



Speed Drill 可换钻尖式钻头
Interchangeable Insert Drill



浙江欣兴工具有限公司
ZHEJIANG XINXING TOOLS CO., LTD.



关于我们 | About US

浙江欣兴工具有限公司创立于1992年，是一家专注于孔加工技术的高科技刀具制造商，CHTOOLS是公司的注册商标。

我们年轻而有活力，依托技术创新，坚持用户价值，持续研发新产品，促成我们不断成长。我们追求产品的优秀性能，坚持以先进的机床，优质的原料，最佳的工艺制造高品质产品。

我们生产高度专业化的切削刀具：钢板钻、铲钻、S钻、深孔钻、钢轨钻、孔钻、阶梯钻、铤钻、磁座钻机、整体硬质合金刀具等，我们已经成为这些行业的佼佼者。

衷心感谢一直支持我们的全球客户，我们将立志成为国际领先的刀具制造商，进一步提高刀具性能，开发更多的新产品，成为您可信赖的刀具供应商。

Zhejiang Xinxing Tools Co., Ltd., established in 1992, is a high-tech tool manufacturer focusing on hole making technologies and CHTOOLS is a registered trademark of the company.

Being young and energetic, we rely on technological innovation, stick to user value and continuously develop new products to promote our continuous development. We pursue excellent product performance and insist on manufacturing high-quality products with advanced machine tools, good raw materials and optimal processes.

We make highly professional cutting tools, including core drills, spade drills, Speed drills, deep hole drills, rail drills, hole saws, step drills, countersink drills, magnetic drills, solid cemented carbide tools, etc. We play a leading role in these industries.

We sincerely thank our global customers for your constant support. We are determined to build an internationally leading tool manufacturer, further improve tool performance, develop more new products and become your reliable tool supplier.



《钢板钻》中国国家行业标准起草单位
《铲钻》中国国家行业标准起草单位
国家制造业单项冠军示范企业
国家高新技术企业
国家AAAA守合同重信用企业
浙江省隐形冠军企业
荣获“浙江省五一劳动奖状”
荣获“浙江省企业技术中心”和“浙江省企业研究院”
荣获“浙江省绿色企业”
“浙江制造”国际认证联盟认证
公司拥有专利100余项，发明专利10项

A drafting unit of the Chinese national industry standard "Core Drill"
A drafting unit of the Chinese national industry standard "Spade Drill"
National Manufacturing Championship Model Enterprise
National High-tech Enterprise
China AAAA Contract Honoring and Credit-worthy Enterprise
Zhejiang Hidden Champion Enterprise
Awarded "Zhejiang May 1st Labor Medal"
Awarded "Zhejiang Enterprise Technology Center" and "Zhejiang Enterprise Research Institute"
Awarded "Zhejiang Green Enterprise"
Certificate of "Made in Zhejiang" International Certification Alliance
The company has over 100 patents and 10 patents for inventions

介绍 | Introduction

S钻，是CHTOOLS独创性推出的一种高性能可换钻尖式钻头系统，英文名Speed Drill。

通过已获得专利授权的三重定位结构，具有超常的连接强度与定位精度，最佳的几何设计和材料使其具有出色的钻孔速度与耐用度。其分体可换结构，可实现不同功能的钻尖与不同长度的刀杆灵活搭配，满足不同被加工材料，不同钻孔深度等方面的应用，实现最少化的刀具投入，减少库存的优势。

刀片直径范围 $\Phi 10.00 \sim \Phi 39.99\text{mm}$ ，钻孔深度有3D、5D、8D；刀片材质分为硬质合金材质与粉末高速钢材质，能分别匹配高刚性数控机床和普通机床，S钻刀片设有针对钢、不锈钢、铸铁、有色金属四种被加工材质系列，满足不同的被加工材料需求。

Speed drill is a high-performance replaceable insert drill system originally launched by CHTOOLS.

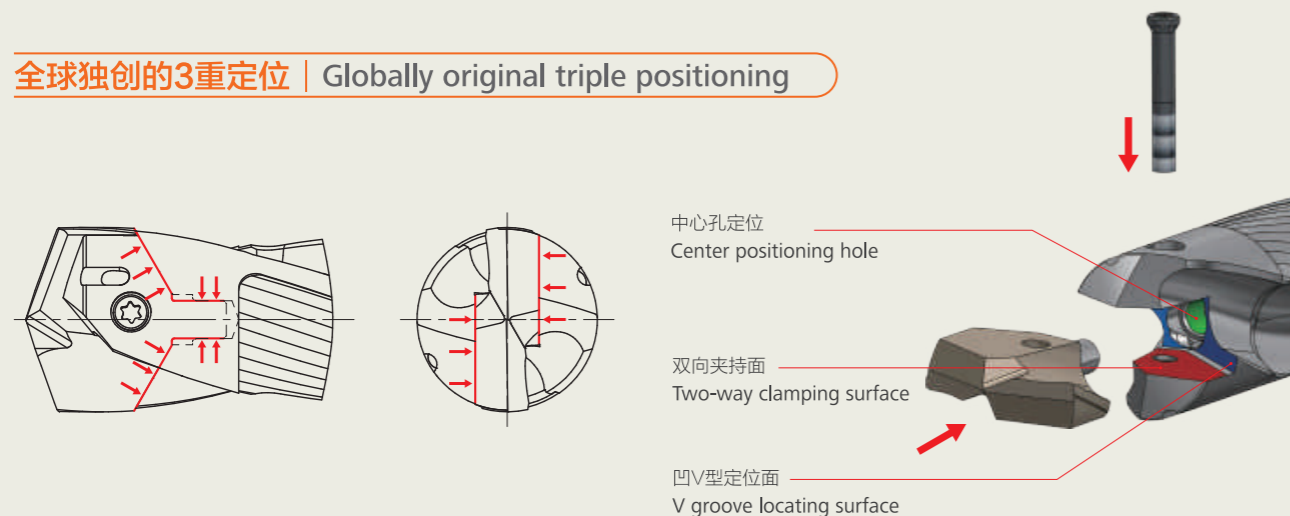
The triple positioning structure for which a patent is licensed features extraordinary connection strength and positioning accuracy, and the optimal geometric design and materials contribute to its excellent drilling speed and durability. Given the split replaceable construction, it can achieve flexible combination of inserts of various functions and holders of different lengths, thereby satisfying the needs of different materials to be processed, different drilling depths and other applications, and achieving the advantages of minimized tool investment and less inventory.

Insert diameter range: $\Phi 10.00 \sim \Phi 39.99\text{ mm}$; drilling depth: 3D, 5D and 8D; insert materials include carbide and HSS-PM which match highly rigid CNC machine tools and common machine tools, respectively. Speed drill inserts are designed to process four series of materials, i.e. steel, stainless steel, cast iron and nonferrous metals, thus meeting the needs of different materials being processed.

优势 | Advantages

- 稳定和易于操作的可换结构，可在机床上方便更换刀片
- 位于中心的锁紧螺钉和V型、圆柱定位组合，锁紧力和钻削力保持一致，稳定可靠
- 最佳的材料、顶级的涂层和精密磨削技术，实现性能的最大化
- 高强度刀片结构，大进给钻削也能胜任
- 独有的硬质合金和粉末高速钢双体系材质，既能胜任在CNC机器上高速钻削，又能胜任在普通机器上以中低速钻削
- 刀杆柄部采用ISO9766标准，国际通用
- The replaceable adapter which is stable and easy to operate facilitates the replacement of insert on machine tools;
- The positioning combination of center lock screw, V groove and cylinder maintains consistent, stable and reliable locking force and drilling force;
- Optimal materials, top-class coating and precision grinding technology maximize its performance;
- The high-strength insert construction make it competent for drilling with high feeds;
- With the unique dual material system of cemented carbide and HSS-PM, it can realize high speed drilling on CNC machines and low-to-medium speed drilling on common machines;
- The shank of the holder implements ISO9766 and therefore is used internationally.

全球独创的3重定位 | Globally original triple positioning



硬质合金刀片和粉末钢刀片的应用领域

Applications of cemented carbide inserts and powder steel inserts



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

Carbide inserts:

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



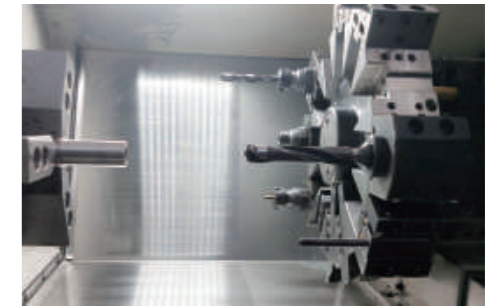
粉末高速钢刀片

——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

HSS-PM inserts:

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.

应用 Applications

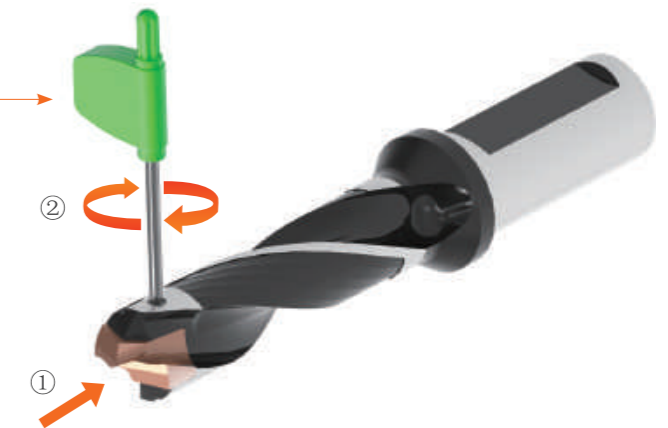


刀片的安装 | Installation procedure

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
31.0-36.99	7.5
37.0-39.99	15.0

安装步骤

- 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。有条件的用户推荐用力矩扳手锁紧，锁紧力矩值如图所示。



Installation procedure

- ① First, clean the insert and mounting groove with compressed air.
- ② Load the insert into the mounting groove in the holder and slightly push the insert.
- ③ Fix 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.

S钻刀片 | Speed drill insert

型号编码规则 | Model coding rule

S10 — C PA — 1000

产品系列 Product Series	刀片材质 Insert Material	钻尖 Drill Point	刀片直径 Insert Diameter
S10 - S钻 S10 - Speed drill	C - 硬质合金 C - Carbide H - 粉末高速钢 H - HSS-PM	PA - 通用钻尖 PA - Universal drill point MA - 不锈钢用钻尖 MA - Drill Point for stainless steel KA - 铸铁用钻尖 KA - Drill Point for cast iron NA - 有色金属用钻尖 NA - Drill Point for non-ferrous metal PC - 高定心钻尖 PC - High centering Drill Point	1000 - 10.0 mm 1270 - 12.7mm 10000 - 100.0mm



硬质合金刀片系列 | Carbide Insert Series

	P	M	K	N	S
CPA	●	○	○		
CMA	○	●			○
CKA			●		
CNA				●	

● 首选 Preferred ○ 备选 Alternative



高速钢刀片系列 | HSS PM Insert Series

	P	M	K	N	S
HPC	●	○	○	○	

● 首选 Preferred ○ 备选 Alternative

S钻刀杆 | Speed drill holder

型号编码规则 | Model coding rule

S10 — G 1800 — 03 L 25

产品系列 Product Series	类型 Type	最小安装刀片直径 Min. Insert Diameter	最大孔深 Max. Hole Depth	柄部类型 Shank Type	柄部直径 Shank Diameter
S10-S钻 S10-Speed drill	G-刀杆 G-holder	1800-18.0mm	03-3xD 05-5xD 08-8xD	L-侧固式柄 L-Side lock shank M-莫氏锥柄 M-Morse taper shank	16-16.0 20-20.0 25-25.0 32-32.0 40-40.0 T3-MT3



规格型号 | Specifications



直径 diameter (mm)	PL	Carbide					Carbide					Carbide					Carbide					HSS PM				
		P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S
		●	○	○			○	●			○			●			●				○	●	○	○		
		CPA					CMA					CKA					CNA					HPC				
10.00 10.20	1.8 1.9	S10-CPA-1000 S10-CPA-1020					S10-CMA-1000 S10-CMA-1020					S10-CKA-1000 S10-CKA-1020					S10-CNA-1000 S10-CNA-1020					S10-HPC-1000 S10-HPC-1020				
10.50	1.9	S10-CPA-1050					S10-CMA-1050					S10-CKA-1050					S10-CNA-1050					S10-HPC-1050				
11.00	2.0	S10-CPA-1100					S10-CMA-1100					S10-CKA-1100					S10-CNA-1100					S10-HPC-1100				
11.50	2.1	S10-CPA-1150					S10-CMA-1150					S10-CKA-1150					S10-CNA-1150					S10-HPC-1150				
12.00	2.2	S10-CPA-1200					S10-CMA-1200					S10-CKA-1200					S10-CNA-1200					S10-HPC-1200				
12.50	2.3	S10-CPA-1250					S10-CMA-1250					S10-CKA-1250					S10-CNA-1250					S10-HPC-1250				
13.00	2.4	S10-CPA-1300					S10-CMA-1300					S10-CKA-1300					S10-CNA-1300					S10-HPC-1300				
13.50	2.5	S10-CPA-1350					S10-CMA-1350					S10-CKA-1350					S10-CNA-1350					S10-HPC-1350				
14.00	2.5	S10-CPA-1400					S10-CMA-1400					S10-CKA-1400					S10-CNA-1400					S10-HPC-1400				

尺寸 size (mm)										
	LU	型号 Part No.	DC	DCON	LF	OAL	LS			
3D	31.5	S10-G1000-03L16	10.0~10.49	16	48	96	48	2102223	2502035	
5D	52.5	S10-G1000-05L16	10.0~10.49	16	69	117	48	2102223	2502035	
8D	84.0	S10-G1000-08L16	10.0~10.49	16	100	148	48	2102223	2502035	
3D	33.0	S10-G1050-03L16	10.5~10.99	16	50	98	48	2102223	2502035	
5D	55.0	S10-G1050-05L16	10.5~10.99	16	72	120	48	2102223	2502035	
8D	88.0	S10-G1050-08L16	10.5~10.99	16	105	153	48	2102223	2502035	
3D	34.5	S10-G1100-03L16	11.0~11.49	16	52	100	48	2102203	2502035	
5D	57.5	S10-G1100-05L16	11.0~11.49	16	75	123	48	2102203	2502035	
8D	92.0	S10-G1100-08L16	11.0~11.49	16	110	158	48	2102203	2502035	
3D	36.0	S10-G1150-03L16	11.5~11.99	16	54	102	48	2102203	2502035	
5D	60.0	S10-G1150-05L16	11.5~11.99	16	78	126	48	2102203	2502035	
8D	96.0	S10-G1150-08L16	11.5~11.99	16	114	162	48	2102203	2502035	
3D	37.5	S10-G1200-03L16	12.0~12.49	16	57	105	48	2102203	2502035	
5D	62.5	S10-G1200-05L16	12.0~12.49	16	82	130	48	2102203	2502035	
8D	100.0	S10-G1200-08L16	12.0~12.49	16	119	167	48	2102203	2502035	
3D	39.0	S10-G1250-03L16	12.5~12.99	16	59	107	48	2102204	2502035	
5D	65.0	S10-G1250-05L16	12.5~12.99	16	85	133	48	2102204	2502035	
8D	104.0	S10-G1250-08L16	12.5~12.99	16	124	172	48	2102204	2502035	
3D	40.5	S10-G1300-03L16	13.0~13.49	16	61	109	48	2102204	2502035	
5D	67.5	S10-G1300-05L16	13.0~13.49	16	88	136	48	2102204	2502035	
8D	108.0	S10-G1300-08L16	13.0~13.49	16	128	176	48	2102204	2502035	
3D	42.0	S10-G1350-03L16	13.5~13.99	16	63	111	48	2102204	2502035	
5D	70.0	S10-G1350-05L16	13.5~13.99	16	91	139	48	2102204	2502035	
8D	112.0	S10-G1350-08L16	13.5~13.99	16	133	181	48	2102204	2502035	
3D	43.5	S10-G1400-03L16	14.0~14.49	16	65	113	48	2102205	2502036	
5D	72.5	S10-G1400-05L16	14.0~14.49	16	94	142	48	2102205	2502036	
8D	116.0	S10-G1400-08L16	14.0~14.49	16	138	186	48	2102205	2502036	

规格型号 | Specifications



直径 diameter (mm)	PL	Carbide					Carbide					Carbide					Carbide					HSS PM				
		P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S
		●	○	○			○	●			○		●				●				○	●	○	○		
		CPA					CMA					CKA					CNA					HPC				
14.50	2.6	S10-CPA-1450					S10-CMA-1450					S10-CKA-1450					S10-CNA-1450					S10-HPC-1450				
15.00 15.50	2.7 2.8	S10-CPA-1500 S10-CPA-1550					S10-CMA-1500 S10-CMA-1550					S10-CKA-1500 S10-CKA-1550					S10-CNA-1500 S10-CNA-1550					S10-HPC-1500 S10-HPC-1550				
16.00 16.50	2.9 3.0	S10-CPA-1600 S10-CPA-1650					S10-CMA-1600 S10-CMA-1650					S10-CKA-1600 S10-CKA-1650					S10-CNA-1600 S10-CNA-1650					S10-HPC-1600 S10-HPC-1650				
17.00 17.50	3.1 3.2	S10-CPA-1700 S10-CPA-1750					S10-CMA-1700 S10-CMA-1750					S10-CKA-1700 S10-CKA-1750					S10-CNA-1700 S10-CNA-1750					S10-HPC-1700 S10-HPC-1750				
18.00 18.50	3.3 3.4	S10-CPA-1800 S10-CPA-1850					S10-CMA-1800 S10-CMA-1850					S10-CKA-1800 S10-CKA-1850					S10-CNA-1800 S10-CNA-1850					S10-HPC-1800 S10-HPC-1850				
19.00 19.50	3.5 3.5	S10-CPA-1900 S10-CPA-1950					S10-CMA-1900 S10-CMA-1950					S10-CKA-1900 S10-CKA-1950					S10-CNA-1900 S10-CNA-1950					S10-HPC-1900 S10-HPC-1950				
20.00 20.50	3.6 3.7	S10-CPA-2000 S10-CPA-2050					S10-CMA-2000 S10-CMA-2050					S10-CKA-2000 S10-CKA-2050					S10-CNA-2000 S10-CNA-2050					S10-HPC-2000 S10-HPC-2050				
21.00 21.50	3.8 3.9	S10-CPA-2100 S10-CPA-2150					S10-CMA-2100 S10-CMA-2150					S10-CKA-2100 S10-CKA-2150					S10-CNA-2100 S10-CNA-2150					S10-HPC-2100 S10-HPC-2150				
22.00 22.50	4.0 4.1	S10-CPA-2200 S10-CPA-2250					S10-CMA-2200 S10-CMA-2250					S10-CKA-2200 S10-CKA-2250					S10-CNA-2200 S10-CNA-2250					S10-HPC-2200 S10-HPC-2250				

尺寸 size (mm)										
	LU	型号 Part No.	DC	DCON	LF	OAL	LS			
3D	45.0	S10-G1450-03L16	14.5~14.99	16	67	115	48	2102205	2502036	
5D	75.0	S10-G1450-05L16	14.5~14.99	16	97	145	48	2102205	2502036	
8D	120.0	S10-G1450-08L16	14.5~14.99	16	142	190	48	2102205	2502036	
3D	48.0	S10-G1500-03L20	15.0~15.99	20	72	122	50	2102205	2502036	
5D	80.0	S10-G1500-05L20	15.0~15.99	20	104	154	50	2102205	2502036	
8D	128.0	S10-G1500-08L20	15.0~15.99	20	152	202	50	2102205	2502036	
3D	51.0	S10-G1600-03L20	16.0~16.99	20	77	127	50	2102206	2502036	
5D	85.0	S10-G1600-05L20	16.0~16.99	20	111	161	50	2102206	2502036	
8D	140.0	S10-G1600-08L20	16.0~16.99	20	162	212	50	2102206	2502036	
3D	54.0	S10-G1700-03L20	17.0~17.99	20	81	131	50	2102206	2502036	
5D	90.0	S10-G1700-05L20	17.0~17.99	20	117	167	50	2102206	2502036	
8D	144.0	S10-G1700-08L20	17.0~17.99	20	171	221	50	2102206	2502036	
3D	57.0	S10-G1800-03L25	18.0~18.99	25	85	141	56	2102225	2502037	
5D	95.0	S10-G1800-05L25	18.0~18.99	25	123	179	56	2102225	2502037	
8D	152.0	S10-G1800-08L25	18.0~18.99	25	180	236	56	2102225	2502037	
3D	60.0	S10-G1900-03L25	19.0~19.99	25	90	146	56	2102207	2502037	
5D	100.0	S10-G1900-05L25	19.0~19.99	25	130	186	56	2102207	2502037	
8D	160.0	S10-G1900-08L25	19.0~19.99	25	190	246	56	2102207	2502037	
3D	63.0	S10-G2000-03L25	20.0~20.99	25	94	150	56	2102207	2502037	
5D	105.0	S10-G2000-05L25	20.0~20.99	25	136	192	56	2102207	2502037	
8D	168.0	S10-G2000-08L25	20.0~20.99	25	199	255	56	2102207	2502037	
3D	66.0	S10-G2100-03L25	21.0~21.99	25	98	154	56	2102208	2502037	
5D	110.0	S10-G2100-05L25	21.0~21.99	25	142	198	56	2102208	2502037	
8D	176.0	S10-G2100-08L25	21.0~21.99	25	208	264	56	2102208	2502037	
3D	69.0	S10-G2200-03L25	22.0~22.99	25	102	158	56	2102208	2502037	
5D	115.0	S10-G2200-05L25	22.0~22.99	25	148	204	56	2102208	2502037	
8D	184.0	S10-G2200-08L25	22.0~22.99	25	217	273	56	2102208	2502037	

规格型号 | Specifications



直径 diameter (mm)	PL	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S
		●	○	○			○	●			○			●			●	○	○	○		●	○	○	○	
		CPA					CMA					CKA					CNA					HPC				
23.00 23.50	4.2 4.3	S10-CPA-2300 S10-CPA-2350					S10-CMA-2300 S10-CMA-2350					S10-CKA-2300 S10-CKA-2350					S10-CNA-2300 S10-CNA-2350					S10-HPC-2300 S10-HPC-2350				
24.00 24.50	4.4 4.5	S10-CPA-2400 S10-CPA-2450					S10-CMA-2400 S10-CMA-2450					S10-CKA-2400 S10-CKA-2450					S10-CNA-2400 S10-CNA-2450					S10-HPC-2400 S10-HPC-2450				
25.00 25.50	4.5 4.6	S10-CPA-2500 S10-CPA-2550					S10-CMA-2500 S10-CMA-2550					S10-CKA-2500 S10-CKA-2550					S10-CNA-2500 S10-CNA-2550					S10-HPC-2500 S10-HPC-2550				
26.00 26.50	4.7 4.8	S10-CPA-2600 S10-CPA-2650					S10-CMA-2600 S10-CMA-2650					S10-CKA-2600 S10-CKA-2650					S10-CNA-2600 S10-CNA-2650					S10-HPC-2600 S10-HPC-2650				
27.00 27.50	4.9 5.0	S10-CPA-2700 S10-CPA-2750					S10-CMA-2700 S10-CMA-2750					S10-CKA-2700 S10-CKA-2750					S10-CNA-2700 S10-CNA-2750					S10-HPC-2700 S10-HPC-2750				
28.00 28.50	5.1 5.2	S10-CPA-2800 S10-CPA-2850					S10-CMA-2800 S10-CMA-2850					S10-CKA-2800 S10-CKA-2850					S10-CNA-2800 S10-CNA-2850					S10-HPC-2800 S10-HPC-2850				
29.00 29.50	5.3 5.4	S10-CPA-2900 S10-CPA-2950					S10-CMA-2900 S10-CMA-2950					S10-CKA-2900 S10-CKA-2950					S10-CNA-2900 S10-CNA-2950					S10-HPC-2900 S10-HPC-2950				
30.00 30.50	5.5 5.6	S10-CPA-3000 S10-CPA-3050					S10-CMA-3000 S10-CMA-3050					S10-CKA-3000 S10-CKA-3050					S10-CNA-3000 S10-CNA-3050					S10-HPC-3000 S10-HPC-3050				
31.00 31.50	5.6 5.7	S10-CPA-3100 S10-CPA-3150					S10-CMA-3100 S10-CMA-3150					S10-CKA-3100 S10-CKA-3150					S10-CNA-3100 S10-CNA-3150					S10-HPC-3100 S10-HPC-3150				

尺寸 size (mm)										
	LU	型号 Part No.	DC	DCON	LF	OAL	LS			
3D	72.0	S10-G2300-03L25	23.0~23.99	25	107	163	56	2102208	2502037	
5D	120.0	S10-G2300-05L25	23.0~23.99	25	155	211	56	2102208	2502037	
8D	192.0	S10-G2300-08L25	23.0~23.99	25	227	283	56	2102208	2502037	
3D	75.0	S10-G2400-03L32	24.0~24.99	32	112	172	60	2102209	2502038	
5D	125.0	S10-G2400-05L32	24.0~24.99	32	162	222	60	2102209	2502038	
8D	200.0	S10-G2400-08L32	24.0~24.99	32	237	297	60	2102209	2502038	
3D	78.0	S10-G2500-03L32	25.0~25.99	32	116	176	60	2102209	2502038	
5D	130.0	S10-G2500-05L32	25.0~25.99	32	168	228	60	2102209	2502038	
8D	208.0	S10-G2500-08L32	25.0~25.99	32	246	306	60	2102209	2502038	
3D	81.0	S10-G2600-03L32	26.0~26.99	32	121	181	60	2102210	2502038	
5D	135.0	S10-G2600-05L32	26.0~26.99	32	175	235	60	2102210	2502038	
8D	216.0	S10-G2600-08L32	26.0~26.99	32	256	316	60	2102210	2502038	
3D	84.0	S10-G2700-03L32	27.0~27.99	32	125	185	60	2102210	2502038	
5D	140.0	S10-G2700-05L32	27.0~27.99	32	181	241	60	2102210	2502038	
8D	224.0	S10-G2700-08L32	27.0~27.99	32	265	325	60	2102210	2502038	
3D	87.0	S10-G2800-03L32	28.0~28.99	32	129	189	60	2102211	2502039	
5D	145.0	S10-G2800-05L32	28.0~28.99	32	187	247	60	2102211	2502039	
8D	232.0	S10-G2800-08L32	28.0~28.99	32	274	334	60	2102211	2502039	
3D	90.0	S10-G2900-03L32	29.0~29.99	32	133	193	60	2102211	2502039	
5D	150.0	S10-G2900-05L32	29.0~29.99	32	193	253	60	2102211	2502039	
8D	240.0	S10-G2900-08L32	29.0~29.99	32	283	343	60	2102211	2502039	
3D	93.0	S10-G3000-03L32	30.0~30.99	32	138	198	60	2102211	2502039	
5D	155.0	S10-G3000-05L32	30.0~30.99	32	200	260	60	2102211	2502039	
8D	248.0	S10-G3000-08L32	30.0~30.99	32	293	353	60	2102211	2502039	
3D	96.0	S10-G3100-03L32	31.0~31.99	32	142	202	60	2102212	2502040	
5D	160.0	S10-G3100-05L32	31.0~31.99	32	206	266	60	2102212	2502040	
8D	256.0	S10-G3100-08L32	31.0~31.99	32	302	362	60	2102212	2502040	

规格型号 | Specifications



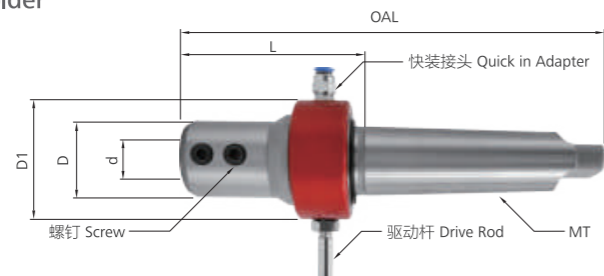
												尺寸 size (mm)																																																																																																													
直径 diameter (mm)	PL	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S	LU	型号 Part No.	DC	DCON	LF	OAL	LS																																																																																													
		●	○	○			○	●			○	●					●				○																																																																																																				
		CPA					CMA					CKA					CNA					HPC																																																																																																			
32.00 32.50	5.8 5.9	S10-CPA-3200 S10-CPA-3250					S10-CMA-3200 S10-CMA-3250					S10-CKA-3200 S10-CKA-3250					S10-CNA-3200 S10-CNA-3250					S10-HPC-3200 S10-HPC-3250																																																																																																			
33.00 33.50	6.0 6.1	S10-CPA-3300 S10-CPA-3350					S10-CMA-3300 S10-CMA-3350					S10-CKA-3300 S10-CKA-3350					S10-CNA-3300 S10-CNA-3350					S10-HPC-3300 S10-HPC-3350																																																																																																			
34.00 34.50	6.2 6.3	S10-CPA-3400 S10-CPA-3450					S10-CMA-3400 S10-CMA-3450					S10-CKA-3400 S10-CKA-3450					S10-CNA-3400 S10-CNA-3450					S10-HPC-3400 S10-HPC-3450																																																																																																			
35.00 35.50	6.4 6.5	S10-CPA-3500 S10-CPA-3550					S10-CMA-3500 S10-CMA-3550					S10-CKA-3500 S10-CKA-3550					S10-CNA-3500 S10-CNA-3550					S10-HPC-3500 S10-HPC-3550																																																																																																			
36.00 36.50	6.6 6.6	S10-CPA-3600 S10-CPA-3650					S10-CMA-3600 S10-CMA-3650					S10-CKA-3600 S10-CKA-3650					S10-CNA-3600 S10-CNA-3650					S10-HPC-3600 S10-HPC-3650																																																																																																			
37.00 37.50	6.7 6.8	S10-CPA-3700 S10-CPA-3750					S10-CMA-3700 S10-CMA-3750					S10-CKA-3700 S10-CKA-3750					S10-CNA-3700 S10-CNA-3750					S10-HPC-3700 S10-HPC-3750																																																																																																			
38.00 38.50	6.9 7.0	S10-CPA-3800 S10-CPA-3850					S10-CMA-3800 S10-CMA-3850					S10-CKA-3800 S10-CKA-3850					S10-CNA-3800 S10-CNA-3850					S10-HPC-3800 S10-HPC-3850																																																																																																			
39.00	7.1	S10-CPA-3900					S10-CMA-3900					S10-CKA-3900					S10-CNA-3900					S10-HPC-3900																																																																																																			
39.50	7.2	S10-CPA-3950					S10-CMA-3950					S10-CKA-3950					S10-CNA-3950					S10-HPC-3950																																																																																																			
39.99	7.3	S10-CPA-3999					S10-CMA-3999					S10-CKA-3999					S10-CNA-3999					S10-HPC-3999																																																																																																			
3D	99.0	S10-G3200-03L32					S10-G3200-05L32					S10-G3200-08L32					S10-G3300-03L32					S10-G3300-05L32					S10-G3300-08L32					S10-G3400-03L40					S10-G3400-05L40					S10-G3400-08L40					S10-G3500-03L40					S10-G3500-05L40					S10-G3500-08L40					S10-G3600-03L40					S10-G3600-05L40					S10-G3600-08L40					S10-G3700-03L40					S10-G3700-05L40					S10-G3700-08L40					S10-G3800-03L40					S10-G3800-05L40					S10-G3800-08L40					S10-G3900-03L40					S10-G3900-05L40					S10-G3900-08L40				
5D	165.0	S10-G3200-05L32					S10-G3200-08L32					S10-G3300-05L32					S10-G3300-08L32					S10-G3400-05L40					S10-G3400-08L40					S10-G3500-05L40					S10-G3500-08L40					S10-G3600-05L40					S10-G3600-08L40					S10-G3700-05L40					S10-G3700-08L40					S10-G3800-05L40					S10-G3800-08L40					S10-G3900-05L40					S10-G3900-08L40																																												
8D	264.0	S10-G3200-08L32					S10-G3300-08L32					S10-G3400-08L40					S10-G3500-08L40					S10-G3600-08L40					S10-G3700-08L40					S10-G3800-08L40					S10-G3900-08L40																																																																																				

配件 | Accessories

螺钉与扳手 | Screws and wrenches

刀片直径范围 Insert Diameter Range Ø						
	TORX PLUS	规格 Spec.	订货号 Item No.	规格 Spec.	订货号 Item No.	形状 Shape
10.0~10.99	6IP	M2×9	2102223	6IP	2502035	
11.0~12.49	6IP	M2×10	2102203	6IP		
12.5~13.99	6IP	M2×11.5	2102204	6IP		
14.0~15.99	7IP	M2.5×13	2102205	7IP	2502036	
16.0~17.99	7IP	M2.5×15	2102206	7IP		
18.0~18.99	9IP	M3×16	2102225	9IP	2502037	
19.0~20.99	9IP	M3×17	2102207	9IP		
21.0~23.99	9IP	M3×20	2102208	9IP		
24.0~25.99	10IP	M3.5×22	2102209	10IP	2502038	
26.0~27.99	10IP	M3.5×24	2102210	10IP		
28.0~30.99	15IP	M4×26	2102211	15IP	2502039	
31.0~33.99	20IP	M5×29	2102212	20IP	2502040	
34.0~36.99	20IP	M5×32	2102213	20IP	2502041	
37.0~39.99	25IP	M6×35	2102214	25IP	2502041	

锥柄夹具 | Taper shank holder



订货号 Item No.	d	L	D	D1	OAL	MT				
							订货号 Item No.	订货号 Item No.	订货号 Item No.	订货号 Item No.
S10-JMT3-L16-100	16	100	37	54	194	#3	2102006	2301258	2301399	2301203
S10-JMT3-L20-103	20	103	40	54	197.5	#3	2102006	2301258	2301399	2301203
S10-JMT3-L25-109	25	109	49	54	204	#3	2102007	2301258	2301399	2301203
S10-JMT4-L16-110	16	110	37	63.5	227.5	#4	2102006	2301257	2301400	2301202
S10-JMT4-L20-113	20	113	40	63.5	230.5	#4	2102006	2301257	2301400	2301202
S10-JMT4-L25-119	25	119	49	63.5	236.5	#4	2102007	2301257	2301400	2301202
S10-JMT4-L32-128	32	128	64	76	245.5	#4	2102147	2301256	2301400	2301204
S10-JMT4-L40-139	40	139	73	76	256.5	#4	2102147	2301256	2301400	2301204
S10-JMT5-L16-105	16	105	37	76	254	#5	2102006	2301256	2301400	2301204
S10-JMT5-L20-108	20	108	40	76	257	#5	2102006	2301256	2301400	2301204
S10-JMT5-L25-114	25	114	49	76	263	#5	2102007	2301256	2301400	2301204
S10-JMT5-L32-120	32	120	64	76	269	#5	2102147	2301256	2301400	2301204
S10-JMT5-L40-130	40	130	73	76	279	#5	2102147	2301256	2301400	2301204

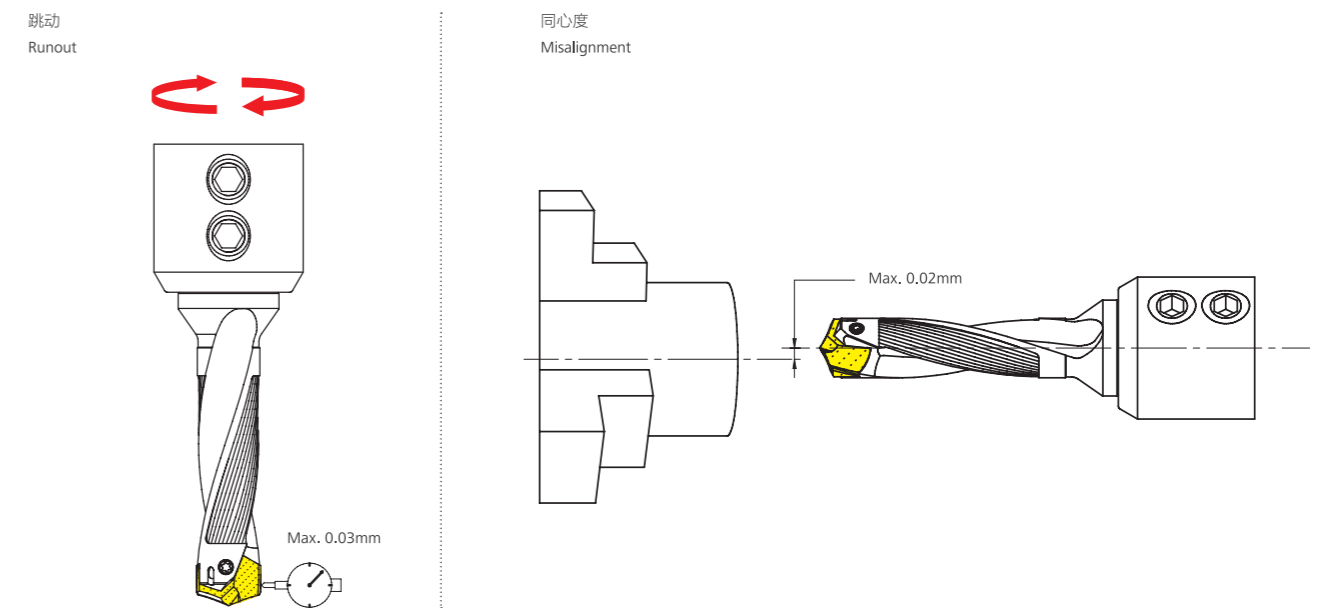
应用要点、注意事项 Essentials of use and precautions

安装 | Assembly

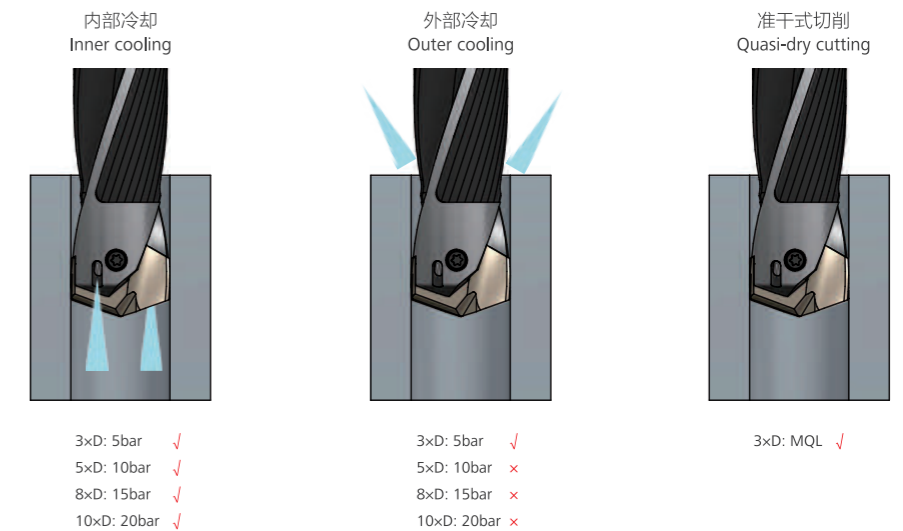
应用场合的稳定性对于获得最佳的刀具寿命与孔的精度是重要的。检查机床主轴、夹具与工件的装夹情况，确保最大的稳定性与刚性。不稳定的工况会引起钻头的折断。

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 drill bits.

最大跳动和同心度 | Max. Runout and Misalignment



冷却压力 | Cooling Pressure



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

磨损极限 Wear limit



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° 50%		起始面有焊缝 The entry surface is welded 加工前先铰平 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° 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 rate is allowed 如起始点不在弧面中心需要将面铰平 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

长倍径刀杆8D钻削工艺

Drilling process for holders with a length of 8D

短钻头钻引导孔至1D~1.5D Drill a pilot hole to 1D to 1.5D with a short drill bit	低转速和低进给进入引导孔 Enter the pilot hole at a low speed and low feed rate	让冷却液停留2~3秒 Keep the coolant for 2 to 3s	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

S钻切削参数推荐表——硬质合金刀片系列
Speed drill cutting parameter recommendation list ——Carbide insert series

ISO	被加工材料 Material	条件 Heat treatment	布氏硬度 HB	强度 N/mm ²	切削速度 Vc(m/min)			
					最小 Min.	推荐 Recommended	最大 Max.	
P	易切屑钢 Non-alloy steel Y13 1215 1.0736 Y15 1213 1.0715 碳钢、结构钢 Low carbon steel 45 1045 1.0503 Q345B 1140 1.7026	<0.25%C	退火 Annealed	100-150	370-500	84	120	156
		≥0.25%C	退火 Annealed	175-225	600-775	77	110	143
		<0.55%C	退火和调质 Quenched and tempered	225-275	775-940	70	100	130
		≥0.55%C	退火 Annealed	275-325	940-1090	56	80	104
	低合金钢 Low alloy steel 40Cr 5140 1.7035 42CrMo 4140 1.7225	退火和调质 Quenched and tempered	300	1000	49	70	91	
		退火 Annealed	175-225	600-775	74	105	137	
		退火 Annealed	225-275	775-940	70	100	130	
		退火 Annealed	275-325	940-1090	63	90	117	
		调质 Tempered	325-375	1090-1265	53	75	98	
		退火 Annealed	225-300	600-1020	49	70	91	
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	42	60	78		
	退火 Annealed	185-275	640-940	35	50	65		
铁素体/马氏体不锈钢 Stainless steel Ferritic/martensitic 0Cr13 403 1.400 2Cr13 410 1.4021	马氏体 Martensitic	275-350	940-1180	42	60	78		
	退火/淬硬 Annealed/Harden	135-185	480-640	39	55	72		
M	奥氏体不锈钢 Stainless steel Austenitic 0Cr18Ni9 304 1.4301 0Cr17Ni11Mo2 316 1.4401	铸造+未处理 Cast+Unhandled	185-275	640-940	39	55	72	
		N <0.1%	>60%铁素体 Ferritic	135-185	480-640	42	60	78
	超级双相不锈钢 Super Duplex Stainless Steel	N ≥0.1%	<60%铁素体 Ferritic	185-275	640-940	35	50	65
K	灰口铸铁 Grey cast iron HT200 NO.30 GG20 HT250 NO.35 GG25	铁素体 Ferritic	120-150	430-500	76	108	140	
		珠光体 Pearlitic	150-200	500-700	69	99	129	
	球墨铸铁 Cast iron nodular QT400-18 60-40-18 GGG40 QT600-3 80-60-03 GGG60	铁素体 Ferritic	200-220	700-755	63	90	117	
		珠光体 Pearlitic	220-260	755-890	63	90	117	
	可锻铸铁 Malleable cast iron	铁素体 Ferritic	120-150	430-500	63	90	117	
	珠光体 Pearlitic	260-320	890-1020	63	90	117		
N	锻铝 Wrought Aluminium	未固化 Not cureable	30	100	105	150	195	
		固化 Cured	180	600	91	130	169	
	铸铝 Cast Aluminium	≤12% Si	未固化 Not cureable	30	100	105	150	195
		固化 Cured	180	600	91	130	169	
		>12% Si	高温处理 High temperature	—	—	91	130	169
	铜合金 Copper Alloys	>1% Pb	易切 Free cutting	100-200	370-670	105	150	195
		黄铜 Brass	200-250	670-855	105	150	195	
		电解铜 Electrolytic copper	100	370	105	150	195	
	非铁金属 Non metallic	塑料纤维 Duroplastics fiber plastics	—	—	105	150	195	
		硬橡胶 Hard rubber	60	200	105	150	195	
S	高温合金 High Temp. Alloy Hastelloy B, Inconel 600,	铁基 Fe base	退火 Annealed	140-220	480-755	32	45	59
		固化 Cured	223-310	755-990	25	35	46	
		镍基或钴基 Ni or co base	退火 Annealed	250	—	25	35	46
		固化 Cured	350	—	25	35	46	
	钛合金 Titanium Alloy	铸造 Cast	320	—	25	35	46	
		α + β 合金固化 α + β alloys Cured	320	Rm 400	25	35	46	
H	哈氏耐磨护板 Wear Plate Hardox, AR400, T-1,	淬硬 Harden	400	1365	21	30	39	
		淬硬 Harden	500	1600	15	21	30	
	淬硬钢 Hardened Steel	淬硬 Harden	300-400	1020-1365	28	40	52	
		淬硬 Harden	400-500	1365+	18	25	35	

注意: 1. 上述推荐的切削参数以3D型为准。当使用5D型、8D型时, 根据工况适当降低进给量。进给量: 3D型=100%、5D型=80%、8D型=70%以下;
2. 切削H类硬材料推荐使用MQL(微量油雾冷却方式)。

进给量 (fn)mm/r																				
Ø 10.00-11.99mm			Ø 12.00-13.99mm			Ø 14.00-15.99mm			Ø 16.00-19.99mm			Ø 20.00-25.99mm			Ø 26.00-32.99mm			Ø 33.00-39.99mm		
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.	最小 Min.	推荐 Recommended	最大 Max.
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.11	0.16	0.21	0.13	0.18	0.23	0.16	0.23	0.30	0.21	0.30	0.39	0.22	0.32	0.42	0.25	0.36	0.47	0.27	0.38	0.49
0.13	0.18	0.23	0.14	0.20	0.26	0.17	0.24	0.31	0.21	0.30	0.39	0.25	0.35	0.46	0.28	0.40	0.52	0.32	0.45	0.59
0.13	0.18	0.23	0.14	0.20	0.26	0.17	0.24	0.31	0.21	0.30	0.39	0.25	0.35	0.46	0.28	0.40	0.52	0.32	0.45	0.59
0.12	0.17	0.22	0.13	0.19	0.25	0.16	0.23	0.30	0.20	0.29	0.38	0.24	0.34	0.44	0.27	0.39	0.51	0.31	0.44	0.57
0.11	0.16	0.21	0.13	0.18	0.23	0.15	0.22	0.29	0.20	0.28	0.36	0.23	0.33	0.43	0.27	0.38	0.49	0.30	0.43	0.56
0.11	0.16	0.21	0.13	0.19	0.25	0.15	0.22	0.29	0.18	0.25	0.33	0.21	0.30	0.39	0.21	0.30	0.39	0.22	0.32	0.42
0.11	0.16	0.21	0.13	0.19	0.25	0.15	0.22	0.29	0.18	0.25	0.33	0.21	0.30	0.39	0.21	0.30	0.39	0.22	0.32	0.42
0.09	0.14	0.18	0.11	0.16	0.20	0.12	0.17	0.22	0.15	0.22	0.28	0.19	0.27	0.34	0.20	0.29	0.38	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.13	0.19	0.24	0.16	0.24	0.31	0.18	0.26	0.34	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.12	0.18	0.23	0.15	0.22	0.28	0.17	0.24	0.31	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.12	0.18	0.23	0.14	0.21	0.27	0.16	0.23	0.30	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.12	0.18	0.23	0.14	0.21	0.27	0.16	0.23	0.30	0.23	0.33	0.43
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.03	0.04	0.06	0.04	0.06	0.08	0.05	0.07	0.10	0.08	0.11	0.15	0.1	0.14	0.20	0.13	0.18	0.25	0.15	0.21	0.30
0.07	0.10	0.13	0.08	0.12	0.16	0.11	0.15	0.20	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29	0.18	0.25	0.33
0.04	0.06	0.08	0.05	0.07	0.10	0.06	0.08	0.12	0.08	0.11	0.16	0.09	0.13	0.18	0.1	0.14	0.20	0.11	0.15	0.22

Note: 1. The cutting parameters recommended by the upper speed are subject to the 3D model. When using 5D and 8D models, reduce the feed rate appropriately according to the working conditions. Feed rate: 3D type=100%, 5D type=80% or less, 8D type=70% or less
2. It is recommended to use MQL (micro oil mist cooling method) for cutting H-class hard materials.

S钻切削参数推荐表——粉末高速钢刀片系列
Speed drill cutting parameter recommendation list ——HSS-PM insert series

ISO	被加工材料 Material	条件 Heattreatment	布氏硬度 HB	强度 N/mm ²	切削速度 Vc(m/min)			
					最小 Min.	推荐 Recommended	最大 Max.	
P	易切屑钢 Non-alloy steel Y13 1215 1.0736 Y15 1213 1.0715 碳钢、结构钢 Low carbon steel 45 1045 1.0503 Q345B 1140 1.7026	<0.25%C	退火 Annealed	100-150	370-500	38	54	70
		≥0.25%C	退火 Annealed	175-225	600-775	35	50	64
		<0.55%C	退火和调质 Quenched and tempered	225-275	775-940	32	45	59
		≥0.55%C	退火 Annealed	275-325	940-1090	25	36	47
	低合金钢 Low alloy steel 40Cr 5140 1.7035 42CrMo 4140 1.7225	退火和调质 Quenched and tempered	300	1000	22	32	41	
		退火 Annealed	175-225	600-775	33	47	62	
		退火 Annealed	225-275	775-940	32	45	59	
		退火 Annealed	275-325	940-1090	28	41	53	
		调质 Tempered	325-375	1090-1265	24	34	44	
		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 Stainless steel Ferritic/martensitic 0Cr13 403 1.400 2Cr13 410 1.4021	铁素体 Ferritic	185-275	640-940	16	23	29		
	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 0Cr17Ni11Mo2 316 1.4401	退火/淬硬 Annealed/Harden	135-185	480-640	18	25	32	
		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
K	灰口铸铁 Grey cast iron HT200 NO.30 GG20 HT250 NO.35 GG25	铁素体 Ferritic	120-150	430-500	38	54	70	
		珠光体 Pearlitic	150-200	500-700	35	50	64	
	球墨铸铁 Cast iron nodular QT400-18 60-40-18 GGG40 QT600-3 80-60-03 GGG60	铁素体 Ferritic	200-220	700-755	32	45	59	
		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 Aluminium	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
		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
			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	塑料纤维 Duroplastics fiber plastics	—	—	47	68	88	
		硬橡胶 Hard rubber	60	200	47	68	88	
S	高温合金 High Temp. Alloy Hastelloy B, Inconel 600,	铁基 Fe base	退火 Annealed	140-220	480-755	14	20	27
		固化 Cured	223-310	755-990	11	16	21	
		镍基或钴基 Ni or co base	退火 Annealed	250	—	11	16	21
		固化 Cured	350	—	11	16	21	
	钛合金 Titanium Alloy	铸造 Cast	320	—	11	16	21	
		α + β 合金固化 α + β alloys Cured	320	Rm 400	11	16	21	
H	哈氏耐磨护板 Wear Plate Hardox, 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: 1. 上述推荐的切削参数以3D型为准。当使用5D型、8D型时, 根据工况适当降低进给量。进给量: 3D型=100%、5D型=80%、8D型=70%以下;
 2. 切削H类硬材料推荐使用MQL(微量油雾冷却方式)。

进给量 (fn)mm/r																				
Ø 10.00-11.99mm			Ø 12.00-13.99mm			Ø 14.00-15.99mm			Ø 16.00-19.99mm			Ø 20.00-25.99mm			Ø 26.00-32.99mm			Ø 33.00-39.99mm		
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.	最小 Min.	推荐 Recommended	最大 Max.
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.13	0.18	0.23	0.14	0.20	0.26	0.18	0.25	0.33	0.22	0.32	0.41	0.24	0.35	0.45	0.27	0.38	0.49	0.28	0.40	0.52
0.11	0.16	0.21	0.13	0.18	0.23	0.16	0.23	0.30	0.21	0.30	0.39	0.22	0.32	0.42	0.25	0.36	0.47	0.27	0.38	0.49
0.13	0.18	0.23	0.14	0.20	0.26	0.17	0.24	0.31	0.21	0.30	0.39	0.25	0.35	0.46	0.28	0.40	0.52	0.32	0.45	0.59
0.13	0.18	0.23	0.14	0.20	0.26	0.17	0.24	0.31	0.21	0.30	0.39	0.25	0.35	0.46	0.28	0.40	0.52	0.32	0.45	0.59
0.12	0.17	0.22	0.13	0.19	0.25	0.16	0.23	0.30	0.20	0.29	0.38	0.24	0.34	0.44	0.27	0.39	0.51	0.31	0.44	0.57
0.11	0.16	0.21	0.13	0.18	0.23	0.15	0.22	0.29	0.20	0.28	0.36	0.23	0.33	0.43	0.27	0.38	0.49	0.30	0.43	0.56
0.11	0.16	0.21	0.13	0.19	0.25	0.15	0.22	0.29	0.18	0.25	0.33	0.21	0.30	0.39	0.21	0.30	0.39	0.22	0.32	0.42
0.11	0.16	0.21	0.13	0.19	0.25	0.15	0.22	0.29	0.18	0.25	0.33	0.21	0.30	0.39	0.21	0.30	0.39	0.22	0.32	0.42
0.09	0.14	0.18	0.11	0.16	0.20	0.12	0.17	0.22	0.15	0.22	0.28	0.19	0.27	0.34	0.20	0.29	0.38	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.13	0.19	0.24	0.16	0.24	0.31	0.18	0.26	0.34	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.12	0.18	0.23	0.15	0.22	0.28	0.17	0.24	0.31	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.12	0.18	0.23	0.15	0.22	0.28	0.17	0.24	0.31	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.12	0.18	0.23	0.14	0.21	0.27	0.16	0.23	0.30	0.23	0.33	0.43
0.09	0.13	0.16	0.09	0.14	0.18	0.11	0.15	0.20	0.12	0.18	0.23	0.14	0.21	0.27	0.16	0.23	0.30	0.23	0.33	0.43
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.29	0.38	0.26	0.37	0.48	0.28	0.41	0.53	0.32	0.45	0.59	0.34	0.48	0.63	0.35	0.50	0.65
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.18	0.25	0.33	0.20	0.28	0.36	0.26	0.37	0.48	0.28	0.40	0.52	0.32	0.45	0.59	0.35	0.50	0.65	0.39	0.55	0.72
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.07	0.10	0.13	0.10	0.14	0.18	0.11	0.16	0.21	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29
0.06	0.08	0.10	0.08	0.12	0.16	0.11	0.15	0.20	0.14	0.20	0.26	0.18	0.25	0.33	0.21	0.30	0.39	0.25	0.35	0.46
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0.07	0.10	0.13	0.08	0.12	0.16	0.11	0.15	0.20	0.13	0.18	0.23	0.14	0.20	0.26	0.15	0.22	0.29	0.18	0.25	0.33
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Note: 1. The cutting parameters recommended by the upper speed are subject to the 3D model. When using 5D and 8D models, reduce the feed rate appropriately according to the working conditions. Feed rate: 3D type=100%, 5D type=80% or less, 8D type=70% or less
 2. It is recommended to use MQL (micro oil mist cooling method) for cutting H-class hard materials.

浙江欣兴工具有限公司
ZHEJIANG XINXING TOOLS CO., LTD.

浙江省海盐县澉浦镇堰山路699号
No.699, Yanshan Road, Ganpu Town, Haiyan County, Zhejiang Province, China
TEL: 0573-86566666
FAX: 0573-86560201
www.ch-tools.com



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