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硬质合金制品 CEMENTED CARBIDE PRODUCTS

工具棒材 模具合金 For Tools & Molds



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RODS & PREFORMS

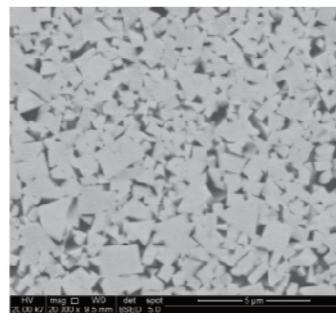
工具棒材

牌号 Grade	钴含量 Cobalt content %	晶粒度 Grain size	密度g/cm ³ Density g/cm ³	硬度HRA Hardness HRA	硬度HV30 Hardness HV30	抗弯强度MPa Transverse rupture strength	断裂韧性MPa·m ^{1/2} Fracture toughness MPa·m ^{1/2}
HN06	6	1.5	14.90	92.2	1,640	2,800	8.6
HN55	9	0.3	14.50	93.8	1,960	3,800	8.0
HN40	10	0.8	14.45	91.8	1,580	3,600	11.8
HN46	10	0.6	14.40	92.3	1,660	3,800	11.2
HN88	10	0.4	14.35	93.0	1,800	4,100	10.8
HN44F	12	0.4	14.15	92.6	1,720	4,200	9.6
HN47	12	0.7	14.20	91.4	1,560	4,000	12.4

HN06

细晶粒合金，对于金刚石涂层有较好的附着力。
适合制作金刚石涂层刀具。适用于加工石墨、复合材料。

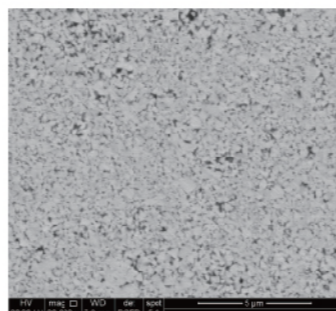
Grade HN06 is made from high quality fine WC powder, with special process to control grain size and morphology. It has strong compatibility with diamond coating.
It's suitable for making cutting tools with diamond coating for machining graphite and composites.



HN55

超细晶粒合金，刃口锋利，极其耐磨，不易变形。
适于制作铣刀，铰刀。适用于高速切削，适合加工超高硬度材料(HRC>60)。

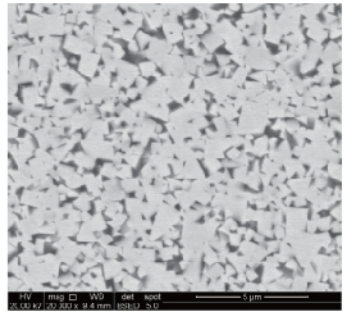
Grade HN55 is made from ultrafine close to nanometer sized WC powder, with very high wear resistance. It's suitable for making milling, drilling tools and reamers, for high-speed milling of materials with high hardness.



HN40

亚微细晶粒，韧性与耐磨性兼备。
适于制作钻头、铣刀。适用于普通合金钢、灰口铸铁、不锈钢、耐热合金。

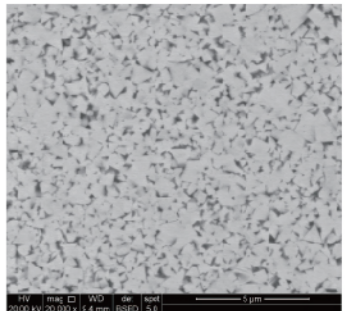
Grade HN40 is made from submicron WC powder, some special additives added to optimize the properties with good combination of hardness and toughness.
It's suitable for making drills and milling tools for machining stainless steel, tool steel and heat-resisting alloys.



HN46

亚微细晶粒，耐磨性较好。
适于制作钻头、铣刀。特别适用于不锈钢、耐热合金、铸铁等。

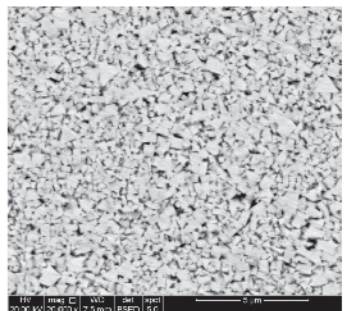
Grade HN46 is made from submicron WC powder, some special additives added.
It's suitable for making drills and end mills, especially for machining stainless steel, heat-resisting alloy and cast iron.



HN88

选择优质的超细碳化钨粉末，10%钴含量，韧性好。
适于制作铣刀。适用于高硬度材料高速铣削。

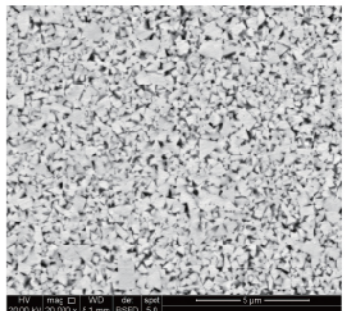
Choose best ultrafine WC powder, Co10%, good toughness.
Suitable for endmills making; Apply to process high-hardness material milling.



HN44F

选择优质的超细WC粉末，兼容了良好的硬度和韧性。
适于制作立铣刀和铰刀。特别适用于精加工以及加工合金钢、铝合金及钛合金。

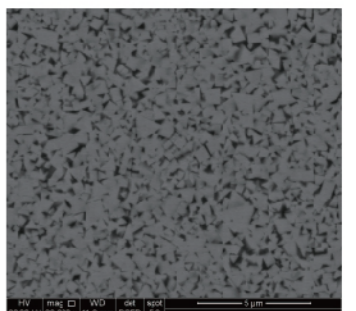
Grade HN44F is made from submicron WC powder, some special additives added.
It's suitable for making drills and end mills, especially for machining steel, Al-based alloys and Ti-based alloys.



HN47

亚微细晶粒合金，具有极高的抗崩刃性。
适于制作铣刀。特别适用于316L不锈钢材料的高速铣削。

Grade HN47 is made from submicron WC powder, some special additives added.
It's suitable for making drills and end mills, especially for machining 316L stainless steel.

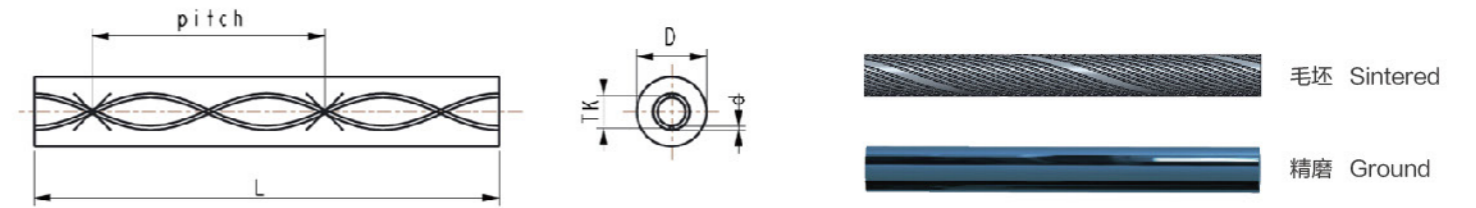




螺旋内冷孔圆棒
Rods With Helical Coolant Holes



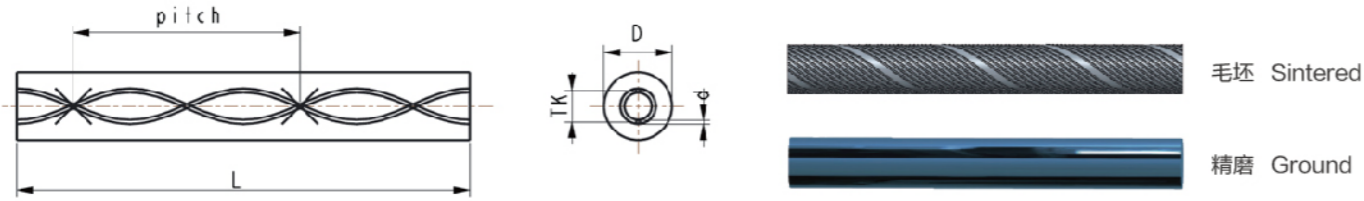
15度双孔螺旋圆棒/ With two coolant holes,15°



直径 D	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	导程 Lead	长度 Length	材质 Grade
	毛坯 Sintered	精磨 Ground							
D(mm)	毛坯 Sintered	精磨 Ground	d(mm)	TOL.	TK(mm)	TOL.	PITCH	L(+5mm)	HN40
6.3	+0.2/+0.8	6 (h6)	0.70	±0.10	2.60	±0.20	70.35	330.0	●
8.3	+0.3/+1.0	8 (h6)	1.30	±0.15	3.60	±0.30	93.80	330.0	●
10.3	+0.3/+1.0	10 (h6)	1.40	±0.15	4.80	±0.30	117.25	330.0	●
12.3	+0.3/+1.0	12 (h6)	1.60	±0.20	6.30	±0.40	140.70	330.0	●
14.3	+0.3/+1.1	14 (h6)	1.90	±0.20	6.70	±0.40	164.14	330.0	●
16.3	+0.3/+1.1	16 (h6)	2.10	±0.25	8.00	±0.40	187.59	330.0	●
18.3	+0.3/+1.1	18(h6)	2.30	±0.25	9.00	±0.40	211.04	330.0	●
20.3	+0.3/+1.1	20(h6)	2.50	±0.3	10.00	±0.50	234.49	330.0	●
22.3	+0.3/+1.1	22(h6)	2.50	±0.3	12.00	±0.50	257.94	330.0	●

●= 标准库存
●= Standard Stock

30度双孔螺旋圆棒/ With two coolant holes,30°

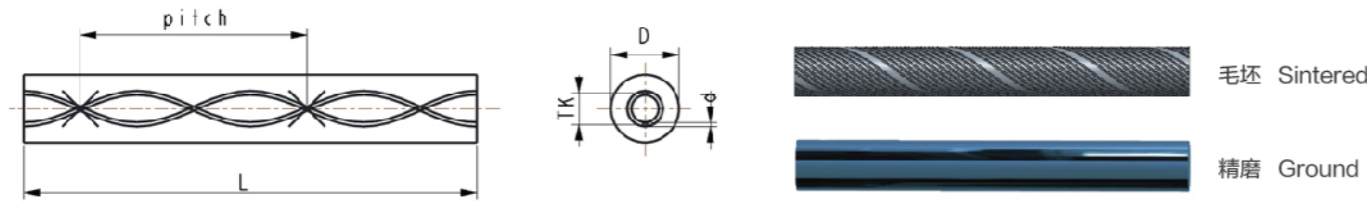


直径 D	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	导程 Lead	长度 Length	材质 Grade		备注 remarks
	毛坯 Sintered	精磨 Ground							HN40	HN46	
3.3	+0.2/+0.8	3(h6)	0.40	±0.10	1.20	±0.10	16.32	330.0	●	●	
4.3	+0.2/+0.8	4(h6)	0.60	±0.10	1.30	±0.10	21.77	330.0	●	●	
4.3	+0.2/+0.8	4(h6)	0.70	±0.10	2.10	±0.15	21.77	330.0	●	●	适用MQL
5.3	+0.2/+0.8	5(h6)	0.70	±0.10	2.40	±0.15	27.21	330.0	●	●	适用MQL
6.3	+0.3/+1.0	6(h6)	0.50	±0.10	1.80	±0.15	32.65	330.0	●	●	
6.3	+0.3/+1.0	6(h6)	0.60	±0.10	1.30	±0.20	32.65	330.0	●	●	
6.3	+0.3/+1.0	6(h6)	0.70	±0.10	2.40	±0.20	32.65	330.0	●	●	
6.3	+0.3/+1.0	6(h6)	0.90	±0.10	2.60	±0.30	32.65	330.0	●	●	适用MQL
7.3	+0.3/+1.0	7(h6)	1.00	±0.10	3.50	±0.20	38.09	330.0	●	●	适用MQL
8.3	+0.3/+1.0	8(h6)	0.70	±0.10	2.40	±0.30	43.53	330.0	●	●	
8.3	+0.3/+1.0	8(h6)	1.00	±0.10	3.10	±0.30	43.53	330.0	●	●	
8.3	+0.3/+1.0	8(h6)	1.00	±0.10	3.80	±0.30	43.53	330.0	●	●	
8.3	+0.3/+1.0	8(h6)	1.15	±0.15	3.70	±0.20	43.53	330.0	●	●	
8.3	+0.3/+1.0	8(h6)	1.25	±0.15	3.80	±0.30	43.53	330.0			适用MQL
9.3	+0.3/+1.0	9(h6)	0.70	±0.10	2.40	±0.20	48.97	330.0	●	●	
9.3	+0.3/+1.0	9(h6)	1.40	±0.15	4.50	±0.30	48.97	330.0	●	●	适用MQL
10.3	+0.3/+1.0	10(h6)	0.80	±0.10	2.40	±0.20	54.41	330.0	●	●	
10.3	+0.3/+1.0	10(h6)	1.00	±0.10	3.50	±0.30	54.41	330.0	●	●	
10.3	+0.3/+1.0	10(h6)	1.40	±0.15	4.50	±0.30	54.41	330.0	●	●	适用MQL
10.3	+0.3/+1.0	10(h6)	1.40	±0.15	4.90	±0.30	54.41	330.0	●	●	适用MQL
11.3	+0.3/+1.0	11(h6)	1.40	±0.15	4.90	±0.20	59.86	330.0	●	●	
11.3	+0.3/+1.0	11(h6)	1.40	±0.15	5.70	±0.30	59.86	330.0	●	●	
12.3	+0.3/+1.0	12(h6)	1.00	±0.10	3.00	±0.40	65.30	330.0	●	●	
12.3	+0.3/+1.0	12(h6)	1.00	±0.10	3.80	±0.40	65.30	330.0	●	●	
12.3	+0.3/+1.0	12(h6)	1.40	±0.15	5.85	±0.30	65.30	330.0	●	●	适用MQL
12.3	+0.3/+1.0	12(h6)	1.75	±0.20	5.85	±0.40	65.30	330.0	●	●	
13.3	+0.3/+1.1	13(h6)	1.75	±0.20	6.10	±0.40	70.74	330.0	●	●	
14.3	+0.3/+1.1	14(h6)	1.00	±0.10	4.30	±0.30	76.18	330.0	●	●	
14.3	+0.3/+1.1	14(h6)	1.20	±0.15	5.30	±0.40	76.18	330.0	●	●	
14.3	+0.3/+1.1	14(h6)	1.75	±0.20	6.70	±0.40	76.18	330.0	●	●	

直径 D	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	导程 Lead	长度 Length	材质 Grade		备注 remarks
	毛坯 Sintered	精磨 Ground							HN40	HN46	
14.3	+0.3/+1.1	14(h6)	2.00	±0.20	6.70	±0.40	76.18	330.0	●		
15.3	+0.3/+1.1	15(h6)	1.20	±0.15	5.30	±0.40	81.62	330.0	●	●	
15.3	+0.3/+1.1	15(h6)	1.75	±0.20	7.30	±0.40	81.62	330.0	●	●	
16.3	+0.5/+1.3	16(h6)	1.20	±0.15	5.30	±0.40	87.06	330.0	●	●	
16.3	+0.5/+1.3	16(h6)	1.75	±0.20	7.90	±0.40	87.06	330.0	●	●	适用MQL
16.3	+0.5/+1.3	16(h6)	2.00	±0.20	7.90	±0.40	87.06	330.0	●		
17.3	+0.5/+1.3	17(h6)	1.75	±0.20	6.50	±0.40	92.50	330.0	●	●	
17.3	+0.5/+1.3	17(h6)	1.75	±0.20	8.50	±0.40	92.50	330.0	●	●	
18.3	+0.5/+1.3	18(h6)	1.40	±0.15	5.90	±0.40	97.95	330.0	●	●	
18.3	+0.5/+1.3	18(h6)	2.00	±0.20	9.15	±0.40	97.95	330.0	●	●	适用MQL
18.3	+0.5/+1.3	18(h6)	2.50	±0.30	9.95	±0.40	97.95	330.0			
19.3	+0.5/+1.3	19(h6)	1.00	±0.10	3.80	±0.30	103.39	330.0	●	●	
19.3	+0.5/+1.3	19(h6)	2.00	±0.20	9.70	±0.40	103.39	330.0	●	●	
20.3	+0.5/+1.3	20(h6)	0.70	±0.10	2.40	±0.15	108.83	330.0			
20.3	+0.5/+1.3	20(h6)	1.50	±0.15	6.60	±0.40	108.83	330.0			
20.3	+0.5/+1.3	20(h6)	2.00	±0.20	7.80	±0.40	108.83	330.0	●	●	
20.3	+0.5/+1.3	20(h6)	2.00	±0.20	9.90	±0.40	108.83	330.0	●	●	适用MQL
20.3	+0.5/+1.3	20(h6)	2.50	±0.30	10.65	±0.50	108.83	330.0			
21.3	+0.5/+1.3	21(h6)	2.00	±0.20	7.90	±0.40	114.27	330.0			
21.3	+0.5/+1.3	21(h6)	2.00	±0.20	10.65	±0.50	114.27	330.0			
22.3	+0.5/+1.3	22(h6)	1.00	±0.10	4.30	±0.30	119.71	330.0			
22.3	+0.5/+1.3	22(h6)	2.00	±0.20	9.30	±0.40	119.71	330.0	●	●	
22.3	+0.5/+1.3	22(h6)	2.00	±0.20	11.10	±0.50	119.71	330.0	●	●	
22.3	+0.5/+1.3	22(h6)	2.00	±0.20	12.10	±0.50	119.71	330.0	●	●	
23.3	+0.5/+1.3	23(h6)	2.00	±0.20	9.30	±0.40	125.15	330.0			
23.3	+0.5/+1.3	23(h6)	2.00	±0.20	11.70	±0.50	125.15	330.0	●	●	
24.3	+0.5/+1.3	24(h6)	2.00	±0.20	12.30	±0.50	130.59	330.0	●	●	
25.3	+0.5/+1.3	25(h6)	1.75	±0.20	6.70	±0.40	136.03	330.0	●	●	
25.3	+0.5/+1.3	25(h6)	2.00	±0.20	12.80	±0.50	136.03	330.0	●	●	
26.3	+0.5/+1.3	26(h6)	2.00	±0.20	13.30	±0.50	141.48	330.0	●	●	
28.3	+0.5/+1.3	28(h6)	2.00	±0.20	9.15	±0.40	152.36	330.0			
28.3	+0.5/+1.3	28(h6)	2.50	±0.30	13.00	±0.50	152.36	330.0	●	●	
28.3	+0.5/+1.3	28(h6)	2.50	±0.30	14.20	±0.50	152.36	330.0	●	●	
30.3	+0.5/+1.3	30(h6)	2.50	±0.30	15.40	±0.50	163.24	330.0	●	●	
32.3	+0.5/+1.3	32(h6)	3.00	±0.30	16.60	±0.50	174.12	330.0	●	●	

● = 标准库存
● = Standard Stock

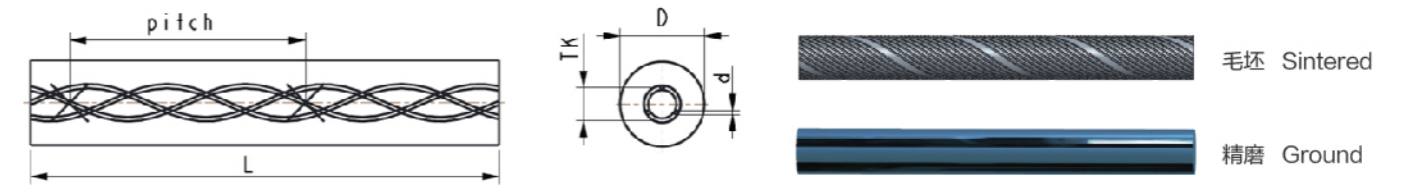
40度双孔螺旋圆棒/ With two coolant holes, 40°



直径 D	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	导程 Lead	长度 Length	材质 Grade
	毛坯 Sintered	精磨 Ground							
D(mm)	毛坯 Sintered	精磨 Ground	d(mm)	TOL.	TK(mm)	TOL.	PITCH	L(+5mm)	HN40
4.3	+0.2/+0.8	4(h6)	0.50	±0.10	1.50	±0.15	14.98	330.0	●
6.3	+0.3/+1.0	6(h6)	0.50	±0.10	2.00	±0.15	22.46	330.0	●
8.3	+0.3/+1.0	8(h6)	0.65	±0.10	2.40	±0.15	29.95	330.0	●
10.3	+0.3/+1.0	10(h6)	0.80	±0.10	3.20	±0.30	37.44	330.0	●
12.3	+0.3/+1.0	12(h6)	0.90	±0.10	3.80	±0.30	44.93	330.0	●
14.3	+0.3/+1.1	14(h6)	1.00	±0.10	4.30	±0.30	52.42	330.0	●
16.3	+0.5/+1.3	16(h6)	1.20	±0.15	5.10	±0.40	59.90	330.0	●
18.3	+0.5/+1.3	18(h6)	1.40	±0.15	5.90	±0.40	67.39	330.0	●
20.3	+0.5/+1.3	20(h6)	1.50	±0.15	6.60	±0.40	74.88	330.0	●
22.3	+0.5/+1.3	22(h6)	1.70	±0.20	7.20	±0.40	82.37	330.0	●
23.3	+0.5/+1.3	23(h6)	1.70	±0.20	7.60	±0.40	86.11	330.0	●
25.3	+0.5/+1.3	25(h6)	1.75	±0.20	7.60	±0.40	93.60	330.0	●
28.3	+0.5/+1.3	28(h6)	2.00	±0.20	8.40	±0.40	104.83	330.0	●

● = 标准库存 Stock

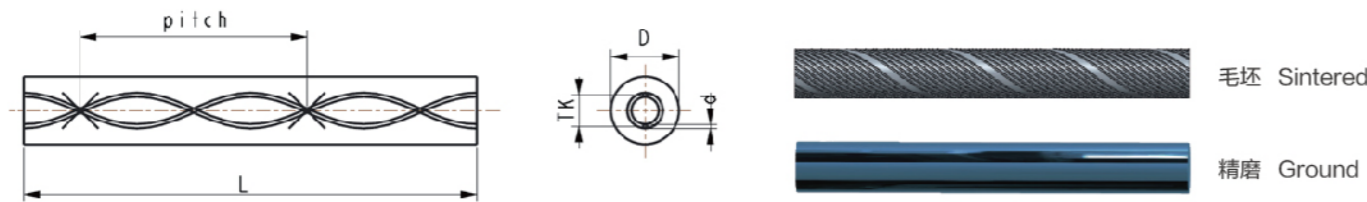
30度三孔螺旋圆棒/ With three coolant holes 30°



直径 D	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	导程 Lead	长度 Length	材质 Grade
	毛坯 Sintered	精磨 Ground							
D(mm)	毛坯 Sintered	精磨 Ground	d(mm)	TOL.	TK(mm)	TOL.	PITCH	L(+5mm)	HN40
6.3	+0.2/+0.8	6(h6)	0.50	±0.10	2.75	±0.20	32.65	310/330	●
8.3	+0.3/+1.0	8(h6)	0.70	±0.10	3.20	±0.30	43.53	310/330	●
9.3	+0.3/+1.0	9(h6)	0.85	±0.10	4.40	±0.30	48.97	310/330	●
10.3	+0.3/+1.0	10(h6)	0.85	±0.10	4.95	±0.30	54.41	310/330	●
12.3	+0.3/+1.0	12(h6)	1.10	±0.15	6.05	±0.40	65.30	310/330	●
14.3	+0.3/+1.1	14(h6)	1.40	±0.15	7.05	±0.40	76.18	310/330	●
16.3	+0.3/+1.1	16(h6)	1.60	±0.20	8.05	±0.40	87.06	310/330	●
18.3	+0.3/+1.1	18(h6)	1.70	±0.20	9.25	±0.40	97.95	310/330	●
20.3	+0.3/+1.1	20(h6)	1.90	±0.20	9.95	±0.40	108.83	310/330	●
22.3	+0.3/+1.1	22(h6)	2.00	±0.20	11.15	±0.50	119.71	310/330	●
24.3	+0.3/+1.1	24(h6)	2.00	±0.20	11.75	±0.50	130.59	310/330	●
25.3	+0.3/+1.1	24(h6)	2.00	±0.20	12.15	±0.50	136.03	310/330	●
26.3	+0.3/+1.1	26(h6)	2.00	±0.20	12.75	±0.50	141.48	310/330	●
28.3	+0.3/+1.1	28(h6)	2.50	±0.30	13.65	±0.50	152.36	310/330	●
30.3	+0.3/+1.1	30(h6)	2.50	±0.30	14.50	±0.50	163.24	310/330	●
32.3	+0.3/+1.1	32(h6)	3.00	±0.30	15.50	±0.50	174.12	310/330	●

● = 标准库存
● = Standard Stock

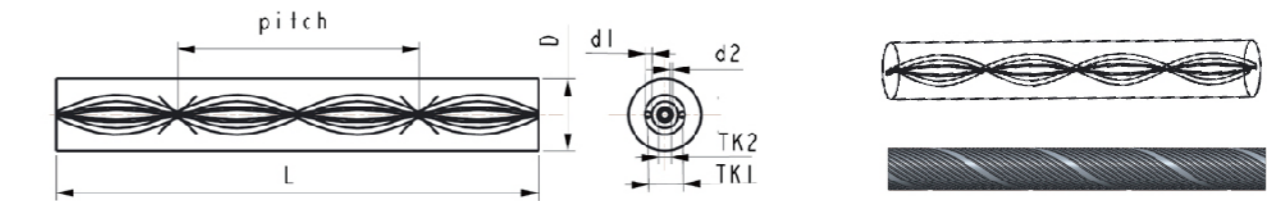
31度-37度双孔螺旋圆棒/ With two coolant holes 31°-37°



直径 D	螺旋角	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	导程 Lead	长度 Length	材质 Grade
		毛坯 Sintered	精磨 Ground							
D(mm)	°	毛坯 Sintered	精磨 Ground	d(mm)	TOL.	TK(mm)	TOL.	PITCH	L(+5mm)	HN40
4.3	35	+0.2/+0.8	4(h6)	0.5	±0.10	1.5	±0.20	15.0	330	●
6.3	32	+0.2/+0.8	6(h6)	0.9	±0.10	2.7	±0.20	22.5	330	●
6.3	37	+0.2/+0.8	6(h6)	0.7	±0.10	2.1	±0.20	22.5	330	●
8.3	34	+0.3/+1.0	8(h6)	1.0	±0.10	3.2	±0.30	30.0	330	●
10.3	33	+0.3/+1.0	10(h6)	1.3	±0.15	4.4	±0.30	37.4	330	●
12.3	32	+0.3/+1.0	12(h6)	1.6	±0.20	5.7	±0.40	44.9	330	●
14.3	31	+0.3/+1.1	14(h6)	1.8	±0.20	6.7	±0.40	52.4	330	●

● = 标准库存
● = Standard Stock

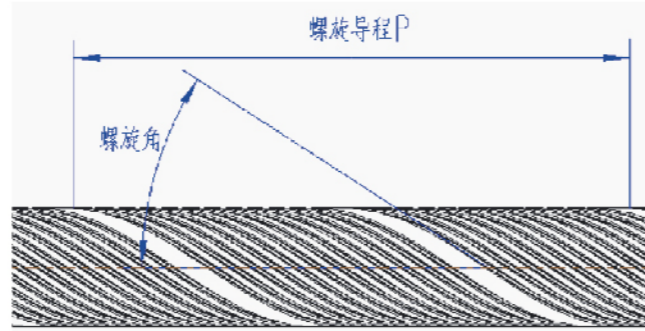
30度四孔螺旋圆棒/ With four coolant holes 30°



直径 D	公差 TOL	孔径 d		公差 TOL.	孔距 TK		公差 TOL.	导程 Lead	长度 Length	材质 Grade	
		d1	d2		TK1	TK2				HN40	HN46
D(mm)	公差 TOL	d1	d2	TOL.	TK1	TK2	TOL.	PITCH	L(+5mm)	HN40	HN46
8.3	+0.3/+1.0	0.8	0.40	±0.10	3.90	1.9	±0.20	43.5	330	○	○
10.3	+0.3/+1.0	1.1	0.60	±0.10	5.70	2.8	±0.20	54.4	330	○	○
12.3	+0.3/+1.0	1.4	0.70	±0.10	6.90	3.4	±0.20	65.3	330	○	○
14.3	+0.3/+1.1	1.6	0.80	±0.10	8.10	3.9	±0.30	76.2	330	○	○
16.3	+0.3/+1.1	1.8	0.90	±0.15	9.00	4.4	±0.40	87.1	330	○	○
18.3	+0.3/+1.1	2.0	1.00	±0.20	10.20	5.0	±0.40	98.0	330	○	○
20.3	+0.3/+1.1	2.3	1.20	±0.20	11.40	5.6	±0.40	108.8	330	○	○
22.3	+0.3/+1.1	2.5	1.20	±0.20	12.60	6.1	±0.40	119.7	330	○	○

○ = 接受定制
○ = Make to order

螺旋导程分级/ Classifying according to the spiral angle



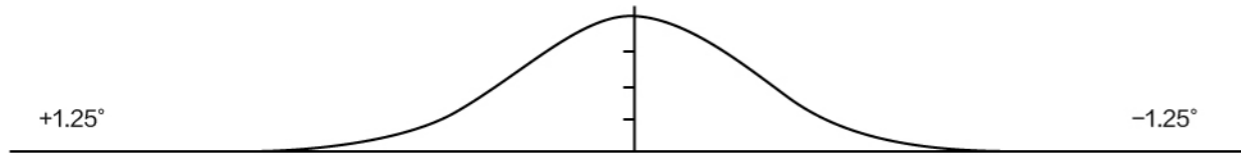
螺旋角与导程的关系
Relationship between the spiral angle and the lead

导程是螺旋线沿着中轴线旋转360°后,在长度方向上前进的距离,对于同一根棒料,导程数值是固定的,不会随着阶梯数、磨削直径而变化,但外径的螺旋角会随着直径的变化而变化,导程与螺旋角之间遵从如下的数学关系:

Lead is defined as the distance that the helix rotates 360 degrees along the central axis and advances in the opposite direction in the long direction. For the same bar, the value of the lead is fixed and will not change with the number of steps and grinding diameter, but the helical angle of the outer diameter will change with the change of diameter. The relationship between the lead and the helical angle follows the following mathematical relationship:

$$\pi \cdot D = P \cdot \tan \alpha$$

D: 直径 P: 导程 α: 螺旋角



螺旋角	黑区间/black		蓝区间/blue		白区间/white		黄区间/Yellow		绿区间:green	
30° 螺旋	31.25°	30.76°	30.75°	30.26°	30.25°	29.76°	29.75°	29.26°	29.25°	28.75°
40° 螺旋	41.25°	40.76°	40.75°	40.26°	40.25°	39.76°	39.75°	39.26°	39.25°	38.75°

为保证螺旋孔棒料导程数值更加精准,避免棒料出现开槽孔穿报废,我们对所有螺旋棒料进行了分级处理,分级区间缩小至±0.25°。由于分级标准更加严格,分级后的棒料不仅适用于普通钻头的制作,同时也适用于深孔钻的制作。

To ensure more accurate guide value of screw rod and to avoid scrap of screw rod with grooved holes, all screw rods are graded and the grading interval is ±0.25 degrees. Because of the strict classification standard, the graded bar is suitable not only for the production of ordinary drills, but also for deep hole drills.

30° 双螺旋棒料导程分级标准/±0.25° Nominal pitch reference

外径D	黑区间/black		蓝区间/blue		白区间/white		黄区间/Yellow		绿区间:green	
	31.25°	30.75°	30.75°	30.25°	30.25°	29.75°	29.75°	29.25°	29.25°	28.75°
3.3	15.53	15.83	15.84	16.15	16.16	16.48	16.49	16.83	16.84	17.18
4.3	20.71	21.11	21.12	21.54	21.55	21.98	21.99	22.44	22.45	22.91
5.3	25.89	26.39	26.4	26.92	26.93	27.47	27.48	28.05	28.06	28.63
6.3	31.06	31.67	31.68	32.31	32.32	32.97	32.98	33.66	33.67	34.36
7.3	36.24	36.95	36.96	37.7	37.71	38.47	38.48	39.27	39.28	40.08
8.3	41.42	42.23	42.24	43.09	43.1	43.96	43.97	44.88	44.89	45.81
9.3	46.59	47.51	47.52	48.47	48.48	49.96	49.97	50.49	50.5	51.54
10.3	51.77	52.8	52.81	53.86	53.87	54.96	54.97	56.1	56.11	57.26
11.3	56.95	58.08	58.09	59.25	59.26	60.45	60.46	61.71	61.72	62.99
12.3	62.13	63.36	63.37	64.63	64.64	65.95	65.96	67.32	67.33	68.72
13.3	67.3	68.64	68.65	70.02	70.03	71.45	71.46	72.93	72.94	74.44
14.3	72.48	73.92	73.93	75.41	75.42	76.94	76.95	78.54	78.55	80.17
15.3	77.66	79.2	79.21	80.79	80.8	82.44	82.45	84.15	84.16	85.9
16.3	82.83	84.48	84.49	86.18	86.19	87.94	87.95	89.76	89.77	91.62
17.3	88.01	89.76	89.77	91.57	91.58	93.43	93.44	95.37	95.38	97.35
18.3	93.19	95.04	95.05	96.96	96.97	98.93	98.94	100.97	100.98	103.07
19.3	98.37	100.32	100.33	102.34	102.35	104.43	104.44	106.58	106.59	108.8
20.3	103.54	105.6	105.61	107.73	107.74	109.92	109.93	112.19	112.2	114.53
21.3	108.72	110.88	110.89	113.12	113.13	115.42	115.43	117.8	117.81	120.25
22.3	113.9	116.16	116.17	118.5	118.51	120.92	120.93	123.41	123.42	125.98
23.3	119.08	121.44	121.45	123.89	123.9	126.41	126.42	129.02	129.03	131.71
24.3	124.25	126.72	126.73	129.28	129.29	131.91	131.92	134.63	134.64	137.43
25.3	129.43	132	132.01	134.66	134.67	137.41	137.42	140.24	140.25	143.16
26.3	134.61	137.28	137.29	140.05	140.06	142.9	142.91	145.85	145.86	148.89
27.3	139.78	142.56	142.57	145.44	145.45	148.4	148.41	151.46	151.47	154.61
28.3	144.96	147.85	147.86	150.83	150.84	153.9	153.91	157.07	157.08	160.34
29.3	150.14	153.13	153.14	156.21	156.22	159.39	159.4	162.68	162.69	166.06
30.3	155.32	158.41	158.42	161.6	161.61	164.89	164.9	168.29	168.3	171.79
31.3	160.49	163.69	163.7	166.99	167	170.39	170.4	173.9	173.91	177.52
32.3	165.67	168.97	168.98	172.37	172.38	175.88	175.89	179.51	179.52	183.24

40° 双螺旋棒料导程分级标准/±0.25°

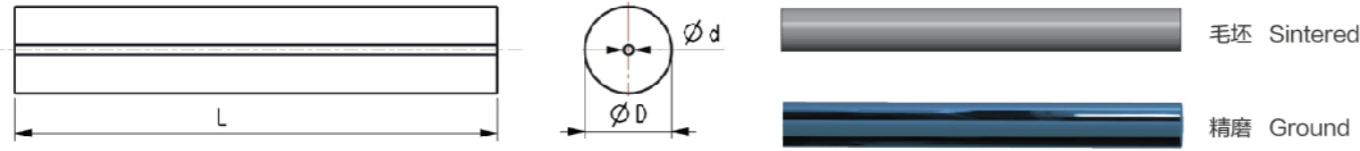
外径D	黑区间/black		蓝区间/blue		白区间/white		黄区间/Yellow		绿区间/green	
	41.25°	40.75°	40.75°	40.25°	40.25°	39.75°	39.75°	39.25°	39.25°	38.75°
3.3	10.75	10.94	10.95	11.13	11.14	11.33	11.34	11.54	11.55	11.74
4.3	14.33	14.58	14.59	14.84	14.85	15.11	15.12	15.38	15.39	15.66
5.3	17.91	18.23	18.24	18.55	18.56	18.89	18.9	19.23	19.24	19.57
6.3	21.49	21.88	21.89	22.27	22.28	22.66	22.67	23.07	23.08	23.49
7.3	25.08	25.52	25.53	25.98	25.99	26.44	26.45	26.92	26.93	27.4
8.3	28.66	29.17	29.18	29.69	29.7	30.22	30.23	30.76	30.77	31.31
9.3	32.24	32.81	32.82	33.4	33.41	34	34.01	34.61	34.62	35.23
10.3	35.82	36.46	36.47	37.11	37.12	37.77	37.78	38.45	38.46	39.14
11.3	39.41	40.11	40.12	40.82	40.83	41.55	41.56	42.3	42.31	43.06
12.3	42.99	43.75	43.76	44.53	44.54	45.33	45.34	46.14	46.15	46.97
13.3	46.57	47.4	47.41	48.24	48.25	49.11	49.12	49.99	50	50.89
14.3	50.15	51.04	51.05	51.95	51.96	52.88	52.89	53.83	53.84	54.8
15.3	53.73	54.69	54.7	55.66	55.67	56.66	56.67	57.68	57.69	58.72
16.3	57.32	58.34	58.35	59.38	59.39	60.44	60.45	61.52	61.53	62.63
17.3	60.9	61.98	61.99	63.09	63.1	64.22	64.23	65.37	65.38	66.54
18.3	64.48	65.63	65.64	66.8	66.81	67.99	68	69.21	69.22	70.46
19.3	68.06	69.27	69.28	70.51	70.52	71.77	71.78	73.06	73.07	74.37
20.3	71.65	72.92	72.93	74.22	74.23	75.55	75.56	76.9	76.91	78.29
21.3	75.23	76.57	76.58	77.93	77.94	79.32	79.33	80.75	80.76	82.2
22.3	78.81	80.21	80.22	81.64	81.65	83.1	83.11	84.59	84.6	86.12
23.3	82.39	83.86	83.87	85.35	85.36	86.88	86.89	88.44	88.45	90.03
24.3	85.98	87.5	87.51	89.06	89.07	90.66	90.67	92.28	92.29	93.94
25.3	89.56	91.15	91.16	92.77	92.78	94.43	94.44	96.13	96.14	97.86
26.3	93.14	94.8	94.81	96.49	96.5	98.21	98.22	99.97	99.98	101.77
27.3	96.72	98.44	98.45	100.2	100.21	101.99	102	103.82	103.83	105.69
28.3	100.3	102.09	102.1	103.91	103.92	105.77	105.78	107.66	107.67	109.6



直内冷孔圆棒
Rods With Straight Coolant Holes



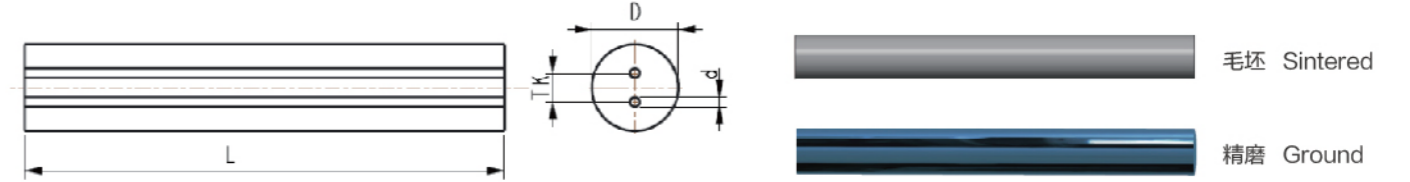
单直内冷孔圆棒/Rods With Central Coolant Hole



直径 D	公差 TOL		孔径 d	公差 TOL.	长度 Length	材质 Grade	
	毛坯 Sintered	精磨 Ground				HN40	HN46
D(mm)			d(mm)	TOL.	L(+5mm)		
2.2	+0.0/+0.2	2(h6)	0.8	±0.10	330	●	
3.2	+0.0/+0.2	3(h6)	0.8	±0.10	330	●	
4.2	+0.0/+0.2	4(h6)	0.8	±0.10	330	●	●
5.2	+0.0/+0.2	5(h6)	1	±0.10	330	●	
6.2	+0.0/+0.2	6(h6)	1	±0.10	330	●	●
7.2	+0.0/+0.3	7(h6)	1	±0.10	330	●	
8.2	+0.0/+0.3	8(h6)	1	±0.10	330	●	●
9.2	+0.0/+0.3	9(h6)	1.5	±0.15	330	●	
9.2	+0.0/+0.3	9(h6)	2	±0.20	330	●	
10.2	+0.0/+0.3	10(h6)	1.5	±0.15	330	●	
10.2	+0.0/+0.3	10(h6)	2	±0.20	330	●	●
11.2	+0.0/+0.3	11(h6)	2	±0.20	330	●	
12.2	+0.1/+0.4	12(h6)	2	±0.20	330	●	●
13.2	+0.1/+0.4	13(h6)	2	±0.20	330	●	
14.2	+0.1/+0.4	14(h6)	2	±0.20	330	●	●
15.2	+0.1/+0.4	15(h6)	2	±0.20	330	●	
16.2	+0.1/+0.5	16(h6)	2	±0.20	330	●	●
18.2	+0.1/+0.5	18(h6)	3	±0.30	330	●	
20.2	+0.1/+0.5	20(h6)	3	±0.30	330	●	●
22.2	+0.2/+0.6	22(h6)	3	±0.30	330	●	●
25.2	+0.2/+0.6	25(h6)	3	±0.30	330	●	
25.2	+0.2/+0.6	25(h6)	3	±0.30	330	●	●
28.2	+0.2/+0.6	28(h6)	3	±0.30	330	●	●
30.2	+0.5/+1.1	30(h6)	3	±0.30	330	●	●
32.2	+0.5/+1.1	32(h6)	3	±0.30	330	●	●

● = 标准库存
● = Standard Stock

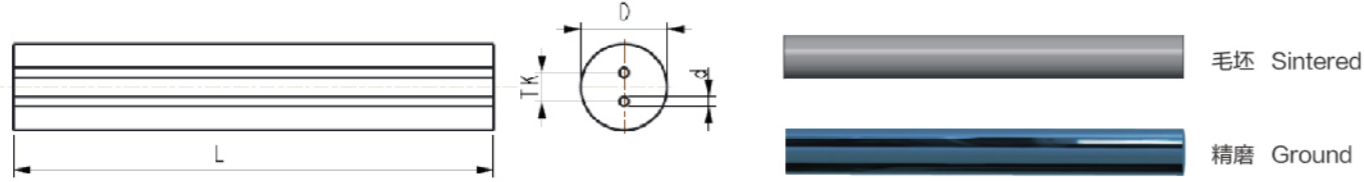
双直内冷孔圆棒/Rods With Two Straiaht Coolant Holes



直径 D	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	长度 Length	材质 Grade
	毛坯 Sintered	精磨 Ground						
D(mm)			d(mm)	TOL.	TK(mm)	TOL.	L(+5mm)	HN46
4.2	+0.0/+0.2	4(h6)	0.8	±0.10	2	±0.20	330.0	●
5.2	+0.0/+0.2	5(h6)	0.8	±0.10	2	±0.20	330.0	●
6.2	+0.0/+0.2	6(h6)	1	±0.10	3	±0.20	330.0	●
7.2	+0.0/+0.3	7(h6)	1	±0.10	3	±0.30	330.0	●
8.2	+0.0/+0.3	8(h6)	1	±0.10	4	±0.30	330.0	●
9.2	+0.0/+0.3	9(h6)	1.4	±0.15	4	±0.30	330.0	●
10.2	+0.0/+0.3	10(h6)	1.4	±0.15	5	±0.30	330.0	●
11.2	+0.0/+0.3	11(h6)	1.4	±0.15	6	±0.40	330.0	●
12.2	+0.1/+0.4	12(h6)	1.75	±0.20	6	±0.40	330.0	●
13.2	+0.1/+0.4	13(h6)	1.75	±0.20	6	±0.40	330.0	●
14.2	+0.1/+0.4	14(h6)	1.75	±0.20	7	±0.40	330.0	●
15.2	+0.1/+0.4	15(h6)	2	±0.20	7	±0.40	330.0	●
16.2	+0.1/+0.5	16(h6)	2	±0.20	8	±0.40	330.0	●
17.2	+0.1/+0.5	17(h6)	2	±0.20	8	±0.40	330.0	●
18.2	+0.1/+0.5	18(h6)	2	±0.20	9	±0.40	330.0	●
19.2	+0.1/+0.5	19(h6)	2	±0.20	9	±0.40	330.0	●
20.2	+0.1/+0.5	20(h6)	2.5	±0.3	10	±0.40	330.0	●
21.2	+0.1/+0.5	21(h6)	2.5	±0.3	10	±0.40	330.0	●
22.2	+0.2/+0.6	22(h6)	2.5	±0.3	11	±0.50	330.0	●
23.2	+0.2/+0.6	23(h6)	2.5	±0.3	11	±0.50	330.0	●
24.2	+0.2/+0.6	24(h6)	3	±0.3	12	±0.50	330.0	●
25.2	+0.2/+0.6	25(h6)	3	±0.3	12	±0.50	330.0	●
26.2	+0.2/+0.6	26(h6)	3	±0.3	13	±0.50	330.0	●
28.2	+0.2/+0.6	28(h6)	3	±0.3	14	±0.50	330.0	●
30.2	+0.5/+1.1	30(h6)	3	±0.3	14	±0.50	330.0	●
32.2	+0.5/+1.1	32(h6)	3	±0.3	14	±0.50	330.0	●

● = 标准库存
● = Standard Stock

双直缩孔圆棒/ Rods With Two Straight Coolant Holes Reduced In Bolt Circle

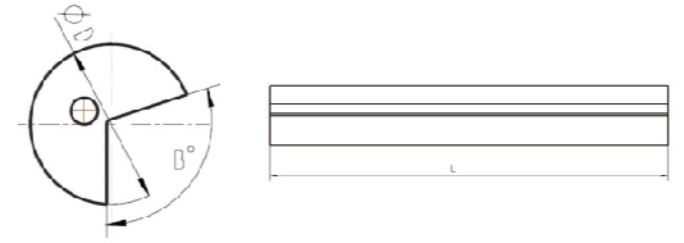


直径 D	公差 TOL		孔径 d	公差 TOL.	孔距 TK	公差 TOL.	长度 Length	材质 Grade
	毛坯 Sintered	精磨 Ground						
D(mm)	毛坯 Sintered	精磨 Ground	d(mm)	TOL.	TK(mm)	TOL.	L(+5mm)	HN46
6.2	+0.2/+0.4	6(h6)	0.8	±0.10	1	±0.20	330.0	●
7.2	+0.2/+0.4	7(h6)	0.8	±0.10	1	±0.20	330.0	●
8.2	+0.2/+0.5	8(h6)	0.8	±0.10	2	±0.20	330.0	●
9.2	+0.2/+0.5	9(h6)	1	±0.10	2	±0.20	330.0	●
10.2	+0.2/+0.5	10(h6)	1	±0.10	2	±0.20	330.0	●
11.2	+0.2/+0.5	11(h6)	1.2	±0.15	3	±0.30	330.0	●
12.2	+0.3/+0.6	12(h6)	1.2	±0.15	3	±0.30	330.0	●
13.2	+0.3/+0.6	13(h6)	1.2	±0.15	3	±0.30	330.0	●
14.2	+0.3/+0.6	14(h6)	1.5	±0.15	5	±0.30	330.0	●
15.2	+0.3/+0.6	15(h6)	1.5	±0.15	5	±0.30	330.0	●
16.2	+0.3/+0.7	16(h6)	1.5	±0.15	5	±0.30	330.0	●
17.2	+0.3/+0.7	17(h6)	2	±0.20	6	±0.40	330.0	●
18.2	+0.3/+0.7	18(h6)	2	±0.20	6	±0.40	330.0	●
19.2	+0.3/+0.7	19(h6)	2	±0.20	6	±0.40	330.0	●
20.2	+0.3/+0.7	20(h6)	2	±0.20	6	±0.40	330.0	●
21.2	+0.3/+0.7	21(h6)	2	±0.20	6	±0.40	330.0	●
22.2	+0.4/+0.8	22(h6)	2	±0.20	6	±0.40	330.0	●
23.2	+0.4/+0.8	23(h6)	2	±0.20	7	±0.40	330.0	●
24.2	+0.4/+0.8	24(h6)	2	±0.20	7	±0.40	330.0	●
25.2	+0.4/+0.8	25(h6)	2	±0.20	7	±0.40	330.0	●

● = 标准库存
● = Standard Stock

枪钻毛坯/ Blanks For Gun Drills

带槽单孔型/ Profile rods with one coolant hole



直径 D	公差 TOL	V槽	长度 Length	材质 Grade	
D(mm)	毛坯 Sintered	B	L(+5mm)	HN40	HN46
8.2	+0.0/+0.3	120°	310.0		
9.2	+0.0/+0.3	120°	310.0		
10.2	+0.0/+0.3	120°	310.0		
11.2	+0.0/+0.3	120°	310.0		
12.2	+0.1/+0.4	120°	310.0		
14.2	+0.1/+0.4	120°	310.0		

根据客户图纸定制 Other Dimension Upon Request

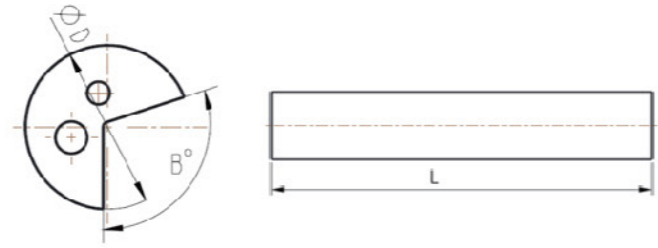
带槽双孔型/ Profile rods with two coolant holes



直径 D	公差 TOL	V槽	长度 Length	材质 Grade	
D(mm)	毛坯 Sintered	B	L(+5mm)	HN40	HN46
8.2	+0.0/+0.3	120°	310.0		
9.2	+0.0/+0.3	120°	310.0		
10.2	+0.0/+0.3	120°	310.0		
11.2	+0.0/+0.3	120°	310.0		
12.2	+0.1/+0.4	120°	310.0		
14.2	+0.1/+0.4	120°	310.0		

根据客户图纸定制 Other Dimension Upon Request

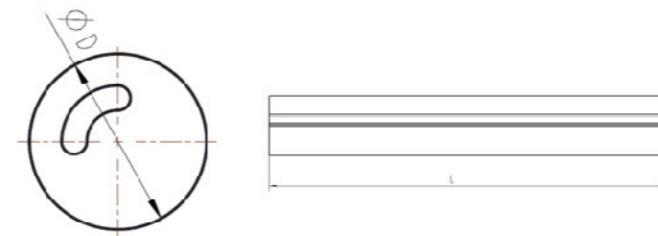
带槽弯月型/ Profile rods with kidney-shaped coolant holes



直径 D	公差 TOL	V槽	长度 Length	材质 Grade	
D(mm)	毛坯 Sintered	B	L(+5mm)	HN40	HN46
8.2	+0.0/+0.3	120°	310.0		
9.2	+0.0/+0.3	120°	310.0		
10.2	+0.0/+0.3	120°	310.0		
11.2	+0.0/+0.3	120°	310.0		
12.2	+0.1/+0.4	120°	310.0		
14.2	+0.1/+0.4	120°	310.0		

根据客户图纸定制 Other Dimension Upon Request

无槽弯月型/ Rods with kidney-shaped coolant hole

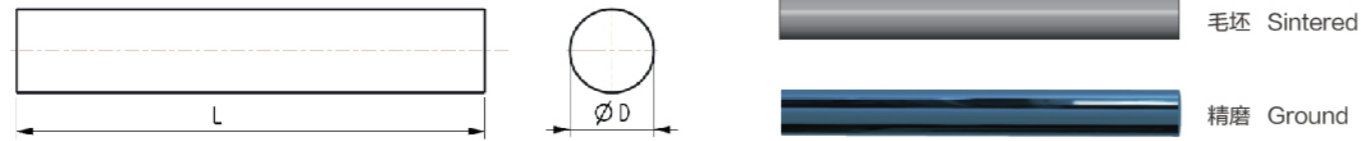


直径 D	公差 TOL	长度 Length	材质 Grade	
D(mm)	毛坯 Sintered	L(+5mm)	HN40	HN46
6.2	+0.0/+0.2	310.0		
8.2	+0.0/+0.3	310.0		
9.2	+0.0/+0.3	310.0		
10.2	+0.0/+0.3	310.0		
11.2	+0.0/+0.3	310.0		
12.2	+0.1/+0.4	310.0		
14.2	+0.1/+0.4	310.0		

根据客户图纸定制 Other Dimension Upon Request



实心长棒(公制)/ Solid Rods (metric)



直径 D D(mm)	公差 TOL		长度 Length L(+5mm)	材质 Grade			
	毛坯 Sintered	精磨 Ground		AK40	AK46	AK44F	AK55
2.2	+0.0/+0.2	2(h6)	330	●	●	●	●
2.7	+0.0/+0.2	—	330	●	●	●	●
3.2	+0.0/+0.2	3(h6)	330	●	●	●	●
3.7	+0.0/+0.2	—	330	●	●	●	●
4.2	+0.0/+0.2	4(h6)	330	●	●	●	●
4.7	+0.0/+0.2	—	330	●	●	●	●
5.2	+0.0/+0.2	5(h6)	330	●	●	●	●
5.7	+0.0/+0.2	—	330	●	●	●	●
6.2	+0.0/+0.2	6(h6)	330	●	●	●	●
6.7	+0.0/+0.2	—	330	●	●	●	●
7.2	+0.0/+0.3	7(h6)	330	●	●	●	●
7.7	+0.0/+0.3	—	330	●	●	●	●
8.2	+0.0/+0.3	8(h6)	330	●	●	●	●
8.7	+0.0/+0.3	—	330	●	●	●	●
9.2	+0.0/+0.3	9(h6)	330	●	●	●	●
9.7	+0.0/+0.3	—	330	●	●	●	●
10.2	+0.0/+0.3	10(h6)	330	●	●	●	●
10.7	+0.0/+0.3	—	330	●	●	●	●
11.2	+0.0/+0.3	11(h6)	330	●	●	●	●
11.7	+0.1/+0.4	—	330	●	●	●	●
12.2	+0.1/+0.4	12(h6)	330	●	●	●	●
12.7	+0.1/+0.4	—	330	●	●	●	●
13.2	+0.1/+0.4	13(h6)	330	●	●	●	●
13.7	+0.1/+0.4	—	330	●	●	●	●
14.2	+0.1/+0.4	14(h6)	330	●	●	●	●
14.7	+0.1/+0.4	—	330	●	●	●	●
15.2	+0.1/+0.4	15(h6)	330	●	●	●	●
16.2	+0.1/+0.5	16(h6)	330	●	●	●	●
17.2	+0.1/+0.5	17(h6)	330	●	●	●	●
18.2	+0.1/+0.5	18(h6)	330	●	●	●	●
19.2	+0.1/+0.5	19(h6)	330	●	●	●	●
20.2	+0.1/+0.5	20(h6)	330	●	●	●	●
21.2	+0.1/+0.5	21(h6)	330	●	●	●	●
22.2	+0.2/+0.6	22(h6)	330	●	●	●	●
23.2	+0.2/+0.6	23(h6)	330	●	●	●	●
24.2	+0.2/+0.6	24(h6)	330	●	●	●	●
25.2	+0.2/+0.6	25(h6)	330	●	●	●	●
26.2	+0.2/+0.6	26(h6)	330	●	●	●	●
27.2	+0.2/+0.6	27(h6)	330	●	●	●	●
28.2	+0.2/+0.6	28(h6)	330	●	●	●	●
29.2	+0.5/+1.1	29(h6)	330	●	●	●	●
30.2	+0.5/+1.1	30(h6)	330	●	●	●	●
32.2	+0.5/+1.1	32(h6)	330	●	●	●	●
33.2	+0.5/+1.1	33(h6)	330	●	●	●	●
34.2	+0.5/+1.1	34(h6)	330	●	●	●	●
35.2	+0.5/+1.1	35(h6)	330	●	●	●	●
36.2	+0.5/+1.1	36(h6)	330	●	●	●	●

● = 标准库存
● = Standard Stock

实心长棒(英制)/ Solid Rods (inch)



直径 D D(mm)	公差 TOL		长度 Length L(+5mm)	材质 Grade			
	毛坯 Sintered	精磨 Ground		AK40	AK46	AK44F	AK55
1/16	+0.012~+0.020	(h6)	13~1/8	●	●	●	●
1/8	+0.012~+0.020	(h6)	13~1/8	●	●	●	●
3/16	+0.012~+0.020	(h6)	13~1/8	●	●	●	●
1/4	+0.012~+0.020	(h6)	13~1/8	●	●	●	●
5/16	+0.012~+0.024	(h6)	13~1/8	●	●	●	●
3/8	+0.012~+0.024	(h6)	13~1/8	●	●	●	●
7/16	+0.012~+0.024	(h6)	13~1/8	●	●	●	●
1/2	+0.012~+0.028	(h6)	13~1/8	●	●	●	●
9/16	+0.012~+0.028	(h6)	13~1/8	●	●	●	●
5/8	+0.012~+0.028	(h6)	13~1/8	●	●	●	●
11/16	+0.012~+0.028	(h6)	13~1/8	●	●	●	●
3/4	+0.012~+0.032	(h6)	13~1/8	●	●	●	●
13/16	+0.012~+0.032	(h6)	13~1/8	●	●	●	●
7/8	+0.012~+0.032	(h6)	13~1/8	●	●	●	●
15/16	+0.012~+0.032	(h6)	13~1/8	●	●	●	●
1.0	+0.012~+0.032	(h6)	13~1/8	●	●	●	●

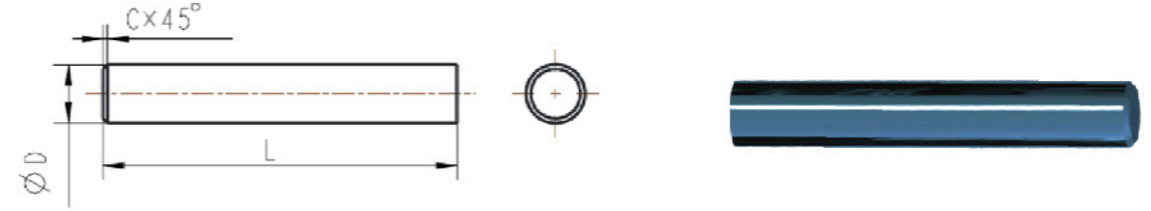
● = 标准库存
● = Standard Stock



04 精磨圆棒
Ground Rods



精磨短棒(公制)/ Ground Solid Rods-Cut To Length (Metric)

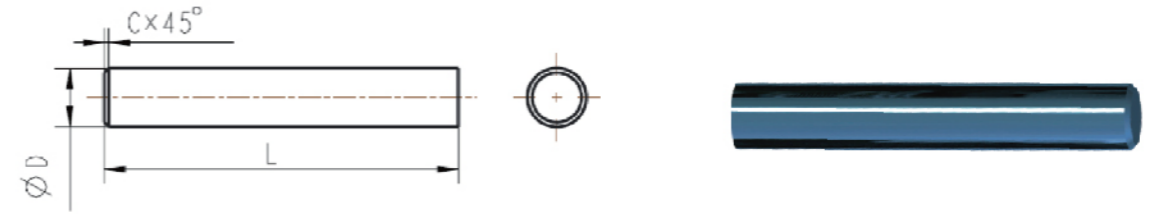


材质HN46\HN44\HN44F

直径中D (公差h5/h6)	长度L (公差Tol./0~+1)	倒角尺寸C (公差Tol./±0.1)	倒角角度Angle of Chamfer (公差Tol/±3°)
3.0	40	0.4	45°
3.0	50	0.4	45°
3.0	70	0.4	45°
3.0	100	0.4	45°
3.0	150	0.4	45°
4.0	40	0.4	45°
4.0	50	0.4	45°
4.0	75	0.4	45°
4.0	100	0.4	45°
4.0	150	0.4	45°
5.0	50	0.5	45°
5.0	55	0.5	45°
5.0	60	0.5	45°
5.0	70	0.5	45°
5.0	80	0.5	45°
5.0	100	0.5	45°
5.0	150	0.5	45°
6.0	50	0.5	45°
6.0	60	0.5	45°
6.0	75	0.5	45°
6.0	100	0.5	45°
6.0	150	0.5	45°
7.0	55	0.6	45°
7.0	60	0.6	45°
8.0	60	0.6	45°
8.0	75	0.5	45°

直径中D (公差h5/h6)	长度L (公差Tol./0~+1)	倒角尺寸C (公差Tol./±0.1)	倒角角度Angle of Chamfer (公差Tol./±3°)
8.0	80	0.6	45°
8.0	90	0.6	45°
8.0	100	0.6	45°
8.0	150	0.6	45°
10.0	70	0.6	45°
10.0	75	0.6	45°
10.0	90	0.6	45°
10.0	100	0.6	45°
10.0	125	0.6	45°
10.0	150	0.6	45°
11.0	110	0.8	45°
12.0	75	0.8	45°
12.0	90	0.8	45°
12.0	100	0.8	45°
12.0	120	0.8	45°
12.0	150	0.8	45°
14.0	75	0.8	45°
14.0	100	0.8	45°
14.0	110	0.8	45°
14.0	125	0.8	45°
14.0	150	0.8	45°
16.0	100	0.8	45°
16.0	125	0.8	45°
16.0	150	0.8	45°
18.0	100	0.8	45°
18.0	150	0.8	45°
20.0	100	1.0	45°
20.0	120	1.0	45°
20.0	150	1.0	45°
25.0	100	1.0	45°
25.0	150	1.0	45°

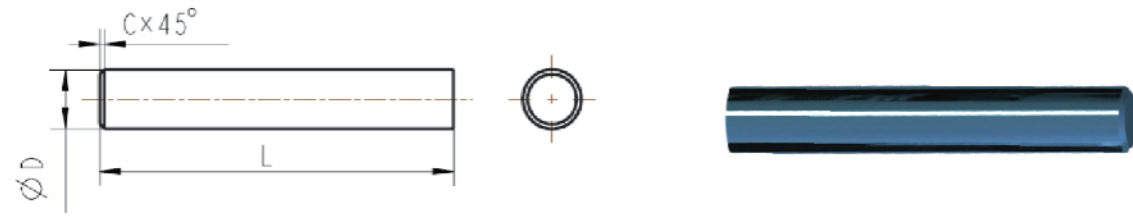
精磨短棒(英制)/ Ground Solid Rods-Cut To Length (inch)



材质HN46\HN44\HN44F

直径中D (公差h5/h6)	长度L (公差Tol./0~+1)	倒角尺寸C		倒角角度Angle of Chamfer (公差Tol/±3°)
		C	公差Tol	
1/8	1-1/2	0.015	±0.004	45°
1/8	2	0.015	±0.004	45°
1/8	2-1/2	0.015	±0.004	45°
1/8	3	0.015	±0.004	45°
3/16	2	0.015	±0.004	45°
3/16	3	0.015	±0.004	45°
1/4	2	0.015	±0.004	45°
1/4	2-1/2	0.015	±0.004	45°
1/4	3	0.015	±0.004	45°
1/4	4	0.015	±0.004	45°
5/16	2-1/2	0.015	±0.004	45°
3/8	2-1/2	0.015	±0.004	45°
3/8	3	0.015	±0.004	45°
1/2	2-1/2	0.031	±0.008	45°
1/2	3	0.031	±0.008	45°
1/2	4	0.031	±0.008	45°
5/8	3-1/2	0.031	±0.008	45°
3/4	4	0.031	±0.008	45°
3/4	5	0.031	±0.008	45°
1	4	0.031	±0.008	45°

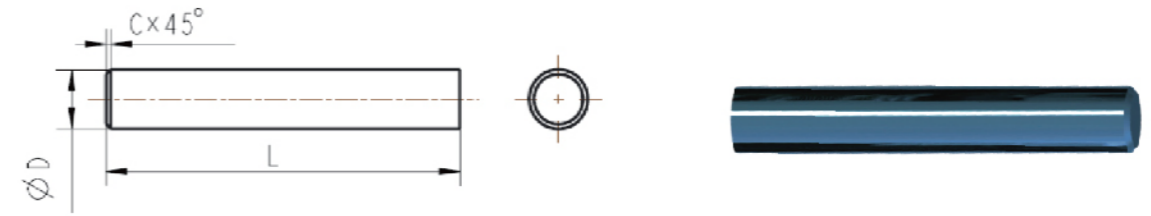
DIN精磨短棒(用于铣刀)/ Ground Solid Rods-Cut To Length (FOR End Mill)



材质HN46\HN44\HN44F

直径中D (公差h5/h6)	长度L (公差Tol./0~+1)	倒角尺寸C (公差Tol./±0.1)	倒角角度Angle of Chamfer (公差Tol/±3°)
3.0	38	0.4	45°
3.5	50	0.4	45°
4.0	50	0.4	45°
4.5	50	0.5	45°
5.0	50	0.5	45°
5.5	57	0.5	45°
6.0	50	0.5	45°
6.0	57	0.5	45°
6.0	54	0.5	45°
6.5	60	0.6	45°
7.0	60	0.6	45°
7.5	63	0.6	45°
8.0	58	0.6	45°
8.0	63	0.6	45°
8.5	67	0.6	45°
9.0	67	0.6	45°
9.5	72	0.6	45°
10.0	66	0.6	45°
10.0	72	0.6	45°
11.0	83	0.8	45°
12.0	73	0.8	45°
12.0	83	0.8	45°
13.0	83	0.8	45°
14.0	75	0.8	45°
14.0	83	0.8	45°
15.0	92	0.8	45°
16.0	82	0.8	45°
16.0	92	0.8	45°
18.0	84	0.8	45°
18.0	92	0.8	45°
20.0	92	1	45°
20.0	104	1.0	45°

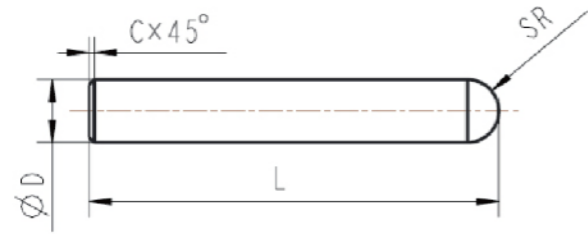
DIN精磨短棒(用于钻头)/ Ground Solid Rods-Cut To Length (FOR DRILL)



材质 HN40\HN46

直径中D (公差h5/h6)	长度L (公差Tol./0~+1)	倒角尺寸C (公差Tol./±0.1)	倒角角度Angle of Chamfer (公差Tol/±3°)
3.0	47	0.4	45°
4.0	56	0.4	45°
5.0	63	0.5	45°
6.0	63	0.5	45°
6.0	67	0.5	45°
6.0	75	0.5	45°
6.0	83	0.5	45°
7.0	75	0.6	45°
8.0	80	0.6	45°
8.0	92	0.6	45°
9.0	85	0.6	45°
10.0	90	0.6	45°
10.0	104	0.6	45°
11.0	96	0.8	45°
12.0	103	0.8	45°
12.0	119	0.8	45°
13.0	103	0.8	45°
14.0	108	0.8	45°
14.0	125	0.8	45°
15.0	112	0.8	45°
16.0	116	0.8	45°
16.0	134	0.8	45°
17.0	120	0.8	45°
18.0	124	0.8	45°
18.0	144	0.8	45°
19.0	128	1.0	45°
20.0	132	1.0	45°
20.0	154	1.0	45°

球头精磨棒(公制)/ Ground Ballnose Endmill Blanks (Metric)

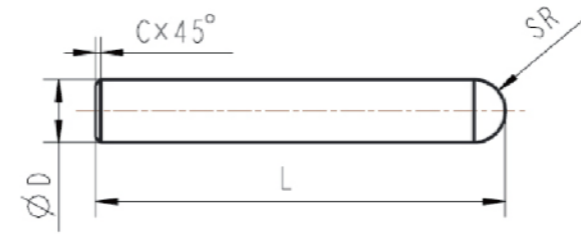


适用范围: 球头立铣刀 Application: Ballnose Endmill

材质 HN44F\HN46

直径 D		长度 Length		倒角尺寸C (公差Tol./±0.1)	球头半径Probe-radius	
D(mm)	公差Tol.	L	公差Tol.		SR	公差Tol.
6.0	h6	58.0	0~+1	0.5	3	0~+0.38
6.0	h6	80.0	0~+1	0.5	3	0~+0.38
8.0	h6	64.0	0~+1	0.6	4	0~+0.38
8.0	h6	100.0	0~+1	0.6	4	0~+0.38
10.0	h6	73.0	0~+1	0.6	5	0~+0.38
10.0	h6	100.0	0~+1	0.6	5	0~+0.38
12.0	h6	84.0	0~+1	0.8	6	0~+0.38
12.0	h6	120.0	0~+1	0.8	6	0~+0.38
14.0	h6	84.0	0~+1	0.8	7	0~+0.38
14.0	h6	120.0	0~+1	0.8	7	0~+0.38
16.0	h6	93.0	0~+1	0.8	8	0~+0.38
16.0	h6	140.0	0~+1	0.8	8	0~+0.38
18.0	h6	93.0	0~+1	0.8	9	0~+0.38
18.0	h6	160.0	0~+1	0.8	9	0~+0.38
20.0	h6	105.0	0~+1	1.0	10	0~+0.38
20.0	h6	160.0	0~+1	1.0	10	0~+0.38

球头精磨棒 (英制) / Ground Ballnose Endmill Blanks (Inch)

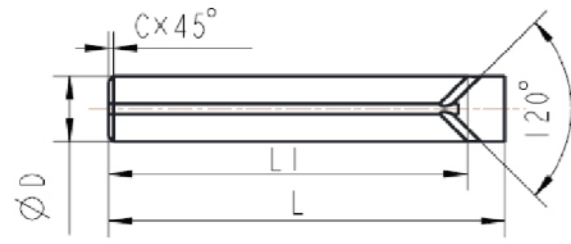


适用范围: 球头立铣刀 Application: Ballnose Endmill

材质 HN44F\HN46

直径 D		长度 Length		倒角尺寸C (公差Tol./±0.1)	球头半径Probe-radius		
D(mm)	公差Tol.	L	公差Tol.		SR	公差Tol.	
1/4	h6	2.0	0~+1/16	0.0	±0.004	0.1	0~+0.015
1/4	h6	3.0	0~+1/16	0.0	±0.004	0.1	0~+0.015
5/16	h6	2.0	0~+1/16	0.0	±0.004	0.2	0~+0.015
5/16	h6	3.0	0~+1/16	0.0	±0.004	0.2	0~+0.015
3/8	h6	3.0	0~+1/16	0.0	±0.004	0.2	0~+0.015
3/8	h6	3.0	0~+1/16	0.0	±0.004	0.2	0~+0.015
3/8	h6	4.0	0~+1/16	0.0	±0.004	0.2	0~+0.015
7/16	h6	3.0	0~+1/16	0.0	±0.004	0.2	0~+0.015
1/2	h6	3.0	0~+1/16	0.0	±0.008	0.3	0~+0.015
1/2	h6	4.0	0~+1/16	0.0	±0.008	0.3	0~+0.015
5/8	h6	4.0	0~+1/16	0.0	±0.008	0.3	0~+0.015
3/4	h6	4.0	0~+1/16	0.0	±0.008	0.4	0~+0.015
1	h6	4.0	0~+1/16	0.0	±0.008	0.5	0~+0.015

精磨Y型孔棒材/ Ground Rods With Y-Exit Coolant Holes

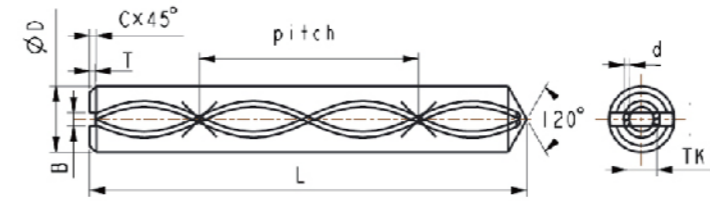


适用范围：前端带多个内冷孔铣刀
Application: Mill cutter with center coolant duct and lateral exits

材质 HN44F\HN46

直径D (公差h6)	长度L (公差0~+1)	内孔径d1 (公差0~+0.30)	侧孔位置L1 (公差+0.35)	斜孔径d2 (公差±0.15)	倒角尺寸C (公差Tol./±0.1)
6.0	58.0	1.75	55.0	1.0	0.5
6.0	65.0	1.75	62.0	1.0	0.5
8.0	64.2	1.75	60.0	1.2	1.0
8.0	79.0	1.75	74.8	1.2	1.0
10.0	73.2	2.00	68.0	1.2	1.0
10.0	101.2	2.00	96.0	1.2	1.0
12.0	84.2	2.00	78.0	1.5	1.0
12.0	101.1	2.00	95.0	1.5	1.0
16.0	93.2	4.00	85.0	1.5	1.5
16.0	128.0	4.00	119.8	1.5	1.5
16.0	133.2	4.00	125.0	1.5	1.5
20.0	110.0	4.00	99.8	2.0	1.5
20.0	151.5	4.00	141.0	2.0	1.5
20.0	161.2	4.00	151.0	2.0	1.5
25.0	130.0	4.00	117.5	2.0	1.5
25.0	185.0	4.00	172.5	2.0	1.5
25.0	186.0	4.00	173.5	2.0	1.5

精磨油槽尖锥螺旋孔棒材/ Ground rods with point, slot and helical coolant holes (30°)



适用范围：内冷麻花钻
Application: Drill with Helical Holes

材质 HN44F\HN46

倍径	直径 Diameter		长度 Length		槽宽B (公差TOL./±0.20)	槽深T (公差Tol./0~+0.40)	倒角尺寸C (公差 Tol./±0.10)	内孔径 d	孔间距 TK	导程 PITCH
	D	公差	D	公差						
3XD	6.0	h6	67	0~+1.5	1.50	0.40	0.60	0.70	2.60	32.65
	8.0	h6	80.5	0~+1.5	2.00	0.60	0.80	1.00	4.00	43.53
	10.0	h6	90.5	0~+1.5	2.50	0.80	1.00	1.40	4.80	54.41
	12.0	h6	104	0~+1.5	2.50	1.00	1.20	1.40	6.30	65.30
	14.0	h6	109	0~+1.5	3.00	1.20	1.40	1.75	7.10	76.18
	16.0	h6	117.5	0~+1.5	3.00	1.40	1.60	1.80	8.30	87.06
	18.0	h6	125.5	0~+1.5	3.50	1.60	1.80	2.00	9.55	97.95
	20.0	h6	134	0~+1.5	3.50	1.80	2.00	2.00	10.40	108.83
5XD	6.0	h6	83	0~+1.5	1.50	0.40	0.60	0.70	2.60	32.65
	8.0	h6	92.5	0~+1.5	2.00	0.60	0.80	1.00	4.00	43.53
	10.0	h6	104.5	0~+1.5	2.50	0.80	1.00	1.40	4.80	54.41
	12.0	h6	120	0~+1.5	2.50	1.00	1.20	1.40	6.30	65.30
	14.0	h6	126	0~+1.5	3.00	1.20	1.40	1.75	7.10	76.18
	16.0	h6	135.5	0~+1.5	3.00	1.40	1.60	1.80	8.30	87.06
	18.0	h6	145.5	0~+1.5	3.50	1.60	1.80	2.00	9.55	97.95
	20.0	h6	156	0~+1.5	3.50	1.80	2.00	2.00	10.40	108.83
7XD	6.0	h6	98	0~+1.5	1.50	0.40	0.60	0.70	2.60	32.65
	8.0	h6	107.5	0~+1.5	2.00	0.60	0.80	1.00	4.00	43.53
	10.0	h6	132.5	0~+1.5	2.50	0.80	1.00	1.40	4.80	54.41
	12.0	h6	157	0~+1.5	2.50	1.00	1.20	1.40	6.30	65.30
	14.0	h6	184	0~+1.5	3.00	1.20	1.40	1.75	7.10	76.18
	16.0	h6	206.5	0~+2.0	3.00	1.40	1.60	1.80	8.30	87.06
	18.0	h6	225.5	0~+2.0	3.50	1.60	1.80	2.00	9.55	97.95
	20.0	h6	247	0~+2.0	3.50	1.80	2.00	2.00	10.40	108.83