	3100	14.60	适用于地质勘探复合片基体（非主切削刃）。 Suitable for making diamond composite plates for geological prospecting (not for main cutter).
ZD40U	87.6	3250	14.20	适用于油气田采掘复合片基体（非主切削刃）。 Suitable for making diamond composite plates for oil and gas drilling bits (not for main cutter).
ZD60U	86.6	3300	13.95	适用于地质勘探、油气采掘复合片基体（主切削刃）。 Suitable for making diamond composite plates for oil and gas drilling and geological prospecting (not for main cutter).

复合片基体型号示例 Size



单位: mm

型号及基本尺寸规格 Type	$\varphi$	$\varphi l$	H
FX-00012	21.00	15.24	16.00

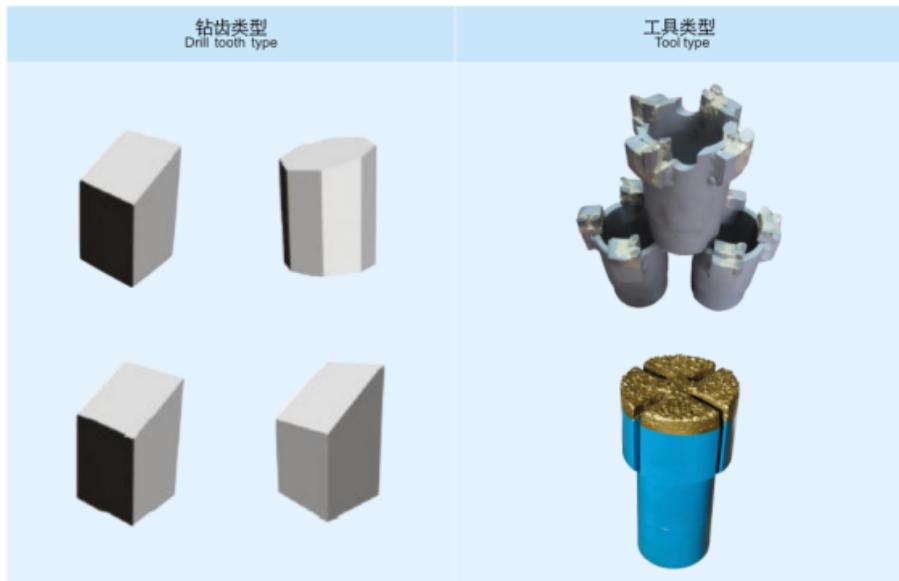


单位: mm

型号及基本尺寸规格 Type	$\varphi$	H
FX-04401	11.40	4.50
FC-95004	14.60	4.20
FX-05402	14.60	4.50

## 6. 地质勘探用齿 Tips for geological prospecting

适用于地质勘探，修井打捞工具用硬质合金。



## 地质勘探用齿牌号推荐 Grade

牌号 Grade	物理机械性能 Physical properties			牌号应用范围 Recommended application
	硬 度 HRA	抗弯强度 TRS N/mm <sup>2</sup>	密度 Density g/cm <sup>3</sup>	
YG8K	89.2	2900	14.72	适用中硬偏软岩层钻凿。 Working in medium to weak rock stratum.
YG11C	87.0	2900	14.34	适用中硬岩层的钻凿。 Working in medium to hard rock stratum.
ZD35K	87.6	2800	14.40	经济型牌号，适用中硬偏软岩层的钻凿。 Economic grade. Working in medium to weak rock stratum.

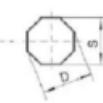
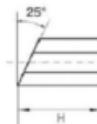
## 地质勘探用齿型号示例 Size



T0型

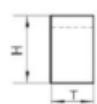
单位: mm

型号及基本尺寸规格 Type	T	H	S
T005	5.00	7.00	3.00
T005A	5.00	8.00	5.00
T007	7.50	10.00	3.00
T007A	7.00	20.00	7.00
T008A	6.00	12.50	8.00



单位: mm

型号及基本尺寸规格 Type	D	H	S
T105	5.00	10.00	4.62
T107	7.00	15.00	6.47
T107A	7.00	10.00	6.47
T110	10.00	16.00	9.24



T3型

单位:mm

型号及基本尺寸规格 Type	H	T	S
T310	10.00	5.00	5.00
T313	13.00	5.00	5.00
T3-97001	10.00	10.00	5.00



ZGCC

硬质合金—地矿合金  
MINING USE  
TUNGSTEN CARBIDE



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