

U 钻

铲钻

可换钻头

组合钻

带定心U钻

VMD大钻头

模块系统

铲钻的特征和优势

Characteristics and advantages of shovel drilling

介绍 Introduction

- 铲钻是川山甲新推出的一款可换刀片的机夹式钻头，根据直径、加工深度和材质不同，可以灵活切换。
- 铲钻可以在传统机床和数控机床上使用，在线更换钻尖，方便快捷效率大幅提高。
- 铲钻由刀杆和刀片用螺丝固定而成，刀杆与刀片之间的高精度接口可以确保刀片装夹精度，且刀片更换方便，刀杆采用韧性好、耐磨性高的优质钢材，真空热处理调质加工而成；刀片采用进口高端粉末高速钢和硬质合金制造，切削刃口设计有断屑槽，刀尖有自定心刃口。刀杆采用内冷设计，可连接机床内冷系统。
- 铲钻效率高，操作简单，性价比高，其钻孔综合效率是普通麻花钻的2~5倍以上，寿命比普通麻花钻提高3~5倍。孔加工精度公差在+0.05~-0.05范围。加工深度可达25倍径。

- Shovel drill is a kind of machine clip drill with replaceable blade, which can be flexibly changed according to diameter, processing depth and material.
- Shovel drill can be used in traditional machine tools and CNC machine tools, on-line replacement drill tip, convenient and efficient greatly improved.
- Shovel drill is composed of knife bar and blade fixed with screws. The high-precision interface between the knife bar and blade can ensure the clamping accuracy of the blade, and the blade is easy to replace. The knife bar is made of high-quality steel with good toughness and high wear resistance, and is processed by vacuum heat treatment and tempering. The blade is made of imported high-end powder high speed steel and hard alloy. The cutting edge is designed with chip breaking groove, and the tip has self-centering edge. The tool rod adopts internal cooling design, which can be connected to the internal cooling system of the machine tool.
- Shovel drilling efficiency is high, the operation is simple, cost-effective, its comprehensive drilling efficiency is more than 2~5 times of ordinary twist drill, life than ordinary twist drill 3~5 times. The tolerance of hole machining accuracy is in the range of +0.05~-0.05. Machining depth up to 25 times diameter.

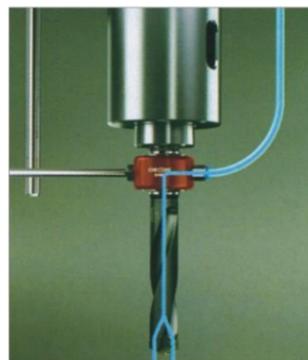
优势 Advantages

- 简单便捷的刀片接口，可在机床上在线更换刀片，节约刃磨时间。
- 刀片多款不同性能的涂层，可覆盖不锈钢、结构钢等各种金属和非金属材料的钻孔加工。
- 刀杆采用内冷却设计，在深孔钻削时能及时将切屑排出以及良好冷却。
- 铲钻只需16个刀杆，就可以满足从 $\phi 9.5\text{mm}$ ~ $\phi 114\text{mm}$ 的钻孔需求，刀杆柄型有侧固式直柄和锥柄两大系列，通用性强，与各种机床连接方便。
- Simple and convenient blade interface, blade can be replaced online on the machine tool, saving grinding time.
- The blades are coated with different properties, which can cover drilling of various metal and non-metal materials such as stainless steel and structural steel.
- The knife rod adopts internal cooling design, which can discharge chips in time and cool well when drilling deep holes.
- Shovel drill only 16 knife rod, can meet the drilling needs from $\phi 9.5\text{mm}$ ~ $\phi 114\text{mm}$, knife rod handle type has two series of fixed straight handle and taper handle, strong versatility, and convenient connection with a variety of machine tools.

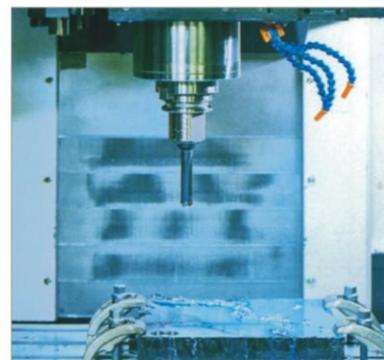
铲钻的选择 Spade drill selection

铲钻由刀杆和刀片组成，刀杆中心采用内冷却设计，一种刀杆规格可适配多个规格刀片，减少刀杆的购置成本。刀片有进口粉末高速钢和进口硬质合金两大系列请根据您的加工工况选择合适的类型。

The shovel drill is composed of a cutter bar and a blade. The center of the cutter bar is designed with internal cooling. A cutter bar specification can be adapted to multiple specifications of the blade, reducing the cost of the cutter bar. Blade imported powder HSS and imported hard alloy two series please choose the right type according to your processing conditions.



传统机床，请选择粉末高速钢系列
For traditional machine tools, please choose powder high speed steel series.



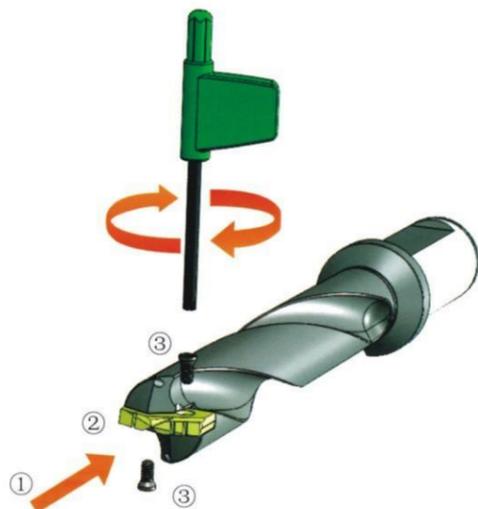
CNC数控机床，中低速钻削时请选择粉末高速钢系列，高速钻削时请选择硬质合金系列。
CNC machine tools, medium and low speed drilling please choose powder high speed steel series, please choose carbide series when high-speed drilling.



安装示意图

Instllation diagram

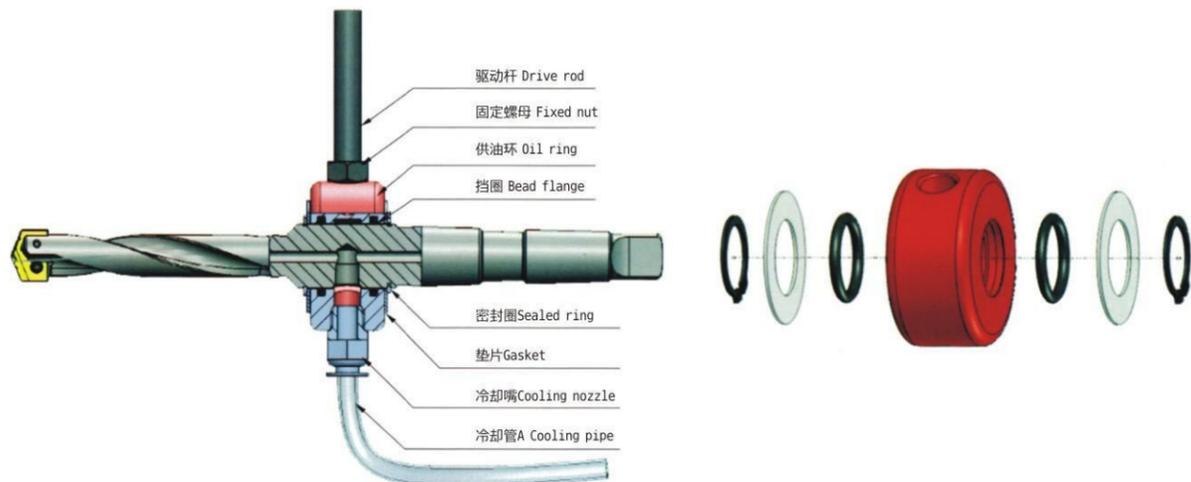
刀片的安装 Installation procedure



直径范围Φ Range of Diameter Φ	拧紧力矩(Nm) Tightening Torque (Nm)	扳手 Wrench
9.5-12.5	0.5	T7
13.0-17.5	1.0	T8
18.0-24.5	1.8	T9
25.0-35.5	3.5	T15
36.0-65.0	5.0	T20
66.0-114.0	7.0	T25

- ①用压缩空气清洁刀片和刀片槽。
 - ②将刀片插入刀杆安装槽内轻按刀片。
 - ③用紧固螺钉锁紧刀片。有条件的用户推荐采用力矩扳手锁紧，锁紧力矩值如图所示。
- ①First, clean the insert and mounting groove with compressed air.
②Load the insert into the mounting groove in the holder and slightly push the insert.
③Fix the insert with the fastening bolt. it is recommended that users use a torque wrench as far as possible and the tightening torques are shown in the figure.

供油环装配示意图 Schematic diagram of oil ring assembly



刀片介绍

Blade introduction

断屑槽

Chip breaker

- 折断切屑、易于排屑
- Broken chips, easy to remove chips

分屑槽

Chip dividing groove

- 减小切屑宽度
- 易于排屑
- 减小钻削扭矩
- Educe cutting width
- Better chip removal
- Reduce drilling torque

倒角

Beveling

- 增加刀片的强度
- 减少角的磨损
- 提高工件表面光洁度
- Increase the strength of insert
- Reduce the wear & tear of outer diameter
- Improve the smoothness on the surface of workpiece

固定螺丝孔

Fix screw holes

- 安全可靠的装夹、确保钻削过程中的稳定性
- Safe and reliable clamping, Ensure the stability during drilling

钻芯

Core drilling

- 钻芯薄与一般钻头产品相比降低20%的轴向阻力
- 良好的自定心
- Thinner core drilling, which reduce 20% axial resistance compared with nomal drilling products.
- Better self-centering

XR型横刃修磨

XR chisel edge regninding

- 提高刃口强度
- 增强稳定性
- Improve the strength of cutting edges
- Mcrease the stability

定位槽

Location groove

- 保证径向的平衡
- Ensure the accuracy of the radial direction

两个后刀面

TWO back flank surface

- 减少与工件的摩擦
- 良好的自定心
- 降低轴向阻力
- Reduce the friction with the workpiece
- Better self-centering
- Reduce the axial resistance

铲钻 Shovel drill

铲钻刀片 Spade drill insert

型号编码规则 Model coding rule

SZ2-M0250-15XH

大类 Big type	小类 Small type	接口代码 Connector code			公英制 Metrical and Imperial	刀片直径 Insert diameter	材质 Material	几何 Geometry	涂层 Coating
		接口 Connector	公制 Metric	英制 Imperia					
S-铲钻	Z-刀片	Y	9.50~11.49	0.374" ~0.452"	M-公制	M0250-25mm	10-粉末高速钢	X-标准钻尖	H-C500
		Z	11.50~12.97	0.453" ~0.511"	I-英制	I0984-0.984"	15-含钴粉末高速钢	V-双顶角钻尖	A-C300
		0	12.98~17.85	0.511" ~0.703"			25-高钴粉末高速钢		
		1	17.86~24.60	0.703" ~0.969"	50-硬质合金				
		2	24.61~35.5	0.969" ~1.398"					
		3	35.51~47.99	1.398" ~1.889"					
		4	48.00~65.00	1.89" ~2.559"					
		5	63.50~76.99	2.5" ~3.031"					
		6	77.00~89.09	3.031" ~3.507"					
		7	89.10~101.60	3.508" ~4"					
8	101.61~114.30	4" ~4.5"							

铲钻 Shovel drill

铲钻刀杆 Spade drill insert

型号编码规则 Model coding rule

SLH20-ML032-187N

大类 Big type	小类 Small type	槽形 Groore spape	接口代码 Connector code			公英制 Metrical and Imperial	柄部类型 Petiole type	刀柄直径 The handle diameter	长度(L1) Length (L1)	表面处理 Surface treatment
			接口 Connector	公制 Metric	英制 Imperia					
S-铲钻	L-刀杆	H-螺旋槽	Y0	9.50~1.49	0.374" ~0.452"	M-公制	L-侧固式	016-∅16mm	实际刃长:	N-黑色
			Z0	11.50~12.97	0.453" ~0.511"	I-英制	M-莫氏锥柄	020-∅20mm	L1的尺寸	氧化
		00	12.98~15.49	0.511" ~0.61"			025-∅25mm		处理	
		05	15.50~17.85	0.61" ~0.703"			032-∅32mm		T-银灰色	
		10	17.86~21.99	0.703" ~0.866"			040-∅40mm		电镀	
		15	22.00~24.60	0.866" ~0.969"			075-3/4"		处理	
		20	24.61~29.99	0.969" ~1.181"			063-5/8"			
		25	30.00~35.50	1.181" ~1.398"			125-1-1/4"			
		30	35.51~41.99	1.398" ~1.653"			150-1-1/2"			
		35	42.00~47.99	1.654" ~1.889"			MT2-#2			
		40	48.00~55.99	1.89" ~2.204"			MT3-#3			
		45	56.00~63.49	2.205" ~2.5"			MT4-#4			
		50	63.50~76.99	2.5" ~3.031"			MT5-#5			
		60	77.00~89.09	3.031" ~3.507"						
		70	89.10~101.60	3.508" ~4"						
		80	101.61~114.30	4" ~4.5"						

铲钻 Shovel drill

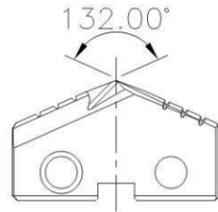
粉末高速钢刀片

HSS-PM insert series

HSS PM

HPC

- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

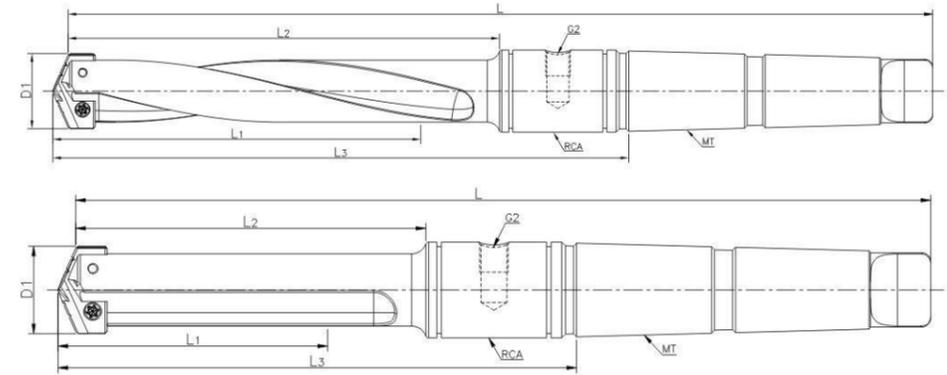


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
Y	2.38 3/32"	9.50		0.374			SZY-M0095-25XH
		9.53	3/8"	0.375			SZY-I0375-25XH
		9.80		0.386			SZY-M0098-25XH
		10.00		0.394			SZY-M0100-25XH
		10.20		0.402			SZY-M0102-25XH
		10.50		0.413			SZY-M0105-25XH
		10.72	27/64"	0.422			SZY-I0421-25XH
		10.80		0.425			SZY-M0108-25XH
		11.00		0.433			SZY-M0110-25XH
		11.11	7/16"	0.437			SZY-I0437-25XH
Z	2.38 3/32"	11.50		0.453			SZZ-M0115-25XH
		11.51	29/64"	0.453			SZZ-I0453-25XH
		12.00		0.472			SZZ-M0120-25XH
		12.30	31/64"	0.484			SZZ-I0484-25XH
		12.50		0.492			SZZ-M0125-25XH
		12.70	1/2"	0.500			SZZ-I0500-25XH
0	3.18 1/8"	13.00		0.512	SZO-M0130-10XH	SZO-M0130-15XH	SZO-M0130-25XH
		13.50		0.531	SZO-M0135-10XH	SZO-M0135-15XH	SZO-M0135-25XH
		14.00		0.551	SZO-M0140-10XH	SZO-M0140-15XH	SZO-M0140-25XH
		14.29	9/16"	0.563	SZO-I0562-10XH	SZO-I0562-15XH	SZO-I0562-25XH
		14.50		0.571	SZO-M0145-10XH	SZO-M0145-15XH	SZO-M0145-25XH
		15.00		0.591	SZO-M0150-10XH	SZO-M0150-15XH	SZO-M0150-25XH
0	3.18 1/8"	15.50		0.610	SZO-M0155-10XH	SZO-M0155-15XH	SZO-M0155-25XH
		15.88	5/8"	0.625	SZO-I0625-10XH	SZO-I0625-15XH	SZO-I0625-25XH
		16.00		0.630	SZO-M0160-10XH	SZO-M0160-15XH	SZO-M0160-25XH
		16.50		0.650	SZO-M0165-10XH	SZO-M0165-15XH	SZO-M0165-25XH
		17.00		0.669	SZO-M0170-10XH	SZO-M0170-15XH	SZO-M0170-25XH
		17.46	11/16"	0.687	SZO-I0687-10XH	SZO-I0687-15XH	SZO-I0687-25XH
		17.50		0.689	SZO-M0175-10XH	SZO-M0175-15XH	SZO-M0175-25XH

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA		
SLHY0-MMMT2-32N SLSY0-MMMT2-32N SLHY0-MMMT2-60N SLHY0-MMMT2-111N	Y0	9.50~11.49 0.374"~0.452"	32 32 60 111	52 52 80 131	88 88 117 167	160 160 189 240	MT2	1/16"	SH-1905R	M2X4	T7X35
SLHZ0-MMMT2-32N SLSZ0-MMMT2-32N SLHZ0-MMMT2-60N SLHZ0-MMMT2-111N	Z0	11.50~12.97 0.453"~0.511"	32 32 60 111	52 52 80 131	88 88 117 167	160 160 189 240	MT2	1/16"	SH-1905R	M2X4.8	T7X35
SLH00-MMMT2-35N SLS00-MMMT2-35N SLH00-MMMT2-64N SLH00-MMMT2-114N SLH00-MMMT2-178N	00	12.98~15.49 0.511"~0.61"	35 35 64 114 178	56 56 84 135 199	92 92 121 172 235	164 164 193 244 307	MT2	1/16"	SH-1905R	M2.5X5.8	T8X40
SLH05-MMMT2-35N SLS05-MMMT2-35N SLH05-MMMT2-64N SLH05-MMMT2-114N SLH05-MMMT2-178N	05	15.50~17.85 0.61"~0.703"	35 35 64 114 178	56 56 84 135 199	92 92 121 172 235	164 164 193 244 307	MT2	1/16"	SH-1905R	M2.5X7	T8X40

注: SLH-螺旋槽 SLS-直槽

铲钻 Shovel drill

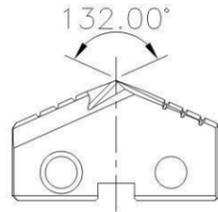
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HSS PM

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- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

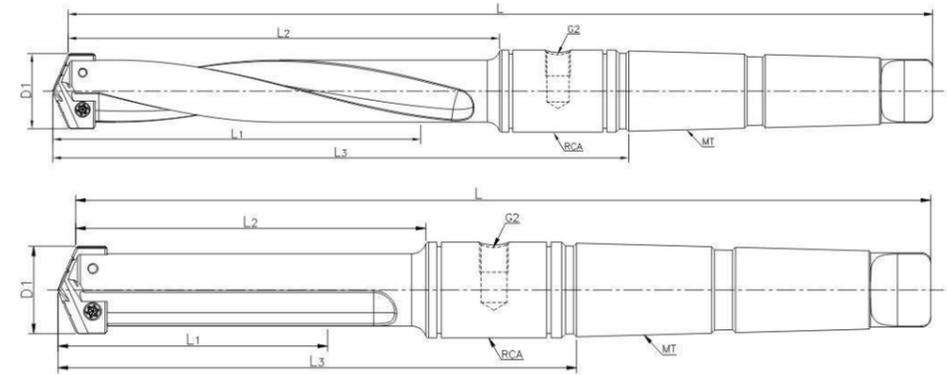


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
1	3.97 5/32"	18.00		0.709	SZ1-M0180-10XH	SZ1-M0180-15XH	SZ1-M0180-25XH
		18.50		0.728	SZ1-M0185-10XH	SZ1-M0185-15XH	SZ1-M0185-25XH
		19.00		0.748	SZ1-M0190-10XH	SZ1-M0190-15XH	SZ1-M0190-25XH
		19.05	3/4"	0.750	SZ1-I0750-10XH	SZ1-I0750-15XH	SZ1-I0750-25XH
		19.50		0.768	SZ1-M0195-10XH	SZ1-M0195-15XH	SZ1-M0195-25XH
		20.00		0.787	SZ1-M0200-10XH	SZ1-M0200-15XH	SZ1-M0200-25XH
		20.50		0.807	SZ1-M0205-10XH	SZ1-M0205-15XH	SZ1-M0205-25XH
		20.64	13/16"	0.813	SZ1-I0812-10XH	SZ1-I0812-15XH	SZ1-I0812-25XH
		21.00		0.827	SZ1-M0210-10XH	SZ1-M0210-15XH	SZ1-M0210-25XH
		21.50		0.846	SZ1-M0215-10XH	SZ1-M0215-15XH	SZ1-M0215-25XH
1	3.97 5/32"	22.00		0.866	SZ1-M0220-10XH	SZ1-M0220-15XH	SZ1-M0220-25XH
		22.23	7/8"	0.875	SZ1-I0875-10XH	SZ1-I0875-15XH	SZ1-I0875-25XH
		23.00		0.906	SZ1-M0230-10XH	SZ1-M0230-15XH	SZ1-M0230-25XH
		23.81	15/16"	0.937	SZ1-I0937-10XH	SZ1-I0937-15XH	SZ1-I0937-25XH
		24.00		0.945	SZ1-M0240-10XH	SZ1-M0240-15XH	SZ1-M0240-25XH
2	4.76 3/16"	25.00		0.984	SZ2-M0250-10XH	SZ2-M0250-15XH	SZ2-M0250-25XH
		25.40	1"	1.000	SZ2-I1000-10XH	SZ2-I1000-15XH	SZ2-I1000-25XH
		26.00		1.024	SZ2-M0260-10XH	SZ2-M0260-15XH	SZ2-M0260-25XH
		26.99	1-1/16"	1.063	SZ2-I1062-10XH	SZ2-I1062-15XH	SZ2-I1062-25XH
		27.00		1.063	SZ2-M0270-10XH	SZ2-M0270-15XH	SZ2-M0270-25XH
		28.00		1.102	SZ2-M0280-10XH	SZ2-M0280-15XH	SZ2-M0280-25XH
		28.58	1-1/8"	1.125	SZ2-I1125-10XH	SZ2-I1125-15XH	SZ2-I1125-25XH
29.00		1.142	SZ2-M0290-10XH	SZ2-M0290-15XH	SZ2-M0290-25XH		
2	4.76 3/16"	30.00		1.181	SZ2-M0300-10XH	SZ2-M0300-15XH	SZ2-M0300-25XH
		30.16	1-3/16"	1.187	SZ2-I1187-10XH	SZ2-I1187-15XH	SZ2-I1187-25XH
		31.00		1.220	SZ2-M0310-10XH	SZ2-M0310-15XH	SZ2-M0310-25XH
		31.75	1-1/4"	1.250	SZ2-I1250-10XH	SZ2-I1250-15XH	SZ2-I1250-25XH
		32.00		1.260	SZ2-M0320-10XH	SZ2-M0320-15XH	SZ2-M0320-25XH
		33.00		1.299	SZ2-M0330-10XH	SZ2-M0330-15XH	SZ2-M0330-25XH
		33.34	1-5/16"	1.313	SZ2-I1312-10XH	SZ2-I1312-15XH	SZ2-I1312-25XH
		34.00		1.339	SZ2-M0340-10XH	SZ2-M0340-15XH	SZ2-M0340-25XH
		34.13	1-11/32"	1.344	SZ2-I1343-10XH	SZ2-I1343-15XH	SZ2-I1343-25XH
		34.93	1-3/8"	1.375	SZ2-I1375-10XH	SZ2-I1375-15XH	SZ2-I1375-25XH
		35.00		1.378	SZ2-M0350-10XH	SZ2-M0350-15XH	SZ2-M0350-25XH

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA		
SLH10-MMMT3-70N SLS10-MMMT3-70N	10	17.86~21.99 0.703"~0.866"	70	98	143	233	MT3	1/8"	SH-2540R	M3X7	T9X40
SLH10-MMMT3-121N			121	149	193	283					
SLH10-MMMT3-172N			172	200	244	334					
SLH10-MMMT3-273N			273	302	346	436					
SLH15-MMMT3-70N SLS15-MMMT3-70N			15	22.00~24.60 0.866"~0.969"	70	98					
SLH15-MMMT3-121N	121	149			193	283					
SLH15-MMMT3-172N	172	200			244	334					
SLH15-MMMT3-273N	273	302			346	436					
SLH20-MMMT4-86N SLS20-MMMT3-86N	20	24.61~29.99 0.969"~1.181"	86	114	160	274	MT4	1/8"	SH-2540R	M4X10	T15X45
SLH20-MMMT4-137N			137	165	211	325					
SLH20-MMMT4-187N			187	216	262	375					
SLH20-MMMT4-289N			289	318	364	477					
SLH25-MMMT4-86N SLS25-MMMT3-86N	25	30.00~35.50 1.181"~1.398"	86	114	168	281	MT4	1/4"	SH-3175R	M4X10	T15X45
SLH25-MMMT4-137N			137	165	218	332					
SLH25-MMMT4-187N			187	216	269	383					
SLH25-MMMT4-289N			289	318	371	484					
SLH25-MMMT4-400N			400	429	482	595					

注: SLH-螺旋槽 SLS-直槽

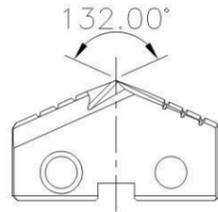
铲钻 Shovel drill

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

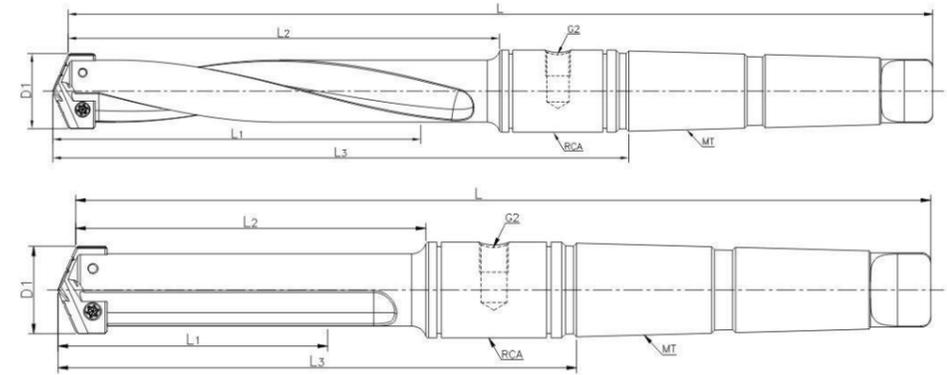


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
3	6.35 1/4"	36.00		1.417	SZ3-M0360-10XH	SZ3-M0360-15XH	SZ3-M0360-25XH
		36.51	1-7/16"	1.437	SZ3-I1437-10XH	SZ3-I1437-15XH	SZ3-I1437-25XH
		37.00		1.457	SZ3-M0370-10XH	SZ3-M0370-15XH	SZ3-M0370-25XH
		38.00		1.496	SZ3-M0380-10XH	SZ3-M0380-15XH	SZ3-M0380-25XH
		38.10	1-1/2"	1.500	SZ3-I1500-10XH	SZ3-I1500-15XH	SZ3-I1500-25XH
		39.00		1.535	SZ3-M0390-10XH	SZ3-M0390-15XH	SZ3-M0390-25XH
		39.69	1-9/16"	1.563	SZ3-I1562-10XH	SZ3-I1562-15XH	SZ3-I1562-25XH
		40.00		1.575	SZ3-M0400-10XH	SZ3-M0400-15XH	SZ3-M0400-25XH
		41.00		1.614	SZ3-M0410-10XH	SZ3-M0410-15XH	SZ3-M0410-25XH
		41.28	1-5/8"	1.625	SZ3-I1625-10XH	SZ3-I1625-15XH	SZ3-I1625-25XH
3	6.35 1/4"	42.00		1.654	SZ3-M0420-10XH	SZ3-M0420-15XH	SZ3-M0420-25XH
		42.86	1-11/16"	1.687	SZ3-I1687-10XH	SZ3-I1687-15XH	SZ3-I1687-25XH
		43.00		1.693	SZ3-M0430-10XH	SZ3-M0430-15XH	SZ3-M0430-25XH
		44.00		1.732	SZ3-M0440-10XH	SZ3-M0440-15XH	SZ3-M0440-25XH
		44.45	1-3/4"	1.750	SZ3-I1750-10XH	SZ3-I1750-15XH	SZ3-I1750-25XH
		45.00		1.772	SZ3-M0450-10XH	SZ3-M0450-15XH	SZ3-M0450-25XH
		46.00		1.811	SZ3-M0460-10XH	SZ3-M0460-15XH	SZ3-M0460-25XH
		46.04	1-13/16"	1.813	SZ3-I1812-10XH	SZ3-I1812-15XH	SZ3-I1812-25XH
		47.00		1.850	SZ3-M0470-10XH	SZ3-M0470-15XH	SZ3-M0470-25XH
		47.63	1-7/8"	1.875	SZ3-I1875-10XH	SZ3-I1875-15XH	SZ3-I1875-25XH

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA									
SLH30-MMMT4-121N	30	35.51~41.99 1.398"~1.653"	121	152	206	319	MT4	1/4"	SH-3175R	M5X14	T20X45							
SLS30-MMMT4-121N			121	152	206	319												
SLH30-MMMT4-165N			165	197	251	364												
SLH30-MMMT4-210N			210	241	295	408												
SLH30-MMMT4-349N			349	381	435	548												
SLS30-MMMT4-349N			349	381	435	548												
SLS30-MMMT4-559N			559	591	645	757												
SLS30-MMMT4-787N			787	819	873	986												
SLH35-MMMT4-121N			35	42.00~47.99 1.654"~1.899"	121	152						206	319	MT4	1/4"	SH-3175R	M5X14	T20X45
SLS35-MMMT4-121N					121	152						206	319					
SLH35-MMMT4-165N	165	197			251	364												
SLH35-MMMT4-210N	210	241			295	408												
SLH35-MMMT4-349N	349	381			435	548												
SLS35-MMMT4-349N	349	381			435	548												
SLS35-MMMT4-559N	559	591			645	757												
SLS35-MMMT4-787N	787	819			873	986												

注: SLH-螺旋槽 SLS-直槽

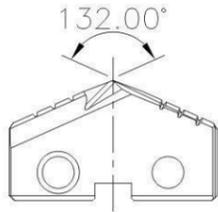
铲钻 Shovel drill

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

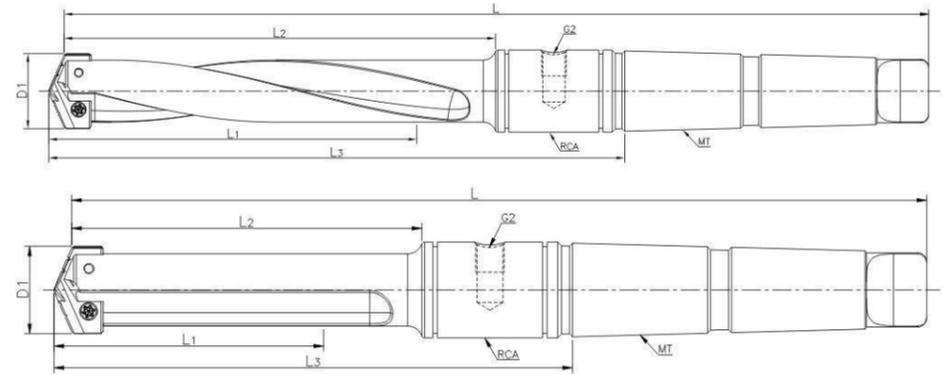


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
4	7.94 5/16"	48.00		1.890	SZ4-M0480-10XH	SZ4-M0480-15XH	SZ4-M0480-25XH
		49.21	1-15/16"	1.937	SZ4-I1937-10XH	SZ4-I1937-15XH	SZ4-I1937-25XH
		50.00		1.969	SZ4-M0500-10XH	SZ4-M0500-15XH	SZ4-M0500-25XH
		50.80	2"	2.000	SZ4-I2000-10XH	SZ4-I2000-15XH	SZ4-I2000-25XH
		51.00		2.008	SZ4-M0510-10XH	SZ4-M0510-15XH	SZ4-M0510-25XH
		52.00		2.047	SZ4-M0520-10XH	SZ4-M0520-15XH	SZ4-M0520-25XH
		52.39	2-1/16"	2.063	SZ4-I2062-10XH	SZ4-I2062-15XH	SZ4-I2062-25XH
		53.00		2.087	SZ4-M0530-10XH	SZ4-M0530-15XH	SZ4-M0530-25XH
		53.98	2-1/8"	2.125	SZ4-I2125-10XH	SZ4-I2125-15XH	SZ4-I2125-25XH
		54.00		2.126	SZ4-M0540-10XH	SZ4-M0540-15XH	SZ4-M0540-25XH
		55.00		2.165	SZ4-M0550-10XH	SZ4-M0550-15XH	SZ4-M0550-25XH
		55.56	2-3/16"	2.187	SZ4-I2187-10XH	SZ4-I2187-15XH	SZ4-I2187-25XH
		4	7.94 5/16"	56.00		2.205	SZ4-M0560-10XH
57.00				2.244	SZ4-M0570-10XH	SZ4-M0570-15XH	SZ4-M0570-25XH
57.15	2-1/4"			2.250	SZ4-I2250-10XH	SZ4-I2250-15XH	SZ4-I2250-25XH
58.00				2.283	SZ4-M0580-10XH	SZ4-M0580-15XH	SZ4-M0580-25XH
58.74	2-5/16"			2.313	SZ4-I2312-10XH	SZ4-I2312-15XH	SZ4-I2312-25XH
59.00				2.323	SZ4-M0590-10XH	SZ4-M0590-15XH	SZ4-M0590-25XH
60.00				2.362	SZ4-M0600-10XH	SZ4-M0600-15XH	SZ4-M0600-25XH
60.33	2-3/8"			2.375	SZ4-I2375-10XH	SZ4-I2375-15XH	SZ4-I2375-25XH
61.00				2.402	SZ4-M0610-10XH	SZ4-M0610-15XH	SZ4-M0610-25XH
61.91	2-7/16"			2.437	SZ4-I2437-10XH	SZ4-I2437-15XH	SZ4-I2437-25XH
62.00				2.441	SZ4-M0620-10XH	SZ4-M0620-15XH	SZ4-M0620-25XH
63.00				2.480	SZ4-M0630-10XH	SZ4-M0630-15XH	SZ4-M0630-25XH
63.50	2-1/2"			2.500	SZ4-I2500-10XH	SZ4-I2500-15XH	SZ4-I2500-25XH
64.00		2.520	SZ4-M0640-10XH	SZ4-M0640-15XH	SZ4-M0640-25XH		
65.00		2.559	SZ4-M0650-10XH	SZ4-M0650-15XH	SZ4-M0650-25XH		
65.09	2-9/16"	2.563	SZ4-I2562-10XH	SZ4-I2562-15XH	SZ4-I2562-25XH		

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA									
SLH40-MMMT5-130N	40	48.00~55.99 1.89"~2.204"	130	165	219	364	MT5	1/4"	SH-4445R	M5X14	T20X45							
SLS40-MMMT5-130N			130	165	219	364												
SLH40-MMMT5-232N			232	267	321	465												
SLH40-MMMT5-350N			350	385	439	583												
SLH40-MMMT5-422N			422	457	511	656												
SLS40-MMMT5-422N			422	457	511	656												
SLS40-MMMT5-625N			625	660	714	859												
SLS40-MMMT5-879N			879	914	968	1113												
SLH45-MMMT5-130N			45	56.00~65.19 2.205"~2.563"	130	165						219	364	MT5	1/4"	SH-4445R	M5X14	T20X45
SLS45-MMMT5-130N					130	165						219	364					
SLH45-MMMT5-232N	232	267			321	465												
SLH45-MMMT5-350N	350	385			439	583												
SLH45-MMMT5-422N	422	457			511	656												
SLS45-MMMT5-422N	422	457			511	656												
SLS45-MMMT5-625N	625	660			714	859												
SLS45-MMMT5-879N	879	914			968	1113												

注: SLH-螺旋槽 SLS-直槽

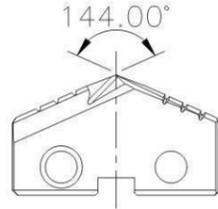
铲钻 Shovel drill

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

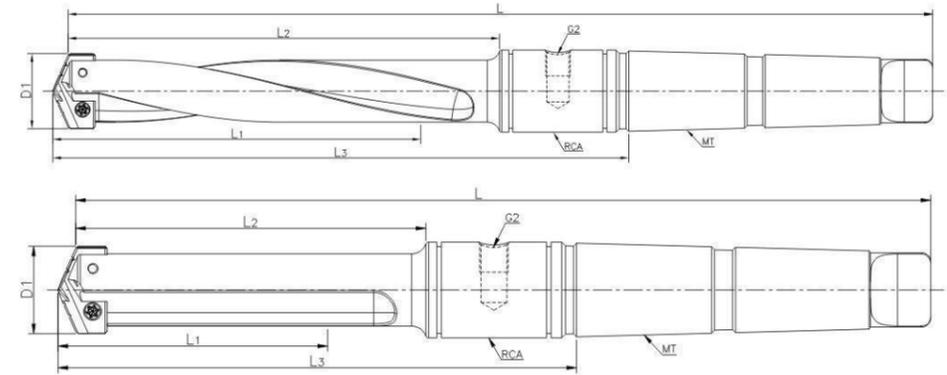


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
5	11.11 7/16"	63.50	2-1/2"	2.500	SZ5-I2500-10XH	SZ5-I2500-15XH	
		64.00		2.520	SZ5-M0640-10XH	SZ5-M0640-15XH	
		65.00		2.559	SZ5-M0650-10XH	SZ5-M0650-15XH	
		65.09	2-9/16"	2.563	SZ5-I2562-10XH	SZ5-I2562-15XH	
		66.00		2.598	SZ5-M0660-10XH	SZ5-M0660-15XH	
		66.68	2-5/8"	2.625	SZ5-I2625-10XH	SZ5-I2625-15XH	
		68.00		2.677	SZ5-M0680-10XH	SZ5-M0680-15XH	
		70.00		2.756	SZ5-M0700-10XH	SZ5-M0700-15XH	
		71.44	2-13/16"	2.813	SZ5-I2812-10XH	SZ5-I2812-15XH	
		72.00		2.835	SZ5-M0720-10XH	SZ5-M0720-15XH	
		73.03	2-7/8"	2.875	SZ5-I2875-10XH	SZ5-I2875-15XH	
		74.00		2.913	SZ5-M0740-10XH	SZ5-M0740-15XH	
		74.61	2-15/16"	2.937	SZ5-I2937-10XH	SZ5-I2937-15XH	
		76.00		2.992	SZ5-M0760-10XH	SZ5-M0760-15XH	
		76.20	3"	3.000	SZ5-I3000-10XH	SZ5-I3000-15XH	
		76.99	3-1/32"	3.031	SZ5-I3031-10XH	SZ5-I3031-15XH	
6	11.11 7/16"	77.00		3.031	SZ6-M0770-10XH	SZ6-M0770-15XH	
		77.79	3-1/16"	3.063	SZ6-I3062-10XH	SZ6-I3062-15XH	
		78.00		3.071	SZ6-M0780-10XH	SZ6-M0780-15XH	
		79.38	3-1/8"	3.125	SZ6-I3125-10XH	SZ6-I3125-15XH	
		80.00		3.150	SZ6-M0800-10XH	SZ6-M0800-15XH	
		80.96	3-3/16"	3.187	SZ6-I3187-10XH	SZ6-I3187-15XH	
		82.00		3.228	SZ6-M0820-10XH	SZ6-M0820-15XH	
		82.55	3-1/4"	3.250	SZ6-I3250-10XH	SZ6-I3250-15XH	
		84.00		3.307	SZ6-M0840-10XH	SZ6-M0840-15XH	
		84.14	3-5/16"	3.313	SZ6-I3312-10XH	SZ6-I3312-15XH	
		85.73	3-3/8"	3.375	SZ6-I3375-10XH	SZ6-I3375-15XH	
		86.00		3.386	SZ6-M0860-10XH	SZ6-M0860-15XH	
		87.31	3-7/16"	3.437	SZ6-I3437-10XH	SZ6-I3437-15XH	
		88.00		3.465	SZ6-M0880-10XH	SZ6-M0880-15XH	
88.90	3-1/2"	3.500	SZ6-I3500-10XH	SZ6-I3500-15XH			
89.00		3.504	SZ6-M0890-10XH	SZ6-M0890-15XH			

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA									
SLH50-MMMT5-172N	50	63.50~76.99 2.5"~3.031"	172	216	287	430	MT5	1/2"	SH-5715R	M6X19	T25X100							
SLS50-MMMT5-172N			172	216	287	430												
SLH50-MMMT5-273N			273	318	389	532												
SLS50-MMMT5-368N			368	413	484	627												
SLH50-MMMT5-464N			464	508	579	722												
SLS50-MMMT5-464N			464	508	579	722												
SLS50-MMMT5-660N			660	705	776	919												
SLS50-MMMT5-889N			889	933	1005	1148												
SLH55-MMMT5-172N			55	77.00~89.09 3.031"~3.507"	172	216						287	430	MT5	1/2"	SH-5715R	M6X19	T25X100
SLS55-MMMT5-172N					172	216						287	430					
SLH55-MMMT5-273N	273	318			389	532												
SLH55-MMMT5-464N	464	508			579	722												
SLS55-MMMT5-464N	464	508			579	722												
SLS55-MMMT5-660N	660	705			776	919												
SLS55-MMMT5-889N	889	933			1005	1148												

注: SLH-螺旋槽 SLS-直槽

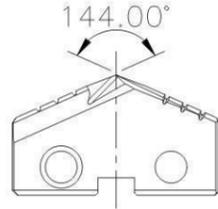
铲钻 Shovel drill

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材。
Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁;
Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。
Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

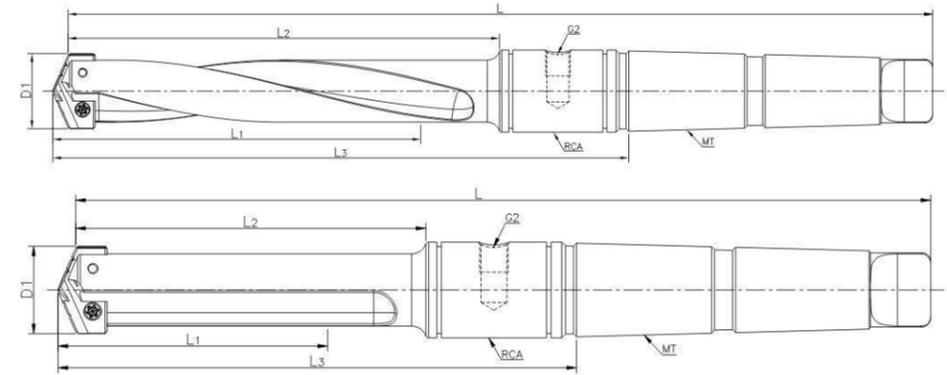


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
7	11.11 7/16"	89.96	3-17/32"	3.542	SZ7-I3531-10XH	SZ7-I3531-15XH	
		90.00		3.543	SZ7-M0900-10XH	SZ7-M0900-15XH	
		90.49	3-9/16"	3.563	SZ7-I3562-10XH	SZ7-I3562-15XH	
		92.00		3.622	SZ7-M0920-10XH	SZ7-M0920-15XH	
		92.08	3-5/8"	3.625	SZ7-I3625-10XH	SZ7-I3625-15XH	
		93.66	3-11/16"	3.687	SZ7-I3687-10XH	SZ7-I3687-15XH	
		94.00		3.701	SZ7-M0940-10XH	SZ7-M0940-15XH	
		95.25	3-3/4"	3.750	SZ7-I3750-10XH	SZ7-I3750-15XH	
		96.00		3.780	SZ7-M0960-10XH	SZ7-M0960-15XH	
		96.84	3-13/16"	3.813	SZ7-I3812-10XH	SZ7-I3812-15XH	
		98.00		3.858	SZ7-M0980-10XH	SZ7-M0980-15XH	
		98.43	3-7/8"	3.875	SZ7-I3875-10XH	SZ7-I3875-15XH	
		100.00		3.937	SZ7-M1000-10XH	SZ7-M1000-15XH	
8	11.11 7/16"	100.01	3-15/16"	3.937	SZ7-I3937-10XH	SZ7-I3937-15XH	
		101.60	4"	4.000	SZ7-I4000-10XH	SZ7-I4000-15XH	
		102.00		4.016	SZ8-M1020-10XH	SZ8-M1020-15XH	
		104.00		4.094	SZ8-M1040-10XH	SZ8-M1040-15XH	
		104.78	4-1/8"	4.125	SZ8-I4125-10XH	SZ8-I4125-15XH	
		106.00		4.173	SZ8-M1060-10XH	SZ8-M1060-15XH	
		107.95	4-1/4"	4.250	SZ8-I4250-10XH	SZ8-I4250-15XH	
		108.00		4.252	SZ8-M1080-10XH	SZ8-M1080-15XH	
		110.00		4.331	SZ8-M1100-10XH	SZ8-M1100-15XH	
		112.00		4.409	SZ8-M1120-10XH	SZ8-M1120-15XH	
		114.00		4.488	SZ8-M1140-10XH	SZ8-M1140-15XH	
		114.30	4-1/2"	4.500	SZ8-I4500-10XH	SZ8-I4500-15XH	

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA									
SLH70-MMMT5-172N	70	89.10~101.60 3.508"~4"	172	225	297	440	MT5	1/2"	SH-5715R	M6X19	T25X100							
SLS70-MMMT5-172N			172	225	297	440												
SLH70-MMMT5-273N			273	327	399	541												
SLH70-MMMT5-556N			556	610	681	824												
SLS70-MMMT5-556N			556	610	681	824												
SLS70-MMMT5-685N			685	740	811	954												
SLS70-MMMT5-939N			939	994	1065	1208												
SLH80-MMMT5-172N			80	101.61~114.30 4"~4.5"	172	225						297	440	MT5	1/2"	SH-5715R	M6X19	T25X100
SLS80-MMMT5-172N					172	225						297	440					
SLH80-MMMT5-273N					273	327						399	541					
SLH80-MMMT5-556N	556	610			681	824												
SLS80-MMMT5-556N	556	610			681	824												
SLS80-MMMT5-685N	685	740			811	954												
SLS80-MMMT5-939N	939	994			1065	1208												

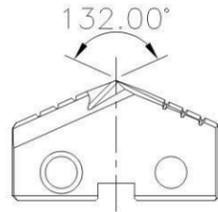
注: SLH-螺旋槽 SLS-直槽

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

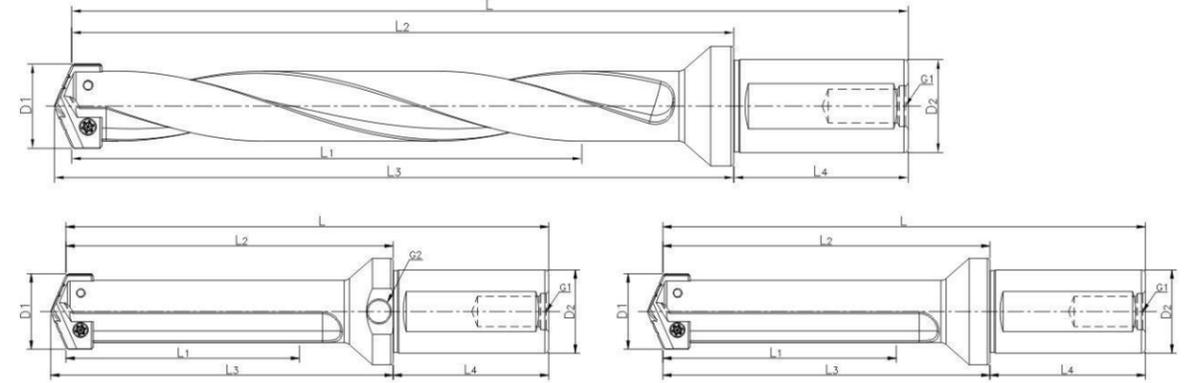
- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.



接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
Y	2.38 3/32"	9.50		0.374			SZY-M0095-25XH
		9.53	3/8"	0.375			SZY-I0375-25XH
		9.80		0.386			SZY-M0098-25XH
		10.00		0.394			SZY-M0100-25XH
		10.20		0.402			SZY-M0102-25XH
		10.50		0.413			SZY-M0105-25XH
		10.72	27/64"	0.422			SZY-I0421-25XH
		10.80		0.425			SZY-M0108-25XH
		11.00		0.433			SZY-M0110-25XH
		11.11	7/16"	0.437			SZY-I0437-25XH
Z	2.38 3/32"	11.50		0.453			SZZ-M0115-25XH
		11.51	29/64"	0.453			SZZ-I0453-25XH
		12.00		0.472			SZZ-M0120-25XH
		12.30	31/64"	0.484			SZZ-I0484-25XH
		12.50		0.492			SZZ-M0125-25XH
0	3.18 1/8"	12.70	1/2"	0.500			SZZ-I0500-25XH
		13.00		0.512	SZO-M0130-10XH	SZO-M0130-15XH	SZO-M0130-25XH
		13.50		0.531	SZO-M0135-10XH	SZO-M0135-15XH	SZO-M0135-25XH
		14.00		0.551	SZO-M0140-10XH	SZO-M0140-15XH	SZO-M0140-25XH
		14.29	9/16"	0.563	SZO-I0562-10XH	SZO-I0562-15XH	SZO-I0562-25XH
		14.50		0.571	SZO-M0145-10XH	SZO-M0145-15XH	SZO-M0145-25XH
0	3.18 1/8"	15.00		0.591	SZO-M0150-10XH	SZO-M0150-15XH	SZO-M0150-25XH
		15.50		0.610	SZO-M0155-10XH	SZO-M0155-15XH	SZO-M0155-25XH
		15.88	5/8"	0.625	SZO-I0625-10XH	SZO-I0625-15XH	SZO-I0625-25XH
		16.00		0.630	SZO-M0160-10XH	SZO-M0160-15XH	SZO-M0160-25XH
		16.50		0.650	SZO-M0165-10XH	SZO-M0165-15XH	SZO-M0165-25XH
		17.00		0.669	SZO-M0170-10XH	SZO-M0170-15XH	SZO-M0170-25XH
		17.46	11/16"	0.687	SZO-I0687-10XH	SZO-I0687-15XH	SZO-I0687-25XH
17.50		0.689	SZO-M0175-10XH	SZO-M0175-15XH	SZO-M0175-25XH		

侧固式柄螺旋槽/直槽刀杆

Side fixed handle spiral groove / straight groove cutter bar



型号 Code No	接口 Connector	D1	L1	L2	L3	L	D2	L4	G1	G2		
SLSY0-ML016-19N	Y0	9.50~11.49 0.374"~0.452"	19	48	50	96	16	48	1/16"	1/8"	M2X4	T7X35
SLSY0-ML020-32N			32	61	64	111	20	50	1/8"			
SLHY0-ML020-60N			60	90	92	140	20	50	1/8"			
SLHY0-ML020-111N			111	141	143	191	20	50	1/8"			
SLSY0-ML020-222N			222	252	254	302	20	50	1/8"			
SLSY0-ML020-290N			290	320	322	370	20	50	1/8"			
SLSZ0-ML016-19N			Z0	11.50~12.97 0.453"~0.511"	19	48	50	96	16			
SLSZ0-ML020-32N	32	61			64	111	20	50	1/8"			
SLHZ0-ML020-60N	60	90			92	140	20	50	1/8"			
SLHZ0-ML020-111N	111	141			143	191	20	50	1/8"			
SLSZ0-ML020-222N	222	252			254	302	20	50	1/8"			
SLSZ0-ML020-290N	290	320			322	370	20	50	1/8"			
SLS00-ML020-22N	00	12.98~15.49 0.511"~0.61"	22	48	50	98	20	50	1/8"	1/8"	M2.5X5.8	T8X40
SLS00-ML020-35N			35	64	66	114						
SLH00-ML020-64N			64	92	95	142						
SLH00-ML020-114N			114	143	146	193						
SLH00-ML020-178N			178	206	209	256						
SLS00-ML020-240N			240	268	271	318						
SLS00-ML020-295N			295	324	327	374						
SLS00-ML020-387N	387	416	419	466								
SLS05-ML020-22N	05	15.50~17.85 0.61"~0.703"	22	48	50	98	20	50	1/8"	1/8"	M2.5X7	T8X40
SLS05-ML020-35N			35	64	66	114						
SLH05-ML020-64N			64	92	95	142						
SLH05-ML020-114N			114	143	146	193						
SLH05-ML020-178N			178	206	209	256						
SLS05-ML020-240N			240	268	271	318						
SLS05-ML020-295N			295	324	327	374						
SLS05-ML020-387N	387	416	419	466								

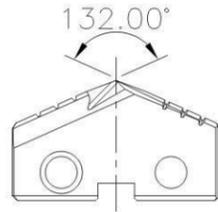
注: SLH-螺旋槽 SLS-直槽

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

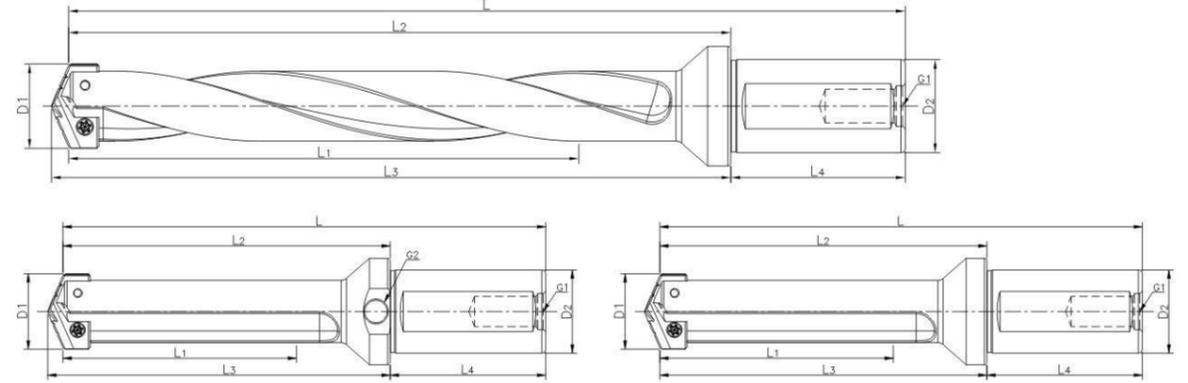
- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.



接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
1	3.97 5/32"	18.00		0.709	SZ1-M0180-10XH	SZ1-M0180-15XH	SZ1-M0180-25XH
		18.50		0.728	SZ1-M0185-10XH	SZ1-M0185-15XH	SZ1-M0185-25XH
		19.00		0.748	SZ1-M0190-10XH	SZ1-M0190-15XH	SZ1-M0190-25XH
		19.05	3/4"	0.750	SZ1-I0750-10XH	SZ1-I0750-15XH	SZ1-I0750-25XH
		19.50		0.768	SZ1-M0195-10XH	SZ1-M0195-15XH	SZ1-M0195-25XH
		20.00		0.787	SZ1-M0200-10XH	SZ1-M0200-15XH	SZ1-M0200-25XH
		20.50		0.807	SZ1-M0205-10XH	SZ1-M0205-15XH	SZ1-M0205-25XH
		20.64	13/16"	0.813	SZ1-I0812-10XH	SZ1-I0812-15XH	SZ1-I0812-25XH
		21.00		0.827	SZ1-M0210-10XH	SZ1-M0210-15XH	SZ1-M0210-25XH
		21.50		0.846	SZ1-M0215-10XH	SZ1-M0215-15XH	SZ1-M0215-25XH
1	3.97 5/32"	22.00		0.866	SZ1-M0220-10XH	SZ1-M0220-15XH	SZ1-M0220-25XH
		22.23	7/8"	0.875	SZ1-I0875-10XH	SZ1-I0875-15XH	SZ1-I0875-25XH
		23.00		0.906	SZ1-M0230-10XH	SZ1-M0230-15XH	SZ1-M0230-25XH
		23.81	15/16"	0.937	SZ1-I0937-10XH	SZ1-I0937-15XH	SZ1-I0937-25XH
		24.00		0.945	SZ1-M0240-10XH	SZ1-M0240-15XH	SZ1-M0240-25XH
2	4.76 3/16"	25.00		0.984	SZ2-M0250-10XH	SZ2-M0250-15XH	SZ2-M0250-25XH
		25.40	1"	1.000	SZ2-I1000-10XH	SZ2-I1000-15XH	SZ2-I1000-25XH
		26.00		1.024	SZ2-M0260-10XH	SZ2-M0260-15XH	SZ2-M0260-25XH
		26.99	1-1/16"	1.063	SZ2-I1062-10XH	SZ2-I1062-15XH	SZ2-I1062-25XH
		27.00		1.063	SZ2-M0270-10XH	SZ2-M0270-15XH	SZ2-M0270-25XH
		28.00		1.102	SZ2-M0280-10XH	SZ2-M0280-15XH	SZ2-M0280-25XH
		28.58	1-1/8"	1.125	SZ2-I1125-10XH	SZ2-I1125-15XH	SZ2-I1125-25XH
		29.00		1.142	SZ2-M0290-10XH	SZ2-M0290-15XH	SZ2-M0290-25XH
2	4.76 3/16"	30.00		1.181	SZ2-M0300-10XH	SZ2-M0300-15XH	SZ2-M0300-25XH
		30.16	1-3/16"	1.187	SZ2-I1187-10XH	SZ2-I1187-15XH	SZ2-I1187-25XH
		31.00		1.220	SZ2-M0310-10XH	SZ2-M0310-15XH	SZ2-M0310-25XH
		31.75	1-1/4"	1.250	SZ2-I1250-10XH	SZ2-I1250-15XH	SZ2-I1250-25XH
		32.00		1.260	SZ2-M0320-10XH	SZ2-M0320-15XH	SZ2-M0320-25XH
		33.00		1.299	SZ2-M0330-10XH	SZ2-M0330-15XH	SZ2-M0330-25XH
		33.34	1-5/16"	1.313	SZ2-I1312-10XH	SZ2-I1312-15XH	SZ2-I1312-25XH
		34.00		1.339	SZ2-M0340-10XH	SZ2-M0340-15XH	SZ2-M0340-25XH
		34.13	1-11/32"	1.344	SZ2-I1343-10XH	SZ2-I1343-15XH	SZ2-I1343-25XH
		34.93	1-3/8"	1.375	SZ2-I1375-10XH	SZ2-I1375-15XH	SZ2-I1375-25XH
35.00		1.378	SZ2-M0350-10XH	SZ2-M0350-15XH	SZ2-M0350-25XH		

侧固式柄螺旋槽/直槽刀杆

Side fixed handle spiral groove / straight groove cutter bar



型号 Code No	接口 Connector	D1	L1	L2	L3	L	D2	L4	G1	G2		
SLS10-ML025-48N	10	17.86~21.99 0.703"~0.866"	48	76	79	132	25	56	1/8"	1/8"	M3X7	T9X40
SLS10-ML025-67N			67	107	111	163						
SLH10-ML025-118N			118	155	158	211						
SLH10-ML025-168N			168	206	209	262						
SLH10-ML025-222N			222	260	263	316						
SLH10-ML025-270N			270	307	311	363						
SLS10-ML025-365N			365	402	406	458						
SLS10-ML025-457N			457	495	498	551						
SLS10-ML025-569N			569	603	606	659						
SLS15-ML025-48N			15	22.00~24.60 0.866"~0.969"	48	76						
SLS15-ML025-67N	67	107			111	163						
SLH15-ML025-118N	118	155			158	211						
SLH15-ML025-168N	168	206			209	262						
SLH15-ML025-222N	222	260			263	316						
SLH15-ML025-270N	270	307			311	363						
SLS15-ML025-365N	365	402	406	458								
SLS15-ML025-457N	457	495	498	551								
SLS15-ML025-569N	569	603	606	659								
SLS20-ML032-57N	20	24.61~29.99 0.969"~1.181"	57	89	92	149	32	60	1/4"	1/8"	M4X10	T15X45
SLS20-ML032-86N			86	129	132	189						
SLH20-ML032-137N			137	179	183	239						
SLH20-ML032-187N			187	230	234	290						
SLH20-ML032-237N			237	280	284	340						
SLH20-ML032-289N			289	332	335	392						
SLS20-ML032-400N			400	443	446	503						
SLS20-ML032-511N			511	554	558	618						
SLS20-ML032-492N	692	735	739	795								
SLS25-ML032-57N	25	30.00~35.50 1.181"~1.398"	57	89	92	149	32	60	1/4"	1/8"	M4X10	T15X45
SLS25-ML032-86N			86	129	132	189						
SLH25-ML032-137N			137	179	183	239						
SLH25-ML032-187N			187	230	234	290						
SLH20-ML032-237N			237	280	284	340						
SLH25-ML032-289N			289	332	335	392						
SLS25-ML032-400N			400	443	446	503						
SLS25-ML032-511N			511	554	558	618						
SLS25-ML032-492N			692	735	739	795						

注: SLH-螺旋槽 SLS-直槽

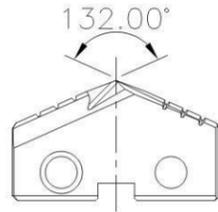
铲钻 Shovel drill

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

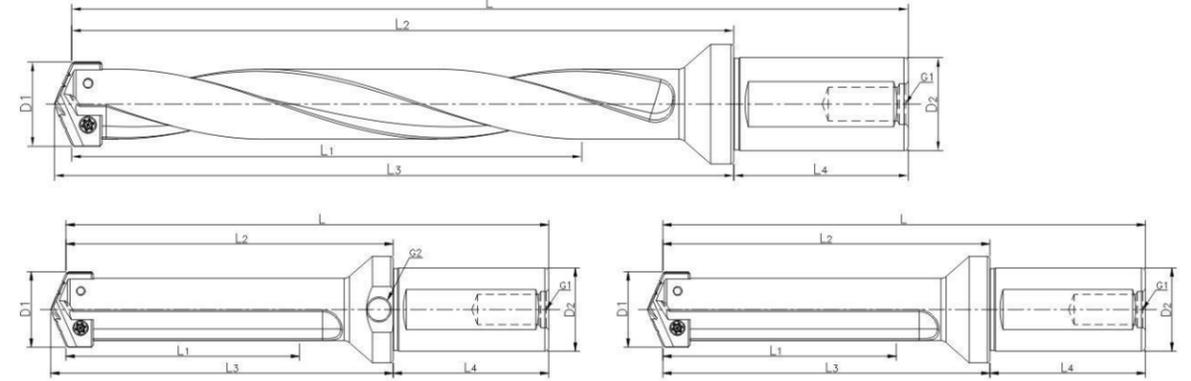


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
3	6.35 1/4"	36.00		1.417	SZ3-M0360-10XH	SZ3-M0360-15XH	SZ3-M0360-25XH
		36.51	1-7/16"	1.437	SZ3-I1437-10XH	SZ3-I1437-15XH	SZ3-I1437-25XH
		37.00		1.457	SZ3-M0370-10XH	SZ3-M0370-15XH	SZ3-M0370-25XH
		38.00		1.496	SZ3-M0380-10XH	SZ3-M0380-15XH	SZ3-M0380-25XH
		38.10	1-1/2"	1.500	SZ3-I1500-10XH	SZ3-I1500-15XH	SZ3-I1500-25XH
		39.00		1.535	SZ3-M0390-10XH	SZ3-M0390-15XH	SZ3-M0390-25XH
		39.69	1-9/16"	1.563	SZ3-I1562-10XH	SZ3-I1562-15XH	SZ3-I1562-25XH
		40.00		1.575	SZ3-M0400-10XH	SZ3-M0400-15XH	SZ3-M0400-25XH
		41.00		1.614	SZ3-M0410-10XH	SZ3-M0410-15XH	SZ3-M0410-25XH
		41.28	1-5/8"	1.625	SZ3-I1625-10XH	SZ3-I1625-15XH	SZ3-I1625-25XH
3	6.35 1/4"	42.00		1.654	SZ3-M0420-10XH	SZ3-M0420-15XH	SZ3-M0420-25XH
		42.86	1-11/16"	1.687	SZ3-I1687-10XH	SZ3-I1687-15XH	SZ3-I1687-25XH
		43.00		1.693	SZ3-M0430-10XH	SZ3-M0430-15XH	SZ3-M0430-25XH
		44.00		1.732	SZ3-M0440-10XH	SZ3-M0440-15XH	SZ3-M0440-25XH
		44.45	1-3/4"	1.750	SZ3-I1750-10XH	SZ3-I1750-15XH	SZ3-I1750-25XH
		45.00		1.772	SZ3-M0450-10XH	SZ3-M0450-15XH	SZ3-M0450-25XH
		46.00		1.811	SZ3-M0460-10XH	SZ3-M0460-15XH	SZ3-M0460-25XH
		46.04	1-13/16"	1.813	SZ3-I1812-10XH	SZ3-I1812-15XH	SZ3-I1812-25XH
		47.00		1.850	SZ3-M0470-10XH	SZ3-M0470-15XH	SZ3-M0470-25XH
		47.63	1-7/8"	1.875	SZ3-I1875-10XH	SZ3-I1875-15XH	SZ3-I1875-25XH

铲钻 Shovel drill

侧固式柄螺旋槽/直槽刀杆

Side fixed handle spiral groove / straight groove cutter bar



型号 Code No	接口 Connector	D1	L1	L2	L3	L	D2	L4	G1	G2		
SLS30-ML040-76N	30	35.51~41.99 1.398"~1.653"	76	125	130	195	40	70	1/4"	1/4"	M5X14	T20X45
SLS30-ML040-121N			121	173	178	243						
SLH30-ML040-165N			165	218	222	288						
SLH30-ML040-210N			210	262	267	332						
SLH30-ML040-260N			260	312	317	382						
SLH30-ML040-349N			349	402	406	472						
SLS30-ML040-349N			349	402	406	472						
SLS30-ML040-559N			559	611	616	681						
SLS30-ML040-787N			787	840	845	910						
SLS35-ML040-76N			35	42.00~47.99 1.654"~1.899"	76	125						
SLS35-ML040-121N	121	173			178	243						
SLH35-ML040-165N	165	218			222	288						
SLH35-ML040-210N	210	262			267	332						
SLH35-ML040-260N	260	312			317	382						
SLH35-ML040-349N	349	402			406	472						
SLS35-ML040-349N	349	402			406	472						
SLS35-ML040-559N	559	611			616	681						
SLS35-ML040-787N	787	840			845	910						

注: SLH-螺旋槽 SLS-直槽

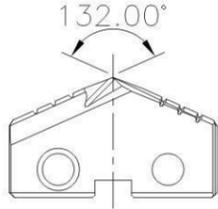
铲钻 Shovel drill

粉末高速钢刀片

HSS-PM insert series

HSS PM HPC

- HPM10 - 粉末高速钢, 适用于硬度HB275以下的钢材 - Powder high speed steel, apply to process carbon steel with hardness is till Hb275;
- HPM15 - 含钴粉末高速钢, 适用于硬度HB350以下的钢、不锈钢、铸铁; Powder cobalt high speed steel apply to process carbon steel, stainless steel, cast iron and other materials which hardness is ill Hb350;
- HPM25 - 高钴粉末高速钢, 适用于硬度HB400以下的钢、不锈钢、铸铁。 Powder cobalt-rich high speed steel, apply to process alloy steel stainless steel, cast iron and other materials which hardness is ill Hb400.

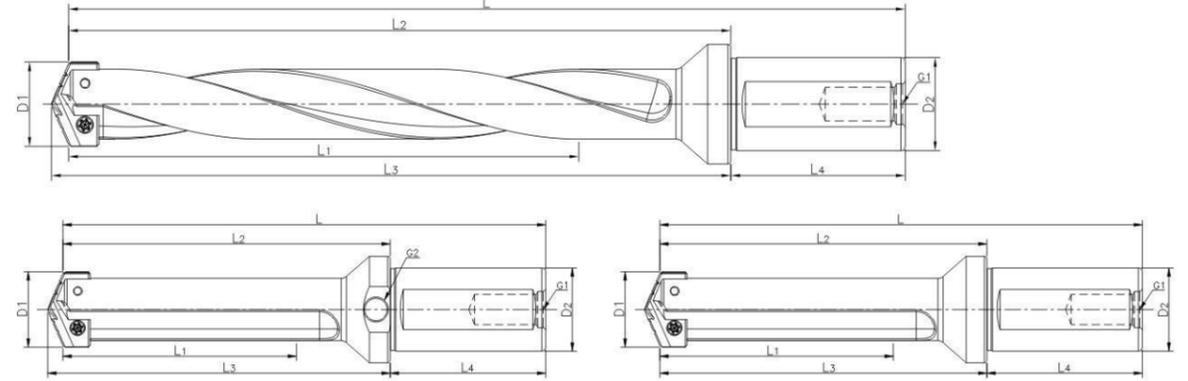


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			可选刀片材质 Optional blade material		
		mm	Frcational Equivalent	inch	HPM10	HPM15	HPM25
4	7.94 5/16"	48.00		1.890	SZ4-M0480-10XH	SZ4-M0480-15XH	SZ4-M0480-25XH
		49.21	1-15/16"	1.937	SZ4-I1937-10XH	SZ4-I1937-15XH	SZ4-I1937-25XH
		50.00		1.969	SZ4-M0500-10XH	SZ4-M0500-15XH	SZ4-M0500-25XH
		50.80	2"	2.000	SZ4-I2000-10XH	SZ4-I2000-15XH	SZ4-I2000-25XH
		51.00		2.008	SZ4-M0510-10XH	SZ4-M0510-15XH	SZ4-M0510-25XH
		52.00		2.047	SZ4-M0520-10XH	SZ4-M0520-15XH	SZ4-M0520-25XH
		52.39	2-1/16"	2.063	SZ4-I2062-10XH	SZ4-I2062-15XH	SZ4-I2062-25XH
		53.00		2.087	SZ4-M0530-10XH	SZ4-M0530-15XH	SZ4-M0530-25XH
		53.98	2-1/8"	2.125	SZ4-I2125-10XH	SZ4-I2125-15XH	SZ4-I2125-25XH
		54.00		2.126	SZ4-M0540-10XH	SZ4-M0540-15XH	SZ4-M0540-25XH
		55.00		2.165	SZ4-M0550-10XH	SZ4-M0550-15XH	SZ4-M0550-25XH
		55.56	2-3/16"	2.187	SZ4-I2187-10XH	SZ4-I2187-15XH	SZ4-I2187-25XH
		4	7.94 5/16"	56.00		2.205	SZ4-M0560-10XH
57.00				2.244	SZ4-M0570-10XH	SZ4-M0570-15XH	SZ4-M0570-25XH
57.15	2-1/4"			2.250	SZ4-I2250-10XH	SZ4-I2250-15XH	SZ4-I2250-25XH
58.00				2.283	SZ4-M0580-10XH	SZ4-M0580-15XH	SZ4-M0580-25XH
58.74	2-5/16"			2.313	SZ4-I2312-10XH	SZ4-I2312-15XH	SZ4-I2312-25XH
59.00				2.323	SZ4-M0590-10XH	SZ4-M0590-15XH	SZ4-M0590-25XH
60.00				2.362	SZ4-M0600-10XH	SZ4-M0600-15XH	SZ4-M0600-25XH
60.33	2-3/8"			2.375	SZ4-I2375-10XH	SZ4-I2375-15XH	SZ4-I2375-25XH
61.00				2.402	SZ4-M0610-10XH	SZ4-M0610-15XH	SZ4-M0610-25XH
61.91	2-7/16"			2.437	SZ4-I2437-10XH	SZ4-I2437-15XH	SZ4-I2437-25XH
62.00				2.441	SZ4-M0620-10XH	SZ4-M0620-15XH	SZ4-M0620-25XH
63.00				2.480	SZ4-M0630-10XH	SZ4-M0630-15XH	SZ4-M0630-25XH
63.50	2-1/2"			2.500	SZ4-I2500-10XH	SZ4-I2500-15XH	SZ4-I2500-25XH
64.00		2.520	SZ4-M0640-10XH	SZ4-M0640-15XH	SZ4-M0640-25XH		
65.00		2.559	SZ4-M0650-10XH	SZ4-M0650-15XH	SZ4-M0650-25XH		
65.09	2-9/16"	2.563	SZ4-I2562-10XH	SZ4-I2562-15XH	SZ4-I2562-25XH		

铲钻 Shovel drill

侧固式柄螺旋槽/直槽刀杆

Side fixed handle spiral groove / straight groove cutter bar



型号 Code No	接口 Connector	D1	L1	L2	L3	L	D2	L4	G1	G2										
SLS40-ML040-130N	40	48.00~55.99 1.89"~2.204"	130	179	184	249	40	70	1/4"	-	M5X14	T20X45								
SLH40-ML040-232N			232	281	286	351														
SLH40-ML040-350N			350	399	404	469														
SLH40-ML040-422N			422	472	476	542														
SLS40-ML040-422N			422	472	476	542														
SLS40-ML040-525N			525	575	579	645														
SLS40-ML040-625N			625	675	680	745														
SLS40-ML040-879N			879	929	934	999														
SLS45-ML040-130N			45	56.00~65.09 2.205"~2.563"	130	179							184	249	40	70	1/4"	-	M5X14	T20X45
SLH45-ML040-232N					232	281							286	351						
SLH45-ML040-350N	350	399			404	469														
SLH45-ML040-422N	422	472			476	542														
SLS45-ML040-422N	422	472			476	542														
SLS45-ML040-525N	525	575			579	645														
SLS45-ML040-625N	625	675			680	745														
SLS45-ML040-879N	879	929			934	999														

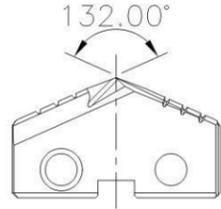
注: SLH-螺旋槽 SLS-直槽

铲钻 Shovel drill

硬质合金刀片

Carbide inseries

Carbide micro grain HPC

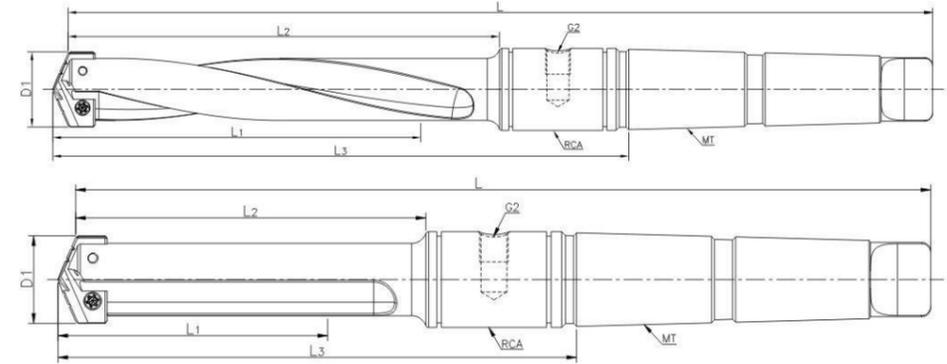


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			应用 Application		
		mm	Frcationl Equivalent	inch	P	K	N
Y	2.38 3/32"	9.50		0.374	SZY-M0095-50XH	SZY-M0095-50CH	SZY-M0095-50SC
		9.53	3/8"	0.375	SZY-I0375-50XH	SZY-I0375-50CH	SZY-I0375-50SC
		9.80		0.386	SZY-M0098-50XH	SZY-M0098-50CH	SZY-M0098-50SC
		10.00		0.394	SZY-M0100-50XH	SZY-M0100-50CH	SZY-M0100-50SC
		10.20		0.402	SZY-M0102-50XH	SZY-M0102-50CH	SZY-M0102-50SC
		10.50		0.413	SZY-M0105-50XH	SZY-M0105-50CH	SZY-M0105-50SC
		10.72	27/64"	0.422	SZY-I0421-50XH	SZY-I0421-50CH	SZY-I0421-50SC
		10.80		0.425	SZY-M0108-50XH	SZY-M0108-50CH	SZY-M0108-50SC
		11.00		0.433	SZY-M0110-50XH	SZY-M0110-50CH	SZY-M0110-50SC
		11.11	7/16"	0.437	SZY-I0437-50XH	SZY-I0437-50CH	SZY-I0437-50SC
Z	2.38 3/32"	11.50		0.453	SZZ-M0115-50XH	SZZ-M0115-50CH	SZZ-M0115-50SC
		11.51	29/64"	0.453	SZZ-I0453-50XH	SZZ-I0453-50CH	SZZ-I0453-50SC
		12.00		0.472	SZZ-M0120-50XH	SZZ-M0120-50CH	SZZ-M0120-50SC
		12.30	31/64"	0.484	SZZ-I0484-50XH	SZZ-I0484-50CH	SZZ-I0484-50SC
		12.50		0.492	SZZ-M0125-50XH	SZZ-M0125-50CH	SZZ-M0125-50SC
		12.70	1/2"	0.500	SZZ-I0500-50XH	SZZ-I0500-50CH	SZZ-I0500-50SC
0	3.18 1/8"	13.00		0.512	SZO-M0130-50XH	SZO-M0130-50CH	SZO-M0130-50SC
		13.50		0.531	SZO-M0135-50XH	SZO-M0135-50CH	SZO-M0135-50SC
		14.00		0.551	SZO-M0140-50XH	SZO-M0140-50CH	SZO-M0140-50SC
		14.29	9/16"	0.563	SZO-I0562-50XH	SZO-I0562-50CH	SZO-I0562-50SC
		14.50		0.571	SZO-M0145-50XH	SZO-M0145-50CH	SZO-M0145-50SC
		15.00		0.591	SZO-M0150-50XH	SZO-M0150-50CH	SZO-M0150-50SC
0	3.18 1/8"	15.50		0.610	SZO-M0155-50XH	SZO-M0155-50CH	SZO-M0155-50SC
		15.88	5/8"	0.625	SZO-I0625-50XH	SZO-I0625-50CH	SZO-I0625-50SC
		16.00		0.630	SZO-M0160-50XH	SZO-M0160-50CH	SZO-M0160-50SC
		16.50		0.650	SZO-M0165-50XH	SZO-M0165-50CH	SZO-M0165-50SC
		17.00		0.669	SZO-M0170-50XH	SZO-M0170-50CH	SZO-M0170-50SC
		17.46	11/16"	0.687	SZO-I0687-50XH	SZO-I0687-50CH	SZO-I0687-50SC
		17.50		0.689	SZO-M0175-50XH	SZO-M0175-50CH	SZO-M0175-50SC

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



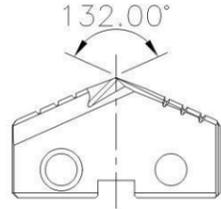
型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA		
SLHY0-MMMT2-32N SLSY0-MMMT2-32N SLHY0-MMMT2-60N SLHY0-MMMT2-111N	Y0	9.50~11.49 0.374"~0.452"	32 32 60 111	52 52 80 131	88 88 117 167	160 160 189 240	MT2	1/16"	SH-1905R	M2X4	T7X35
SLHZ0-MMMT2-32N SLSZ0-MMMT2-32N SLHZ0-MMMT2-60N SLHZ0-MMMT2-111N	Z0	11.50~12.97 0.453"~0.511"	32 32 60 111	52 52 80 131	88 88 117 167	160 160 189 240	MT2	1/16"	SH-1905R	M2X4.8	T7X35
SLH00-MMMT2-35N SLS00-MMMT2-35N SLH00-MMMT2-64N SLH00-MMMT2-114N SLH00-MMMT2-178N	00	12.98~15.49 0.511"~0.61"	35 35 64 114 178	56 56 84 135 199	92 92 121 172 235	164 164 193 244 307	MT2	1/16"	SH-1905R	M2.5X5.8	T8X40
SLH05-MMMT2-35N SLS05-MMMT2-35N SLH05-MMMT2-64N SLH05-MMMT2-114N SLH05-MMMT2-178N	05	15.50~17.85 0.61~0.703	35 35 64 114 178	56 56 84 135 199	92 92 121 172 235	164 164 193 244 307	MT2	1/16"	SH-1905R	M2.5X7	T8X40

注: SLH-螺旋槽 SLS-直槽

铲钻 Shovel drill

硬质合金刀片 Carbide inseries

Carbide micro grain HPC

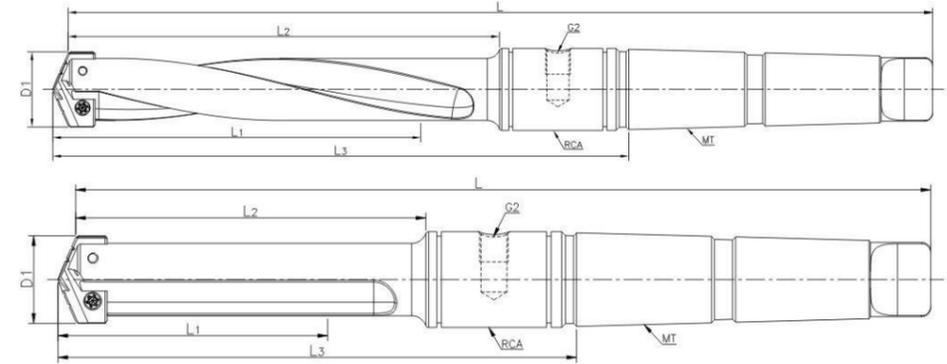


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			应用 Application		
		mm	Frcationl Equivalent	inch	P	K	N
1	3.97 5/32"	18.00		0.709	SZ1-M0180-50XH	SZ1-M0180-50CH	SZ1-M0180-50SC
		18.50		0.728	SZ1-M0185-50XH	SZ1-M0185-50CH	SZ1-M0185-50SC
		19.00		0.748	SZ1-M0190-50XH	SZ1-M0190-50CH	SZ1-M0190-50SC
		19.05	3/4"	0.750	SZ1-I0750-50XH	SZ1-I0750-50CH	SZ1-I0750-50SC
		19.50		0.768	SZ1-M0195-50XH	SZ1-M0195-50CH	SZ1-M0195-50SC
		20.00		0.787	SZ1-M0200-50XH	SZ1-M0200-50CH	SZ1-M0200-50SC
		20.50		0.807	SZ1-M0205-50XH	SZ1-M0205-50CH	SZ1-M0205-50SC
		20.64	13/16"	0.813	SZ1-I0812-50XH	SZ1-I0812-50CH	SZ1-I0812-50SC
		21.00		0.827	SZ1-M0210-50XH	SZ1-M0210-50CH	SZ1-M0210-50SC
		21.50		0.846	SZ1-M0215-50XH	SZ1-M0215-50CH	SZ1-M0215-50SC
1	3.97 5/32"	22.00		0.866	SZ1-M0220-50XH	SZ1-M0220-50CH	SZ1-M0220-50SC
		22.23	7/8"	0.875	SZ1-I0875-50XH	SZ1-I0875-50CH	SZ1-I0875-50SC
		23.00		0.906	SZ1-M0230-50XH	SZ1-M0230-50CH	SZ1-M0230-50SC
		23.81	15/16"	0.937	SZ1-I0937-50XH	SZ1-I0937-50CH	SZ1-I0937-50SC
		24.00		0.945	SZ1-M0240-50XH	SZ1-M0240-50CH	SZ1-M0240-50SC
2	4.76 3/16"	25.00		0.984	SZ2-M0250-50XH	SZ2-M0250-50CH	SZ2-M0250-50SC
		25.40	1"	1.000	SZ2-I1000-50XH	SZ2-I1000-50CH	SZ2-I1000-50SC
		26.00		1.024	SZ2-M0260-50XH	SZ2-M0260-50CH	SZ2-M0260-50SC
		26.99	1-1/16"	1.063	SZ2-I1062-50XH	SZ2-I1062-50CH	SZ2-I1062-50SC
		27.00		1.063	SZ2-M0270-10XH	SZ2-M0270-10CH	SZ2-M0270-10SC
		28.00		1.102	SZ2-M0280-50XH	SZ2-M0280-50CH	SZ2-M0280-50SC
		28.58	1-1/8"	1.125	SZ2-I1125-50XH	SZ2-I1125-50CH	SZ2-I1125-50SC
		29.00		1.142	SZ2-M0290-50XH	SZ2-M0290-50CH	SZ2-M0290-50SC
2	4.76 3/16"	30.00		1.181	SZ2-M0300-50XH	SZ2-M0300-50CH	SZ2-M0300-50SC
		30.16	1-3/16"	1.187	SZ2-I1187-50XH	SZ2-I1187-50CH	SZ2-I1187-50SC
		31.00		1.220	SZ2-M0310-50XH	SZ2-M0310-50CH	SZ2-M0310-50SC
		31.75	1-1/4"	1.250	SZ2-I1250-50XH	SZ2-I1250-50CH	SZ2-I1250-50SC
		32.00		1.260	SZ2-M0320-50XH	SZ2-M0320-50CH	SZ2-M0320-50SC
		33.00		1.299	SZ2-M0330-50XH	SZ2-M0330-50CH	SZ2-M0330-50SC
		33.34	1-5/16"	1.313	SZ2-I1312-50XH	SZ2-I1312-50CH	SZ2-I1312-50SC
		34.00		1.339	SZ2-M0340-50XH	SZ2-M0340-50CH	SZ2-M0340-50SC
		34.13	1-11/32"	1.344	SZ2-I1343-50XH	SZ2-I1343-50CH	SZ2-I1343-50SC
		34.93	1-3/8"	1.375	SZ2-I1375-50XH	SZ2-I1375-50CH	SZ2-I1375-50SC
35.00		1.378	SZ2-M0350-50XH	SZ2-M0350-50CH	SZ2-M0350-50SC		

铲钻 Shovel drill

锥柄螺旋槽/直槽刀杆

Taper shank spiral groove / straight groove Arbor



型号 Code No	接口 Connector	D1	L1	L2	L3	L	MT	G2	RCA		
SLH10-MMMT3-70N	10	17.86~21.99 0.703"~0.866"	70	98	143	233	MT3	1/8"	SH-2540R	M3X7	T9X40
SLS10-MMMT3-70N			70	98	143	233					
SLH10-MMMT3-121N			121	149	193	283					
SLH10-MMMT3-172N			172	200	244	334					
SLH10-MMMT3-273N			273	302	346	436					
SLH15-MMMT3-70N			15	22.00~24.60 0.866"~0.969"	70	98					
SLS15-MMMT3-70N	70	98			143	233					
SLH15-MMMT3-121N	121	149			193	283					
SLH15-MMMT3-172N	172	200			244	334					
SLH15-MMMT3-273N	273	302			346	436					
SLH20-MMMT4-86N	20	24.61~29.99 0.969"~1.181"	86	144	160	274	MT4	1/8"	SH-2540R	M4X10	T15X45
SLS20-MMMT3-86N			86	144	160	274					
SLH20-MMMT4-137N			137	165	211	325					
SLH20-MMMT4-187N			187	216	262	375					
SLH20-MMMT4-289N			289	318	364	477					
SLH25-MMMT4-86N	25	30.00~35.50 1.181"~1.398"	86	144	168	281	MT4	1/4"	SH-3175R	M4X10	T15X45
SLS25-MMMT3-86N			86	144	168	274					
SLH25-MMMT4-137N			137	165	218	332					
SLH25-MMMT4-187N			187	216	269	383					
SLH25-MMMT4-289N			289	318	371	484					

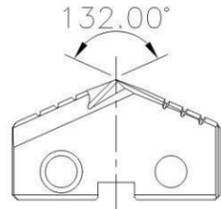
注: SLH-螺旋槽 SLS-直槽

铲钻 Shovel drill

硬质合金刀片

Carbide inseries

Carbide micro grain HPC

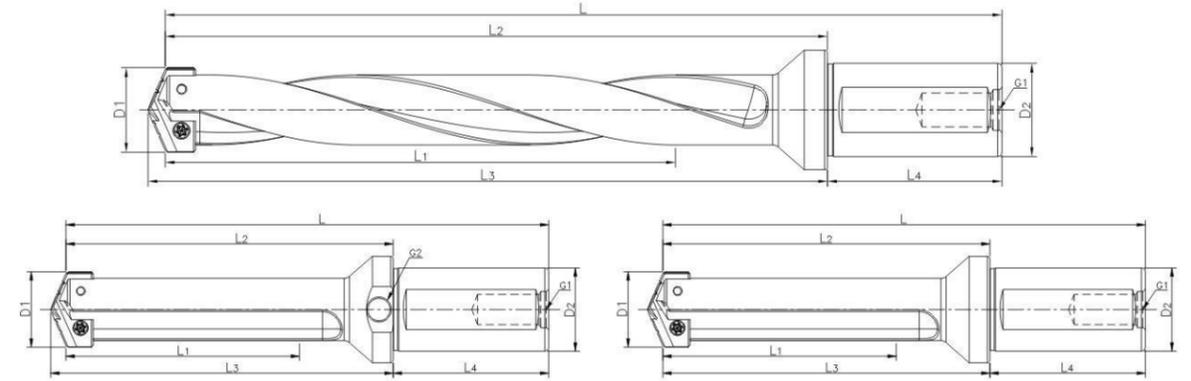


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			应用 Application		
		mm	Frcationl Equivalent	inch	P	K	N
Y	2.38 3/32"	9.50		0.374	SZY-M0095-50XH	SZY-M0095-50CH	SZY-M0095-50SC
		9.53	3/8"	0.375	SZY-I0375-50XH	SZY-I0375-50CH	SZY-I0375-50SC
		9.80		0.386	SZY-M0098-50XH	SZY-M0098-50CH	SZY-M0098-50SC
		10.00		0.394	SZY-M0100-50XH	SZY-M0100-50CH	SZY-M0100-50SC
		10.20		0.402	SZY-M0102-50XH	SZY-M0102-50CH	SZY-M0102-50SC
		10.50		0.413	SZY-M0105-50XH	SZY-M0105-50CH	SZY-M0105-50SC
		10.72	27/64"	0.422	SZY-I0421-50XH	SZY-I0421-50CH	SZY-I0421-50SC
		10.80		0.425	SZY-M0108-50XH	SZY-M0108-50CH	SZY-M0108-50SC
		11.00		0.433	SZY-M0110-50XH	SZY-M0110-50CH	SZY-M0110-50SC
		11.11	7/16"	0.437	SZY-I0437-50XH	SZY-I0437-50CH	SZY-I0437-50SC
Z	2.38 3/32"	11.50		0.453	SZZ-M0115-50XH	SZZ-M0115-50CH	SZZ-M0115-50SC
		11.51	29/64"	0.453	SZZ-I0453-50XH	SZZ-I0453-50CH	SZZ-I0453-50SC
		12.00		0.472	SZZ-M0120-50XH	SZZ-M0120-50CH	SZZ-M0120-50SC
		12.30	31/64"	0.484	SZZ-I0484-50XH	SZZ-I0484-50CH	SZZ-I0484-50SC
		12.50		0.492	SZZ-M0125-50XH	SZZ-M0125-50CH	SZZ-M0125-50SC
		12.70	1/2"	0.500	SZZ-I0500-50XH	SZZ-I0500-50CH	SZZ-I0500-50SC
0	3.18 1/8"	13.00		0.512	SZO-M0130-50XH	SZO-M0130-50CH	SZO-M0130-50SC
		13.50		0.531	SZO-M0135-50XH	SZO-M0135-50CH	SZO-M0135-50SC
		14.00		0.551	SZO-M0140-50XH	SZO-M0140-50CH	SZO-M0140-50SC
		14.29	9/16"	0.563	SZO-I0562-50XH	SZO-I0562-50CH	SZO-I0562-50SC
		14.50		0.571	SZO-M0145-50XH	SZO-M0145-50CH	SZO-M0145-50SC
		15.00		0.591	SZO-M0150-50XH	SZO-M0150-50CH	SZO-M0150-50SC
0	3.18 1/8"	15.50		0.610	SZO-M0155-50XH	SZO-M0155-50CH	SZO-M0155-50SC
		15.88	5/8"	0.625	SZO-I0625-50XH	SZO-I0625-50CH	SZO-I0625-50SC
		16.00		0.630	SZO-M0160-50XH	SZO-M0160-50CH	SZO-M0160-50SC
		16.50		0.650	SZO-M0165-50XH	SZO-M0165-50CH	SZO-M0165-50SC
		17.00		0.669	SZO-M0170-50XH	SZO-M0170-50CH	SZO-M0170-50SC
		17.46	11/16"	0.687	SZO-I0687-50XH	SZO-I0687-50CH	SZO-I0687-50SC
		17.50		0.689	SZO-M0175-50XH	SZO-M0175-50CH	SZO-M0175-50SC

铲钻 Shovel drill

侧固式柄螺旋槽/直槽刀杆

Side fixed handle spiral groove / straight groove cutter bar



型号 Code No	接口 Connector	D1	L1	L2	L3	L	D2	L4	G1	G2		
SLSY0-ML016-19N	Y0	9.50~11.49 0.374"~0.452"	19	48	50	96	16	48	1/16"	1/8"	M2X4	T7X35
SLSY0-ML020-32N			32	61	64	111	20	50	1/8"			
SLHY0-ML020-60N			60	90	92	140	20	50	1/8"			
SLHY0-ML020-111N			111	141	143	191	20	50	1/8"			
SLSY0-ML020-222N			222	252	254	302	20	50	1/8"			
SLSY0-ML020-290N			290	320	322	370	20	50	1/8"			
SLSZ0-ML016-19N			Z0	11.50~12.97 0.453"~0.511"	19	48	50	96	16			
SLSZ0-ML020-32N	32	61			64	111	20	50	1/8"			
SLHZ0-ML020-60N	60	90			92	140	20	50	1/8"			
SLHZ0-ML020-111N	111	141			143	191	20	50	1/8"			
SLSZ0-ML020-222N	222	252			254	302	20	50	1/8"			
SLSZ0-ML020-290N	290	320			322	370	20	50	1/8"			
SLS00-ML020-22N	00	12.98~15.49 0.511"~0.61"	22	48	50	98	20	50	1/8"	1/8"	M2.5X5.8	T8X40
SLS00-ML020-35N			35	64	66	114						
SLH00-ML020-64N			64	92	95	142						
SLH00-ML020-114N			114	143	146	193						
SLH00-ML020-178N			178	206	209	256						
SLS00-ML020-295N			295	324	327	374						
SLS00-ML020-387N	387	416	419	466								
SLS05-ML020-22N	05	15.50~17.85 0.61"~0.703"	22	48	50	98	20	50	1/8"	1/8"	M2.5X7	T8X40
SLS05-ML020-35N			35	64	66	114						
SLH05-ML020-64N			64	92	95	142						
SLH05-ML020-114N			114	143	146	193						
SLH05-ML020-178N			178	206	209	256						
SLS05-ML020-295N			295	324	327	374						
SLS05-ML020-387N	387	416	419	466								

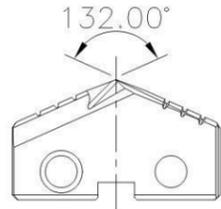
注: SLH-螺旋槽 SLS-直槽

铲钻 Shovel drill

硬质合金刀片

Carbide inseries

Carbide micro grain HPC

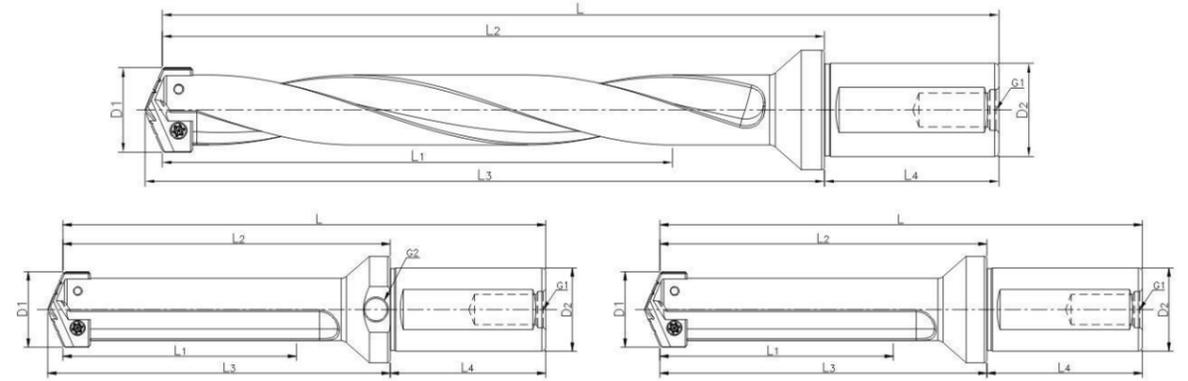


接口 Connector	厚度 Ckness (mm/inch)	直径 Diameter			应用 Application		
		mm	Frcationl Equivalent	inch	P	K	N
1	3.97 5/32"	18.00		0.709	SZ1-M0180-50XH	SZ1-M0180-50CH	SZ1-M0180-50SC
		18.50		0.728	SZ1-M0185-50XH	SZ1-M0185-50CH	SZ1-M0185-50SC
		19.00		0.748	SZ1-M0190-50XH	SZ1-M0190-50CH	SZ1-M0190-50SC
		19.05	3/4"	0.750	SZ1-I0750-50XH	SZ1-I0750-50CH	SZ1-I0750-50SC
		19.50		0.768	SZ1-M0195-50XH	SZ1-M0195-50CH	SZ1-M0195-50SC
		20.00		0.787	SZ1-M0200-50XH	SZ1-M0200-50CH	SZ1-M0200-50SC
		20.50		0.807	SZ1-M0205-50XH	SZ1-M0205-50CH	SZ1-M0205-50SC
		20.64	13/16"	0.813	SZ1-I0812-50XH	SZ1-I0812-50CH	SZ1-I0812-50SC
		21.00		0.827	SZ1-M0210-50XH	SZ1-M0210-50CH	SZ1-M0210-50SC
21.50		0.846	SZ1-M0215-50XH	SZ1-M0215-50CH	SZ1-M0215-50SC		
1	3.97 5/32"	22.00		0.866	SZ1-M0220-50XH	SZ1-M0220-50CH	SZ1-M0220-50SC
		22.23	7/8"	0.875	SZ1-I0875-50XH	SZ1-I0875-50CH	SZ1-I0875-50SC
		23.00		0.906	SZ1-M0230-50XH	SZ1-M0230-50CH	SZ1-M0230-50SC
		23.81	15/16"	0.937	SZ1-I0937-50XH	SZ1-I0937-50CH	SZ1-I0937-50SC
		24.00		0.945	SZ1-M0240-50XH	SZ1-M0240-50CH	SZ1-M0240-50SC
2	4.76 3/16"	25.00		0.984	SZ2-M0250-50XH	SZ2-M0250-50CH	SZ2-M0250-50SC
		25.40	1"	1.000	SZ2-I1000-50XH	SZ2-I1000-50CH	SZ2-I1000-50SC
		26.00		1.024	SZ2-M0260-50XH	SZ2-M0260-50CH	SZ2-M0260-50SC
		26.99	1-1/16"	1.063	SZ2-I1062-50XH	SZ2-I1062-50CH	SZ2-I1062-50SC
		27.00		1.063	SZ2-M0270-10XH	SZ2-M0270-10CH	SZ2-M0270-10SC
		28.00		1.102	SZ2-M0280-50XH	SZ2-M0280-50CH	SZ2-M0280-50SC
		28.58	1-1/8"	1.125	SZ2-I1125-50XH	SZ2-I1125-50CH	SZ2-I1125-50SC
		29.00		1.142	SZ2-M0290-50XH	SZ2-M0290-50CH	SZ2-M0290-50SC
2	4.76 3/16"	30.00		1.181	SZ2-M0300-50XH	SZ2-M0300-50CH	SZ2-M0300-50SC
		30.16	1-3/16"	1.187	SZ2-I1187-50XH	SZ2-I1187-50CH	SZ2-I1187-50SC
		31.00		1.220	SZ2-M0310-50XH	SZ2-M0310-50CH	SZ2-M0310-50SC
		31.75	1-1/4"	1.250	SZ2-I1250-50XH	SZ2-I1250-50CH	SZ2-I1250-50SC
		32.00		1.260	SZ2-M0320-50XH	SZ2-M0320-50CH	SZ2-M0320-50SC
		33.00		1.299	SZ2-M0330-50XH	SZ2-M0330-50CH	SZ2-M0330-50SC
		33.34	1-5/16"	1.313	SZ2-I1312-50XH	SZ2-I1312-50CH	SZ2-I1312-50SC
		34.00		1.339	SZ2-M0340-50XH	SZ2-M0340-50CH	SZ2-M0340-50SC
		34.13	1-11/32"	1.344	SZ2-I1343-50XH	SZ2-I1343-50CH	SZ2-I1343-50SC
		34.93	1-3/8"	1.375	SZ2-I1375-50XH	SZ2-I1375-50CH	SZ2-I1375-50SC
35.00		1.378	SZ2-M0350-50XH	SZ2-M0350-50CH	SZ2-M0350-50SC		

铲钻 Shovel drill

侧固式柄螺旋槽/直槽刀杆

Side fixed handle spiral groove / straight groove cutter bar



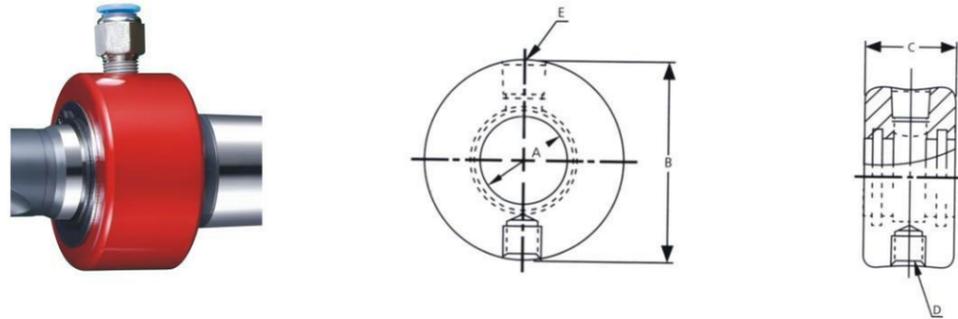
型号 Code No	接口 Connector	D1	L1	L2	L3	L	D2	L4	G1	G2										
SLS10-ML025-48N	10	17.86~21.99 0.703"~0.866"	48	76	79	132	25	56	1/8"	1/8"	M3X7	T9X40								
SLS10-ML025-67N			67	107	111	163														
SLH10-ML025-118N			118	155	158	211														
SLH10-ML025-168N			168	206	209	262														
SLH10-ML025-270N			270	307	311	363														
SLS10-ML025-457N			457	495	498	551														
SLS10-ML025-569N			569	603	606	659														
SLS15-ML025-48N			15	22.00~24.60 0.866"~0.969"	48	76							79	132	25	56	1/8"	1/8"	M3X7	T9X40
SLS15-ML025-67N					67	107							111	163						
SLH15-ML025-118N	118	155			158	211														
SLH15-ML025-168N	168	206			209	262														
SLH15-ML025-270N	270	307			311	363														
SLS15-ML025-457N	457	495			498	551														
SLS15-ML025-569N	569	603	606	659																
SLS20-ML032-57N	20	24.61~29.99 0.969"~1.181"	57	89	92	149	32	60	1/4"	1/8"	M4X10	T15X45								
SLS20-ML032-86N			86	129	132	189														
SLH20-ML032-137N			137	179	183	239														
SLH20-ML032-187N			187	230	234	290														
SLH20-ML032-289N			289	332	335	392														
SLS20-ML032-511N			511	554	558	618														
SLS20-ML032-492N	692	735	739	795																
SLS25-ML032-57N	25	30.00~35.50 1.181"~1.398"	57	89	92	149	32	60	1/4"	1/8"	M4X10	T15X45								
SLS25-ML032-86N			86	129	132	189														
SLH25-ML032-137N			137	179	183	239														
SLH25-ML032-187N			187	230	234	290														
SLH25-ML032-289N			289	332	335	392														
SLS25-ML032-511N			511	554	558	618														
SLS25-ML032-492N	692	735	739	795																

注: SLH-螺旋槽 SLS-直槽

配件 Accessories

供油环

Rotary Coolant Adapter



型号 Code No	内径(A) Inside diameter	外径(B) Outside diameter	厚度(C) Thickness	驱动杆螺纹(D) Driving rod thread	冷却嘴螺纹(E) Coding nozzle thread
SH-1905R	19.05	44.45	22.23	M8X1.25	1/8"
SH-2540R	25.40	53.97	28.57	M8X1.25	1/8"
SH-3175R	31.75	63.50	34.92	M10X1.5	1/4"
SH-4445R	44.45	76.20	34.92	M10X1.5	1/4"
SH-5715R	57.15	95.27	44.45	M12X1.75	1/2"

驱动杆

Drive rod



型号 Code No	螺纹 Thread	总长 Total length	匹配的供油环 Matched oil ring
SG-M8-250	M8X1.25	250	SH-1905R
SG-M8-250	M8X1.25	250	SH-2540R
SG-M10-250	M10X1.5	250	SH-3175R
SG-M10-250	M10X1.5	250	SH-4445R
SG-M12-250	M12X1.75	250	SH-5715R

注意事项 Precautions

应用要点、注意事项

Essentials of use and precautions

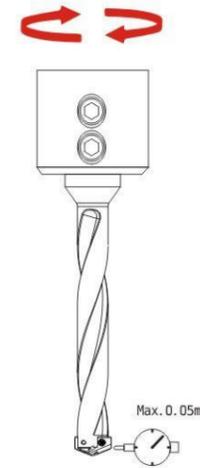
安装 Assembly

应用场合的稳定性对于获得最佳的刀具寿命与孔的精度是重要的。检查机床主轴、夹具与工件的装夹情况，确保最大的稳定性与刚性。不稳定的工况会引起钻头的折断。

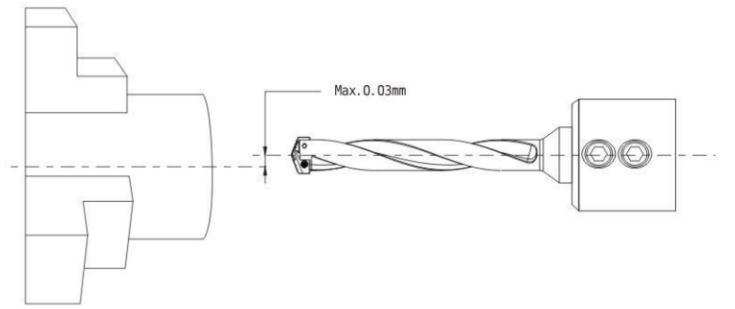
The stability of the applications is essential for optimal tool life and hole accuracy. Guarantee the maximum stability and rigidity by checking the holding of the machine tool spindle, fixtures and workpiece. Unstable operating conditions will cause fracture of drills bits.

最大跳动和同心度 Max.Runout and Misalignment

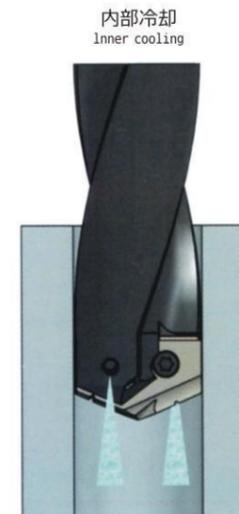
跳动
Runout



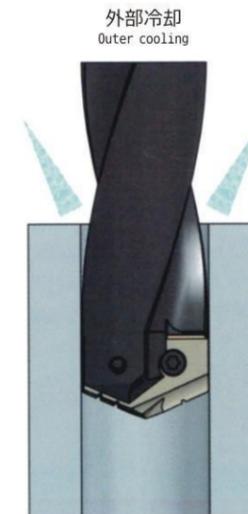
同心度
Misalignment



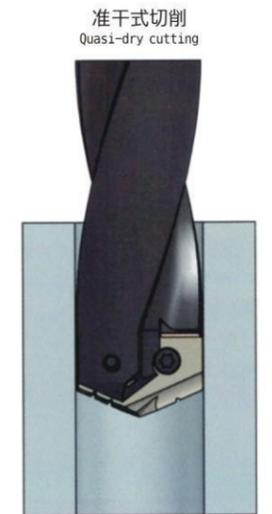
冷却压力 Cooling Pressure



5-6D:5bar ✓
7-8D:10bar ✓
8-12D:15bar ✓
11-14D:20bar ✓



3-4D:5bar ✓
7-8D:10bar ✗
8-12D:15bar ✗
11-14D:20bar ✗



3-4D: MQL ✓
(仅硬质合金/Only carbide)

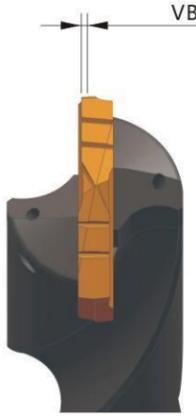
注意事项 Precautions

应用要点、注意事项

Essentials of use and precautions

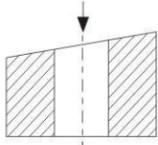
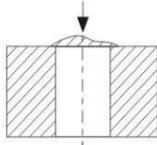
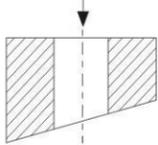
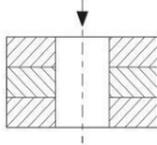
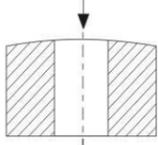
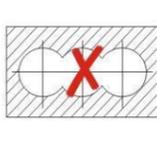
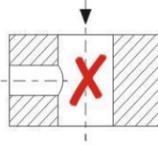
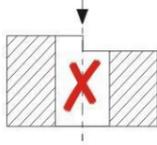
钻头更换判断标准 Standard for drill bit replacement

磨损极限 Wear limit



硬质合金刀片: $VB=0.3\text{mm}$
Carbide insert:
粉末高速钢刀片: $VB=0.4\text{mm}$
HSS-PM insert:

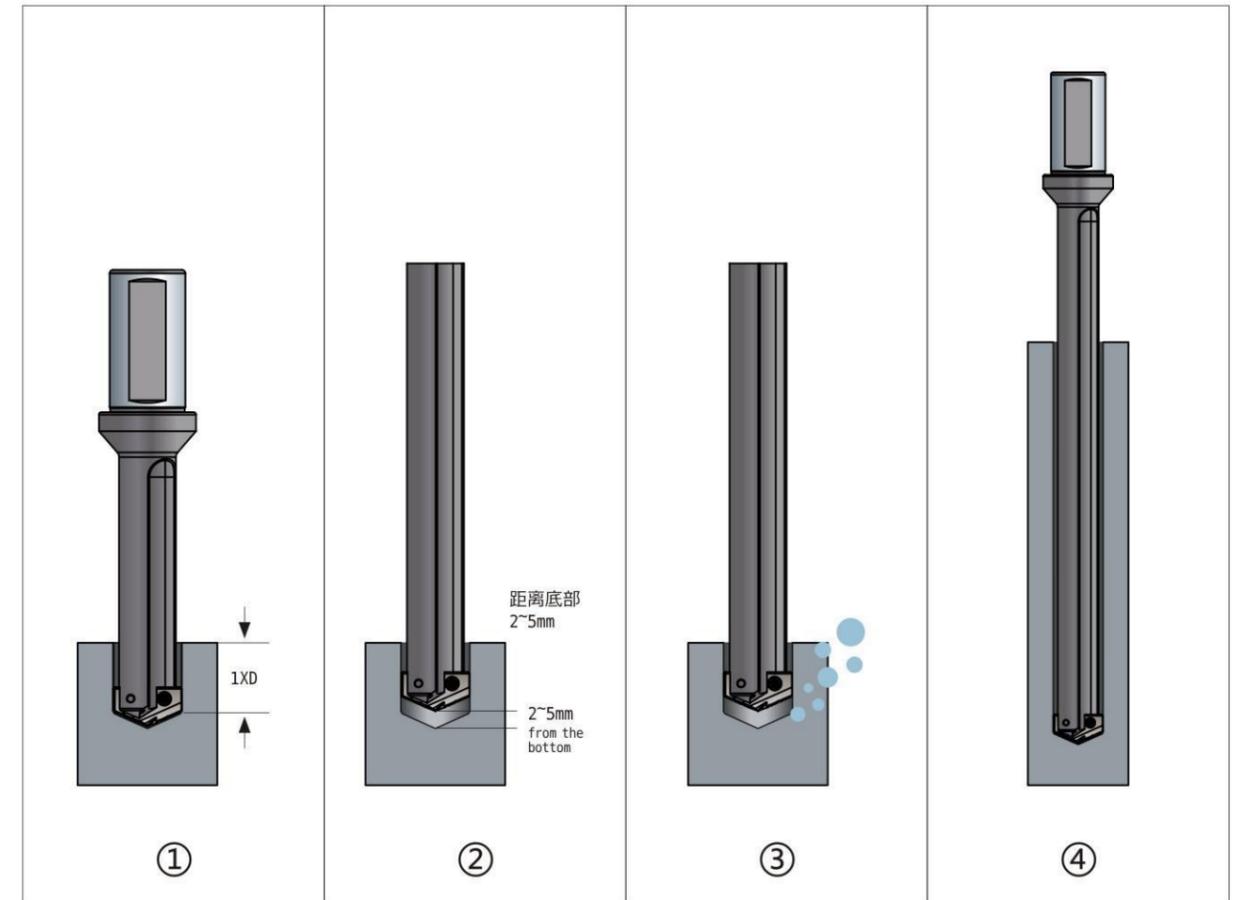
应用 Application

工况 Operating Condition	说明 Instructions	工况 Operating Condition	说明 Instructions
	起始面为斜面 The entry surface is slanted 斜面进给率 Slope Feed Rate $<3^\circ$ 50%		工件表面不平整 The entry surface is welded 加工前先忽平 Level it through spot facing before machining
	出孔为斜面 The outlet is slanted 斜面进给率 Slope Feed Rate $<3^\circ$ 50%		钻叠层板 Stacked plates 原则上可以 Allowed in principle 需要良好的工件压紧 The workpiece shall be properly clamped 板之间不能有间隙 There must be no gaps between the plates
	起始面为弧面 The entry surface is arc 在中心处钻孔并降低进给是可以的 Drilling at the center at reduced feed rates is allowed 如起始点不在弧面中心需要将面惚平 Spot facing is required if the entry point is not at the center of the arc		钻型腔 Cavities 不可以 Not allowed
	钻贯穿孔 Through hole 不可以 Not allowed		起始面有台阶 Step on the entry surface 不可以 (钻尖起始点必须为平面) Not allowed (the entry point must be on a horizontal plane)

注意事项 Precautions

长径系列钻削工艺

Long diameter series drilling process



①短钻头钻引导孔至 $1D \sim 1.5D$

Drill a pilot hole to $1D$ to $1.5D$ with a short drill bit

②低转速和低进给进入引导孔

Enter the pilot hole at a low speed and low feed rate

③让冷却液停留2~3秒

Keep the coolant for 2 to 3s

④按推荐的参数连续加工出口时降低速度和进给

Carry out continuous speed drilling according to the recommended parameters. Reduce the speed and feed rate at the outlet

切削参数 Cutting parameters

硬质合金刀片系列 Carbide blade series					布氏硬度 HB	强度 N/mm ²		
ISO	被加工材料 Material			条件 Heatreatment				
P	易切屑钢 Non-alloy steel	Y13	1215	1.0736	<0.25%C	退火 Annealed	100-150	370-500
		Y15	1213	1.0715	≥0.25%C	退火 Annealed	175-225	600-775
		45	1045	1.0503	<0.55%C	退火和调质 Quenched and tempered	225-275	775-940
			Q345B	1140	1.7026	≥0.55%C	退火 Annealed	275-325
	低合金钢 Low alloy steel	40Cr	5140	1.7035		退火和调质 Quenched and tempered	300	1000
		42CrMo	4140	1.7225		退火 Annealed	175-225	600-775
						退火 Annealed	225-275	775-940
						退火 Annealed	275-325	940-1090
						调质 Tempered	325-375	1090-1265
						退火 Annealed	225-300	600-1020
高合金钢, 工具钢, 铸钢, 锰钢 High alloy steel, tool steel, Cast steel	Cr12, D3, 1.2080; 4Cr5MoSiV, H13, 1.2344				调质 Tempered	300-350	1020-1180	
	铁素体/马氏体不锈钢 Stainless steel Ferritic/martensitic			0Cr13 403 1.400 2Cr13 410 1.4021		铁素体 Ferritic	185-275	640-940
M	奥氏体不锈钢 Stainless steel Austenitic			0Cr18Ni9 304 1.4301 0Cr17Ni11Mo2 316 1.4401		退火/淬硬 Annealed/Harden	135-185	480-640
	超级双相不锈钢 Super Duplex Stainless Steel					铸造+未处理 Cast+Unhandled	185-275	640-940
					N<0.1%	>60%铁素体 Ferritic	135-185	480-640
K	灰口铸铁 Grey cast iron			HT200 NO.30 GG20 HT250 NO.35 GG25		铁素体 Ferritic	120-150	430-500
	球墨铸铁 Cast iron nodular			QT400-18 60-40-18 GGG40 QT600-3 80-60-03 GGG60		珠光体 Pearlitic	150-200	500-700
	可锻铸铁 Malleable cast iron					铁素体 Ferritic	200-220	700-755
						珠光体 Pearlitic	220-260	755-890
N	锻铝 Wrought Alumi					铁素体 Ferritic	120-150	430-500
	铸铝 Cast Aluminium					珠光体 Pearlitic	260-320	890-1020
				≤12% Si	未固化 Not cureable	30	100	
				≥12% Si	固化 Cured	180	600	
				>1% Pb	未固化 Not cureable	30	100	
					固化 Cured	180	600	
S	铜合金 Copper Alloys					高温处理 High temperature	-	-
	非铁金属 Non metallic					易切 Free cutting	100-200	370-670
						黄铜 Brass	200-250	670-855
						电解铜 Electrolytic copper	100	370
H	铁基 Fe base					塑料科纤维 Duroplastics fiber plastics	-	-
	高温合金 High Temp. Alloy Hastelloy B, Inconel 600,					硬橡胶 Hard rubber	60	200
						退火 Annealed	140-220	480-755
						固化 Cured	223-310	755-990
						退火 Annealed	250	-
H	钛合金 Titanium Alloy					铸造 Cast	320	-
	哈氏耐磨护板 Wear PlateHardox, AR400, T-1,					退火 Annealed	320	Rm 400
	淬硬钢 Hardened Steel					α+β合金固化 α+β alloys Cured	-	Rm 1050
						淬硬 Harden	400	1365
					淬硬 Harden	500	1600	
					淬硬 Harden	300-400	1020-1365	
					淬硬 Harden	400-500	1365+	

注意: 上述推荐的切削参数以3-4D系列为准。当使用5-6D、7-8D、8-12D、12-14D、14-22D等系列时, 根据工况适当降低参数。
参数: 3-4D系列=100%; 5-6D、7-8D系列=80%以下; ≥8-12D系列=70%以下。

切削参数 Cutting parameters

切削速度 Vc(m/min)			进给量 (f _n)mm/r											
			Φ9.5-12.5mm			Φ13.0-17.5mm			Φ18.0-24.0mm			Φ25.0-35.0mm		
最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.
75	94	117	0.09	0.12	0.17	0.13	0.17	0.23	0.17	0.22	0.31	0.21	0.28	0.39
55	69	86	0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
49	61	76	0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
41	51	64	0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
41	51	64	0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29
54	67	84	0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
49	61	76	0.07	0.09	0.12	0.09	0.12	0.17	0.13	0.17	0.23	0.19	0.25	0.34
45	56	70	0.05	0.07	0.10	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29
40	50	62	0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29
40	50	62	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23
30	38	47	0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23
37	46	58	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.13	0.17	0.23
29	36	45	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19	0.10	0.14	0.19
37	46	58	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
29	36	45	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
19	24	30	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
15	19	24	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
78	98	122	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
75	94	117	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43
67	84	105	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39
58	72	90	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
75	94	117	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
52	66	82	0.05	0.07	0.10	0.08	0.10	0.14	0.09	0.12	0.17	0.12	0.16	0.22
105	150	195	0.05	0.07	0.10	0.08	0.10	0.14	0.13	0.17	0.23	0.16	0.21	0.29
91	130	169	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
105	150	195	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47
91	130	169	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
91	130	169	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
105	150	195	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43
105	150	195	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
105	150	195	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
105	150	195	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
105	150	195	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
19	24	30	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
15	18	23	0.04	0.06	0.08	0.08	0.10	0.10	0.09	0.12	0.17	0.10	0.14	0.19
19	24	30	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
15	18	23	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
15	18	23	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
22	27	34	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
17	21	26	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
23	29	36	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22
19	24	30	0.02	0.03	0.04	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19
24	30	38	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22
19	24	30	0.02	0.03	0.04	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19

Nm1e: The above recomended cutting parameters are baeced on the 3-4D series. When using series 5-6D/7-8D/8-12D/12-14D/14-22D etc, the parameters should be appropriately reduced according to the working condition.
Parameter: 3-4D series=100%, 5-6D/7-8D series=below 80%, ≥8-12D series=below 70%.

切削参数 Cutting parameters

粉末高速钢系列 Powder high speed steel series					布氏硬度 HB	强度 N/mm ²	切削速度 Vc(m/min)				
ISO	被加工材料 Material			条件 Heatreatment			最小 Min.	推荐 Recommended	最大 Max.		
P	易切屑钢 Non-alloy steel	Y13	1215	1.0736	<0.25% 退火 Annealed	100-150	370-500	23	54	70	
		Y15	1213	1.0715	≥0.25% 退火 Annealed	175-225	600-775	35	50	64	
	碳钢、结构钢 Low carbon steel	45	1045	1.0503	<0.55% 退火和调质 Quenched and tempered	225-275	775-940	32	45	59	
		Q345B	1140	1.7026	≥0.55% 退火 Annealed	275-325	940-1090	25	36	47	
	低合金钢 Low alloy steel				退火和调质 Quenched and tempered	300	1000	22	32	41	
		40Cr	5140	1.7035	退火 Annealed	175-225	600-775	33	47	62	
		42CrMo	4140	1.7225	退火 Annealed	225-275	775-940	32	45	59	
					调质 Tempered	275-325	940-1090	28	41	53	
	高合金钢, 工具钢, 铸钢, 锰钢 High alloy steel, tool steel, Cast steel Cr12, D3, 1.2080; 4Cr5MoSiV, H13, 1.2344					退火 Annealed	225-300	600-1020	22	32	41
	铁素体/马氏体不锈钢 Ferritic/martensitic					调质 Tempered	300-350	1020-1180	19	27	35
			0Cr13 403 1.400	铁素体 Ferritic	185-275	640-940	16	23	29		
			2Cr13 410 1.4021	马氏体 Martensitic	275-350	940-1180	19	27	35		
M	奥氏体不锈钢 Stainless steel Austenitic			0Cr18Ni9 304 1.4301	退火/淬硬 Annealed/Harden	135-185	480-640	18	25	32	
				0Cr17Ni11Mo2 316 1.4401	铸造+未处理 Cast+Unhandled	185-275	640-940	18	25	32	
	超级双相不锈钢 Super Duplex Stainless Steel			N<0.1%	>60%铁素体 Ferritic	135-185	480-640	19	27	35	
					N≥0.1%	<60%铁素体 Ferritic	185-275	640-940	16	23	29
K	灰口铸铁 Grey cast iron			HT200 NO.30 GG20	铁素体 Ferritic	120-150	430-500	38	54	70	
				HT250 NO.35 GG25	珠光体 Pearlitic	150-200	500-700	35	50	64	
	球墨铸铁 Cast iron nodular			QT400-18 60-40-18 GGG40	铁素体 Ferritic	200-220	700-755	32	45	59	
				QT600-3 80-60-03 GGG60	珠光体 Pearlitic	220-260	755-890	32	45	59	
	可锻铸铁 Malleable cast iron					铁素体 Ferritic	120-150	430-500	32	45	59
					珠光体 Pearlitic	260-320	890-1020	32	45	59	
N	锻铝 Wrought Alumi					未固化 Not cureable	30	100	47	68	88
						固化 Cured	180	600	41	59	76
	铸铝 Cast Aluminium			≤12% Si	未固化 Not cureable	30	100	47	68	88	
				≥12% Si	固化 Cured	180	600	41	59	76	
				>12% Si	高温处理 High temperature	-	-	41	59	76	
	铜合金 Copper Alloys			>1% Pb	易切 Free cutting	100-200	370-670	47	68	88	
				>1% Pb	黄铜 Brass	200-250	670-855	47	68	88	
					电解铜 Electrolytic copper	100	370	47	68	88	
非铁金属 Non metallic					塑料科纤维 Duroplastics fiber plastics	-	-	47	68	88	
					硬橡胶 Hard rubber	60	200	47	68	88	
S	铁基 Fe base					退火 Annealed	140-220	480-755	14	20	27
	高温合金 High Temp. Alloy Hastelloy B, Inconel 600,					固化 Cured	223-310	755-990	11	16	21
						退火 Annealed	250	-	11	16	21
						固化 Cured	350	-	11	16	21
						铸造 Cast	320	-	11	16	21
钛合金 Titanium Alloy					-	320	Rm 400	11	16	21	
					α+β 合金固化 α+β alloys Cured	-	Rm 1050	11	16	21	
H	哈氏耐磨护板 Wear PlateHardox, AR400, T-1,					淬硬 Harden	400	1365	7	10	13
						淬硬 Harden	500	1600	-	-	-
	淬火钢 Hardened Steel					淬硬 Harden	300-400	1020-1365	9	13	16
						淬硬 Harden	400-500	1365+	-	-	-

注意: 上述推荐的切削参数以3-4D系列为准。当使用5-6D、7-8D、8-12D、12-14D、14-22D等系列时, 根据工况适当降低参数。
参数: 3-4D系列=100%; 5-6D、7-8D系列=80%以下; ≥8-12D系列=70%以下。

切削参数 Cutting parameters

进给量 (f _n)/mm/r																				
Φ9.5-12.5mm			Φ13.0-17.5mm			Φ18.0-24.0mm			Φ25.0-35.0mm			Φ36.0-47.0mm			Φ48.0-65.0mm			Φ66.0-114.0mm		
最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.	最小 Min.	推荐 Recommended	最大 Max.			
0.09	0.12	0.17	0.13	0.17	0.23	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47	0.29	0.39	0.54			
0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.23	0.31	0.43	0.27	0.36	0.50			
0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.23	0.31	0.43	0.27	0.36	0.50			
0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.25	0.33	0.45			
0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.30	0.41			
0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.30	0.41	0.25	0.33	0.45			
0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.30	0.41	0.25	0.33	0.45			
0.05	0.07	0.10	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.30	0.41			
0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.30	0.41			
0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.30	0.41			
0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.30	0.41			
0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.21	0.28	0.39			
0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19	0.10	0.14	0.19	0.16	0.21	0.29	0.19	0.25	0.34			
0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.21	0.28	0.39			
0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.16	0.21	0.29	0.19	0.25	0.34			
0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.16	0.21	0.29	0.19	0.25	0.34			
0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.35	0.47	0.65			
0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59			
0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.23	0.31	0.43	0.27	0.36	0.50			
0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.22	0.30	0.41			
0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.35	0.47	0.65			
0.05	0.07	0.10	0.08	0.10	0.14	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34			
0.05	0.07	0.10	0.08	0.10	0.14	0.13	0.17	0.23	0.16	0.21	0.29	0.29	0.38	0.53	0.32	0.43	0.59			
0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59			
0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59			
0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59			
0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43	0.29	0.38	0.53	0.34	0.45	0.62			
0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.22	0.30	0.41			
0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.35	0.47	0.65			
0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59			
0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59			
0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	0.19	0.26	0.35			
0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29			
0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29			
0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29			
0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	0.19	0.26	0.35			
0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29			
0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29			
0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

Nm1e: The above recomended cutting parameters are baeced on the 3-4D seres. When using series 5-6D/7-8D/8-12D/12-14D/14-22D etc, the parameters should be appropriately reduced according to the working condition.
Parameter: 3-4D series=100%, 5-6D/7-8D series=below 80%, ≥8-12D series=below 70%.

铲钻刀杆非标定制卡

Special holder custom made

询问 Inquiry 订购 Order

公司 Company _____ 客户编号 Customer number _____

联系人 Contact Person _____ 电话 TeL _____

手机 M.B _____ 传真 FaX _____

地址 Add _____ 电子邮件 E-Mail _____

订货号 Order number _____ 购买数量 Order Quantity _____

交货期 Delivery _____

加工条件和刀具信息

孔 HOLE

- 通孔 THROUGH HOLE 盲孔 BLIND HOLE
- 要求孔径: _____ mm 钻孔深度: _____ mm
- APERTURE DEPTH

加工方法 PROCESSING METHODS

- 湿式 WET 干式 DRY

冷却方式 COOLING

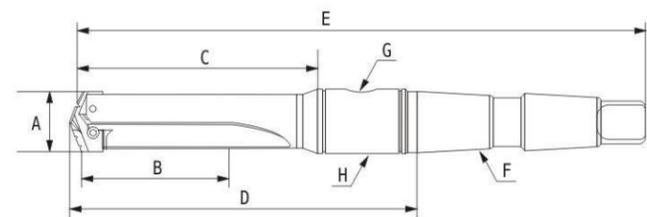
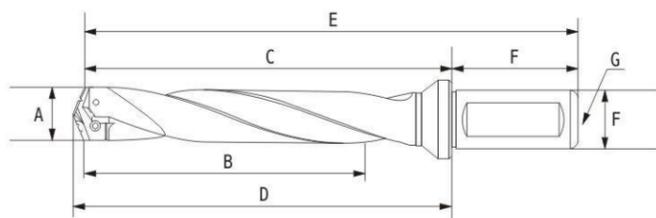
- 外冷 EXTERNAL COOLING 内冷 COOLED

硬度 HARDNESS (HRC, HB) _____ 抗拉强度 TENSILE STRENGTH (N/mm²) _____

使用机床 MACHINE _____

沟槽形式 FUTEMODALITY:

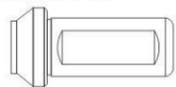
- 直槽 STRAIGHT 螺旋槽 HELICAL



A: _____ B: _____ C: _____ D: _____ E: _____ F: _____ G: _____ H: _____

柄部型式 SHANK TYPE

- 侧固式法兰柄 FLANGED SHANK



- 侧固式直柄 LATHE SHANK



- 莫氏锥柄 MORSE TAPER



提示:如未陈述以上内容,我们将米用CHTOOLS标准。

TIP:IF NOT STATED ABOVE,AND WE WILL USE THE STANDARD CHTOOLS

签名 SIGATURE: _____

日期 DATE: _____

铲钻刀杆非标定制卡

Special holder custom made

询问 Inquiry 订购 Order

公司 Company _____ 客户编号 Customer number _____

联系人 Contact Person _____ 电话 TeL _____

手机 M.B _____ 传真 FaX _____

地址 Add _____ 电子邮件 E-Mail _____

订货号 Order number _____ 购买数量 Order Quantity _____

交货期 Delivery _____

加工条件和刀具信息

孔 HOLE

- 通孔 THROUGH HOLE 盲孔 BLIND HOLE
- 要求孔径: _____ mm 钻孔深度: _____ mm
- APERTURE DEPTH

加工方法 PROCESSING METHODS

- 湿式 WET 干式 DRY

冷却方式 COOLING

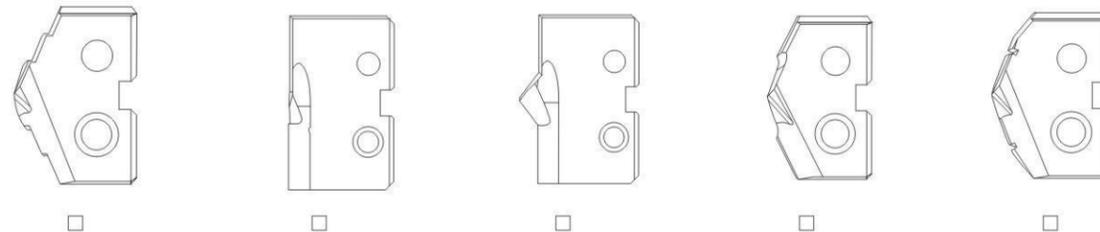
- 外冷 EXTERNAL COOLING 内冷 COOLED

硬度 HARDNESS (HRC, HB) _____ 抗拉强度 TENSILE STRENGTH (N/mm²) _____

使用机床 MACHINE _____

刀片涂层 BLADE COATINE:TiCN , TiN , TiAlN , 无 , _____

刀片类型 INSERT TYPE



其他类型(客户自定义) OTHER TYPE (CUSTOMIZABLE)

提示:如未陈述以上内容,我们将米用CHTOOLS标准。

TIP:IF NOT STATED ABOVE,AND WE WILL USE THE STANDARD CHTOOLS

签名 SIGATURE: _____

日期 DATE: _____

可换钻尖钻头 Adjustable point drill bit

可换式钻头的特征和优势

Characteristics and advantages of interchangeable bit

介绍 Introduction

- ADJ可换钻尖式钻头，是川山甲新推出的一款高性能、可变速钻头系统，简称ADJ钻头。该钻头刀片与钻杆灵活搭配，满足不同的直径和深度需求。一杆多用，精度可控，大大减少刀具的投入和库存。
 - 刀具直径范围 $\Phi 10.00 \sim \Phi 30.99\text{mm}$ ，钻孔深度分为3D/5D/7D/10D/12D；刀片材质有硬质合金和高性能粉末高速钢两种，按照被加工的材料不同设计有4种钻尖：通用钻尖、不锈钢用钻尖、铸铁用钻尖、有色金属用钻尖。
 - 最佳的材料、顶级的涂层工艺和精密磨削配合，实现性能的最佳效果。
- ADJ replaceable point bit is a high-performance, variable diameter bit system newly launched by Chuanshanjia, referred to as ADJ bit. The bit blade fits flexibly with the drill pipe to meet different diameters and depths. Multi-purpose, controllable precision, greatly reduce the input and inventory of cutting tools.
- Tool diameter range of $\Phi 10.00 \sim \Phi 30.99\text{mm}$, drilling depth is divided into 3D/5D/7D/10D/12D; The blade material has two kinds of hard alloy and high performance powder high speed steel, according to the different design of processing materials have 4 kinds of drill tip: universal drill tip, stainless steel drill tip, cast iron drill tip, non-ferrous metal drill tip.
- Best materials, top coating technology and precision grinding to achieve the best performance.

优势 Advantages

- 稳定和方便操作的可换钻尖结构，可以在线操作。
 - 锁紧螺丝和V型组合定位，把钻尖和钻杆保持受力一致，稳定可靠。
 - 高强度的钻尖结构，大进给钻削也同样可靠。
 - 硬质合金和高性能粉末高速钢材质钻尖，可满足高性能CNC钻削和普通机床钻削。
- Stable and easy to operate replaceable drill tip structure that can be operated online.
- Lock screw and V-type combination positioning, the drill tip and drill pipe keep the same force, stable and reliable.
- High strength drill tip structure, large feed drilling is also reliable.
- Carbide and high performance powder high speed steel drill point can meet high performance CNC drilling and ordinary machine drilling.

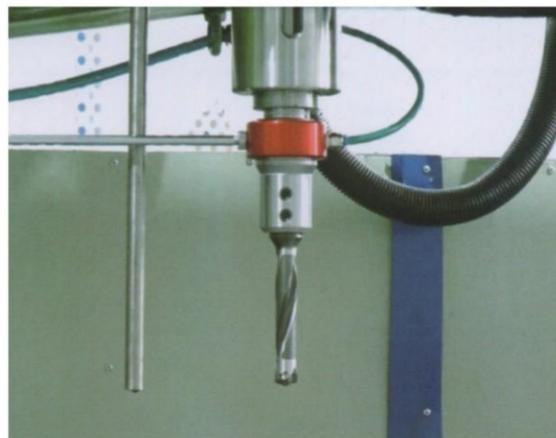
应用领域 Application field



硬质合金刀片

——刀片硬度高，耐磨性好，应用于数控钻床、数控车床、加工中心的高速钻削

Given their high hardness and wear resistance, the inserts are used for high speed drilling on CNC drills, CNC lathes and machining centers.



粉末高速钢刀片

——刀片抗崩刃性更好应用于各类摇臂钻床、立式钻床、普通车床、数控机床的中低速钻削

With high chipping resistance, the inserts are used for low-to-medium speed drilling on various radial drilling machines, vertical drilling machines, common lathes and CNC machine tools.



U 钻

铲 钻

可换钻尖钻头

组合钻

带定心U 钻

VMD 大钻头

模块系统

可换钻尖钻头 Adjustable point drill bit

型号编码规则

Model coding rule

ADJ钻头刀片 ADJ bit blade

ADJ60-PA1050

大类 Big type	材质 Insert Material	钻尖类型 Drill point	刀片直径 Insert Diameter
ADJ系列可换钻尖式钻头	60-硬质合金 30-粉末高速钢	PA-通用钻尖 MA-不锈钢用钻尖 KA-铸铁用钻尖 NA-有色金属用钻尖	1050-10.5mm

Carbide micro grain HPC

硬质合金刀片 Carbide inseries	ISO				
	P	M	K	N	S
PA	•	○	○		
MA	○	•			○
KA			•		
NA				•	

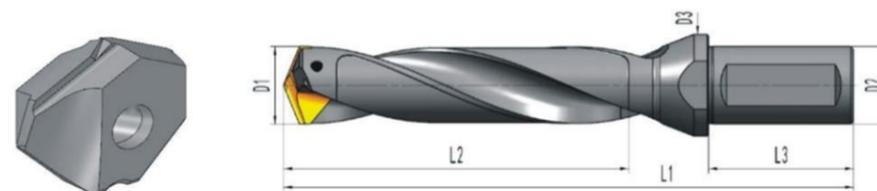
ADJ钻头刀杆 ADJ drill shank

ADJ1050/1099-3D-L16

大类 Big type	直径 The diameter of	最大加工孔深 Maximum machining hole depth	刀柄直径 The handle diameter
ADJ系列可换钻尖式钻头	1050/1099表示 最小安装刀片Φ10.50mm, 最大安装刀片Φ10.99mm	3D-3XD1 5D-5XD1 7D-7XD1 10D-10XD1 12D-12XD1	L16-16mm L20-20mm L25-25mm L32-32mm L40-40mm

ISO 9796 3D 5D 7D 10D 12D

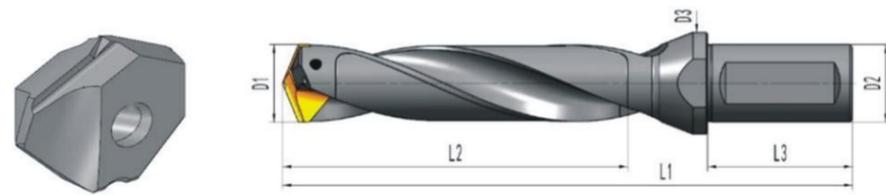
可换钻尖钻头 Adjustable point drill bit



ISO 9796 3D 5D 7D 10D 12D

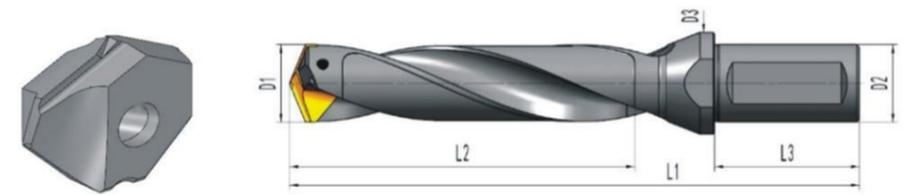
刀片型号 The blade model	标准库存直径 Standard stock diameter	刀杆型号 Tool rod type	刀片直径范围 Blade diameter range (D1)	倍径 Times the diameter	尺寸 Size					螺钉 Clamp screw	扳手 Wrench
					L1	L2	L3	D2	D3		
ADJ60-PA1000	10.0	ADJ1000/1049-3D-L16	10.00-10.49	3D	101	37	48	16	24	M2.0*10	6IP
				5D	131	67	48	16	24		
				7D	141	77	48	16	24		
				10D	171	107	48	16	24		
ADJ60-PA1050	10.5	ADJ1050/1099-3D-L16	10.00-10.99	3D	101	37	48	16	24		
				5D	131	67	48	16	24		
				7D	141	77	48	16	24		
				10D	171	107	48	16	24		
ADJ60-PA1100	11.0	ADJ1100/1149-3D-L16	11.00-11.49	3D	104	40	48	16	24		
				5D	137	73	48	16	24		
				7D	148	84	48	16	24		
				10D	181	117	48	16	24		
ADJ60-PA1150	11.5	ADJ1150/1199-3D-L16	11.00-11.99	3D	104	40	48	16	24		
				5D	137	73	48	16	24		
				7D	148	84	48	16	24		
				10D	181	117	48	16	24		
ADJ60-PA1200	12.0	ADJ1200/1249-3D-L16	12.00-12.49	3D	108	43	48	16	24		
				5D	144	79	48	16	24		
				7D	156	91	48	16	24		
				10D	192	127	48	16	24		
ADJ60-PA1250	12.5	ADJ1250/1299-3D-L16	12.00-12.99	3D	108	43	48	16	24		
				5D	144	79	48	16	24		
				7D	156	91	48	16	24		
				10D	192	127	48	16	24		
ADJ60-PA1300	13.0	ADJ1300/1349-3D-L16	13.00-13.49	3D	111	46	48	16	24		
				5D	150	85	48	16	24		
				7D	163	98	48	16	24		
				10D	202	137	48	16	24		
ADJ60-PA1350	13.5	ADJ1350/1399-3D-L16	13.00-13.99	3D	111	46	48	16	24		
				5D	150	85	48	16	24		
				7D	163	98	48	16	24		
				10D	202	137	48	16	24		

可换钻尖钻头 Adjustable point drill bit



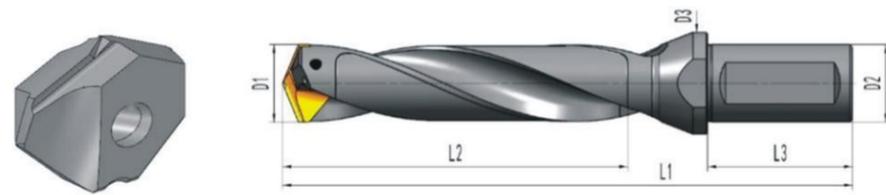
刀片型号 The blade model	标准库存直径 Standard stock diameter	刀杆型号 Tool rod type	刀片直径范围 Blade diameter range (D1)	倍径 Times the diameter	尺寸 Size					螺钉 Clamp screw	扳手 Wrench
					L1	L2	L3	D2	D3		
ADJ60-PA1400	14.0	ADJ1400/1449-3D-L20	14.00-14.49	3D	120	49	50	20	28	M3.0*14	
		ADJ1400/1449-5D-L20		5D	162	91	50	20	28		
		ADJ1400/1449-7D-L20		7D	176	105	50	20	28		
		ADJ1400/1449-10D-L20		10D	218	147	50	20	28		
		ADJ1400/1449-12D-L20		12D	246	175	50	20	28		
ADJ60-PA1450	14.5	ADJ1450/1499-3D-L20	14.00-14.99	3D	120	49	50	20	28	M3.0*14	
		ADJ1450/1499-5D-L20		5D	162	91	50	20	28		
		ADJ1450/1499-7D-L20		7D	176	105	50	20	28		
		ADJ1450/1499-10D-L20		10D	218	147	50	20	28		
		ADJ1450/1499-12D-L20		12D	246	175	50	20	28		
ADJ60-PA1500	15.0	ADJ1500/1549-3D-L20	15.00-15.49	3D	123	52	50	20	28	M3.0*14	
		ADJ1500/1549-5D-L20		5D	168	97	50	20	28		
		ADJ1500/1549-7D-L20		7D	183	112	50	20	28		
		ADJ1500/1549-10D-L20		10D	228	157	50	20	28		
		ADJ1500/1549-12D-L20		12D	258	187	50	20	28		
ADJ60-PA1550	15.5	ADJ1550/1599-3D-L20	15.00-15.99	3D	123	52	50	20	28	M3.0*14	
		ADJ1550/1599-5D-L20		5D	168	97	50	20	28		
		ADJ1550/1599-7D-L20		7D	183	112	50	20	28		
		ADJ1550/1599-10D-L20		10D	228	157	50	20	28		
		ADJ1550/1599-12D-L20		12D	258	187	50	20	28		
ADJ60-PA1600	16.0	ADJ1600/1649-3D-L20	16.00-16.49	3D	127	56	50	20	28	8IP	
		ADJ1600/1649-5D-L20		5D	175	104	50	20	28		
		ADJ1600/1649-7D-L20		7D	191	120	50	20	28		
		ADJ1600/1649-10D-L20		10D	239	168	50	20	28		
		ADJ1600/1649-12D-L20		12D	271	200	50	20	28		
ADJ60-PA1650	16.5	ADJ1650/1699-3D-L20	16.00-16.99	3D	127	56	50	20	28	M3.0*16	
		ADJ1650/1699-5D-L20		5D	175	104	50	20	28		
		ADJ1650/1699-7D-L20		7D	191	120	50	20	28		
		ADJ1650/1699-10D-L20		10D	239	168	50	20	28		
		ADJ1650/1699-12D-L20		12D	271	200	50	20	28		
ADJ60-PA1700	17.0	ADJ1700/1749-3D-L20	17.00-17.49	3D	131	60	50	20	28	M3.0*16	
		ADJ1700/1749-5D-L20		5D	182	111	50	20	28		
		ADJ1700/1749-7D-L20		7D	199	128	50	20	28		
		ADJ1700/1749-10D-L20		10D	250	179	50	20	28		
		ADJ1700/1749-12D-L20		12D	284	213	50	20	28		
ADJ60-PA1750	17.5	ADJ1750/1799-3D-L20	17.00-17.99	3D	131	60	50	20	28	M3.0*16	
		ADJ1750/1799-5D-L20		5D	182	111	50	20	28		
		ADJ1750/1799-7D-L20		7D	199	128	50	20	28		
		ADJ1750/1799-10D-L20		10D	250	179	50	20	28		
		ADJ1750/1799-12D-L20		12D	284	213	50	20	28		

可换钻尖钻头 Adjustable point drill bit



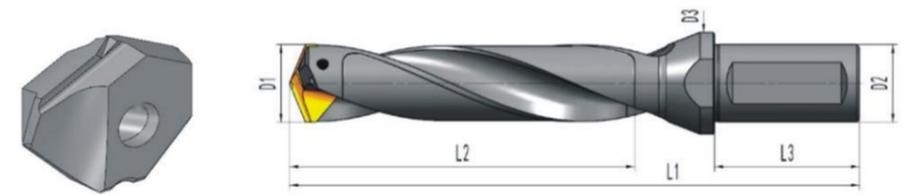
刀片型号 The blade model	标准库存直径 Standard stock diameter	刀杆型号 Tool rod type	刀片直径范围 Blade diameter range (D1)	倍径 Times the diameter	尺寸 Size					螺钉 Clamp screw	扳手 Wrench
					L1	L2	L3	D2	D3		
ADJ60-PA1800	18.0	ADJ1800/1849-3D-L20	18.00-18.49	3D	136	63	50	20	28	M4.0*18	
		ADJ1800/1849-5D-L20		5D	190	117	50	20	28		
		ADJ1800/1849-7D-L20		7D	208	135	50	20	28		
		ADJ1800/1849-10D-L20		10D	262	189	50	20	28		
		ADJ1800/1849-12D-L20		12D	298	225	50	20	28		
ADJ60-PA1850	18.5	ADJ1850/1899-3D-L20	18.00-18.99	3D	136	63	50	20	28	M4.0*18	
		ADJ1850/1899-5D-L20		5D	190	117	50	20	28		
		ADJ1850/1899-7D-L20		7D	208	135	50	20	28		
		ADJ1850/1899-10D-L20		10D	262	189	50	20	28		
		ADJ1850/1899-12D-L20		12D	298	225	50	20	28		
ADJ60-PA1900	19.0	ADJ1900/1949-3D-L20	19.00-19.49	3D	140	67	50	20	28	M4.0*18	
		ADJ1900/1949-5D-L20		5D	197	124	50	20	28		
		ADJ1900/1949-7D-L20		7D	216	143	50	20	28		
		ADJ1900/1949-10D-L20		10D	273	200	50	20	28		
		ADJ1900/1949-12D-L20		12D	311	238	50	20	28		
ADJ60-PA1950	19.5	ADJ1950/1999-3D-L20	19.00-19.99	3D	140	67	50	20	28	M4.0*18	
		ADJ1950/1999-5D-L20		5D	197	124	50	20	28		
		ADJ1950/1999-7D-L20		7D	216	143	50	20	28		
		ADJ1950/1999-10D-L20		10D	273	200	50	20	28		
		ADJ1950/1999-12D-L20		12D	311	238	50	20	28		
ADJ60-PA2000	20.0	ADJ2000/2099-3D-L25	20.00-20.49	3D	154	72	56	25	35	15IP	
		ADJ2000/2099-5D-L25		5D	214	132	56	25	35		
		ADJ2000/2099-7D-L25		7D	234	152	56	25	35		
		ADJ2000/2099-10D-L25		10D	294	212	56	25	35		
		ADJ2000/2099-12D-L25		12D	334	252	56	25	35		
ADJ60-PA2050	20.5	ADJ2000/2099-3D-L25	20.00-20.99	3D	157	75	56	25	35	M4.0*20	
		ADJ2000/2099-5D-L25		5D	220	138	56	25	35		
		ADJ2000/2099-7D-L25		7D	241	159	56	25	35		
		ADJ2000/2099-10D-L25		10D	304	222	56	25	35		
		ADJ2000/2099-12D-L25		12D	346	264	56	25	35		
ADJ60-PA2100	21.0	ADJ2100/2199-3D-L25	21.00-21.49	3D	157	75	56	25	35	M4.0*20	
		ADJ2100/2199-5D-L25		5D	220	138	56	25	35		
		ADJ2100/2199-7D-L25		7D	241	159	56	25	35		
		ADJ2100/2199-10D-L25		10D	304	222	56	25	35		
		ADJ2100/2199-12D-L25		12D	346	264	56	25	35		
ADJ60-PA2150	21.5	ADJ2100/2199-3D-L25	21.00-21.99	3D	157	75	56	25	35	M4.0*20	
		ADJ2100/2199-5D-L25		5D	220	138	56	25	35		
		ADJ2100/2199-7D-L25		7D	241	159	56	25	35		
		ADJ2100/2199-10D-L25		10D	304	222	56	25	35		
		ADJ2100/2199-12D-L25		12D	346	264	56	25	35		

可换钻尖钻头 Adjustable point drill bit



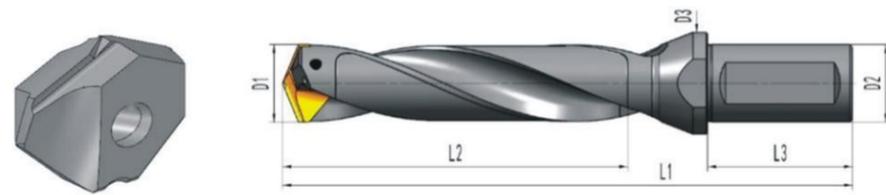
刀片型号 The blade model	标准库存直径 Standard stock diameter	刀杆型号 Tool rod type	刀片直径范围 Blade diameter range (D1)	倍径 Times the diameter	尺寸 Size					螺钉 Clamp screw	扳手 Wrench
					L1	L2	L3	D2	D3		
ADJ60-PA2200	22.0	ADJ2200/2299-3D-L25	22.00-22.49	3D	161	79	56	25	35	M4.0*22	15IP
		ADJ2200/2299-5D-L25		5D	227	145	56	25	35		
		ADJ2200/2299-7D-L25		7D	249	167	56	25	35		
		ADJ2200/2299-10D-L25		10D	315	233	56	25	35		
		ADJ2200/2299-12D-L25		12D	359	277	56	25	35		
ADJ60-PA2250	22.5	ADJ2200/2299-3D-L25	22.00-22.99	3D	161	79	56	25	35	M4.0*22	15IP
		ADJ2200/2299-5D-L25		5D	227	145	56	25	35		
		ADJ2200/2299-7D-L25		7D	249	167	56	25	35		
		ADJ2200/2299-10D-L25		10D	315	233	56	25	35		
		ADJ2200/2299-12D-L25		12D	359	277	56	25	35		
ADJ60-PA2300	23.0	ADJ2300/2399-3D-L25	23.00-23.49	3D	164	82	56	25	35	M4.0*22	15IP
		ADJ2300/2399-5D-L25		5D	233	151	56	25	35		
		ADJ2300/2399-7D-L25		7D	256	174	56	25	35		
		ADJ2300/2399-10D-L25		10D	325	243	56	25	35		
		ADJ2300/2399-12D-L25		12D	371	289	56	25	35		
ADJ60-PA2350	23.5	ADJ2300/2399-3D-L25	23.00-23.99	3D	164	82	56	25	35	M4.0*22	15IP
		ADJ2300/2399-5D-L25		5D	233	151	56	25	35		
		ADJ2300/2399-7D-L25		7D	256	174	56	25	35		
		ADJ2300/2399-10D-L25		10D	325	243	56	25	35		
		ADJ2300/2399-12D-L25		12D	371	289	56	25	35		
ADJ60-PA2400	24.0	ADJ2400/2499-3D-L25	24.00-24.49	3D	172	86	56	25	35	M4.0*22	15IP
		ADJ2400/2499-5D-L25		5D	244	158	56	25	35		
		ADJ2400/2499-7D-L25		7D	268	182	56	25	35		
		ADJ2400/2499-10D-L25		10D	340	254	56	25	35		
		ADJ2400/2499-12D-L25		12D	388	302	56	25	35		
ADJ60-PA2450	24.5	ADJ2400/2499-3D-L25	24.00-24.99	3D	172	86	56	25	35	M5.0*24	20IP
		ADJ2400/2499-5D-L25		5D	244	158	56	25	35		
		ADJ2400/2499-7D-L25		7D	268	182	56	25	35		
		ADJ2400/2499-10D-L25		10D	340	254	56	25	35		
		ADJ2400/2499-12D-L25		12D	388	302	56	25	35		
ADJ60-PA2500	25.0	ADJ2500/2599-3D-L32	25.00-25.49	3D	182	89	60	32	42	M5.0*24	20IP
		ADJ2500/2599-5D-L32		5D	257	164	60	32	42		
		ADJ2500/2599-7D-L32		7D	282	189	60	32	42		
		ADJ2500/2599-10D-L32		10D	357	264	60	32	42		
		ADJ2500/2599-12D-L32		12D	407	314	60	32	42		
ADJ60-PA2550	25.5	ADJ2500/2599-3D-L32	25.00-25.99	3D	182	89	60	32	42	M5.0*24	20IP
		ADJ2500/2599-5D-L32		5D	257	164	60	32	42		
		ADJ2500/2599-7D-L32		7D	282	189	60	32	42		
		ADJ2500/2599-10D-L32		10D	357	264	60	32	42		
		ADJ2500/2599-12D-L32		12D	407	314	60	32	42		

可换钻尖钻头 Adjustable point drill bit



刀片型号 The blade model	标准库存直径 Standard stock diameter	刀杆型号 Tool rod type	刀片直径范围 Blade diameter range (D1)	倍径 Times the diameter	尺寸 Size					螺钉 Clamp screw	扳手 Wrench
					L1	L2	L3	D2	D3		
ADJ60-PA2600	26.0	ADJ2600/2699-3D-L32	26.00-26.49	3D	185	92	60	32	42	M5.0*26	20IP
		ADJ2600/2699-5D-L32		5D	263	170	60	32	42		
		ADJ2600/2699-7D-L32		7D	289	196	60	32	42		
		ADJ2600/2699-10D-L32		10D	367	274	60	32	42		
		ADJ2600/2699-12D-L32		12D	419	326	60	32	42		
ADJ60-PA2650	26.5	ADJ2600/2699-3D-L32	26.00-26.99	3D	185	92	60	32	42	M5.0*26	20IP
		ADJ2600/2699-5D-L32		5D	263	170	60	32	42		
		ADJ2600/2699-7D-L32		7D	289	196	60	32	42		
		ADJ2600/2699-10D-L32		10D	367	274	60	32	42		
		ADJ2600/2699-12D-L32		12D	419	326	60	32	42		
ADJ60-PA2700	27.0	ADJ2700/2799-3D-L32	27.00-27.49	3D	189	96	60	32	42	M5.0*26	20IP
		ADJ2700/2799-5D-L32		5D	270	177	60	32	42		
		ADJ2700/2799-7D-L32		7D	297	204	60	32	42		
		ADJ2700/2799-10D-L32		10D	378	285	60	32	42		
		ADJ2700/2799-12D-L32		12D	432	339	60	32	42		
ADJ60-PA2750	27.5	ADJ2700/2799-3D-L32	27.00-27.99	3D	189	96	60	32	42	M5.0*26	20IP
		ADJ2700/2799-5D-L32		5D	270	177	60	32	42		
		ADJ2700/2799-7D-L32		7D	297	204	60	32	42		
		ADJ2700/2799-10D-L32		10D	378	285	60	32	42		
		ADJ2700/2799-12D-L32		12D	432	339	60	32	42		
ADJ60-PA2800	28.0	ADJ2800/2899-3D-L32	28.00-28.49	3D	192	99	60	32	42	M5.0*28	20IP
		ADJ2800/2899-5D-L32		5D	276	183	60	32	42		
		ADJ2800/2899-7D-L32		7D	304	211	60	32	42		
		ADJ2800/2899-10D-L32		10D	388	295	60	32	42		
		ADJ2800/2899-12D-L32		12D	444	351	60	32	42		
ADJ60-PA2850	28.5	ADJ2800/2899-3D-L32	28.00-28.99	3D	192	99	60	32	42	M5.0*28	20IP
		ADJ2800/2899-5D-L32		5D	276	183	60	32	42		
		ADJ2800/2899-7D-L32		7D	304	211	60	32	42		
		ADJ2800/2899-10D-L32		10D	388	295	60	32	42		
		ADJ2800/2899-12D-L32		12D	444	351	60	32	42		
ADJ60-PA2900	29.0	ADJ2900/2999-3D-L32	29.00-29.49	3D	196	103	60	32	42	M5.0*28	20IP
		ADJ2900/2999-5D-L32		5D	283	190	60	32	42		
		ADJ2900/2999-7D-L32		7D	312	219	60	32	42		
		ADJ2900/2999-10D-L32		10D	399	306	60	32	42		
		ADJ2900/2999-12D-L32		12D	457	364	60	32	42		
ADJ60-PA2950	29.5	ADJ2900/2999-3D-L32	29.00-29.99	3D	196	103	60	32	42	M5.0*28	20IP
		ADJ2900/2999-5D-L32		5D	283	190	60	32	42		
		ADJ2900/2999-7D-L32		7D	312	219	60	32	42		
		ADJ2900/2999-10D-L32		10D	399	306	60	32	42		
		ADJ2900/2999-12D-L32		12D	457	364	60	32	42		

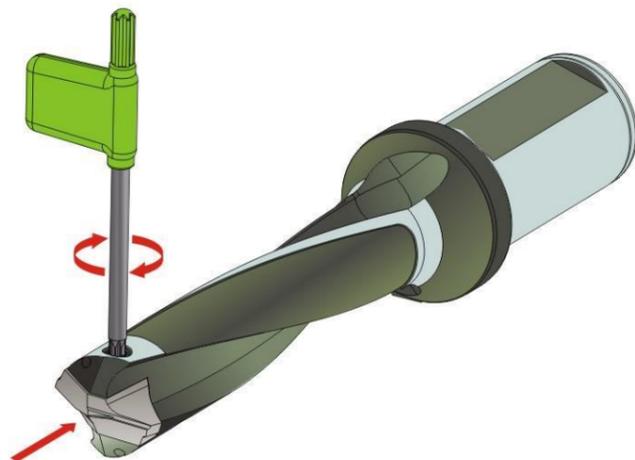
可换钻尖钻头 Adjustable point drill bit



刀片型号 The blade model	标准库存直径 Standard stock diameter	刀杆型号 Tool rod type	刀片直径范围 Blade diameter range (D1)	倍径 Times the diameter	尺寸 Size					螺钉 Clamp screw	扳手 Wrench
					L1	L2	L3	D2	D3		
ADJ60-PA3000	30.0	ADJ3000/3099-3D-L32	30.00-30.49	3D	199	106	60	32	42	M5.0*28	20IP
		ADJ3000/3099-5D-L32		5D	289	196	60	32	42		
		ADJ3000/3099-7D-L32		7D	319	226	60	32	42		
		ADJ3000/3099-10D-L32		10D	409	316	60	32	42		
		ADJ3000/3099-12D-L32		12D	469	376	60	32	42		
ADJ60-PA3050	30.5	ADJ3000/3099-3D-L32	30.00-30.99	3D	199	106	60	32	42	M5.0*28	20IP
		ADJ3000/3099-5D-L32		5D	289	196	60	32	42		
		ADJ3000/3099-7D-L32		7D	319	226	60	32	42		
		ADJ3000/3099-10D-L32		10D	409	316	60	32	42		
		ADJ3000/3099-12D-L32		12D	469	376	60	32	42		

刀片的安装

Installation procedure



直径范围Φ Range of Diameter Φ	拧紧力矩(Nm) Tightening Torque (Nm)
10.0-13.99	0.6
14.0-17.99	1.2
18.0-23.99	2.2
24.0-27.99	3.3
28.0-30.99	5.0

- ①用压缩空气清洁刀片和刀片槽;
- ②将刀片插入刀杆安装槽内轻按刀片;
- ③用紧固螺栓锁紧刀片。有条件的用户推荐采用力矩扳手锁紧锁紧力矩值如图所示。

- ① Clean the blade and blade slot with compressed air;
- ② Insert the blade into the knife rod mounting slot and press the blade gently.
- ③ Lock the blade with fastening bolts. Users with conditions recommend using torque wrenches to lock the locking torque value as shown in the figure.

可换钻尖钻头 Adjustable point drill bit

应用要点、注意事项

Essentials of use and precautions

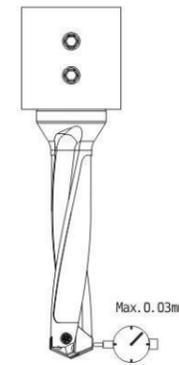
安装 Assembly

应用场合的稳定性对于获得最佳的刀具寿命与孔的精度是重要的。检查机床主轴、夹具与工件的装夹情况，确保最大的稳定性与刚性。不稳定的工况会引起钻头的折断。

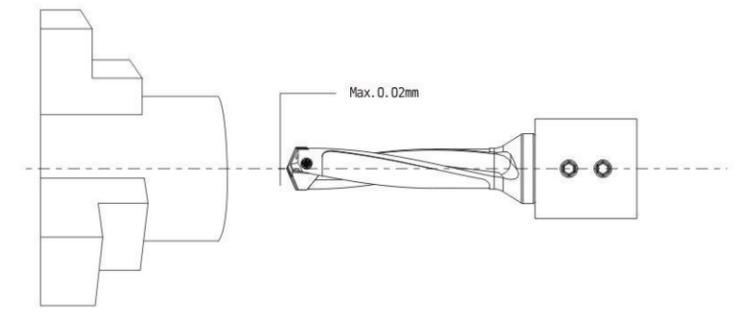
The stability of the applications is essential for optimal tool life and hole accuracy. Guarantee the maximum stability and rigidity by checking the holding of the machine tool spindle, fixtures and workpiece. Unstable operating conditions will cause fracture of drills bits.

最大跳动和同心度 Max.Runout and Misalignment

跳动
Runout

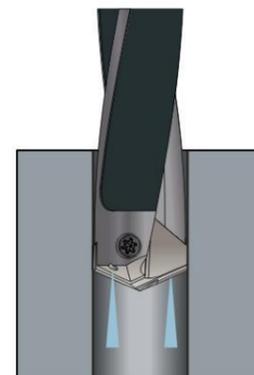


同心度
Misalignment



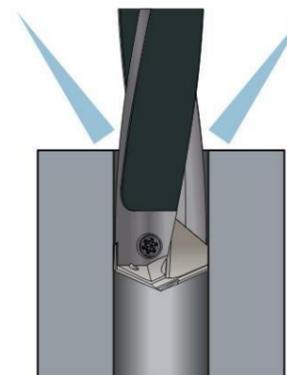
冷却压力 Cooling Pressure

内部冷却
Inner cooling



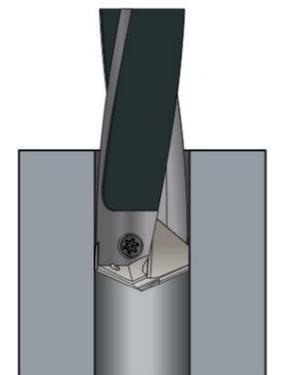
- 3XD:5bar ✓
- 5XD:10bar ✓
- 7XD:15bar ✓
- 10XD:20bar ✓
- 12XD:20bar ✓

外部冷却
Outer cooling



- 3XD:5bar ✓
- 5XD:10bar ✗
- 7XD:15bar ✗
- 10XD:20bar ✗
- 12XD:20bar ✗

准干式切削
Quasi-dry cutting



- 3XD:5bar ✓

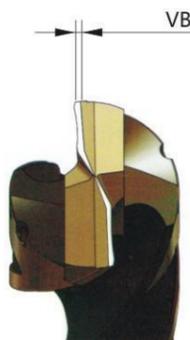
可换钻尖钻头 Adjustable point drill bit

应用要点、注意事项

Essentials of use and precautions

钻头更换判断标准 Standard for drill bit replacement

磨损极限 Wear limit



硬质合金刀片: $VB=0.3\text{mm}$
Carbide insert:
粉末高速钢刀片: $VB=0.4\text{mm}$
HSS-PM insert:

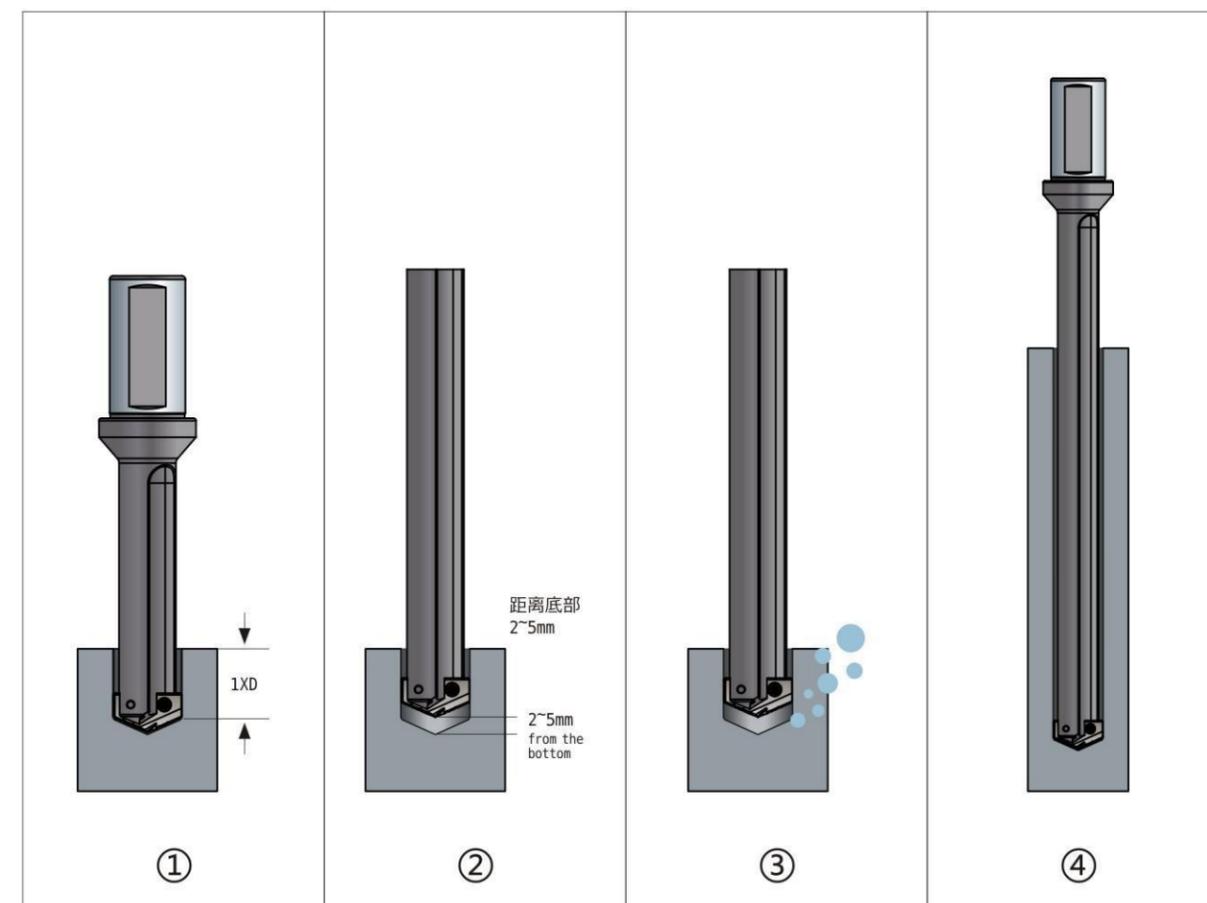
应用 Application

工况 Operating Condition	说明 Instructions	工况 Operating Condition	说明 Instructions
	起始面为斜面 The entry surface is slanted 斜面进给率 Slope Feed Rate $3^\circ - 50\%$		工件表面不平整 The entry surface is welded 加工前先忽平 Level it through spot facing before machining
	出孔为斜面 The outlet is slanted 斜面进给率 Slope Feed Rate $3^\circ - 50\%$		钻叠层板 Stacked plates 原则上可以 Allowed in principle 需要良好的工件压紧 The workpiece shall be properly clamped 板之间不能有间隙 There must be no gaps between the plates
	起始面为弧面 The entry surface is arc 在中心处钻孔并降低进给是可以的 Drilling at the center at reduced feed rates is allowed 如起始点不在弧面中心需要将面惚平 Spot facing is required if the entry point is not at the center of the arc		钻型腔 Cavities 不可以 Not allowed
	钻贯穿孔 Through hole 不可以 Not allowed		起始面有台阶 Step on the entry surface 不可以(钻尖起始点必须为平面) Not allowed (the entry point must be on a horizontal plane)

可换钻尖钻头 Adjustable point drill bit

长径系列钻削工艺

Long diameter series drilling process



- ①短钻头钻引导孔至 $1D \sim 1.5D$
Drill a pilot hole to $1D$ to $1.5D$ with a short drill bit
- ②低转速和低进给进入引导孔
Enter the pilot hole at a low speed and low feed rate
- ③让冷却液停留2~3秒
Keep the coolant for 2 to 3s
- ④按推荐的参数连续加工出口时降低速度和进给
Carry out continuous drilling according to the recommended parameters. Reduce the speed and feed rate at the outlet

组合钻 Combined drill

组合钻的特征和优势

Characteristics and advantages of combination drill

特征优势 Main feature

可换钻尖组合钻头，是在可换钻尖钻头（皇冠钻）的基础开发的一款钻头，钻孔范围直径26mm~62m，孔深有3D/5D/7D/10D四种规格，切削刃用可换钻尖和普通U钻刀片组合，效率高，成本低，孔加工精度公差在+0.1~-0.1范围。

Replaceable bit combination, is in the replaceable bit (crown drill) based on the development of a drill, drilling range diameter 26mm~62m, hole depth of 3D/5D/7D/10D four specifications, cutting edge with replaceable drill point and common U drill blade combination, high efficiency, low cost, hole machining accuracy tolerance in +0.1~-0.1 range.

组合钻的型号编码

The type code of the combination drill

组合钻中心刃刀片 Combined drill center blade

ADJS60-PA2600

大类 Big type	材质 Insert Material	钻尖类型 Drill point type	刀片直径 Insert Diameter
ADJS系列可换钻尖式钻头	60-硬质合金 30-粉末高速钢	PA-通用钻尖 MA-不锈钢用钻尖 KA-铸铁用钻尖 NA-有色金属用钻尖	2600-26.00mm

组合钻刀杆 Combined drill shank

ADJS2600/2649-3D-C32

大类 Big type	直径 The diameter of	有效加工孔深 Maximum machining hole depth	刀柄直径 The handle diameter
ADJS系列可换钻尖式组合钻	2600/2649-表示最小刀片组合 Φ2600mm, 最大刀片组合Φ2649mm	3D-3XD1 5D-5XD1 7D-7XD1 10D-10XD1	C25-Φ25mm C32-Φ32mm C40-Φ40mm



U 钻

铲 钻

可换钻尖钻头

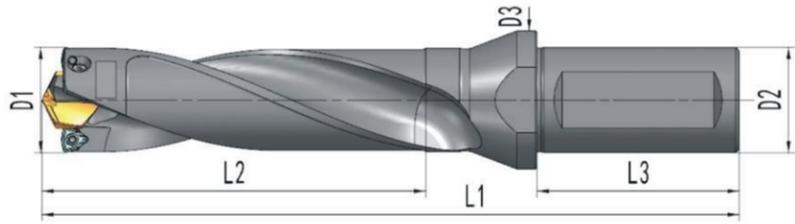
组合钻

带定心U钻

VMD 大钻头

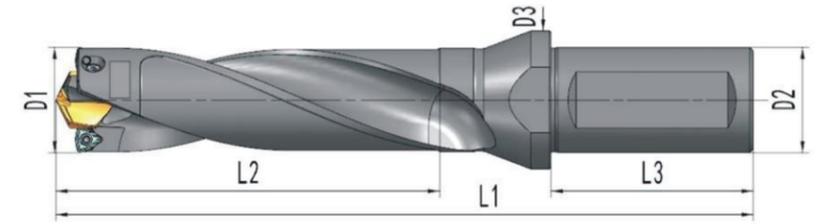
模块系统

组合钻 Combined drill



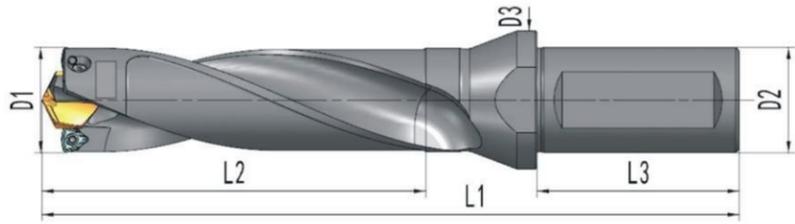
中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA2600	WCMX040208	26.0	ADJS2600/2649-3D-C32	26.00	3D	185	92	60	32	42	M2.5X10.9	7IP		
			ADJS2600/2649-5D-C32		5D	237	144	60	32	42				
			ADJS2600/2649-7D-C32		7D	289	196	60	32	42				
			ADJS2600/2649-10D-C32		10D	367	274	60	32	42				
ADJS60-PA2650	WCMX040208	26.5	ADJS2650/2699-3D-C32	26.50	3D	185	92	60	32	42	M2.5X10.9	7IP		
			ADJS2650/2699-5D-C32		5D	237	144	60	32	42				
			ADJS2650/2699-7D-C32		7D	289	196	60	32	42				
			ADJS2650/2699-10D-C32		10D	367	274	60	32	42				
ADJS60-PA2700	WCMX040208	27.0	ADJS2700/2749-3D-C32	27.00	3D	189	96	60	32	42	M2.5X10.9	7IP		
			ADJS2700/2749-5D-C32		5D	243	150	60	32	42				
			ADJS2700/2749-7D-C32		7D	297	204	60	32	42				
			ADJS2700/2749-10D-C32		10D	378	285	60	32	42				
ADJS60-PA2750	WCMX040208	27.5	ADJS2750/2799-3D-C32	27.50	3D	189	96	60	32	42	M2.5X10.9	7IP		
			ADJS2750/2799-5D-C32		5D	243	150	60	32	42				
			ADJS2750/2799-7D-C32		7D	297	204	60	32	42				
			ADJS2750/2799-10D-C32		10D	378	285	60	32	42				
ADJS60-PA2800	WCMX040208	28.0	ADJS2800/2849-3D-C32	28.00	3D	192	99	60	32	42	M2.5X6	T8		
			ADJS2800/2849-5D-C32		5D	248	155	60	32	42				
			ADJS2800/2849-7D-C32		7D	304	211	60	32	42				
			ADJS2800/2849-10D-C32		10D	388	295	60	32	42				
ADJS60-PA2850	WCMX040208	28.5	ADJS2850/2899-3D-C32	28.50	3D	192	99	60	32	42	M2.5X6	T8		
			ADJS2850/2899-5D-C32		5D	248	155	60	32	42				
			ADJS2850/2899-7D-C32		7D	304	211	60	32	42				
			ADJS2850/2899-10D-C32		10D	388	295	60	32	42				
ADJS60-PA2900	WCMX040208	29.0	ADJS2900/2949-3D-C32	29.00	3D	193	100	60	32	42	M3.0X12.8	8IP		
			ADJS2900/2949-5D-C32		5D	251	158	60	32	42				
			ADJS2900/2949-7D-C32		7D	309	216	60	32	42				
			ADJS2900/2949-10D-C32		10D	396	303	60	32	42				
ADJS60-PA2950	WCMX040208	29.5	ADJS2950/2999-3D-C32	29.50	3D	193	100	60	32	42	M3.0X12.8	8IP		
			ADJS2950/2999-5D-C32		5D	251	158	60	32	42				
			ADJS2950/2999-7D-C32		7D	309	216	60	32	42				
			ADJS2950/2999-10D-C32		10D	396	303	60	32	42				
ADJS60-PA3000	WCMX040208	30.0	ADJS3000/3049-3D-C32	30.00	3D	199	326	60	32	42	M3.0X12.8	8IP		
			ADJS3000/3049-5D-C32		5D	259	386	60	32	42				
			ADJS3000/3049-7D-C32		7D	319	446	60	32	42				
			ADJS3000/3049-10D-C32		10D	409	536	60	32	42				
ADJS60-PA3050	WCMX040208	30.5	ADJS3050/3099-3D-C32	30.50	3D	199	106	60	32	42	M3.0X12.8	8IP		
			ADJS3050/3099-5D-C32		5D	259	166	60	32	42				
			ADJS3050/3099-7D-C32		7D	319	226	60	32	42				
			ADJS3050/3099-10D-C32		10D	409	316	60	32	42				

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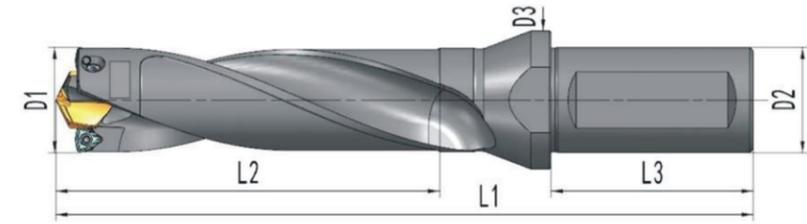
中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA3100	WCMX040208	31.0	ADJS3100/3149-3D-C32	31.00	3D	202	109	60	32	42	M3.0X12.8	8IP		
			ADJS3100/3149-5D-C32		5D	264	171	60	32	42				
			ADJS3100/3149-7D-C32		7D	326	233	60	32	42				
			ADJS3100/3149-10D-C32		10D	419	326	60	32	42				
ADJS60-PA3150	WCMX040208	31.5	ADJS3150/3199-3D-C32	31.50	3D	202	109	60	32	42	M3.0X12.8	8IP		
			ADJS3150/3199-5D-C32		5D	264	171	60	32	42				
			ADJS3150/3199-7D-C32		7D	326	233	60	32	42				
			ADJS3150/3199-10D-C32		10D	419	326	60	32	42				
ADJS60-PA3200	WCMX040208	32.0	ADJS3200/3249-3D-C32	32.00	3D	206	113	60	32	42	M4.0X16.7	15IP		
			ADJS3200/3249-5D-C32		5D	270	177	60	32	42				
			ADJS3200/3249-7D-C32		7D	334	241	60	32	42				
			ADJS3200/3249-10D-C32		10D	430	337	60	32	42				
ADJS60-PA3250	WCMX040208	32.5	ADJS3250/3299-3D-C32	32.50	3D	206	113	60	32	42	M4.0X16.7	15IP		
			ADJS3250/3299-5D-C32		5D	270	177	60	32	42				
			ADJS3250/3299-7D-C32		7D	334	241	60	32	42				
			ADJS3250/3299-10D-C32		10D	430	337	60	32	42				
ADJS60-PA3300	WCMT050308	33.0	ADJS3300/3349-3D-C32	33.00	3D	213	119	60	32	42	M4.0X16.7	15IP		
			ADJS3300/3349-5D-C32		5D	279	185	60	32	42				
			ADJS3300/3349-7D-C32		7D	345	251	60	32	42				
			ADJS3300/3349-10D-C32		10D	444	350	60	32	42				
ADJS60-PA3350	WCMT050308	33.5	ADJS3350/3399-3D-C32	33.50	3D	213	119	60	32	42	M4.0X16.7	15IP		
			ADJS3350/3399-5D-C32		5D	279	185	60	32	42				
			ADJS3350/3399-7D-C32		7D	345	251	60	32	42				
			ADJS3350/3399-10D-C32		10D	444	350	60	32	42				
ADJS60-PA3400	WCMT050308	34.0	ADJS3400/3449-3D-C32	34.00	3D	217	123	60	32	42	M4.0X16.7	15IP		
			ADJS3400/3449-5D-C32		5D	285	191	60	32	42				
			ADJS3400/3449-7D-C32		7D	353	259	60	32	42				
			ADJS3400/3449-10D-C32		10D	455	361	60	32	42				
ADJS60-PA3450	WCMT050308	34.5	ADJS3450/3499-3D-C32	34.50	3D	217	123	60	32	42	M3.0X12.8	8IP	M3.0X8	
			ADJS3450/3499-5D-C32		5D	285	191	60	32	42				
			ADJS3450/3499-7D-C32		7D	353	259	60	32	42				
			ADJS3450/3499-10D-C32		10D	455	361	60	32	42				
ADJS60-PA3500	WCMT050308	35.0	ADJS3500/3549-3D-C32	35.00	3D	220	126	60	32	42	M3.0X12.8	8IP	M3.0X8	
			ADJS3500/3549-5D-C32		5D	290	196	60	32	42				
			ADJS3500/3549-7D-C32		7D	360	266	60	32	42				
			ADJS3500/3549-10D-C32		10D	465	371	60	32	42				
ADJS60-PA3550	WCMT050308	35.5	ADJS3550/3599-3D-C32	35.50	3D	220	126	60	32	42	M3.0X12.8	8IP	M3.0X8	
			ADJS3550/3599-5D-C32		5D	290	196	60	32	42				
			ADJS3550/3599-7D-C32		7D	360	266	60	32	42				
			ADJS3550/3599-10D-C32		10D	465	371	60	32	42				

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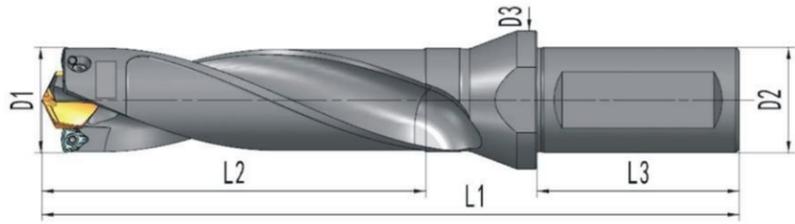
中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA3600	WCMT050308	36.0	ADJS3600/3649-3D-C32	36.00	3D	223	129	60	32	42	M4.0X16.7	15IP	M3.0X8	T8
			ADJS3600/3649-5D-C32		5D	295	201	60	32	42				
			ADJS3600/3649-7D-C32		7D	367	273	60	32	42				
			ADJS3600/3649-10D-C32		10D	475	381	60	32	42				
ADJS60-PA3650	WCMT050308	36.5	ADJS3650/3699-3D-C32	36.50	3D	223	129	60	32	42				
			ADJS3650/3699-5D-C32		5D	295	201	60	32	42				
			ADJS3650/3699-7D-C32		7D	367	273	60	32	42				
			ADJS3650/3699-10D-C32		10D	475	381	60	32	42				
ADJS60-PA3700	WCMT050308	37.0	ADJS3700/3749-3D-C32	37.00	3D	227	131	60	32	42				
			ADJS3700/3749-5D-C32		5D	301	205	60	32	42				
			ADJS3700/3749-7D-C32		7D	375	279	60	32	42				
			ADJS3700/3749-10D-C32		10D	486	390	60	32	42				
ADJS60-PA3750	WCMT050308	37.5	ADJS3750/3799-3D-C32	37.50	3D	227	131	60	32	42				
			ADJS3750/3799-5D-C32		5D	301	205	60	32	42				
			ADJS3750/3799-7D-C32		7D	375	279	60	32	42				
			ADJS3750/3799-10D-C32		10D	486	390	60	32	42				
ADJS60-PA3800	WCMT050308	38.0	ADJS3800/3849-3D-C32	38.00	3D	230	134	60	32	42				
			ADJS3800/3849-5D-C32		5D	306	210	60	32	42				
			ADJS3800/3849-7D-C32		7D	382	286	60	32	42				
			ADJS3800/3849-10D-C32		10D	496	400	60	32	42				
ADJS60-PA3850	WCMT050308	38.5	ADJS3850/3899-3D-C32	38.50	3D	230	134	60	32	42				
			ADJS3850/3899-5D-C32		5D	306	210	60	32	42				
			ADJS3850/3899-7D-C32		7D	382	286	60	32	42				
			ADJS3850/3899-10D-C32		10D	496	400	60	32	42				
ADJS60-PA3900	WCMT050308	39.0	ADJS3900/3949-3D-C32	39.00	3D	234	138	60	32	42				
			ADJS3900/3949-5D-C32		5D	312	216	60	32	42				
			ADJS3900/3949-7D-C32		7D	390	294	60	32	42				
			ADJS3900/3949-10D-C32		10D	507	411	60	32	42				
ADJS60-PA3950	WCMT050308	39.5	ADJS3950/3999-3D-C32	39.50	3D	234	138	60	32	42				
			ADJS3950/3999-5D-C32		5D	312	216	60	32	42				
			ADJS3950/3999-7D-C32		7D	390	294	60	32	42				
			ADJS3950/3999-10D-C32		10D	507	411	60	32	42				
ADJS60-PA4000	WCMT06T308	40.0	ADJS4000/4049-3D-C32	40.00	3D	234	138	60	32	42				
			ADJS4000/4049-5D-C32		5D	314	218	60	32	42				
			ADJS4000/4049-7D-C32		7D	394	298	60	32	42				
			ADJS4000/4049-10D-C32		10D	514	418	60	32	42				
ADJS60-PA4050	WCMT06T308	40.5	ADJS4050/4099-3D-C32	40.50	3D	234	138	60	32	42				
			ADJS4050/4099-5D-C32		5D	314	218	60	32	42				
			ADJS4050/4099-7D-C32		7D	394	298	60	32	42				
			ADJS4050/4099-10D-C32		10D	514	418	60	32	42				

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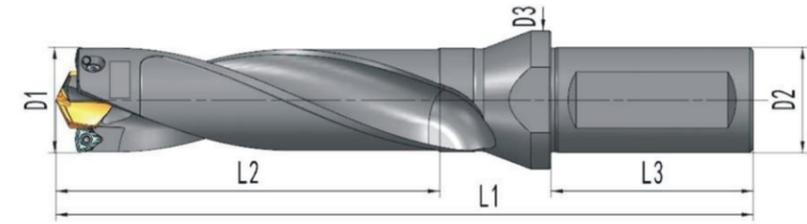
中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA4100	WCMT06T308	41.0	ADJS4100/4149-3D-C32	41.00	3D	237	141	60	32	42	M4.0X16.7	15IP	M3.5X10	T15
			ADJS4100/4149-5D-C32		5D	319	223	60	32	42				
			ADJS4100/4149-7D-C32		7D	401	305	60	32	42				
			ADJS4100/4149-10D-C32		10D	524	428	60	32	42				
ADJS60-PA4150	WCMT06T308	41.5	ADJS4150/4199-3D-C32	41.50	3D	237	141	60	32	42				
			ADJS4150/4199-5D-C32		5D	319	223	60	32	42				
			ADJS4150/4199-7D-C32		7D	401	305	60	32	42				
			ADJS4150/4199-10D-C32		10D	524	428	60	32	42				
ADJS60-PA4200	WCMT06T308	42.0	ADJS4200/4249-3D-C32	42.00	3D	243	147	60	32	42				
			ADJS4200/4249-5D-C32		5D	327	231	60	32	42				
			ADJS4200/4249-7D-C32		7D	411	315	60	32	42				
			ADJS4200/4249-10D-C32		10D	537	441	60	32	42				
ADJS60-PA4250	WCMT06T308	42.5	ADJS4250/4299-3D-C32	42.50	3D	243	147	60	32	42				
			ADJS4250/4299-5D-C32		5D	327	231	60	32	42				
			ADJS4250/4299-7D-C32		7D	411	315	60	32	42				
			ADJS4250/4299-10D-C32		10D	537	441	60	32	42				
ADJS60-PA4300	WCMT06T308	43.0	ADJS4300/4349-3D-C32	43.00	3D	246	150	60	32	42				
			ADJS4300/4349-5D-C32		5D	332	236	60	32	42				
			ADJS4300/4349-7D-C32		7D	418	322	60	32	42				
			ADJS4300/4349-10D-C32		10D	547	451	60	32	42				
ADJS60-PA4350	WCMT06T308	43.5	ADJS4350/4399-3D-C32	43.50	3D	246	150	60	32	42				
			ADJS4350/4399-5D-C32		5D	332	236	60	32	42				
			ADJS4350/4399-7D-C32		7D	418	322	60	32	42				
			ADJS4350/4399-10D-C32		10D	547	451	60	32	42				
ADJS60-PA4400	WCMT06T308	44.0	ADJS4400/4449-3D-C32	44.00	3D	249	153	60	32	42				
			ADJS4400/4449-5D-C32		5D	337	241	60	32	42				
			ADJS4400/4449-7D-C32		7D	425	329	60	32	42				
			ADJS4400/4449-10D-C32		10D	557	461	60	32	42				
ADJS60-PA4450	WCMT06T308	44.5	ADJS4450/4499-3D-C32	44.50	3D	249	153	60	32	42				
			ADJS4450/4499-5D-C32		5D	337	241	60	32	42				
			ADJS4450/4499-7D-C32		7D	425	329	60	32	42				
			ADJS4450/4499-10D-C32		10D	557	461	60	32	42				
ADJS60-PA4500	WCMT06T308	45.0	ADJS4500/4549-3D-C32	45.00	3D	252	156	60	32	42				
			ADJS4500/4549-5D-C32		5D	342	246	60	32	42				
			ADJS4500/4549-7D-C32		7D	432	336	60	32	42				
			ADJS4500/4549-10D-C32		10D	567	471	60	32	42				
ADJS60-PA4550	WCMT06T308	45.5	ADJS4550/4599-3D-C32	45.50	3D	252	156	60	32	42				
			ADJS4550/4599-5D-C32		5D	342	246	60	32	42				
			ADJS4550/4599-7D-C32		7D	432	336	60	32	42				
			ADJS4550/4599-10D-C32		10D	567	471	60	32	42				

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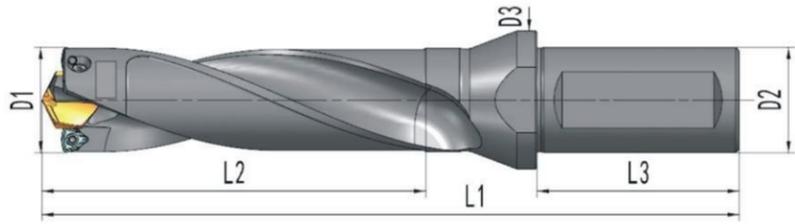
中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA4600	WCMT06T308	46.0	ADJS4600/4649-3D-C32	46.00	3D	255	159	60	32	42	M4.0X16.7	15IP	M3.5X10	T15
			ADJS4600/4649-5D-C32		5D	347	251	60	32	42				
			ADJS4600/4649-7D-C32		7D	439	343	60	32	42				
			ADJS4600/4649-10D-C32		10D	577	481	60	32	42				
ADJS60-PA4650	WCMT06T308	46.5	ADJS4650/4699-3D-C32	46.50	3D	255	159	60	32	42				
			ADJS4650/4699-5D-C32		5D	347	251	60	32	42				
			ADJS4650/4699-7D-C32		7D	439	343	60	32	42				
			ADJS4650/4699-10D-C32		10D	577	481	60	32	42				
ADJS60-PA4700	WCMT06T308	47.0	ADJS4700/4749-3D-C32	47.00	3D	258	162	60	32	42				
			ADJS4700/4749-5D-C32		5D	352	256	60	32	42				
			ADJS4700/4749-7D-C32		7D	446	350	60	32	42				
			ADJS4700/4749-10D-C32		10D	587	491	60	32	42				
ADJS60-PA4750	WCMT06T308	47.5	ADJS4750/4799-3D-C32	47.50	3D	258	162	60	32	42				
			ADJS4750/4799-5D-C32		5D	352	256	60	32	42				
			ADJS4750/4799-7D-C32		7D	446	350	60	32	42				
			ADJS4750/4799-10D-C32		10D	587	491	60	32	42				
ADJS60-PA4800	WCMT06T308	48.0	ADJS4800/4849-3D-C32	48.00	3D	261	165	60	32	42				
			ADJS4800/4849-5D-C32		5D	357	261	60	32	42				
			ADJS4800/4849-7D-C32		7D	453	357	60	32	42				
			ADJS4800/4849-10D-C32		10D	597	501	60	32	42				
ADJS60-PA4850	WCMT06T308	48.5	ADJS4850/4899-3D-C32	48.50	3D	261	165	60	32	42				
			ADJS4850/4899-5D-C32		5D	357	261	60	32	42				
			ADJS4850/4899-7D-C32		7D	453	357	60	32	42				
			ADJS4850/4899-10D-C32		10D	597	501	60	32	42				
ADJS60-PA4900	WCMT06T308	49.0	ADJS4900/4949-3D-C32	49.00	3D	264	168	60	32	42				
			ADJS4900/4949-5D-C32		5D	362	266	60	32	42				
			ADJS4900/4949-7D-C32		7D	460	364	60	32	42				
			ADJS4900/4949-10D-C32		10D	607	511	60	32	42				
ADJS60-PA4950	WCMT06T308	49.5	ADJS4950/4999-3D-C32	49.50	3D	264	168	60	32	42				
			ADJS4950/4999-5D-C32		5D	362	266	60	32	42				
			ADJS4950/4999-7D-C32		7D	460	364	60	32	42				
			ADJS4950/4999-10D-C32		10D	607	511	60	32	42				
ADJS60-PA5000	WCMT080412	50.0	ADJS5000/5049-3D-C32	50.00	3D	267	171	60	32	42				
			ADJS5000/5049-5D-C32		5D	367	271	60	32	42				
			ADJS5000/5049-7D-C32		7D	467	371	60	32	42				
			ADJS5000/5049-10D-C32		10D	617	521	60	32	42				
ADJS60-PA5050	WCMT080412	50.5	ADJS5050/5099-3D-C32	50.50	3D	267	171	60	32	42				
			ADJS5050/5099-5D-C32		5D	367	271	60	32	42				
			ADJS5050/5099-7D-C32		7D	467	371	60	32	42				
			ADJS5050/5099-10D-C32		10D	617	521	60	32	42				

组合钻 Combined drill



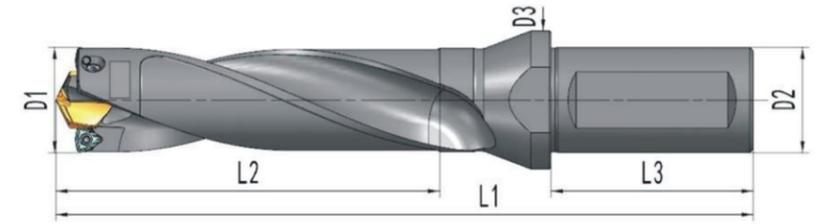
中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA5100	WCMT080412	51.0	ADJS5100/5149-3D-C32	51.00	3D	270	174	60	32	42	M4.0X16.7	15IP	M4.0X10	T15
			ADJS5100/5149-5D-C32		5D	372	276	60	32	42				
			ADJS5100/5149-7D-C32		7D	474	378	60	32	42				
			ADJS5100/5149-10D-C32		10D	627	531	60	32	42				
ADJS60-PA5150	WCMT080412	51.5	ADJS5150/5199-3D-C32	51.50	3D	270	174	60	32	42				
			ADJS5150/5199-5D-C32		5D	372	276	60	32	42				
			ADJS5150/5199-7D-C32		7D	474	378	60	32	42				
			ADJS5150/5199-10D-C32		10D	627	531	60	32	42				
ADJS60-PA5200	WCMT080412	52.0	ADJS5200/5249-3D-C32	52.00	3D	273	177	60	32	42				
			ADJS5200/5249-5D-C32		5D	377	281	60	32	42				
			ADJS5200/5249-7D-C32		7D	481	385	60	32	42				
			ADJS5200/5249-10D-C32		10D	637	541	60	32	42				
ADJS60-PA5250	WCMT080412	52.5	ADJS5250/5299-3D-C32	52.50	3D	273	177	60	32	42				
			ADJS5250/5299-5D-C32		5D	377	281	60	32	42				
			ADJS5250/5299-7D-C32		7D	481	385	60	32	42				
			ADJS5250/5299-10D-C32		10D	637	541	60	32	42				
ADJS60-PA5300	WCMT080412	53.0	ADJS5300/5349-3D-C32	53.00	3D	276	180	60	32	42				
			ADJS5300/5349-5D-C32		5D	382	286	60	32	42				
			ADJS5300/5349-7D-C32		7D	488	392	60	32	42				
			ADJS5300/5349-10D-C32		10D	647	551	60	32	42				
ADJS60-PA5350	WCMT080412	53.5	ADJS5350/5399-3D-C32	53.50	3D	276	180	60	32	42				
			ADJS5350/5399-5D-C32		5D	382	286	60	32	42				
			ADJS5350/5399-7D-C32		7D	488	392	60	32	42				
			ADJS5350/5399-10D-C32		10D	647	551	60	32	42				
ADJS60-PA5400	WCMT080412	54.0	ADJS5400/5449-3D-C32	54.00	3D	279	183	60	32	42				
			ADJS5400/5449-5D-C32		5D	387	291	60	32	42				
			ADJS5400/5449-7D-C32		7D	495	399	60	32	42				
			ADJS5400/5449-10D-C32		10D	657	561	60	32	42				
ADJS60-PA5450	WCMT080412	54.5	ADJS5450/5499-3D-C32	54.50	3D	279	183	60	32	42				
			ADJS5450/5499-5D-C32		5D	387	291	60	32	42				
			ADJS5450/5499-7D-C32		7D	495	399	60	32	42				
			ADJS5450/5499-10D-C32		10D	657	561	60	32	42				
ADJS60-PA5500	WCMT080412	55.0	ADJS5500/5549-3D-C32	55.00	3D	282	186	60	32	42				
			ADJS5500/5549-5D-C32		5D	392	296	60	32	42				
			ADJS5500/5549-7D-C32		7D	502	406	60	32	42				
			ADJS5500/5549-10D-C32		10D	667	571	60	32	42				
ADJS60-PA5550	WCMT080412	55.5	ADJS5550/5599-3D-C32	55.50	3D	282	186	60	32	42				
			ADJS5550/5599-5D-C32		5D	392	296	60	32	42				
			ADJS5550/5599-7D-C32		7D	502	406	60	32	42				
			ADJS5550/5599-10D-C32		10D	667	571	60	32	42				

组合钻 Combined drill



中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA5600	WCMT080412	56.0	ADJS5600/5649-3D-C40	56.00	3D	298	189	70	40	50	M5.0X20.6	20IP	M4.0X10	T15
			ADJS5600/5649-5D-C40		5D	410	301	70	40	50				
			ADJS5600/5649-7D-C40		7D	522	413	70	40	50				
			ADJS5600/5649-10D-C40		10D	690	581	70	40	50				
ADJS60-PA5650	WCMT080412	56.5	ADJS5650/5699-3D-C40	56.50	3D	298	189	70	40	50				
			ADJS5650/5699-5D-C40		5D	410	301	70	40	50				
			ADJS5650/5699-7D-C40		7D	522	413	70	40	50				
			ADJS5650/5699-10D-C40		10D	690	581	70	40	50				
ADJS60-PA5700	WCMT080412	57.0	ADJS5700/5749-3D-C40	57.00	3D	301	192	70	40	50				
			ADJS5700/5749-5D-C40		5D	415	306	70	40	50				
			ADJS5700/5749-7D-C40		7D	529	420	70	40	50				
			ADJS5700/5749-10D-C40		10D	700	591	70	40	50				
ADJS60-PA5750	WCMT080412	57.5	ADJS5750/5799-3D-C40	57.50	3D	301	192	70	40	50				
			ADJS5750/5799-5D-C40		5D	415	306	70	40	50				
			ADJS5750/5799-7D-C40		7D	529	420	70	40	50				
			ADJS5750/5799-10D-C40		10D	700	591	70	40	50				
ADJS60-PA5800	WCMT080412	58.0	ADJS5800/5849-3D-C40	58.00	3D	304	195	70	40	50				
			ADJS5800/5849-5D-C40		5D	420	311	70	40	50				
			ADJS5800/5849-7D-C40		7D	536	427	70	40	50				
			ADJS5800/5849-10D-C40		10D	710	601	70	40	50				
ADJS60-PA5850	WCMT080412	58.5	ADJS5850/5899-3D-C40	58.50	3D	304	195	70	40	50				
			ADJS5850/5899-5D-C40		5D	420	311	70	40	50				
			ADJS5850/5899-7D-C40		7D	536	427	70	40	50				
			ADJS5850/5899-10D-C40		10D	710	601	70	40	50				
ADJS60-PA5900	WCMT080412	59.0	ADJS5900/5949-3D-C40	59.00	3D	307	198	70	40	50				
			ADJS5900/5949-5D-C40		5D	425	316	70	40	50				
			ADJS5900/5949-7D-C40		7D	543	434	70	40	50				
			ADJS5900/5949-10D-C40		10D	720	611	70	40	50				
ADJS60-PA5950	WCMT080412	59.5	ADJS5950/5999-3D-C40	59.50	3D	307	198	70	40	50				
			ADJS5950/5999-5D-C40		5D	425	316	70	40	50				
			ADJS5950/5999-7D-C40		7D	543	434	70	40	50				
			ADJS5950/5999-10D-C40		10D	720	611	70	40	50				
ADJS60-PA6000	WCMT080412	60.0	ADJS6000/6049-3D-C40	60.00	3D	310	201	70	40	50				
			ADJS6000/6049-5D-C40		5D	430	321	70	40	50				
			ADJS6000/6049-7D-C40		7D	550	441	70	40	50				
			ADJS6000/6049-10D-C40		10D	730	621	70	40	50				
ADJS60-PA6050	WCMT080412	60.5	ADJS6050/6099-3D-C40	60.50	3D	310	201	70	40	50				
			ADJS6050/6099-5D-C40		5D	430	321	70	40	50				
			ADJS6050/6099-7D-C40		7D	550	441	70	40	50				
			ADJS6050/6099-10D-C40		10D	730	621	70	40	50				

组合钻 Combined drill



中心刀片 Center of the blade	扩孔刀片 x2 Reaming blade X2	标准 库存 直径	刀杆型号 Tool rod type	刀片直 径范围 (D1)	倍径 Times the diameter	尺寸 Size					中心刀片		扩孔刀片	
						L1	L2	L3	D2	D3	螺钉	扳手	螺钉	扳手
ADJS60-PA6100	WCMT080412	61.0	ADJS6100/6149-3D-C40	61.00	3D	313	204	70	40	50	M4.0X16.7	15IP	M4.0X10	T15
			ADJS6100/6149-5D-C40		5D	435	326	70	40	50				
			ADJS6100/6149-7D-C40		7D	557	448	70	40	50				
			ADJS6100/6149-10D-C40		10D	740	631	70	40	50				
ADJS60-PA6150	WCMT080412	61.5	ADJS6150/6199-3D-C40	61.50	3D	313	204	70	40	50				
			ADJS6150/6199-5D-C40		5D	435	326	70	40	50				
			ADJS6150/6199-7D-C40		7D	557	448	70	40	50				
			ADJS6150/6199-10D-C40		10D	740	631	70	40	50				

切削参数

组合钻直径 diameter	材质	切削速度 Cutting speed				材质	组合钻直径 diameter	材质	切削速度 Cutting speed				材质
		3D	5D	7D	10D				3D	5D	7D	10D	
转速 BT40		1100-1200	1000-1100	900-1000	900-1000		转速		750-800	750-800	700-750	700-750	
26-28.9		Fz 0.15-0.2	Fz 0.15-0.2	Fz 0.16-0.2	Fz 0.15-0.2		45-46.9		Fz 0.18-0.25	Fz 0.18-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
转速		F 165-240	F 150-220	F 145-200	F 135-200		转速		F 135-200	F 135-200	F 110-150	F 110-150	
29-30.9		1000-1100	1000-1100	900-1000	900-1000		47-48.9		750-800	750-800	700-750	700-750	
转速		Fz 0.15-0.2	Fz 0.15-0.2	Fz 0.15-0.2	Fz 0.15-0.2		转速		Fz 0.18-0.25	Fz 0.18-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
31-32.9		F 150-220	F 150-220	F 135-200	F 135-200		49-50.9		F 135-200	F 135-200	F 115-150	F 115-150	
转速		950-1050	950-1050	900-1000	900-1000		转速		700-750	700-750	650-700	650-700	
33-34.9		Fz 0.15-0.2	Fz 0.15-0.2	Fz 0.14-0.2	Fz 0.14-0.2		51-52.9		Fz 0.18-0.25	Fz 0.18-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
转速		F 145-210	F 145-210	F 125-200	F 125-200		转速		F 125-185	F 125-185	F 105-140	F 105-140	
35-36.9		900-1000	900-1000	850-900	850-900		53-54.9		700-750	700-750	650-700	650-700	
转速		Fz 0.16-0.2	Fz 0.16-0.2	Fz 0.14-0.2	Fz 0.14-0.2		转速		Fz 0.18-0.25	Fz 0.18-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
37-38.9		F 145-200	F 145-200	F 120-180	F 120-180		55-56.9		F 125-185	F 125-185	F 105-140	F 105-140	
转速		850-900	850-900	800-850	800-850		转速		700-750	700-750	650-700	650-700	
39-40.9		Fz 0.16-0.2	Fz 0.16-0.2	Fz 0.14-0.2	Fz 0.14-0.2		57-58.9		Fz 0.18-0.25	Fz 0.18-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
转速		F 135-180	F 135-180	F 115-175	F 115-175		转速		F 125-185	F 125-185	F 105-140	F 105-140	
41-42.9		850-900	850-900	800-850	800-850		59-60.9		650-700	650-700	600-650	600-650	
转速		Fz 0.16-0.2	Fz 0.16-0.2	Fz 0.14-0.2	Fz 0.14-0.2		转速		Fz 0.18-0.25	Fz 0.18-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
43-44.9		F 130-170	F 130-170	F 105-160	F 105-160		61-62		F 115-175	F 115-175	F 95-130	F 95-130	
转速		800-850	800-850	750-800	750-800		转速		650-700	650-700	600-650	600-650	
		Fz 0.16-0.2	Fz 0.16-0.2	Fz 0.14-0.2	Fz 0.14-0.2		转速		Fz 0.2-0.25	Fz 0.2-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
		F 130-170	F 130-170	F 105-160	F 105-160		转速		F 120-165	F 120-165	F 90-120	F 90-120	
		750-800	750-800	700-750	700-750		转速		600-650	600-650	550-600	550-600	
		Fz 0.18-0.25	Fz 0.18-0.25	Fz 0.16-0.2	Fz 0.16-0.2		转速		Fz 0.2-0.25	Fz 0.2-0.25	Fz 0.16-0.2	Fz 0.16-0.2	
		F 135-200	F 135-200	F 115-150	F 115-150		转速		F 110-150	F 110-150	F 80-110	F 80-110	

备注: Fz= 每转进刀量 F=进给

带定心U钻

Centring U drill

带定心U钻的特点和优势

Characteristics and advantages of centering bit

特征优势 Main feature

带定心U钻, 是U钻延伸的孔加工刀具, 使用U钻刀片, 容纳U钻的优点, 加上利用加装定心钻的设计, 可实现更长倍径的钻孔。标准库存直径18mm~40mm, 加工深度6~8倍径可选择。

With centering drill, is the extension of U drill hole processing tool, the use of U drill blade, accommodate the advantages of U drill, coupled with the use of fixed core drill design, can achieve longer diameter drilling. Standard stock diameter 18mm~40mm, processing depth 6~8 times diameter can be selected.

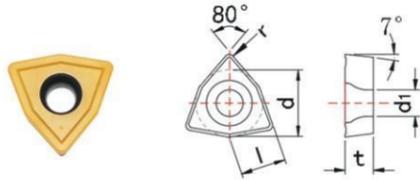
型号编码规则 Model coding rule

SP18-6D-C25-H06

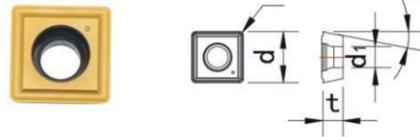
大类 Big type	刀杆直径 Tool rod diameter	长径比 Length to diameter handle	柄径 Shank diameter	中心钻型号 Center drill type
SD (WC刀片系列)	18 (表示刀杆Φ18mm)	2D (直径的2倍)	C20 (柄径Φ20mm)	H06 (中心钻型号)
SP (SP刀片系列)		3D (直径的3倍) 4D (直径的4倍) 5D (直径的5倍)	C25 (柄径Φ25mm) C32 (柄径Φ32mm) C40 (柄径Φ40mm)	

刀片型号

The blade model



型号 Code No	尺寸 Size					螺钉 Clamp screw	扳手 Wrench
	l	d	t	r	d1		
WCMX030208	3.8	5.56	2.38	0.8	2.8	M2.5X6	T8
WCMX040208	4.3	6.35	2.38	0.8	2.8	M2.5X6	T8
WCMT050308	5.4	7.94	3.18	0.8	3.3	M3X8	T8
WCMT06T308	6.54	9.525	3.97	0.8	3.8	M3.5X10	T15
WCMT080412	8.74	12.7	4.76	1.2	4.3	M4X10	T15



型号 Code No	尺寸 Size				螺钉 Clamp screw	扳手 Wrench
	d	t	r	d1		
SPMT04T102	4	1.98	0.2	2	M1.8X4	T6
SPMG050204	5	2.38	0.4	2.25	M2.2X5	T6
SPMG060204	6	2.38	0.4	2.61	M2.2X6	T7
SPMG07T308	7.94	3.97	0.8	2.85	M2.5X8	T8
SPMG090408	9.8	4.3	0.8	4.05	M3.5X10	T15
SPMG110408	11.5	4.8	0.8	4.45	M4X10	T15
SPMG140512	14.3	5.2	1.2	5.75	M5X12	T20

带定心U钻

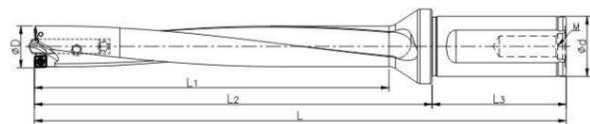
Centring U drill



WC DX6

型号 Code No	尺寸 Size						导向钻 Pilot Drill	刀片 Insert	螺钉 Clamp screw	扳手 Wrench
	ΦD	L	L1	L2	L3	M				
SD25-6D-C32-H06	25	237	154	177	60		HSS-V0630Tin	WCMX030208	M2.5X6	T8
SD25.5-6D-C32-H06	25.5	240	157	180	60					
SD26-6D-C32-H06	26	243	160	183	60					
SD26.5-6D-C32-H06	26.5	246	163	186	60					
SD27-6D-C32-H06	27	249	166	189	60					
SD27.5-6D-C32-H06	27.5	252	169	192	60			WCMX040208	M2.5X6	T8
SD28-6D-C32-H06	28	255	172	195	60					
SD28.5-6D-C32-H06	28.5	298	175	198	60					
SD29-6D-C32-H06	29	261	178	201	60					
SD29.5-6D-C32-H06	29.5	264	181	204	60					
SD30-6D-C32-H06	30	267	184	207	60		HSS-V0835Tin	WCMX050308	M3.0X8	T8
SD30.5-6D-C32-H06	30.5	270	187	210	60					
SD31-6D-C32-H06	31	273	190	213	60					
SD31.5-6D-C32-H06	31.5	276	193	216	60					
SD32-6D-C32-H08	32	279	196	219	60					
SD32.5-6D-C32-H08	32.5	282	199	222	60					
SD33-6D-C32-H08	33	285	202	225	60					
SD33.5-6D-C32-H08	33.5	288	205	228	60					
SD34-6D-C32-H08	34	290	208	230	60					
SD34.5-6D-C32-H08	34.5	293	211	233	60					
SD35-6D-C32-H08	35	297	214	237	60		HSS-V1035Tin	WCMX06T308	M3.5X10	T15
SD35.5-6D-C32-H08	35.5	300	217	240	60					
SD36-6D-C32-H08	36	303	220	243	60					
SD36.5-6D-C32-H08	36.5	306	223	246	60					
SD37-6D-C32-H08	37	309	226	249	60					
SD37.5-6D-C32-H08	37.5	312	229	252	60					
SD38-6D-C32-H08	38	315	232	255	60					
SD38.5-6D-C32-H08	38.5	318	235	258	60					
SD39-6D-C32-H08	39	321	238	261	60					
SD39.5-6D-C32-H08	39.5	324	241	264	60					
SD40-6D-C32-H08	40	324	244	264	60		HSS-V1035Tin	WCMX06T308	M3.5X10	T15
SD40.5-6D-C32-H08	40.5	327	247	267	60					
SD41-6D-C40-H10	41	330	250	270	60					
SD41.5-6D-C40-H10	41.5	333	253	273	60					
SD42-6D-C40-H10	42	351	256	281	70					
SD42.5-6D-C40-H10	42.5	354	259	284	70					
SD43-6D-C40-H10	43	357	262	287	70					
SD43.5-6D-C40-H10	43.5	360	265	290	70					
SD44-6D-C40-H10	44	363	268	293	70					
SD44.5-6D-C40-H10	44.5	366	271	296	70					
SD45-6D-C40-H10	45	369	274	299	70					

带定心U钻 Centring U drill



SP DX8

型号 Code No	尺寸 Size						导向钻 Pilot Drill	刀片 Insert	螺钉 Clamp screw	扳手 Wrench
	ΦD	L	L1	L2	L3	M				
SP18-8D-C25	18.0	222	148	166	56	G 1/8	HSS-V0630Tin	WCMG050204	M2.2X5	T6
SP18.5-8D-C25	18.5	226	152	170	56					
SP19-8D-C25	19.0	230	156	174	56					
SP19.5-8D-C25	19.5	234	160	178	56					
SP20-8D-C25	20.0	238	164	182	56					
SP20.5-8D-C25	20.5	242	168	186	56					
SP21-8D-C25	21.0	246	172	190	56					
SP21.5-8D-C25	21.5	250	176	194	56					
SP22-8D-C25	22.0	254	180	198	56					
SP22.5-8D-C25	22.5	258	184	202	56					
SP23-8D-C25	23.0	262	188	206	56					
SP23.5-8D-C25	23.5	266	192	210	56					
SP24-8D-C25	24.0	270	196	214	56					
SP24.5-8D-C25	24.5	274	200	218	56					
SP25-8D-C25	25.0	278	204	222	56					
SP25.5-8D-C32	25.5	293	208	233	60	G 1/4	HSS-V0835Tin	WCMG060204	M2.2X6	T7
SP26-8D-C32	26.0	297	212	237	60					
SP26.5-8D-C32	26.5	301	216	241	60					
SP27-8D-C32	27.0	305	220	245	60					
SP27.5-8D-C32	27.5	309	224	249	60					
SP28-8D-C32	28.0	313	228	253	60					
SP28.5-8D-C32	28.5	317	232	257	60					
SP29-8D-C32	29.0	321	236	261	60					
SP29.5-8D-C32	29.5	325	240	265	60					
SP30-8D-C32	30.0	329	244	269	60					
SP30.5-8D-C32	30.5	333	248	273	60					
SP31-8D-C32	31.0	337	252	277	60					
SP31.5-8D-C32	31.5	341	256	281	60					
SP32-8D-C32	32.0	345	260	285	60					
SP32.5-8D-C32	32.5	349	264	289	60					
SP33-8D-C32	33.0	353	268	293	60	G 1/4	HSS-V0835Tin	WCMG07T308	M2.5X8	T8
SP33.5-8D-C32	33.5	357	272	297	60					
SP34-8D-C32	34.0	361	276	301	60					
SP34.5-8D-C32	34.5	365	280	305	60					
SP35-8D-C32	35.0	369	284	309	60					
SP35.5-8D-C32	35.5	373	288	313	60					
SP36-8D-C32	36.0	377	292	317	60					
SP36.5-8D-C32	36.5	381	296	321	60					
SP37-8D-C32	37.0	385	300	325	60					
SP37.5-8D-C32	37.5	389	304	329	60					
SP38-8D-C32	38.0	393	308	333	60					
SP38.5-8D-C32	38.5	397	312	337	60					
SP39-8D-C32	39.0	401	316	341	60					
SP39.5-8D-C32	39.5	405	320	345	60					
SP40-8D-C32	40.0	409	324	349	60					

导向钻 Guide drill

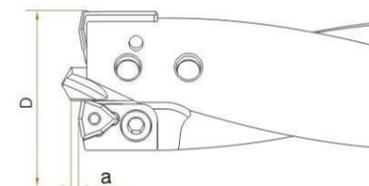


型号 Code No	尺寸 Size	
	Φd	L
HSS-V0630Tin	6	30
HSS-V0835Tin	8	35
HSS-V1035Tin	10	35
HSS-V1240Tin	12	40
HSS-V1645Tin	16	45
HSS-V2050Tin	20	50
HSS-V2560Tin	25	60

带定心U钻 Centring U drill

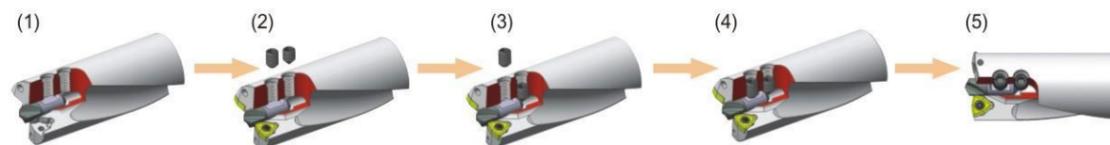
用户指南 User Guide

导向钻的高度设置 Pilot drill(PLD) setting



钻头直径(D) Bit diameter (D)	a		
	非合金钢	合金钢	有色金属
25-30	1.2	1	1.5
31-40	1.5	1.3	1.8
41-50	1.8	1.5	2.2
51-59	2.2	1.8	2.5
60-75	2.5	2	2.8
75-80	3	2.5	3.5

使用方法 Method of use



- (1) 插入孔导向钻;
- (2) 安装刀片;
- (3) 调整好导向钻高度;
- (4) 锁紧螺丝;
- (5) 导向钻底部必须紧贴导向钻, 高度调整螺丝, 不可有缝隙。

- (1) Insert hole guide drill;
- (2) Install the blade;
- (3) Adjust the guide drill height;
- (4) Lock screws;
- (5) The bottom of the guide drill must be close to the guide drill, height adjustment screws, no gaps.



导向钻高度调整螺丝, 涂上防松动胶, 防止使用中松动。
Guide drill height adjustment screw, coated with anti-loosening adhesive, to prevent loose in use.

带定心U钻 Centring U drill

带定心U钻WC系列切削参数

钻头直径	建议主轴功率	低碳钢 S10C-S25C	中碳钢 SS30C-S50C	结构钢 SS,SM	铸铁 FC,FCD	合金钢 SCr,SCM	工具钢 H13,SKD	不锈钢 SUS	铝合金
Φ25~Φ31.5	7.5千瓦以上 BT40	S1200-S900	S1100-S850	S1200-S900	S1300-S1000	S1300-S1000	S1100-S800	S1000-S700	S1300-S1000
		Fz 0.1-0.12	Fz 0.08-0.11	Fz 0.08-0.12	Fz 0.09-0.12	Fz 0.1-0.12	Fz 0.08-0.10	Fz 0.08-0.10	Fz 0.1-0.12
		F 90-120	F 80-110	F 80-120	F 90-130	F 90-120	F 70-110	F 60-100	F 100-150
Φ32~Φ36.5	11千瓦以上 BT40	S1000-S800	S1100-S850	S1000-S750	S1000-S700	S1000-S700	S900-S650	S900-S650	S1200-S800
		Fz 0.10-0.13	Fz 0.10-0.12	Fz 0.10-0.13	Fz 0.10-0.13	Fz 0.10-0.13	Fz 0.10-0.13	Fz 0.10-0.13	Fz 0.10-0.13
		F 80-130	F 85-120	F 75-130	F 70-130	F 70-130	F 65-100	F 65-100	F 80-130
Φ37~Φ40.5	15千瓦以上 BT50主轴	S1000-S700	S1000-S700	S1000-S650	S1000-S650	S900-S600	S800-S600	S800-S600	S1000-S800
		Fz 0.08-0.12	Fz 0.08-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.08-0.12	Fz 0.10-0.12	Fz 0.10-0.12
		F 60-100	F 65-100	F 65-110	F 65-120	F 60-120	F 55-100	F 55-100	F 80-120
Φ41~Φ43.5	15千瓦以上 BT50主轴	S100-S700	S100-S700	S900-S700	S900-S700	S800-S600	S800-S600	S800-S600	S1000-S700
		Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12
		F 70-110	F 70-110	F 70-110	F 70-110	F 60-100	F 60-100	F 50-80	F 70-120
Φ44~Φ45	15千瓦以上 BT50主轴	S900-S650	S900-S650	S850-S650	S850-S650	S750-S550	S750-S550	S700-S550	S1000-S700
		Fz 0.08-0.12	Fz 0.08-0.12	Fz 0.1-0.12	Fz 0.1-0.12	Fz 0.08-0.12	Fz 0.08-0.12	Fz 0.08-0.12	Fz 0.09-0.12
		F 60-110	F 60-110	F 65-90	F 65-110	F 50-65	F 50-65	F 45-80	F 65-120

备注: S=转速 Fz=每转进刀量 F=进给

带定心U钻SP系列切削参数

钻头直径	建议主轴功率	低碳钢 S10C-S25C	中碳钢 SS30C-S50C	结构钢 SS,SM	铸铁 FC,FCD	合金钢 SCr,SCM	工具钢 H13,SKD	不锈钢 SUS	铝合金
Φ18~Φ19.5	7.5千瓦以上 BT40	S1400-S1200	S1400-S1200	S1300-S1100	S1300-S1100	S1400-S1100	S1400-S1000	S1400-S1000	S1600-S1200
		Fz 0.07-0.1	Fz 0.07-0.1	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.07-0.1	Fz 0.07-0.1	Fz 0.07-0.1	Fz 0.1-0.12
		F 85-100	F 85-120	F 90-110	F 90-110	F 70-110	F 60-100	F 60-90	F 100-150
Φ20~Φ22.5	11千瓦以上 BT40	S1300-S1000	S1300-S1000	S1200-S1000	S1200-S1000	S1200-S900	S1200-S900	S1100-S900	S1500-S1100
		Fz 0.07-0.1	Fz 0.07-0.1	Fz 0.08-0.12	Fz 0.08-0.12	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.08-0.1
		F 70-110	F 70-110	F 80-120	F 80-120	F 75-120	F 75-120	F 70-90	F 90-150
Φ23~Φ25.5	15千瓦以上 BT50主轴	S1200-S1000	S1200-S1000	S1100-S900	S1100-S900	S1100-S900	S1000-S800	S1000-S700	S1400-S1200
		Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.1-0.1	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.08-0.12
		F 80-120	F 80-120	F 75-110	F 75-110	F 90-110	F 70-100	F 60-100	F 100-140
Φ26~Φ27.5	15千瓦以上 BT50主轴	S1100-S900	S1100-S900	S1100-S900	S1100-S900	S1000-S800	S1000-S800	S900-S700	S1200-S900
		Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.10-0.12	Fz 0.08-0.1	Fz 0.10-0.12
		F 75-110	F 75-110	F 90-130	F 90-130	F 80-120	F 80-120	F 60-90	F 90-140
Φ28~Φ30	15千瓦以上 BT50主轴	S1000-S800	S1000-S800	S1000-S800	S1000-S800	S900-S700	S900-S700	S800-S600	S1200-S900
		Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.1-0.12	Fz 0.1-0.12	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.08-0.1	Fz 0.1-0.12
		F 65-100	F 65-100	F 80-120	F 80-120	F 65-90	F 65-90	F 55-80	F 90-140

备注: S=转速 Fz=每转进刀量 F=进给

VMD 大钻头 VMD large bit

VMD大钻头的特点和优势

Features and advantages of VMD large bit

特征优势 Main feature

- VMD大直径暴力钻头, 专门针对直径45mm-180mm大孔径加工, 由刀体、连接杆、刀片座、导向钻、连接环等组成。
- 带导向钻的定芯设计, 深孔加工起到导向作用。
- 与U钻通用WC系列刀片, 方便采购。
- 刀片座模块化设计, 刀夹可换, 刃径可调范围直径0-5mm。
- 刀体和连接杆可根据孔加工深度适配, 有效减少刀具库存。
- 自带内冷水系统, 可连续加工使用。
- VMD large diameter violent bit is specially processed for large holes with diameters of 45mm-180mm. It is composed of cutter body, connecting rod, blade holder, guide drill, connecting ring, etc.
- Positioning design with guide drill, and deep hole processing plays a guiding role.
- Universal WC series blade with U drill, convenient to purchase.
- Modular design of blade holder, replaceable blade holder, adjustable blade diameter range of 0-5mm.
- The tool body and connecting rod can be adapted according to the depth of hole processing, effectively reducing tool inventory.
- With internal cooling water system, can be used for continuous processing.



模块化系统, 连接强度卓越, 刀体与连接杆组合, 加工深度自由调节。

Modular system, excellent connection strength, combination of cutter body and connecting rod, free adjustment of machining depth.

VMD 大钻头 VMD large bit

型号编码规则

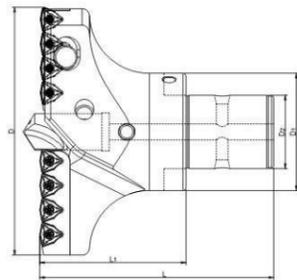
Model coding rule

VMD-045/050-13

大类 Big type	可调节直径范围 Adjustable diameter range	柄径 Shank diameter
VMD系列大钻头	045/050 (表示最小钻孔直径45mm, 最大钻孔直径50mm)	13 (表示柄径13mm)

VMD 大钻头

VMDDrill

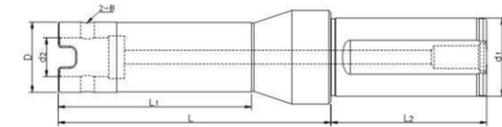


型号 Code No	尺寸 Size					导向钻 Guide drill	刀片座 Insert Seat	刀片 Insert	螺钉 Clamp screw	扳手 Wrench
	D	d2	D1	L1	L					
VMD-045/050-13	45-50	13	28	50	85	PLD-1035 TiN-H	VMC-045050N/T	WCMX030204	M2.5X5	T8
VMD-050/055-13	50-55	13	28	50	85		VMC-050055N/T			
VMD-055/060-16	55-60	16	32	60	100	PLD-1238 TiN-H	VMC-055060N/T	WCMX030204	M2.5X6	T10
VMD-060/065-16	60-65	16	32	60	100		VMC-060065N/T			
VMD-065/070-16	65-70	16	32	60	100		VMC-065070N/T			
VMD-070/075-22	70-75	22	40	70	115	PLD-1645 TiN-H	VMC-070075N/T	WCMX050308	M3.0X8	T15
VMD-075/080-22	75-80	22	40	70	115		VMC-075080N/T			
VMD-080/085-22	80-85	22	40	70	115		VMC-080085N/T			
VMD-085/090-27	85-90	27	48	70	120	PLD-2045 TiN-H	VMC-085090N/T	WCMX06T308	M3.5X10	T15
VMD-090/095-27	90-95	27	48	70	120		VMC-090095N/T			
VMD-095/100-27	95-100	27	48	70	120		VMC-095100N/T			
VMD-100/105-32	100-105	32	58	80	130	PLD-2556 TiN-H	VMC-100105N/T	WCMX050308	M3.0X8	T10
VMD-105/110-32	105-110	32	58	80	130		VMC-105110N/T			
VMD-110/115-32	110-115	32	58	80	130		VMC-110115N/T			
VMD-115/120-40	115-120	40	70	90	145	PLD-3068 TiN-H	VMC-115120N/T	WCMX06T308	M3.5X10	T15
VMD-120/125-40	120-125	40	70	90	145		VMC-120125N/T			
VMD-125/130-40	125-130	40	70	90	145		VMC-125130N/T			
VMD-130/135-40	130-135	40	70	90	145	PLD-3068 TiN-H	VMC-130135N/T	WCMX080408	M4.0X10	T15
VMD-135/140-40	135-140	40	70	90	145		VMC-135140N/T			
VMD-140/150-50	140-150	50	80	100	160		VMC-140150N/T			
VMD-150/160-50	150-160	50	80	100	160	PLD-3068 TiN-H	VMC-150160N/T	WCMX080408	M4.0X10	T15
VMD-160/170-50	160-170	50	80	100	160		VMC-160170N/T			
VMD-170/180-50	170-180	50	80	100	160		VMC-170180N/T			

VMD 大钻头 VMD large bit

VMD 连接刀杆

VMD connecting cutter bar



型号 Code No	尺寸 Size						锁紧螺钉 Connecting screw	连接环 Drive Ring	
	d1	d2	L	L1	D	L2			
VMD13-115L	32	13	115	77	28	70	M8	WET-281310	
VMD13-200L		13	200	165	28				
VMD13-300L		13	300	265	28				
VMD16-125L	40	16	125	86	32	80		M10	WET-321610
VMD16-200L		16	200	161	32				
VMD16-300L		16	300	261	32				
VMD22-148L		22	148	109	40		M12	WET-402212	
VMD22-200L		22	200	161	40				
VMD22-300L		22	300	261	40				
VMD27-168L	50.5	27	168	133	48	80	M16	WET-482712	
VMD27-300L		27	300	265	48				
VMD32-186L		32	186	151	58				M16
VMD32-300L		32	300	265	58				
VMD40-186L		40	186	151	70		M16	WET-704014	
VMD40-300L		40	300	265	70				
VMD50-184L	50	184	149	80	M16	WET-805016			
VMD50-300L	50	300	265	80					

连接环

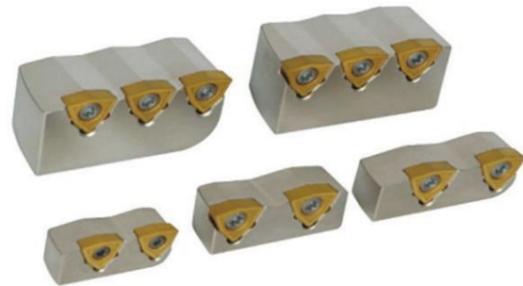
Adapter ring



型号 Code No	外径 D	内径 d	厚度 S
WET-281310	28	13	10
WET-321610	32	16	10
WET-402212	40	22	12
WET-482712	48	27	12
WET-583214	58	32	14
WET-704012	70	40	14
WET-805016	80	50	16

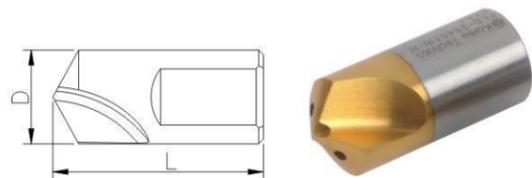
VMD 大钻头 VMD large bit

刀片座 Blade bearing



型号 Code No	刀片座内 Insert Seat	刀片座外 Insert Seat	刀片 Insert	刃数 Z	螺钉 Clamp screw	扳手 Wrench
45-50	VMC-045050N	VMC-045050T	WCMX030204	2	M2.5X5	T8
50-55	VMC-050055N	VMC-050055T				
55-60	VMC-055060N	VMC-055060T	WCMX040204	2	M2.5X6	T10
60-65	VMC-060065N	VMC-060065T				
65-70	VMC-065070N	VMC-065070T	WCMX050308	2	M3.0X8	T10
70-75	VMC-070075N	VMC-070075T				
75-80	VMC-075080N	VMC-075080T	WCMX06T308	2	M3.5X10	T15
80-85	VMC-080085N	VMC-080085T				
85-90	VMC-085090N	VMC-085090T	WCMX06T308	2	M3.5X10	T15
90-95	VMC-090095N	VMC-090095T				
95-100	VMC-095100N	VMC-095100T	WCMX050308	3	M3.0X8	T10
100-105	VMC-100105N	VMC-100105T				
105-110	VMC-105110N	VMC-105110T	WCMX06T308	3	M3.5X10	T15
110-115	VMC-110115N	VMC-110115T				
115-120	VMC-115120N	VMC-115120T	WCMX06T308	3	M3.5X10	T15
120-125	VMC-120125N	VMC-120125T				
125-130	VMC-125130N	VMC-125130T	WCMX080408	3	M4.0X10	T15
130-135	VMC-130135N	VMC-130135T				
135-140	VMC-135140N	VMC-135140T	WCMX080408	3	M4.0X10	T15
140-150	VMC-140150N	VMC-140150T				
150-160	VMC-150160N	VMC-150160T	WCMX080408	3	M4.0X10	T15
160-170	VMC-160170N	VMC-160170T				
170-180	VMC-170180N	VMC-170180T	WCMX080408	3	M4.0X10	T15

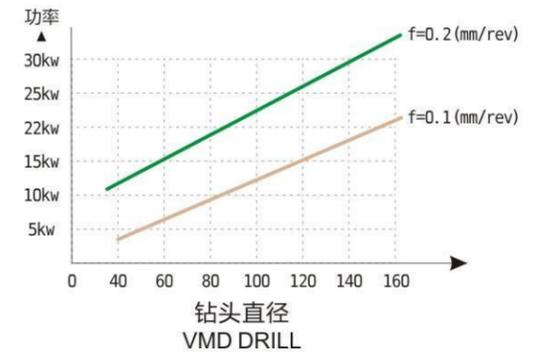
导向钻 Guide drill HSS C08%



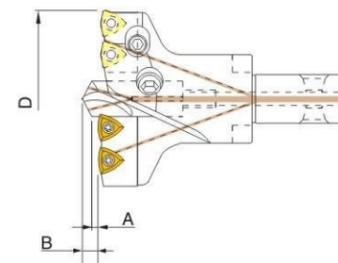
型号 Code No	直径 D	长度 L
HSS-V1035TIN-H	10	35
HSS-V1238TIN-H	12	38
HSS-V1645TIN-H	16	45
HSS-2045TIN-H	50	45
HSS-2556TIN-H	25	56
HSS-3068TIN-H	30	68

VMD 大钻头 VMD large bit

信息技术 Technical Data



导向钻高度设置 Pilot Drill



型号 Code No	2~4XD		4~6XD		6~8XD	
	A	B	A	B	A	B
45-55	1.6	4.0	1.8	4.2	2.0	4.4
55-75	1.8	5.4	2.0	5.6	2.2	5.8
75-100	2.2	6.5	2.5	6.8	2.8	7.1
100-120	2.4	7.7	2.8	8.1	3.2	8.5
120-170	3.2	9.9	3.6	10.3	4.0	10.7
170-180	3.5	12.2	3.9	12.6	4.3	13.0

推荐切削参数(VMD) Recommended Cutting Values For VMD

ISO	被削材	硬度	切削速 VC(m/min) 下限-推荐-上限	进给量fz(mm/rev) 下限-推荐-上限						刀片 材质	
				Φ45~Φ55	Φ55~Φ60	Φ60~Φ75	Φ75~Φ100	Φ100~Φ105	Φ105~Φ150		Φ150~Φ180
P	(-0.25%) 低碳钢	180~280HB	120-150-180	0.06-0.08-0.1	0.07-0.08-0.11	0.08-0.1-0.12	0.1-0.12-0.14	0.14-0.17-0.2	0.08-0.1-0.12	0.1-0.12-0.14	AC330
	(0.25%) 低碳钢	180~280HB	110-140-170	0.06-0.08-0.1	0.07-0.08-0.11	0.08-0.1-0.12	0.1-0.12-0.14	0.12-0.15-0.18	0.08-0.1-0.12	0.1-0.12-0.14	1030
	(~Hb300) 低合金钢	180~300HB	90-110-130	0.06-0.08-0.1	0.07-0.08-0.11	0.08-0.1-0.12	0.1-0.12-0.14	0.12-0.15-0.18	0.08-0.1-0.12	0.1-0.12-0.14	1030
	(Hb300-) 高合金钢	180~300HB	60-80-100	0.05-0.06-0.07	0.05-0.06-0.07	0.06-0.07-0.08	0.06-0.08-0.1	0.09-0.11-0.13	0.06-0.07-0.08	0.06-0.08-0.1	MU7025
M	不锈钢	200~330HB	60-90-110	0.04-0.05-0.07	0.04-0.07-0.11	0.06-0.09-0.12	0.08-0.11-0.14	0.1-0.14-0.18	0.06-0.1-0.12	0.08-0.11-0.14	1025
K	灰口铸铁	250HB	120-150-180	0.07-0.1-0.13	0.07-0.11-0.15	0.08-0.12-0.16	0.1-0.14-0.18	0.12-0.17-0.22	0.08-0.12-0.16	0.1-0.14-0.18	AC330
	球墨铸铁	250HB	100-140-180	0.04-0.08-0.13	0.07-0.11-0.15	0.08-0.12-0.16	0.1-0.18-0.25	0.12-0.19-0.26	0.08-0.12-0.16	0.1-0.18-0.25	MU7025
N	锻造铝 合金	-	180-230-280	0.04-0.05-0.06	0.07-0.01-0.12	0.08-0.1-0.13	0.09-0.12-0.15	0.12-0.16-0.2	0.08-0.1-0.13	0.09-0.12-0.15	MU3225
	铸造铝 合金	-	120-210-270	0.04-0.05-0.06	0.06-0.09-0.12	0.08-0.1-0.13	0.09-0.12-0.15	0.12-0.16-0.2	0.08-0.1-0.13	0.09-0.12-0.15	MU3225

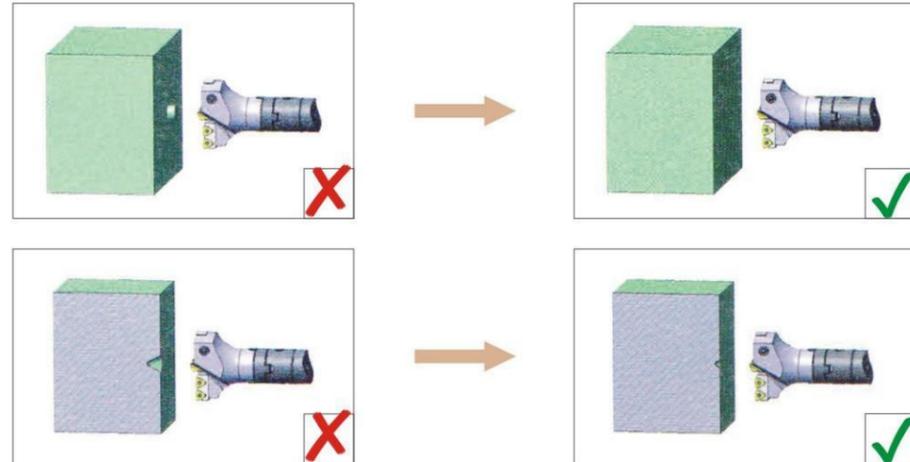
注: *以上切削条件为大致基准, 需要根据机械刚性和工件刚性、切深等进行调整。
 *转速n (min-1) = 切削速度Vc (m/min) × 1000 ÷ 3.14 ÷ 刀具直径 (mm)
 *进给速度Vf (mm/min) = n (min-1) × 每齿进给量fz (mm/t) × Z (刀齿数)

VMD 大钻头 VMD large bit

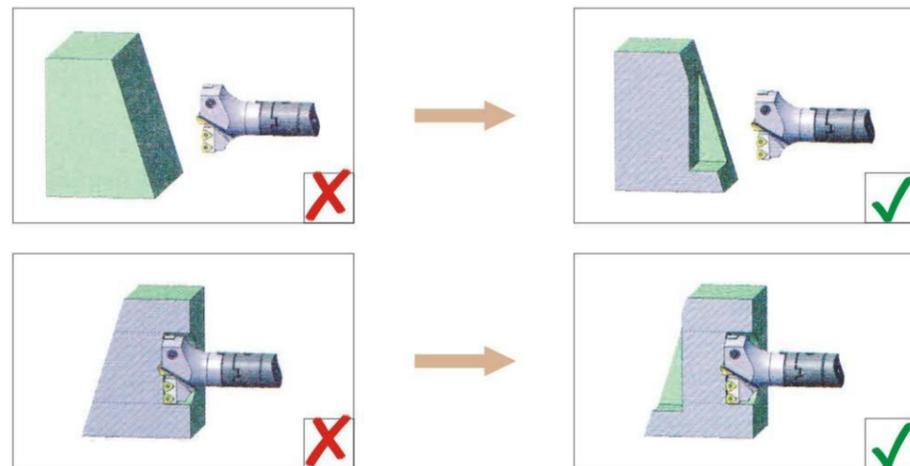
使用时注意事项

Precautions when using

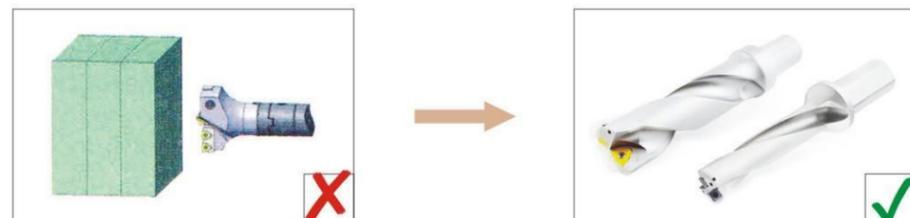
和下图相同的加工表面，有比导向钻直径大的孔直接加工会出现剧烈振动，导向钻头与刀片可能会损伤。
On the same machined surface as the figure below, direct machining of holes larger than the diameter of the guide drill will cause severe vibration, and the guide drill bit and blade may be damaged.



斜面加工时，铣平后，再用钻头钻孔作业。
In the case that there is inclined side, after make the part flat by milling work, please do drilling work.



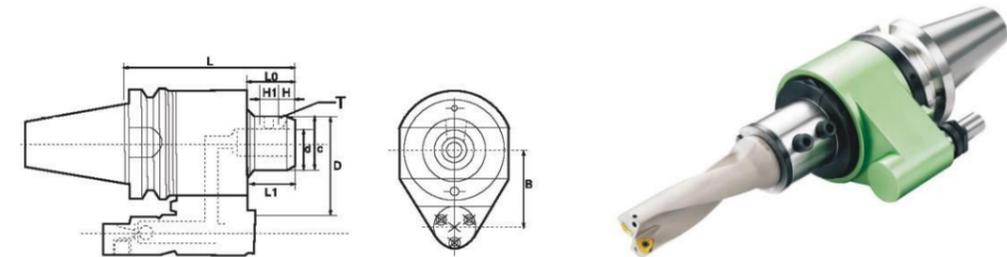
VMD系列不可以重叠加工
VMD series can not overlap processing



模块系统 Module system

SLO 侧固式自动换刀油路刀柄

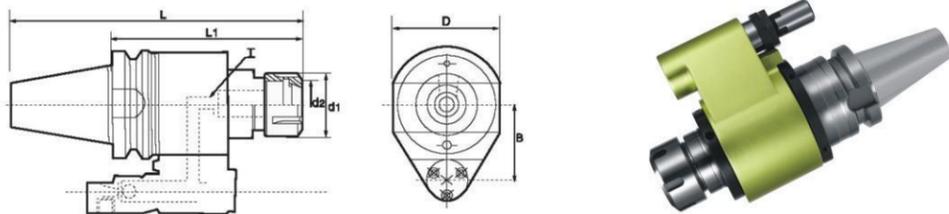
SLO side fixed automatic tool changing oil path tool handle



型号 Code No	尺寸 Size									
	L	L1	H	H1	D	d	c	B	T	
BT40-SL016-165	165	58	25	-	82	16	46.5	65	M12x1.75P	
BT40-SL020-165	165	60	25	-	82	20	46.5	65	M12x1.75P	
BT40-SL025-165	165	66	15	20	82	25	46.5	65	M12x1.75P	
BT40-SL032-165	165	70	15	20	82	32	47	65	M12x1.75P	
BT40-SL016-165S	165	48	25	-	82	16	46.5	60	M12x1.75P	
BT40-SL020-165S	165	50	25	-	82	20	46.5	60	M12x1.75P	
BT40-SL025-165S	165	56	15	20	82	25	47	60	M12x1.75P	
BT40-SL032-165S	165	60	15	20	82	32	56	60	M12x1.75P	
BT50-SL016-165	165	58	24	-	98	16	56	80	M14x2.0P	
BT50-SL020-165	165	60	25	-	98	20	56	80	M12x1.75P	
BT50-SL025-165	165	70	15	20	98	25	56	80	M16x2.0P	
BT50-SL032-165	165	70	15	20	98	32	56	80	M16x2.0P	
BT50-SL040-170	170	70	15	25	105	40	56	80	M14x2.0P	
BT50-SL016-165M	165	48	25	-	98	16	56	82	M14x2.0P	
BT50-SL020-165M	165	50	25	-	98	20	56	82	M12x1.75P	
BT50-SL025-165M	165	56	15	20	98	25	56	82	M16x2.0P	
BT50-SL032-165M	165	60	15	20	98	32	56	82	M16x2.0P	
BT50-SL040-170M	170	62	15	25	105	40	56	82	M14x2.0P	
BT50-SL016-165L	165	48	25	-	98	16	56	85	M14x2.0P	
BT50-SL020-165L	165	50	25	-	98	20	56	85	M12x1.75P	
BT50-SL025-165L	165	56	15	20	98	25	56	85	M16x2.0P	
BT50-SL032-165L	165	60	15	20	98	32	56	85	M16x2.0P	
BT50-SL040-170L	170	62	15	25	105	40	56	85	M14x2.0P	

ERO 自动换刀油路刀柄

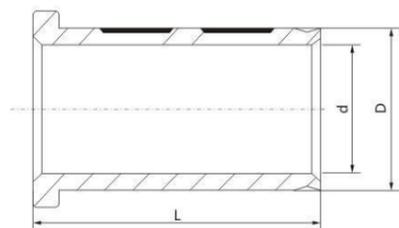
Ero automatic tool changing oil path tool holder



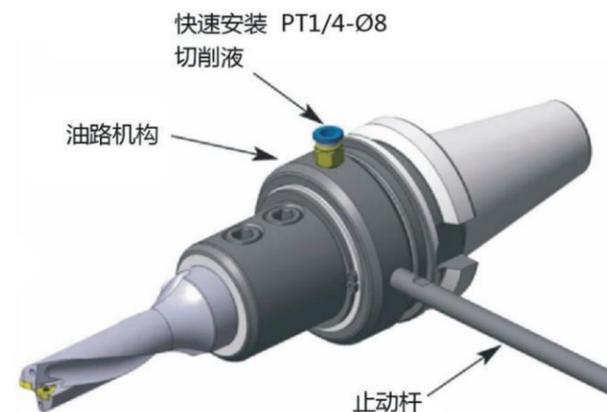
型号 Code No	尺寸 Size						
	L1	L	D	d1	d2	B	T
BT40-ER016-160	160	225.4	82	28	16	65	M10
BT40-ER020-160				34	20		M12
BT40-ER025-160				42	25		M16
BT40-ER032-160				50	32		
BT50-ER016-160				261.8	98		98
BT50-ER020-160	34	20	M12				
BT50-ER025-160	42	25	M16				
BT50-ER032-160	50	32					
BT50-ER040-160	63	40	M20				

转换套

Conversion of



型号 Code No	尺寸 Size		
	L	D	d
40-32	71	40	32
40-25	71	40	25
40-20	66	40	20
32-25	71	32	25
32-20	60	32	20
25-20	58	25	20



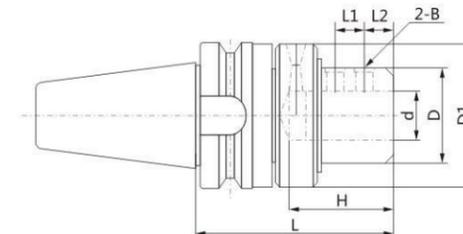
- 油路刀柄可快速实现刀具内冷却功能，使用简单方便。
- 提高刀具切削速度，有效降低切削刃口温度。
- 高压内冷可快速的排除铁屑，延长刀具使用寿命。
- 主要应用于VMD钻头。
- 内部专用密封结构，可快速进行密封圈更换。
- 允许最高转速2000RPM，允许冷却液压强为1MPa。



- 从油路机构外部90度处可以看到两条螺纹：一个用于提供切削油的功能，另一个用于安装止动杆的功能。
- Oil handle can quickly realize the tool cooling function, simple and convenient to use.
- Improve the cutting speed of the tool and effectively reduce the temperature of the cutting edge.
- High pressure internal cooling can quickly remove iron filings and extend the service life of the tool.
- Mainly used in VMD bits.
- Internal special sealing structure, sealing ring can be quickly replaced.
- The maximum allowable speed is 2000RPM, and the allowable cooling hydraulic strength is 1MPa.
- Two threads can be seen 90 degrees from the outside of the oil path mechanism: one for the cutting oil function and the other for the mounting stop rod function.

BT-OMS手动换刀油路刀柄

BT - OMS manual tool changing oil path tool handle



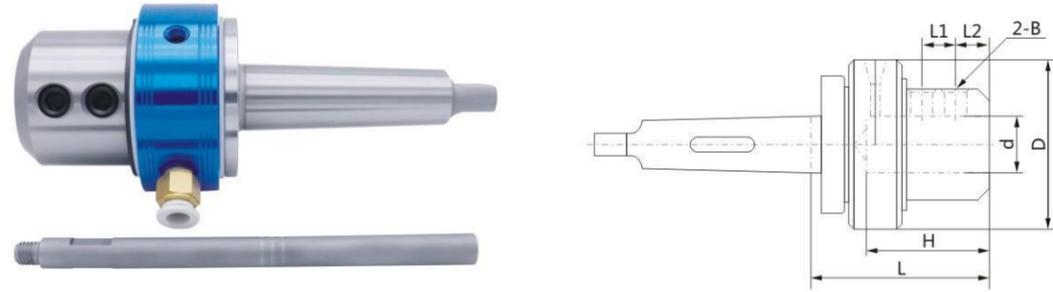
型号 Code No	尺寸 Size							
	d	L	D	D1	H	L1	L2	B
BT40-OMS-20105	20	105	50	78	50	20	/	M12
BT40-OMS-25120	25	120	50	78	60	20	20	M12
BT40-OMS-32125	32	125	65	88	70	20	20	M14
BT50-OMS-20120	20	120	50	78	50	20	/	M12
BT50-OMS-25135	25	135	50	78	60	20	20	M12
BT50-OMS-32135	32	135	65	98	70	20	20	M14
BT50-OMS-40145	40	145	65	98	80	20	25	M16X1.5
BT50-OMS-50170	50	170	90	123	90	35	35	M20

模块系统

Module system

MT-OML手动换刀油路刀柄

MT - OML manual tool change oil path tool handle



型号 Code No	尺寸 Size						
	d	D	L1	L2	H	L1	B
MT4-OMS-20080	20	83	20	/	60	80	M12
MT4-OMS-25095	25	83	20	20	75	95	M12
MT4-OMS-32100	32	88	20	20	78	100	M14
MT5-OMS-20080	20	83	20	/	60	80	M12
MT5-OMS-25095	25	83	20	20	75	95	M12
MT5-OMS-32100	32	88	20	20	78	100	M14
MT5-OMS-40110	40	88	20	25	82	110	M16X1.5
MT6-OMS-20085	20	83	20	/	60	85	M12
MT6-OMS-25100	25	83	20	20	75	100	M12
MT6-OMS-32105	32	88	20	20	78	105	M14
MT6-OMS-40120	40	88	20	25	82	120	M16X1.5

BT-SLA 侧固式刀柄

BT-SLA side fixed shank



型号 Code No	尺寸 Size						
	d1	d2	L1	L2	L3	T	
TB40	-SLA16-75	16	48	75	22	18	M12X1.75P
	-SLA20-75	20	52		25	20	
	-SLA25-90	25	65	90	30	22	M16X2.0P
	-SLA32-90	32	72		30	22	
	-SLA40-100	40	90		100	35	
TB50	-SLA20-90	20	52	90	25	20	M16X2.0P
	-SLA25-105	25	60	105	30	22	M16X2.0P
	-SLA32-105	32	63	105	30	22	M16X2.0P
	-SLA40-105	40	78/90	105	35	25	M16X2.0P

模块系统

Module system

莫式侧固式刀柄

MOE side fixed shank



型号 Code No	尺寸 Size								
	D1	d1	d2	L1	L2	Σ1	Σ2	Σ3	d3
MTA4-SLA25-80	31.267	25	65	117.5	100	54	24	25	M16
MTA4-SLA32-85	31.267	32	72	117.5	100	58	24	28	M16
MTA5-SLA25-80	44.399	25	65	149.5	100	54	24	25	M16
MTA5-SLA32-85	44.399	32	72	149.5	100	58	24	28	M16
MTA5-SLA40-95	44.399	40	90	149.5	100	68	30	32	M20

U钻车床刀座

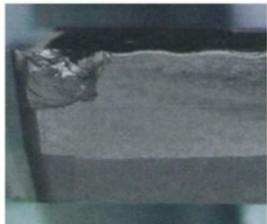
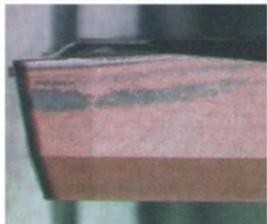
U-drill lathe tool holder



型号 Code No	尺寸 Size			
	H	H1	L	D
DK20-16	20	37	60	16
DK20-20		47	65	20
DK20-25		47	65	25
DK20-32		55	85	32
DK25-16	25	42	65	16
DK25-25		53	70	25
DK25-32		60	85	32
DK25-40		65	90	40
DK32-40	32	83	100	40
DK32-50		83	100	50

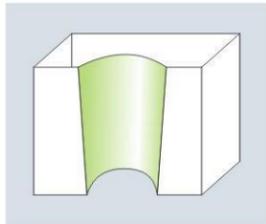
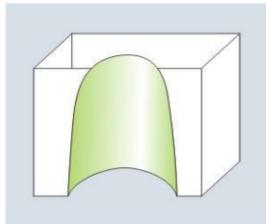
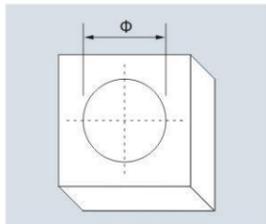
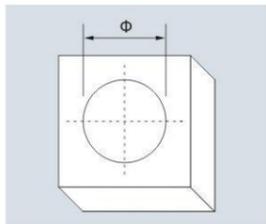
问题分析和解决措施

Insert Drill

磨损类型 The wear types	特征 Characteristics of the	措施 measures
刀具寿命短, 可转位刀片磨损严重	<ol style="list-style-type: none"> 1. 切削参数错误 2. 刀具材料的耐磨性不足 3. 冷却液不足 4. 刀片座损坏 5. 钻头刀体过长 6. 夹紧系统不稳定 7. 调整错误(针对车床) 	<ol style="list-style-type: none"> 1. 校正切削参数 2. 选择更耐磨的切削材质 3. 检查冷却液压力; 如果过低, 提高流量 4. 检查钻头刀体, 必要时更换 5. 如有可能, 使用较短的刀具 6. 提高夹紧装置的稳定性 7. 检查机床对正
中心刀片崩刃	 <ol style="list-style-type: none"> 1. 刀具中心高度过高/过低(针对车床) 2. 进给过高 3. 切削度过硬 4. 可转位刀片槽型遇到过大切削力 5. 夹紧系统不稳定 	<ol style="list-style-type: none"> 1. 检查中心高度并调整 2. 减小进给量 3. 使用更硬的刀具材料 4. 使用刀刃更锋利的槽型 5. 检查精度; 如果无法改善钻头夹紧和/或无法保证最佳稳定性; 减小进给量
周边刀片崩刃	 <ol style="list-style-type: none"> 1. 进给过高 2. 断续切削 3. 可转位刀片槽型需要更大切削力 	<ol style="list-style-type: none"> 1. 减小进给量 2. 使用更硬的切削材质和更强的槽型 3. 使用槽型更锋利的可转位刀片
形成积屑瘤	 <ol style="list-style-type: none"> 1. 冷却液不足 2. 切削参数错误 	<ol style="list-style-type: none"> 1. 检查冷却液压力; 如果过低, 提高流量 2. 提高切削速度, 降低进给
排屑效果或断屑不佳	 <ol style="list-style-type: none"> 1. 冷却液不足 2. 切削参数错误 	<ol style="list-style-type: none"> 1. 提高冷却液压力和流量(为了改善排屑效果以及切削刃冷却) 2. 优化该应用的切削参数和切屑控制; 提高切削速度, 降低进给
侧面有摩擦痕迹	 <ol style="list-style-type: none"> 1. 钻孔直径过小 2. 排屑效果差 3. 由于刀刃钝化导致弯曲应力提高 	<ol style="list-style-type: none"> 1. 检查调整情况 2. 优化切削参数, 检查可转位刀片槽型 3. 选择更锋利的槽型

问题分析和解决措施

Insert Drill

磨损类型 The wear types	特征 Characteristics of the	措施 measures
钻孔质量差	 <ol style="list-style-type: none"> 1. 冷却液不足 2. 切削参数错误 3. 夹紧系统不稳定 4. 调整错误(针对车床) 	<ol style="list-style-type: none"> 1. 提高冷却液压力和体积流量 2a. 提高切削速度, 降低进给 2b. 检查(刀具和工件的)装夹精度, 必要时改进 3. 优化装夹的稳定性 4. 检查机床对正
喇叭孔	 <ol style="list-style-type: none"> 1. 切屑积聚在外部可转位刀片槽中 2. 材料非常软 	<ol style="list-style-type: none"> 1. 选择备选断屑槽型, 必要时提高进给 2a. 提高切削速度, 降低进给 2b. 使用其他切削槽型
钟形孔	 <ol style="list-style-type: none"> 1. 切屑积聚在中央可转位刀片槽中 	<ol style="list-style-type: none"> 1. 选择其他槽型, 必要时提高进给
孔径过小或者过大	 <ol style="list-style-type: none"> 1. 机床不在零位上运转(针对车床) 2. 机床坐标轴偏移(针对车床) 3. 偏心套调整错误 	<ol style="list-style-type: none"> 1. 检查调整情况并校正 2. 检查调整情况并校正 3. 检查调整情况并校正
刀夹式钻头的孔径过小或者过大	 <ol style="list-style-type: none"> 1. 调刀错误(在外部刀夹上) 	<ol style="list-style-type: none"> 1. 检查调整情况并校正