

ROCKCODE

Designed & tested in Australia and manufactured in China
澳大利亚设计、测试 中国生产制造



ROCKCODE

U-YOUNG

Quality Diamond products for mining & construction industry
地质勘探及建筑用高品质金刚石产品



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Wuxi U-YOUNG International Trade Co.,Ltd.
无锡尤扬国际贸易有限公司

Wuxi ROCKCODE Diamond Products Co.,Ltd.
无锡洛德金刚石工具有限公司

U-YOUNG International Trade Co., Ltd is one of the main manufacturers of geological diamond drilling tools in China. Excellent design, experts in powder metallurgy, sophisticated furnace and CNC lathe, strict quality control, has enabled U-YOUNG to manufacture all range of matrix to achieve the demand of every day drilling.

We try our best to provide competitive return-on-investment for most customers.

尤扬国际是中国最主要的金刚石地质工具的生产商之一，卓越的产品设计，采用国际最为先进的无压烧结工艺及全进口原材料，精密的加工设备，尤扬国际拥有粉末冶金方面的资深专家，以及严谨的质量管控等从各方面保证了我们生产的金刚石地质工具能够满足各种层次的钻探需求。

我们拥有设计并生产金刚石钻头，扩孔器及其他钻探工具的能力，并且可以根据客户的特殊需求进行产品设计及定制。我们竭力满足客户对于低投资、高回报的需求。

人造金刚石孕镶钻头

Diamonds are embedded in an infiltrated or sintered matrix. The matrix erodes away at the same rate as the diamonds become worn and rounded. Thus new sharp diamonds are exposed to continue cutting through the rock.



金刚石孕镶钻头，相当于一个磨轮，金刚石与胎粉通过粉末冶金制成一个烧结体，当金刚石磨钝或磨损时，胎体同步磨损，因此新的锋利的金刚石重新暴露出胎体，使得钻头依然保持高速岩石磨削。

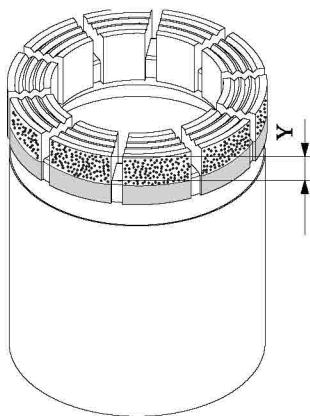


Matrix Selection Chart

		Soft rock 较软岩层				Medium Rock 中硬岩层				Hard rock 硬岩层	
Matrix	胎体配方及适用岩层	RC2	RC4	RC6	RC8	RC10	RC12	RC14			
overburden	超负荷状态										
hole obstructions	孔阻塞状态										
abrasive sandstone	耐磨蚀砂岩										
broken abrasive rock	破碎耐磨砂岩										
sandy shales	砂质页岩										
pyroxenite	辉岩										
norite	苏长岩										
gabbro	辉长岩										
diabase	辉绿岩										
dolerite	粗粒玄武岩										
mica schist	云母片岩										
siltstone	粉砂岩										
granite	花岗岩										
hematite	赤铁矿										
basalt	玄武岩										
hard quartzite	坚硬石英岩										
quartz conglomerate	石英砾岩										
banded ironstone	条带状铁矿石										
taconite	铁燧岩										
glassy quartz	石英岩										
chert	黑矽石										
		very coarse grained abrasive or fractured rocks	medium-hard competent &medium to fine grained rock	hard to very hard & medium to fine grained rocks	non abrasive super hard ultra fine grained rock						
		非常粗糙的颗粒状耐磨岩石 或破碎岩石	中性硬度岩层，岩石颗粒中等大小到很小	较硬到很硬岩层，岩石颗粒中等大小到很小	非研磨性岩层， 超硬地层，岩石 颗粒超细						

Impregnation Depth 孕镶层高度

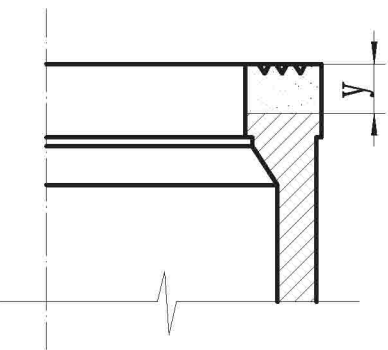
This refers to the thickness of the diamond impregnated matrix layer on a core bit crown as shown in the illustration to the right.
U-YOUNG offers many sizes of core bits with standard impregnation depths from 9mm to 20mm. Other customer defined impregnation depths are available on request.
Unless otherwise specified, a standard 12mm impregnation depth is supplied for most of our customer.



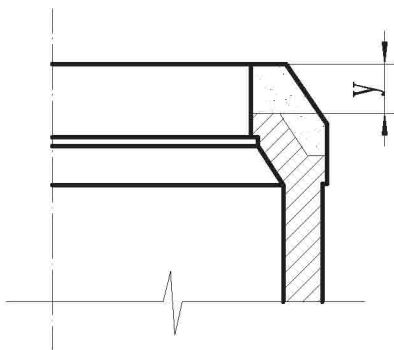
如右侧示意图所示，孕镶层高度是指钻头头部含有金刚石工作层的胎体部分的高度。
尤扬公司可以提供各种孕镶层高度的钻头，从9毫米到20毫米不等，同时客户有特殊需求我们可以根据需要进行设计定制孕镶层高度。
除非特别注明，公司提供钻头的标准孕镶层高度为12毫米。

Bit Crown Profiles 钻头水口形状

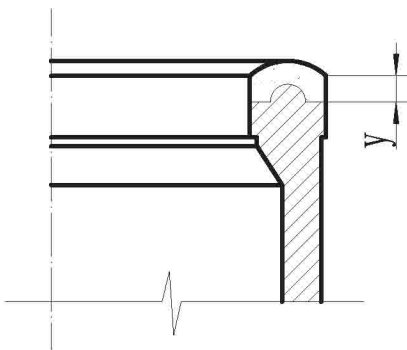
According to different formation and drilling condition, U-YOUNG can offer various of crown profiles.
根据不同的岩层及钻探情况，我们生产各种不同唇面形状的人造金刚石孕镶钻头。



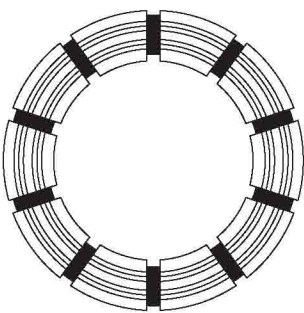
- Impregnation Depths for Standard Profile Core Bits
- 标准唇面形状钻头



- Impregnation Depths for Tapered Profile Core Bits
- 锥度唇面钻头



- Impregnation depths for Semi-Round Profile Core Bits
- 半圆形唇面钻头

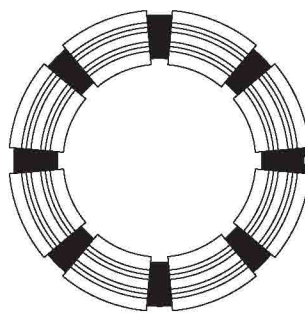


Channel flushing
标准水口

Channel flushing

标准水口

- Standard profile-general purpose design 标准设计
- Suitable for a broad range of formations 适用于大范围的地层

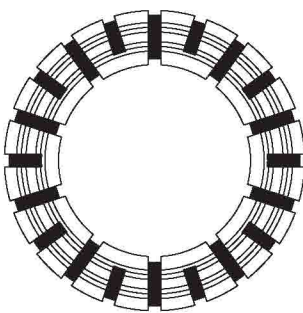


Wedge
扇形水口

Wedge

扇形水口

- Superior flushing capability 非常有效的增加了通水量
- Improved productivity 改善了切割速度
- Preferable in abrasive or broken rock 适用于破碎岩石及研磨性高的地层。

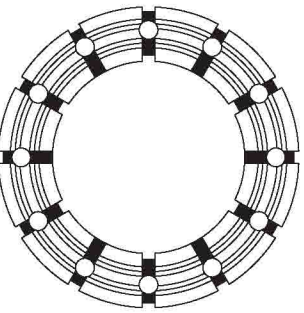


Turbo
主副水口

Turbo

主副水口

- High productivity 适用于高速切割钻进，提高工作面压强
- Suitable for competent formations 适用于坚硬的地层

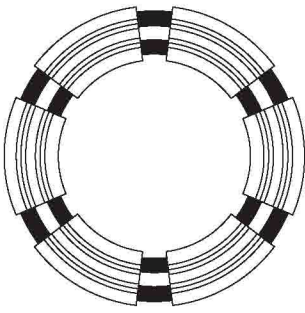


Round face discharge
底喷圆形水眼

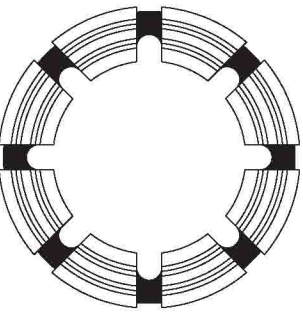
Round face discharge

底喷圆形水眼

- Designed to minimize flushing of core sample 该设计减少了通水对于岩芯的冲刷，提高取芯率
- Suitable for broken/granular formation 适用于破碎的或者颗粒状的岩石地层



Elongated face discharge
底喷腰型水眼



Sand Profile
深水槽

Elongated face discharge

底喷腰型水眼

- Suitable for broken sedimentary or metamorphic formations
- Elongated hole is more efficient than round hole

适用于破碎的沉积地层或变形地层

腰型水眼比圆形水眼通水效果更佳，更加有效防止堵水烧钻情况发生

Sand Profile

深水槽

- Designed for optimum water flow with minimized flushing of core sample
- Suitable for broken or competent formations

该设计结合了标准唇面和底喷唇面的优点、工艺简单可靠

适用于破碎或坚硬地层

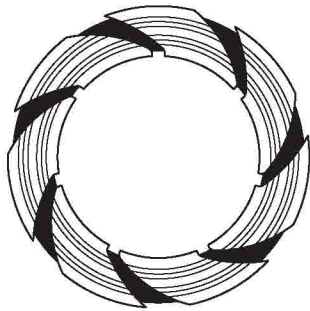
Vortex Profile

螺旋水口

- Reduced time spent conditioning the hole between core runs thus providing better overall production rates
- Suitable for soft to medium-hard formations

通过降低孔洞与岩芯间的作用时间来提高工作效率

适用于较软至中硬地层



Vortex Profile
螺旋水口

2. Surface set bit

天然金刚石表镶钻头

Surface set diamond bits can be used with any type of core barrels. By varying the diamond grade, size, quality, and matrix hardness and crown shapes, the users can satisfactorily drill and core hard and homogeneous formations. To avoid excessive matrix wear at the leading edge of each segment, tungsten carbide inserts are fitted on each side of the water way. This kind of bits cannot be used in broken or loose formations.

U-YOUNG surface set bits have proven to have a high penetration rate, long service life, and best adaptability to change formation.

表镶钻头可以适用于各种类型的取芯钻具，根据天然金刚石的等级，颗粒大小、品质及胎体的硬度和唇面形状，使用者在较硬及完整岩石层面进行钻探可以取得满意的效果，为了避免在每个胎块的起始部位的过度磨损，在胎块的两边都配备了天然金刚石作为保径。此类钻头不适用于破碎或松散的地层。

我们生产的天然表镶金刚石钻头经过客户的广泛使用已经被证明拥有快速钻进速度，超长使用寿命及适用性广泛。



Matrix

胎体配方

U-YOUNG surface set bits are manufactured using a hard matrix with high resistance to erosion.

我们公司生产的天然表镶金刚石钻头适用硬胎体配方，非常耐磨。

Crown

唇面形状

Surface set drill bits are available in different crowns to obtain optimal drilling performance.

我们生产各种唇面形状以满足各种钻探需求。



Slotted face discharge
double dimple surface set
bit

双凸台腰型水眼底喷天然
表镶金刚石钻头

Diamond quality

金刚石品质

The standard range of natural diamonds for surface set bits is chosen in a special all-round grade with special quality. These stones have a high impact resistance and may be considered as an universal type.

根据表镶钻头所使用的金刚石的标准，我们挑选高品质的天然圆形金刚石，此类金刚石内部非常致密且抗冲击。

Standard profiles for surface set core bits:

- Multi-steps
- Semi-round
- Face discharge (FD)
- Non-coring bits with concave profile

表镶钻头标准唇面形状

- 多阶梯唇面
- 圆弧形唇面
- 底喷唇面
- 全面钻进导向唇面

Diamond sizes (SPC)

金刚石尺寸

Recommend:
the softer formation, the larger the diamonds used i.e. 15 spc.
In medium hard formation, uses 20 to 30 psc.
In hard formation, uses much smaller diamonds 40 to 60 spc .
Diamond contest is mearsured in carat .
Other diamond qualities and sizes on request.

推荐：较软地层使用大颗粒金刚石15粒/克拉
中硬地层使用中等颗粒金刚石20-30粒/克拉
较硬地层使用小颗粒金刚石40-60粒/克拉
同时可根据用户需求选择金刚石品质等级及粒度。

Multi-steps
多阶梯唇面



Semi-round
圆弧形唇面



Face discharge
底喷唇面



Concave profile
全面钻进导向唇面



3. Geotechnical Core Bit 岩土工程取芯钻头

This group of products are similar to surface-set diamond bit in that they are set with a single layer of cutters mounted on the face of the bit in a pre-determined pattern. Instead of natural drill diamond however, the cutting media used on geotechnical bits are synthetic polycrystalline diamond elements. These elements are composed of micron-sized particles of synthetic diamond that have been formed into various geometric shapes. Like surface-set diamond bits, geotechnical bit crowns consist of a tough wear resistant matrix body that as a minimum includes natural diamond gauge protection setting. In most cases, the gauge protection setting is augmented with seismic grade tungsten-carbide pads and/or polycrystalline diamond elements. Shear is the mechanism by which geotechnical bits cut the formation being drilled. In softer formations, these bits are capable of very high rates of penetration when compared to surface-set diamond bits due largely to their high degree of cutter exposure. Geotechnical bits are divided into two categories:

此类钻头与表镶钻头的设计类似,那就是在钻头唇面根据预先设计好的位置及排列方式放上切割片. 此类钻头用人造金刚石来代替表镶所使用的天然金刚石作为切割工具, 此类切割工具由人造金刚石微粉合成各种需要的几何形状. 例如表镶钻头的胎体部分由非常坚硬耐磨材料合成, 并且每一颗细小的金刚石都被胎体包裹. 通常情况下, 保径部分会镶上抗震级别的硬质合金块或者人造金刚石. 在地质钻探中, 切割是地质钻头在工作中的一种机械过程. 在比较软的地层, 这些钻头依赖本身多角度高接触面的切割片相比于天然表镶钻头可以达到更快的钻进速度. 此类取芯钻头可以分为以下两类

TSP Type 金刚石聚晶钻头

Thermally Stable Polycrystalline bits that use smaller triangular and cubic shaped cutters that are composed entirely of micron-sized synthetic diamond particles.



Semi-round TSP core bit
圆弧形唇面金刚石聚晶钻头

Multi-steps TSP core bit
多阶梯唇面金刚石聚晶钻头

热稳定性较好的金刚石聚晶钻头在胎体部分采用由人造金刚石合成的三角或者方形的聚晶。



Non-coring PCD bit
非取芯复合片钻头

PCD Type 金刚石复合片钻头

Polycrystalline Diamond bits that use larger cylindrical shaped cutters that consist of a layer of micron-sized synthetic diamond particles that are mounted on a tungsten-carbide substrate. Geotechnical bits are recommended for use when drilling relatively soft, abrasive, unconsolidated sedimentary formations that are not effectively drilled by surface-set diamond bits. The formation types may range from very soft clay, gypsum or talc to harder types of sandstone. The difference between the various types of geotechnical bits is in the degree of cutter exposure and the density (or number) of cutters mounted on the face of the bit.

金刚石复合片钻头使用大颗粒圆柱形的表面一层由人造金刚石微粒合成的硬质合金复合片镶嵌在钻头的胎体部分. 此类钻头使用在表镶钻头不适用的相对较软地层, 耐研磨地层以及松散的沉积地层. 地层分布可以从非常柔软的粘土, 石膏, 云母到较硬的砂石地层. 复合片钻头的选用根据复合片在胎体表面的排列角度, 密度而不同。



PCD Elongated face discharge bit
腰型水眼金刚石复合片钻头

4. Reaming Shell/Stabilizer 金刚石扩孔器

Diamond reaming shells are important tools to be used together with bits. Its main funtions are maintaining bore-hole gage, improving drill string stability and protecting lower drill string from excessive wear.

金刚石扩孔器和钻头配合使用.主要功能为保持孔径, 改善钻进的稳定性及保护钻头过度磨损。

Reaming shells are available in different lengths:

- 18" Triple reaming shell
- 10" Double ring reaming shell available only for B, N, H size (need inner tube adjustment)
- 6" Standard design

可以提供各种型号的扩孔器

- 三环扩孔器
- 双环扩孔器,仅适配于B,N,H,P尺寸,需要内管调节
- 标准设计
- 超重型设计,以获得额外的寿命及扶正效果





Impregnated 人造金刚石孕镶 Surface-set 天然金刚石表镶 Super Heavy Duty 孕表镶混合

Reaming shells are available in different designs:
我公司可根据客户需求设计扩孔器产品:
■ Impregnated Reaming Shell
 人造金刚石孕镶扩孔器
Impregnated reaming shell provides high quality synthetic diamond and PCD pins,wearproof matrix, good fluids passage. Therefore its service life is long, its reamer and penetration rate is high.
我们公司的扩孔器使用高等级的人造金刚

石及聚晶条,胎体耐磨性高,通水性能好.因此使用寿命长,时效高。

- Surface-set Reaming Shell
 天然金刚石表镶扩孔器(重型)

Standard surface-set reaming shells set with specially selected diamonds and PCD pins, facilitate effective flushing and contribute to long service life and good drilling economy for both reaming shells and drill bits.

我公司的天然表镶扩孔器采用优质精选的天然金刚石及聚晶, 高效的通水性能, 经久耐用及满意的钻进时效。

- Super Heavy Duty Reaming Shell
 孕表镶混合扩孔器(超重型)

This kind of reaming shells set with natural diamond and synthetic diamond together, therefore its service life is much longer, its reamer and penetration rate is the highest.

Stabilized Adapter Couplings and Locking Couplings

这种扩孔器在生产过程中胎体部分混合了天然和人造金刚石，延长了使用寿命，扩孔和钻进时效均达到最佳状态。

- These tools are used in place of conventional blank or silver soldered matrix pad adapter couplings and locking couplings.
 此类产品在制作中可以选用传统的胎体烧结工艺或胎体银焊工艺。
- These tools are used to provide stabilization to the back-end of the core barrel assembly.
 此类产品在使用过程中在钻具尾部起到扶正作用。

5. Casing shoe
套管鞋

U-YOUNG manufactures a comprehensive range of diamond and tungsten carbide casing shoes for standard drilling or positioning casing tubes into drill holes. Casing shoes have cutting segments on the front and exterior, while the interior is smooth. The inner diameter of the casing shoe is sufficiently large to permit free passage of drill bits and core barrels in corresponding sizes.

我们生产各种规格的金剛石及硬質合金套管鞋,可适用于标准的钻探或者用于将套管定位至钻井中。套管在其前部及外部都有切割胎块,其内部光滑.套管鞋的内径足够大到可以允许相应的钻头及钻具通过。



- Impregnated casing shoe bits are manufactured with very hard matrix
 孕镶套管鞋采用较硬的胎体配方

DESCRIPTION 规格	Outside Diameter 外径		Inside diameter 内径		Remark 备注
	Inches 英寸	mm 毫米	Inches 英寸	mm 毫米	
AW	2.345	59.56	1.900	48.26	HD 重型
BW	2.965	75.31	2.370	60.20	HD 重型
NW	3.615	91.82	2.992	76.00	HD 重型
HW (CDDA)	4.625	117.48	3.925	99.70	HD 重型
HW (DCDMA)	4.625	117.48	3.975	100.97	HD 重型
HWT (CDDA)	4.625	117.48	3.925	99.70	HD 重型
HWT (DCDMA)	4.625	117.48	3.975	100.97	HD 重型
PW	5.653	143.58	4.855	123.30	HD 重型
56mm	2.205	56.00	1.850	47.00	HD 重型
76mm	2.992	76.00	2.638	67.00	HD 重型
86mm	3.386	86.00	3.031	77.00	HD 重型
101mm	3.976	101.00	3.445	87.50	HD 重型
131mm	5.157	131.00	4.646	118.00	HD 重型

6. Rod shoes
钻杆鞋

- U-YOUNG is capable of manufacturing any rod shoes listed in the table below,
- Rod shoe size not listed or those with non-standard may be available on request.
 我公司可以生产下表所列的各种钻杆鞋
 以下表格未列产品可以根据客户要求定制

DESCRIPTION 规格	Outside Diameter 外径		Inside diameter 内径		Remark 备注
	Inches 英寸	mm 毫米	Inches 英寸	mm 毫米	
BQ/BT	2.345	56.56	1.780	45.21	HD 重型
NQ/NT	2.965	75.31	2.370	60.20	HD 重型
HQ/HT	3.615	91.82	2.992	76.00	HD 重型
PQ/PT	4.750	120.66	3.985	101.22	HD 重型

