

**DRILLING TECHNOLOGY
MADE IN GERMANY**



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Our Customer 客户群



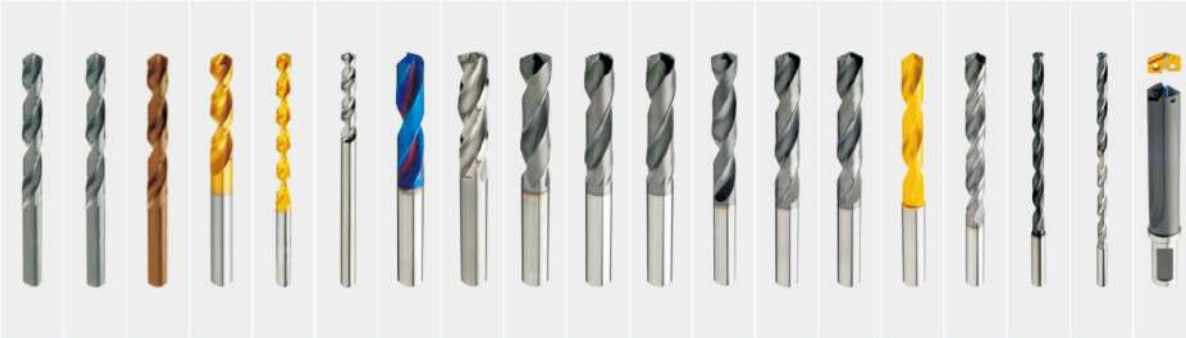
材料表

Material list

Material Description / 材质说明	Nr.	Examples/元素及国际代码
General Steels<500 N/mm2 / 一般钢材 抗拉力<500牛顿/mm2以下	1.1	St37-2(1.0037), 9S20(1.0711), GS-22Mo4(1.5419), R-Fe80(1.1014)
General Steels<700 N/mm2 / 一般钢材 抗拉力<700牛顿/mm2以下	1.2	St52-3(1.0570), 35S20(1.0726), 14Ni6(1.5622), 16CrMo4-4(1.7337), GS-17CrMo5-5(1.7357)
General Steels<850 N/mm2 / 一般钢材 抗拉力<850牛顿/mm2以下	1.3	45S20(1.0727), 21CrMoV5-7(1.7709), GS40Mn5(1.1168), 9SMnPb36(1.0737), 11SMn37(1.0736)
General Steels<1000 N/mm2 / 一般钢材 抗拉力<1000牛顿/mm2以下	1.4	60S20(1.0728), 46S20(1.0727), 46SPb20(1.0757)
General Steels<1400 N/mm2 / 一般钢材 抗拉力<1400牛顿/mm2以下	1.5	50CrV4(1.8159), 34CrAlNi7(1.8550)
Case Hardening Steels<1000 N/mm2 / 表面硬化钢 抗拉力<1000牛顿/mm2以下	1.6	16MnCr5(1.7131), 13Cr2(1.7012), 20CrMo5(1.7264), 25MoCr54(1.7326), 15CrNi6(1.5919)
Nitriding Steels<1000 N/mm2 / 氮化钢 抗拉力<1000牛顿/mm2以下	1.7	34CrAl6(1.8504), 34CrAlMo5(1.8507), 41CrAlMo7(1.8509), 34CrAlSS(1.8506)
Heat Treatable Steels<850 N/mm2 / 可热处理钢 抗拉力<850牛顿/mm2以下	1.8	C45(1.0503), Ck45(1.1191), C22(1.0402), 14CrMoV6-9(1.7735), 40NiCrMo2-2(1.6546), 50CrMo4(1.7228)
Tool Steels / 工具钢	1.9	90MnCrV8(1.2842), C70W2(1.1620), 40CrMnNiMo8(1.2738), X19NiCrMo4(1.2764), X32CrMoV3-3(1.2365)
Corrosion and acid-proof steels<700 N/mm2 / 不锈钢 抗拉力 700牛顿/mm2 以下	2.1	X5CrNi18 10(1.4301), X8CrNiS18-9(1.4305), X46Cr13(1.4034), X6Cr17(1.4016), X2CrNiMo17-13-2(1.4404)
Corrosion and acid-proof steels>700 N/mm2 / 不锈钢 抗拉力 700牛顿/mm2 以上	2.2	X20CrMoWv12-1(1.4935), X12CrS13(1.4006), X20C5-13(1.4021), X2CrNiMoN22-5-3(1.4462Duplex), X22CrMoV152-1(1.4923)
Cast iron<180HB / 铸铁<180HB	3.1	GG15(0.6015), GG20(0.6040), GGL-NiCr20-2(0.6660), GGL-NiCuCr15-6-2(0.6655), GG30(0.6030)
Malleable cast iron / 可锻铸铁	3.2	EN-GJMB350-10(0.8135), EN-GLMB550-4(0.8155), EN-GJMB700-2(0.8170), EN-GJMW400-5(0.8040), EN-GJMW550-4
Ductile cast iron / 球墨铸铁	3.3	GGG40(0.7040), GGG60(0.7060), GGG-NiCr20-2(0.7660), EN-GJSA-XNi22(0.7670), GTW40(0.8040)
AL and AL alloy<6%Si / 纯铝及铝合金含矽量<6%	4.1	AlCuSiMn(3.1255), AlMg1(3.3315), AlMgSi0,5(3.3206), G-AlSi5Cu1Mg(3.2134), GD-AlMg9(3.3292)
AL and AL alloy<12%Si / 纯铝及铝合金含矽量<12%	4.2	G-AlMgSi7(3.2371), GD-AlSi10Mg(3.2382), G-AlSi12(3.2581), G-AlSi9Cu3(3.2163), G-AlSi9Mg(3.2373)
AL alloy>12%Si / 铝合金含矽量>12%	4.3	G-AlSi17Cu4Mg, G-AlSi18CuNiMg, G-AlSi21CuNiMg, G-AlSi25CuNiMg
Brass, Copper, Bronze, Red Brass / 黄铜、铜、青铜、红铜	4.4	CuZn20(2.0250), CuZn37Pb0,5(2.0916), CuAl9Mn2(2.0960), CuBe2(2.1247)
Duro-and Thermoplastics / 热塑塑胶	4.5	Ultramid(0.6040), Polyamid(0.6025), Polyvinylchlorid(0,6035), Moltopren, Novopan, Bakelit
Graphite / 石墨	4.6	
Titanium and tit. alloys / 钛及钛合金	5.1	Ti1(3.7025), TiAl5Sn2,5(3.7114), TiAl6V4(3.7164), Ti4(3.7064), Ti99,5(3.7024)
Nickel / 镍金属	5.2	X12CrNiTi18-9(1.4878), X53CrMnNiN21-9(1.4871), Ni99,2(2.4060), NiCu30Fe(2.4360 NONEL 400), NiCr19N6Mo
Hardened Steels 45-55HRC / 热处理后钢材硬度 45-55HRC	6.1	55NiCrMoV6(1.2713), Hardox 500, Weldox 1100
Hardened Steels 55-60HRC / 热处理后钢材硬度 55-60HRC	6.2	45WcrV7(1.2542), Armox 600T
Hardened Steels 60-65HRC / 热处理后钢材硬度 60-65HRC	6.3	X155CrVMo12-1(1.2379), Ferro-Titanit, HSSE, X210CrW12(1.2436)

钻头选用表

Recommendation Table

No. 型号	AH05.0	AH05.1	AE53.2	AE56.1	AE15.1	AV73.0	AV03.1	AV06.0	AV45.1	AV46.1	AV47.1	AV65.1	AV17.1	AV18.1	AV19.1	AV66.1	AV67.1	AV74.1	AV61.0
Page页数	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Material	HSS	HSS	HSSE	HSSE	HSSE	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
材质	高速钢	高速钢	含钴	含钴	含钴	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢	钨钢
Depth	DIN338	JIS	JIS	DIN	DIN340	Micro	3xD	3xD	3xD	3xD	3xD	5xD	5xD	5xD	5xD	8xD	12xD	15xD	20xD
孔深	德规	日规	日规	德规	加长	微小径	3倍径	3倍径	3倍径	3倍径	3倍径	5倍径	5倍径	5倍径	5倍径	8倍径	12倍径	15倍径	20倍径
Coating	OX	OX	OX	TIN	TIN	BLANK	Special	BLANK	BlueCut	BlueCut	BlueCut	BlueCut	BlueCut	BlueCut	Altop	BlueCut	BlueCut	BlueCut	BlueCut
涂层	氧化	氧化	氧化	镀钛	镀钛	白刀	特殊	白刀	特殊	特殊	特殊	特殊	特殊	特殊	特殊	特殊	特殊	特殊	特殊
Coolant	OC	OC	OC	OC	OC	OC	OC	OC	OC	IC	IC	OC	IC	IC	OC	IC	IC	IC	OC
冷却	外冷	外冷	外冷	外冷	外冷	外冷	外冷	外冷	外冷	内冷	内冷	外冷	内冷	内冷	外冷	内冷	内冷	内冷	外冷
																			
适用材料																			
1.1	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○
1.2	○	○	○	○	○	○		○	○	○		○	○				○	○	○
1.3	○	○	○	○	○	○		○	○	○		○	○				○	○	○
1.4	○	○	○	○		○		○	○	○		○	○				○	○	○
1.5			○	○			○	○	○	○		○	○				○	○	○
1.6						○		○	○	○		○	○				○	○	○
1.7						○		○	○	○		○	○				○	○	○
1.8						○		○	○	○		○	○				○	○	○
1.9						○		○	○	○		○	○				○	○	○
2.1			○	○		○		○	○		○	○		○	○	○		○	○
2.2			○	○		○		○	○		○	○		○	○	○		○	○
3.1	○	○	○	○	○	○	○	○	○		○	○		○	○	○	○	○	○
3.2			○	○	○	○	○	○	○		○	○		○	○	○	○	○	○
3.3						○	○	○	○			○					○	○	○
4.1					○	○		○	○	○	○	○	○	○	○	○	○	○	○
4.2					○	○		○	○	○	○	○	○	○	○	○	○	○	○
4.3						○		○	○		○	○		○	○	○	○	○	○
4.4	○	○	○	○	○	○		○	○	○		○	○						○
4.5						○		○									○	○	○
4.6																			
5.1			○	○		○		○	○		○	○			○	○	○	○	○
5.2														○					○
6.1							○												
6.2							○												
6.3							○												

标记说明

Icons Guide

M2 高速钢 M2 High Speed Steel				N型设计 N Type Design for Drills	
M42 高速钢含钴 M42 High Speed Steel With Colbat		氧化表面处理 Oxidation Surface Treatment		深孔螺旋 Deeping Spiral	
钨钢 Solid Carbide		镀钛表面处理 TIN Coating		<1.6mm未做零进点 <1.6mm Without Web Thinning	
德规338 German Standard No.338		白刀 Bright Surface		>1.6mm未做零进点 >1.6mm Without Web Thinning	
德规1897 German Standard No.1897		特殊表面处理 Blue Cut Special Surface Coating		3刃 3 Flutes	
日规B4310 Japanese Standard B4310		铝用刀表面处理 ALTOP Coating For Aluminum		2刃 2 Flutes	
德规340 German Standard No.340		特殊表面处理 Special Surface Coating		3 倍径 Drill Depth by 3 times of Outside Diameter	
非标规格 Company Norm		右旋 Right Spiral		5 倍径 Drill Depth by 5 times of Outside Diameter	
118度尖端夹角 118 Tip Angle		左旋 Left Spiral		12 倍径 Drill Depth by 12 times of Outside Diameter	
130度尖端夹角 130 Tip Angle		短刃 Short Flute Length		15 倍径 Drill Depth by 15 times of Outside Diameter	
140度尖端夹角 140 Tip Angle		标准刃 Standard Flute Length		内油孔冷却 Internal Coolant	
150度尖端夹角 150 Tip Angle		长刃 Long Flute Length		外冷却 External Coolant	
厂方规格 Company Norm		加长刃 Extra Long Flute Length		4间隙落量 4 Relief for chip throwing	

高速钢德规直柄钻

High Speed Steel Straight Shank DIN338 Twist Drills

AH05.0



合金钢 1.1~1.4

铸 铁 3.1

铝合金 4.4



d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2
0.20	19.00	3.00	2.55	57.00	30.00	5.65	93.00	57.00	8.25	117.00	75.00	11.10	142.00	94.00
0.21	19.00	3.00	2.60	57.00	30.00	5.70	93.00	57.00	8.30	117.00	75.00	11.20	142.00	94.00
0.22	19.00	3.00	2.70	61.00	33.00	5.75	93.00	57.00	8.35	117.00	75.00	11.30	142.00	94.00
0.30	19.00	3.00	2.75	61.00	33.00	5.80	93.00	57.00	8.40	117.00	75.00	11.40	142.00	94.00
0.40	20.00	5.00	2.80	61.00	33.00	5.85	93.00	57.00	8.45	117.00	75.00	11.50	142.00	94.00
0.42	20.00	5.00	2.85	61.00	33.00	5.90	93.00	57.00	8.50	117.00	75.00	11.60	142.00	94.00
0.45	20.00	5.00	2.90	61.00	33.00	5.95	93.00	57.00	8.55	125.00	81.00	11.70	142.00	94.00
0.49	22.00	6.00	3.00	61.00	33.00	6.00	93.00	57.00	8.60	125.00	81.00	11.75	142.00	94.00
0.50	22.00	6.00	3.10	65.00	36.00	6.10	101.00	63.00	8.65	125.00	81.00	11.80	142.00	94.00
0.60	24.00	7.00	3.20	65.00	36.00	6.20	101.00	63.00	8.70	125.00	81.00	11.90	151.00	101.00
0.65	26.00	8.00	3.25	65.00	36.00	6.25	101.00	63.00	8.75	125.00	81.00	12.00	151.00	101.00
0.70	28.00	9.00	3.30	65.00	36.00	6.30	101.00	63.00	8.80	125.00	81.00	12.10	151.00	101.00
0.73	28.00	9.00	3.40	70.00	39.00	6.40	101.00	63.00	8.85	125.00	81.00	12.20	151.00	101.00
0.80	30.00	10.00	3.50	70.00	39.00	6.45	101.00	63.00	8.90	125.00	81.00	12.25	151.00	101.00
0.90	32.00	11.00	3.60	70.00	39.00	6.50	101.00	63.00	8.95	125.00	81.00	12.30	151.00	101.00
0.95	32.00	11.00	3.70	70.00	39.00	6.60	101.00	63.00	9.00	125.00	81.00	12.40	151.00	101.00
1.00	34.00	12.00	3.75	70.00	39.00	6.65	101.00	63.00	9.10	125.00	81.00	12.50	151.00	101.00
1.10	36.00	14.00	3.80	75.00	43.00	6.70	101.00	63.00	9.20	125.00	81.00	12.60	151.00	101.00
1.20	38.00	16.00	3.90	75.00	43.00	6.75	109.00	69.00	9.25	125.00	81.00	12.70	151.00	101.00
1.25	38.00	16.00	4.00	75.00	43.00	6.80	109.00	69.00	9.30	125.00	81.00	12.80	151.00	101.00
1.30	38.00	16.00	4.10	75.00	43.00	6.85	109.00	69.00	9.35	125.00	81.00	12.90	151.00	101.00
1.40	40.00	18.00	4.20	75.00	43.00	6.90	109.00	69.00	9.40	125.00	81.00	13.00	151.00	101.00
1.45	40.00	18.00	4.25	75.00	43.00	6.95	109.00	69.00	9.45	125.00	81.00	13.10	151.00	101.00
1.50	40.00	18.00	4.30	80.00	47.00	7.00	109.00	69.00	9.50	125.00	81.00	13.25	160.00	108.00
1.52	43.00	20.00	4.35	80.00	47.00	7.05	109.00	69.00	9.55	133.00	87.00	13.50	160.00	108.00
1.60	43.00	20.00	4.40	80.00	47.00	7.10	109.00	69.00	9.60	133.00	87.00	14.00	160.00	108.00
1.70	43.00	20.00	4.50	80.00	47.00	7.15	109.00	69.00	9.65	133.00	87.00	14.40	169.00	114.00
1.75	46.00	22.00	4.60	80.00	47.00	7.20	109.00	69.00	9.70	133.00	87.00	14.50	169.00	114.00
1.80	46.00	22.00	4.70	80.00	47.00	7.25	109.00	69.00	9.75	133.00	87.00	15.00	169.00	114.00
1.90	46.00	22.00	4.75	80.00	47.00	7.30	109.00	69.00	9.80	133.00	87.00	15.50	178.00	120.00
1.98	49.00	24.00	4.80	86.00	52.00	7.40	109.00	69.00	9.90	133.00	87.00	16.00	178.00	120.00
1.99	49.00	24.00	4.85	86.00	52.00	7.50	109.00	69.00	10.00	133.00	87.00	16.50	184.00	125.00
2.00	49.00	24.00	4.90	86.00	52.00	7.60	117.00	75.00	10.05	133.00	87.00	16.75	184.00	125.00
2.01	49.00	24.00	5.00	86.00	52.00	7.65	117.00	75.00	10.10	133.00	87.00	16.80	184.00	125.00
2.04	49.00	24.00	5.10	86.00	52.00	7.70	117.00	75.00	10.20	133.00	87.00	17.25	191.00	130.00
2.05	49.00	24.00	5.20	86.00	52.00	7.75	117.00	75.00	10.30	133.00	87.00	17.75	191.00	130.00
2.06	49.00	24.00	5.25	86.00	52.00	7.80	117.00	75.00	10.40	133.00	87.00	18.25	198.00	135.00
2.10	49.00	24.00	5.30	86.00	52.00	7.85	117.00	75.00	10.50	133.00	87.00	18.75	198.00	135.00
2.20	53.00	27.00	5.35	93.00	57.00	7.90	117.00	75.00	10.60	142.00	94.00	19.25	205.00	140.00
2.25	53.00	27.00	5.40	93.00	57.00	7.95	117.00	75.00	10.70	142.00	94.00	19.75	205.00	140.00
2.30	53.00	27.00	5.50	93.00	57.00	8.00	117.00	75.00	10.80	142.00	94.00			
2.40	57.00	30.00	5.56	93.00	57.00	8.10	117.00	75.00	10.90	142.00	94.00			
2.50	57.00	30.00	5.60	93.00	57.00	8.20	117.00	75.00	11.00	142.00	94.00			

※ 转速与进给建议请参考26页 Please see Page 26 for Speed and Feeding

高速钢日规直柄钻

High Speed Steel Straight JIS B4301 Twist Drills

AH05.1



合金钢 1.1~1.4

铸 铁 3.1

铝合金 4.4



d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2
0.20	19.00	3.00	2.90	71.00	42.00	6.80	105.00	73.00	10.70	137.00	100.00
0.30	20.00	3.50	3.00	71.00	42.00	6.90	105.00	73.00	10.80	140.00	103.00
0.40	24.00	5.50	3.10	71.00	42.00	7.00	105.00	73.00	10.90	140.00	103.00
0.50	27.00	7.50	3.20	71.00	42.00	7.10	108.00	75.00	11.00	140.00	103.00
0.60	30.00	8.50	3.30	73.00	45.00	7.20	108.00	75.00	11.10	140.00	103.00
0.70	32.00	10.00	3.40	73.00	45.00	7.30	108.00	75.00	11.20	143.00	106.00
0.80	34.00	11.00	3.50	73.00	45.00	7.40	111.00	78.00	11.30	143.00	106.00
0.85	36.00	13.00	3.60	76.00	48.00	7.50	111.00	78.00	11.40	143.00	106.00
0.90	36.00	13.00	3.70	76.00	48.00	7.60	111.00	78.00	11.50	143.00	106.00
0.95	40.00	18.00	3.80	76.00	48.00	7.70	114.00	81.00	11.60	146.00	109.00
1.00	40.00	18.00	3.90	79.00	51.00	7.80	114.00	81.00	11.70	146.00	109.00
1.05	42.00	20.00	4.00	83.00	54.00	7.90	114.00	81.00	11.80	146.00	109.00
1.10	42.00	20.00	4.10	83.00	54.00	8.00	114.00	81.00	11.90	146.00	109.00
1.15	42.00	20.00	4.20	83.00	54.00	8.10	117.00	84.00	12.00	149.00	111.00
1.20	42.00	20.00	4.30	83.00	54.00	8.20	117.00	84.00	12.10	149.00	111.00
1.25	45.00	22.00	4.40	86.00	56.00	8.30	117.00	84.00	12.20	149.00	111.00
1.30	45.00	22.00	4.50	86.00	56.00	8.40	121.00	87.00	12.30	149.00	111.00
1.35	48.00	23.00	4.60	86.00	56.00	8.50	121.00	87.00	12.40	152.00	114.00
1.40	48.00	23.00	4.70	89.00	59.00	8.60	121.00	87.00	12.50	152.00	114.00
1.45	48.00	23.00	4.80	89.00	59.00	8.70	121.00	87.00	12.60	152.00	114.00
1.50	48.00	23.00	4.90	92.00	62.00	8.80	124.00	89.00	12.70	152.00	114.00
1.55	50.00	25.00	5.00	92.00	62.00	8.90	124.00	89.00	12.80	152.00	114.00
1.60	50.00	25.00	5.10	92.00	62.00	9.00	124.00	89.00	12.90	152.00	114.00
1.65	50.00	25.00	5.20	95.00	64.00	9.10	124.00	89.00	13.00	152.00	114.00
1.70	50.00	25.00	5.30	95.00	64.00	9.20	127.00	92.00	13.50	160.00	108.00
1.75	52.00	28.00	5.40	95.00	64.00	9.30	127.00	92.00	14.00	160.00	108.00
1.80	52.00	28.00	5.50	95.00	64.00	9.40	127.00	92.00	14.50	169.00	114.00
1.85	52.00	28.00	5.60	98.00	67.00	9.50	127.00	92.00	15.00	169.00	114.00
1.90	52.00	28.00	5.70	98.00	67.00	9.60	130.00	95.00	15.50	178.00	120.00
1.95	52.00	28.00	5.80	98.00	67.00	9.70	130.00	95.00	16.00	178.00	120.00
2.00	55.00	29.00	5.90	98.00	67.00	9.80	130.00	95.00	16.50	184.00	125.00
2.10	55.00	29.00	6.00	102.00	70.00	9.90	130.00	95.00	17.00	184.00	125.00
2.20	58.00	33.00	6.10	102.00	70.00	10.00	130.00	95.00	17.50	191.00	130.00
2.30	58.00	33.00	6.20	102.00	70.00	10.10	133.00	98.00	18.00	191.00	130.00
2.40	61.00	35.00	6.30	102.00	70.00	10.20	133.00	98.00	18.50	198.00	135.00
2.50	61.00	35.00	6.40	105.00	73.00	10.30	133.00	98.00	19.00	198.00	135.00
2.60	64.00	37.00	6.50	105.00	73.00	10.40	133.00	98.00	19.50	205.00	140.00
2.70	64.00	37.00	6.60	105.00	73.00	10.50	137.00	100.00	20.00	205.00	140.00
2.80	67.00	39.00	6.70	105.00	73.00	10.60	137.00	100.00			

※ 转速与进给建议请参考26页 Please see Page 26 for Speed and Feeding

高速钢含钴日规直柄钻

High Speed Steel with Colbat JIS B4301 Twist Drills

AE53.2



合金钢 1.1~1.5 铝合金 4.4
 不锈钢 2.1 2.2 镍, 钛 5.1
 铸 铁 3.1 3.2



d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2
1.00	40.00	18.00	3.40	73.00	45.00	5.80	98.00	67.00	8.20	117.00	84.00	10.60	137.00	100.00
1.10	42.00	20.00	3.50	73.00	45.00	5.90	98.00	67.00	8.30	117.00	84.00	10.70	137.00	100.00
1.20	42.00	20.00	3.60	76.00	48.00	6.00	102.00	70.00	8.40	121.00	87.00	10.80	140.00	103.00
1.30	45.00	22.00	3.70	76.00	48.00	6.10	102.00	70.00	8.50	121.00	87.00	10.90	140.00	103.00
1.40	48.00	23.00	3.80	76.00	48.00	6.20	102.00	70.00	8.60	121.00	87.00	11.00	140.00	103.00
1.50	48.00	23.00	3.90	79.00	51.00	6.30	102.00	70.00	8.70	121.00	87.00	11.10	140.00	103.00
1.60	50.00	25.00	4.00	83.00	54.00	6.40	105.00	73.00	8.80	124.00	89.00	11.20	143.00	106.00
1.70	50.00	25.00	4.10	83.00	54.00	6.50	105.00	73.00	8.90	124.00	89.00	11.30	143.00	106.00
1.80	52.00	28.00	4.20	83.00	54.00	6.60	105.00	73.00	9.00	124.00	89.00	11.40	143.00	106.00
1.90	52.00	28.00	4.30	83.00	54.00	6.70	105.00	73.00	9.10	124.00	89.00	11.50	143.00	106.00
2.00	55.00	29.00	4.40	86.00	56.00	6.80	105.00	73.00	9.20	127.00	92.00	11.60	146.00	109.00
2.10	55.00	29.00	4.50	86.00	56.00	6.90	105.00	73.00	9.30	127.00	92.00	11.70	146.00	109.00
2.20	58.00	33.00	4.60	86.00	56.00	7.00	105.00	73.00	9.40	127.00	92.00	11.80	146.00	109.00
2.30	58.00	33.00	4.70	89.00	59.00	7.10	108.00	75.00	9.50	127.00	92.00	11.90	146.00	109.00
2.40	61.00	35.00	4.80	89.00	59.00	7.20	108.00	75.00	9.60	130.00	95.00	12.00	149.00	111.00
2.50	61.00	35.00	4.90	92.00	62.00	7.30	108.00	75.00	9.70	130.00	95.00	12.10	149.00	111.00
2.60	64.00	37.00	5.00	92.00	62.00	7.40	111.00	78.00	9.80	130.00	95.00	12.20	149.00	111.00
2.70	64.00	37.00	5.10	92.00	62.00	7.50	111.00	78.00	9.90	130.00	95.00	12.30	149.00	111.00
2.80	67.00	39.00	5.20	95.00	64.00	7.60	111.00	78.00	10.00	130.00	95.00	12.40	152.00	114.00
2.90	71.00	42.00	5.30	95.00	64.00	7.70	114.00	81.00	10.10	133.00	98.00	12.50	152.00	114.00
3.00	71.00	42.00	5.40	95.00	64.00	7.80	114.00	81.00	10.20	133.00	98.00	12.60	152.00	114.00
3.10	71.00	42.00	5.50	95.00	64.00	7.90	114.00	81.00	10.30	133.00	98.00	12.70	152.00	114.00
3.20	71.00	42.00	5.60	98.00	67.00	8.00	114.00	81.00	10.40	133.00	98.00	12.80	152.00	114.00
3.30	73.00	45.00	5.70	98.00	67.00	8.10	117.00	84.00	10.50	137.00	100.00	12.90	152.00	114.00
												13.00	152.00	114.00

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AE53.2 / AE56.1															
						f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
						Vc m/min		Ø 1.0-2.9		Ø 3.0-5.9		Ø 6.0-9.9		Ø 10.0-15.9	
材质说明 / material description						Nr.	von	bis	von	bis	von	bis	von	bis	von
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm					1.1	40	60	0.030	0.080	0.090	0.180	0.180	0.250	0.350
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm					1.2	35	45	0.030	0.080	0.090	0.180	0.180	0.250	0.350
	一般钢材抗拉力<850牛顿/mm / general steels <850 N/mm					1.3	25	35	0.030	0.080	0.090	0.180	0.180	0.250	0.350
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm					1.4	10	20	0.020	0.060	0.060	0.090	0.090	0.150	0.220
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm					1.5	8	12	0.020	0.060	0.060	0.090	0.090	0.150	0.220
M	不锈钢抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm					2.1	13	18	0.020	0.030	0.030	0.060	0.060	0.110	0.140
	不锈钢抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm					2.2	8	12	0.020	0.030	0.030	0.060	0.060	0.110	0.140
K	铸铁<180HB / cast iron <180 HB					3.1	30	35	0.030	0.080	0.090	0.180	0.180	0.250	0.350
	可锻铸铁 / malleable cast iron					3.2	25	30	0.030	0.080	0.080	0.130	0.130	0.200	0.280
N	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass					4.4	80	100	0.030	0.080	0.090	0.180	0.180	0.250	0.350
S	钛及钛合金 / titanium and tit.-alloys					5.1	5	8	0.020	0.030	0.030	0.060	0.060	0.110	0.140

高速钢含钴德规直柄钻

High Speed Steel with Colbat DIN1897 Twist Drills

AE56.1



合金钢 1.1~1.5 铝合金 4.4
 不锈钢 2.1 2.2 镍, 钛 5.1
 铸 铁 3.1 3.2



d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2
1.00	26.00	6.00	3.75	20.00	52.00	6.20	31.00	70.00	8.60	40.00	84.00	12.50	51.00	102.00
1.10	28.00	7.00	3.80	22.00	55.00	6.25	31.00	70.00	8.70	40.00	84.00	12.75	51.00	102.00
1.20	30.00	8.00	3.90	22.00	55.00	6.30	31.00	70.00	8.75	40.00	84.00	13.00	51.00	102.00
1.25	30.00	8.00	4.00	22.00	55.00	6.40	31.00	70.00	8.80	40.00	84.00	13.50	54.00	107.00
1.70	34.00	10.00	4.10	22.00	55.00	6.50	31.00	70.00	8.90	40.00	84.00	13.80	54.00	107.00
1.75	36.00	11.00	4.20	22.00	55.00	6.60	31.00	70.00	9.00	40.00	84.00	14.00	54.00	107.00
1.80	36.00	11.00	4.25	22.00	55.00	6.70	31.00	70.00	9.10	40.00	84.00	14.50	56.00	111.00
1.90	36.00	11.00	4.30	24.00	58.00	6.75	34.00	74.00	9.20	40.00	84.00	15.00	56.00	111.00
2.00	38.00	12.00	4.40	24.00	58.00	6.80	34.00	74.00	9.25	40.00	84.00	15.50	58.00	115.00
2.10	38.00	12.00	4.50	24.00	58.00	6.90	34.00	74.00	9.30	40.00	84.00	16.00	58.00	115.00
2.20	40.00	13.00	4.60	24.00	58.00	7.00	34.00	74.00	9.35	40.00	84.00	16.50	58.00	115.00
2.25	43.00	14.00	4.65	24.00	58.00	7.10	34.00	74.00	9.40	40.00	84.00	17.00	58.00	115.00
2.30	40.00	13.00	4.70	24.00	58.00	7.20	34.00	74.00	9.50	40.00	84.00	17.50	60.00	123.00
2.40	43.00	14.00	4.75	24.00	58.00	7.25	34.00	74.00	9.60	43.00	89.00	18.00	60.00	123.00
2.50	43.00	14.00	4.80	26.00	62.00	7.30	34.00	74.00	9.70	43.00	89.00	18.50	64.00	127.00
2.55	43.00	14.00	4.90	26.00	62.00	7.40	34.00	74.00	9.75	43.00	89.00	19.00	64.00	127.00
2.60	43.00	14.00	5.00	26.00	62.00	7.45	34.00	74.00	9.80	43.00	89.00	19.50	66.00	131.00
2.70	46.00	16.00	5.10	26.00	62.00	7.50	34.00	74.00	9.90	43.00	89.00	20.00	66.00	131.00
2.75	46.00	16.00	5.20	26.00	62.00	7.60	37.00	79.00	10.00	43.00	89.00	20.50	68.00	136.00
2.80	46.00	16.00	5.25	26.00	62.00	7.70	37.00	79.00	10.20	43.00	89.00	21.00	68.00	136.00
2.90	46.00	16.00	5.30	26.00	62.00	7.75	37.00	79.00	10.25	43.00	89.00	21.50	70.00	141.00
3.00	46.00	16.00	5.40	28.00	66.00	7.80	37.00	79.00	10.50	43.00	89.00	22.00	70.00	141.00
3.10	49.00	18.00	5.50	28.00	66.00	7.90	37.00	79.00	10.75	47.00	95.00	23.00	72.00	146.00
3.20	49.00	18.00	5.60	28.00	66.00	8.00	37.00	79.00	11.00	47.00	95.00	23.50	72.00	146.00
3.25	49.00	18.00	5.70	28.00	66.00	8.10	37.00	79.00	11.25	47.00	95.00	25.00	75.00	151.00
3.30	49.00	18.00	5.75	28.00	66.00	8.20	37.00	79.00	11.50	47.00	95.00	27.00	81.00	162.00
3.40	52.00	20.00	5.80	28.00	66.00	8.25	37.00	79.00	11.75	47.00	95.00	28.00	81.00	162.00
3.50	52.00	20.00	5.90	28.00	66.00	8.30	37.00	79.00	11.80	47.00	95.00	29.00	84.00	168.00
3.60	52.00	20.00	6.00	28.00	66.00	8.40	37.00	79.00	12.00	51.00	102.00	30.00	84.00	168.00
3.70	52.00	20.00	6.10	31.00	70.00	8.50	37.00	79.00	12.25	51.00	102.00	31.00	87.00	174.00

※ 转速与进给建议请参考06页 Please see Page 06 for Speed and Feeding

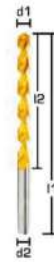
高速钢含钴德规加长直柄钻

High Speed Steel with Colbat DIN340 Twist Drills

AE15.1



合金钢 1.1~1.3 铝合金 4.1 4.2 4.4
 不锈钢 镍, 钛
 铸铁 3.1 3.2



d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2	d1	l1	l2
0.60	35.00	15.00	3.30	106.00	69.00	5.30	132.00	87.00	7.30	156.00	102.00	9.30	175.00	115.00
1.00	56.00	33.00	3.40	112.00	73.00	5.40	139.00	91.00	7.40	156.00	102.00	9.40	175.00	115.00
1.20	65.00	41.00	3.50	112.00	73.00	5.50	139.00	91.00	7.50	156.00	102.00	9.50	175.00	115.00
1.50	70.00	45.00	3.60	112.00	73.00	5.60	139.00	91.00	7.60	165.00	109.00	9.60	184.00	121.00
1.60	76.00	50.00	3.70	112.00	73.00	5.70	139.00	91.00	7.70	165.00	109.00	9.70	184.00	121.00
1.70	76.00	50.00	3.80	119.00	78.00	5.80	139.00	91.00	7.80	165.00	109.00	9.80	184.00	121.00
1.80	80.00	53.00	3.90	119.00	78.00	5.90	139.00	91.00	7.90	165.00	109.00	9.90	184.00	121.00
2.00	85.00	56.00	4.00	119.00	78.00	6.00	139.00	91.00	8.00	165.00	109.00	10.00	184.00	121.00
2.10	85.00	56.00	4.10	119.00	78.00	6.10	148.00	97.00	8.10	165.00	109.00	10.20	184.00	121.00
2.20	90.00	59.00	4.20	119.00	78.00	6.20	148.00	97.00	8.20	165.00	109.00	10.50	184.00	121.00
2.30	90.00	59.00	4.30	126.00	82.00	6.30	148.00	97.00	8.30	165.00	109.00	10.80	184.00	121.00
2.40	95.00	62.00	4.40	126.00	82.00	6.40	148.00	97.00	8.40	165.00	109.00	10.90	195.00	128.00
2.50	95.00	62.00	4.50	126.00	82.00	6.50	148.00	97.00	8.50	165.00	109.00	11.00	195.00	128.00
2.60	95.00	62.00	4.60	126.00	82.00	6.60	148.00	97.00	8.60	175.00	115.00	11.20	195.00	128.00
2.70	100.00	66.00	4.70	126.00	82.00	6.70	148.00	97.00	8.70	175.00	115.00	11.50	195.00	128.00
2.80	100.00	66.00	4.80	132.00	87.00	6.80	156.00	102.00	8.80	175.00	115.00	11.80	195.00	128.00
2.90	100.00	66.00	4.90	132.00	87.00	6.90	156.00	102.00	8.90	175.00	115.00	12.00	205.00	134.00
3.00	100.00	66.00	5.00	132.00	87.00	7.00	156.00	102.00	9.00	175.00	115.00	12.50	205.00	134.00
3.10	106.00	69.00	5.10	132.00	87.00	7.10	156.00	102.00	9.10	175.00	115.00	13.00	205.00	134.00
3.20	106.00	69.00	5.20	132.00	87.00	7.20	156.00	102.00	9.20	175.00	115.00			

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV15.1															
					f mm/U		f mm/U		f mm/U		f mm/U		f mm/U		
					Ø 1.0-2.9		Ø 3.0-5.9		Ø 6.0-9.9		Ø 10.0-15.9		Ø 16.0-20.0		
					Vc m/min										
材质说明 / material description			Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力<500牛/吨/mm / general steels <500 N/mm		1.1	40	60	0.040	0.070	0.070	0.180	0.180	0.250	0.250	0.300	0.300	0.400
	一般钢材抗拉力<700牛/吨/mm / general steels <700 N/mm		1.2	30	40	0.040	0.070	0.070	0.180	0.180	0.250	0.250	0.300	0.300	0.400
	一般钢材抗拉力<850牛/吨/mm / general steels < 850 N/mm		1.3	25	35	0.040	0.070	0.070	0.180	0.180	0.250	0.250	0.300	0.300	0.400
K	铸铁<180HB / cast iron <180 HB		3.1	25	35	0.040	0.070	0.070	0.180	0.180	0.250	0.250	0.300	0.300	0.400
	可锻铸铁 / melleable cast iron		3.2	25	35	0.030	0.060	0.060	0.160	0.160	0.200	0.200	0.280	0.280	0.320
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si		4.1	65	90	0.040	0.070	0.070	0.180	0.180	0.250	0.250	0.300	0.300	0.400
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si		4.2	35	50	0.040	0.070	0.070	0.180	0.180	0.250	0.250	0.300	0.300	0.400
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass		4.4	60	90	0.040	0.070	0.070	0.130	0.130	0.200	0.200	0.250	0.250	0.350

微小径钨钢钻头 (非标)

Micro Diameter Solid Carbide Drills

AV73.0



合金钢 1.1~1.9 铝合金 4.1~4.5
 不锈钢 2.1 2.2 镍, 钛 5.1
 铸 铁 3.1~3.3



d1h5	l2	l1	d2h6	d1h5	l2	l1	d2h6	d1h5	l2	l1	d2h6	d1h5	l2	l1	d2h6
0.10	0.60	30.00	1.00	0.70	5.60	38.00	3.00	1.30	10.00	38.00	3.00	1.91~1.94	12.00	38.00	3.00
0.11~0.14	0.60~0.80	30.00	1.00	0.71~0.74	5.60	38.00	3.00	1.31~1.34	10.00~11.50	38.00	3.00	1.95	12.00	38.00	3.00
0.15	0.80	30.00	1.00	0.75	5.60	38.00	3.00	1.35	11.50	38.00	3.00	1.96~1.99	12.00	38.00	3.00
0.16~0.19	1.00	30.00	1.00	0.76~0.79	6.50	38.00	3.00	1.36~1.39	11.50	38.00	3.00	2.00	12.00	38.00	3.00
0.20	1.00	30.00	1.00	0.80	6.50	38.00	3.00	1.40	11.50	38.00	3.00	2.05	15.00	38.00	3.00
0.21~0.24	1.00	30.00	1.00	0.81~0.84	6.50	38.00	3.00	1.41~1.44	11.50	38.00	3.00	2.10	15.00	50.00	3.00
0.25	1.00	30.00	1.00	0.85	6.50	38.00	3.00	1.45	11.50	38.00	3.00	2.20	15.00	50.00	3.00
0.26~0.29	1.00	30.00	1.00	0.86~0.89	7.00	38.00	3.00	1.46~1.49	11.50	38.00	3.00	2.25	15.00	50.00	3.00
0.30	1.50	38.00	3.00	0.90	7.00	38.00	3.00	1.50	11.50	38.00	3.00	2.30	15.00	50.00	3.00
0.31~0.34	1.50	38.00	3.00	0.91~0.94	7.00	38.00	3.00	1.51~1.54	12.00	38.00	3.00	2.35	15.00	50.00	3.00
0.35	1.50	38.00	3.00	0.95	7.00	38.00	3.00	1.55	12.00	38.00	3.00	2.40	15.00	50.00	3.00
0.36~0.39	1.50	38.00	3.00	0.96~0.99	8.00	38.00	3.00	1.56~1.59	12.00	38.00	3.00	2.45	15.00	50.00	3.00
0.40	2.00	38.00	3.00	1.00	9.00	38.00	3.00	1.60	12.00	38.00	3.00	2.50	15.00	50.00	3.00
0.41~0.44	2.00	38.00	3.00	1.01~1.04	9.00	38.00	3.00	1.61~1.64	12.00	38.00	3.00	2.55	18.00	50.00	3.00
0.45	3.50	38.00	3.00	1.05	9.00	38.00	3.00	1.65	12.00	38.00	3.00	2.60	18.00	50.00	3.00
0.46~0.49	3.50~4.00	38.00	3.00	1.06~1.09	9.00	38.00	3.00	1.70	12.00	38.00	3.00	2.65	18.00	50.00	3.00
0.50	4.00	38.00	3.00	1.10	9.00	38.00	3.00	1.71~1.74	12.00	38.00	3.00	2.70	18.00	50.00	3.00
0.51~0.54	4.00~4.50	38.00	3.00	1.11~1.14	9.00	38.00	3.00	1.75	12.00	38.00	3.00	2.75	18.00	50.00	3.00
0.55	4.50	38.00	3.00	1.15	9.00	38.00	3.00	1.76~1.79	12.00	38.00	3.00	2.80	18.00	50.00	3.00
0.56~0.59	4.50	38.00	3.00	1.16~1.19	9.00~10.00	38.00	3.00	1.80	12.00	38.00	3.00	2.85	18.00	50.00	3.00
0.60	4.50	38.00	3.00	1.20	10.00	38.00	3.00	1.81~1.84	12.00	38.00	3.00	2.90	18.00	50.00	3.00
0.61~0.64	5.00	38.00	3.00	1.21~1.24	10.00	38.00	3.00	1.85	12.00	38.00	3.00	2.95	18.00	50.00	3.00
0.65	5.00	38.00	3.00	1.25	10.00	38.00	3.00	1.86~1.89	12.00	38.00	3.00	3.00	18.00	50.00	3.00
0.66~0.69	5.00~5.60	38.00	3.00	1.26~1.29	10.00	38.00	3.00	1.90	12.00	38.00	3.00				

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV73.0																	
						Vc m/min		f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
						Ø 0.1-0.3		Ø 0.3-0.5		Ø 0.5-0.8		Ø 0.8-1.0		Ø 1.0-1.5		Ø 1.5-2.5	
	材质说明 / material description					Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm					1.1	50	60	0.005	0.012	0.012	0.012	0.012	0.025	0.025	0.040	0.040
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm					1.2	50	60	0.004	0.010	0.010	0.012	0.012	0.020	0.020	0.035	0.035
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm					1.3	50	60	0.004	0.010	0.010	0.012	0.012	0.020	0.020	0.035	0.035
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm					1.4	40	50	0.004	0.010	0.010	0.012	0.012	0.020	0.020	0.035	0.035
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm					1.6	35	45	0.003	0.006	0.006	0.008	0.008	0.015	0.015	0.030	0.030
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm					1.7	35	45	0.003	0.006	0.006	0.008	0.008	0.015	0.015	0.030	0.030
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm					1.8	40	50	0.003	0.006	0.006	0.006	0.006	0.015	0.015	0.030	0.030
	工具钢 / tool steels					1.9	30	40	0.003	0.006	0.006	0.008	0.008	0.015	0.015	0.030	0.030
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm					2.1	20	30	0.003	0.006	0.006	0.008	0.008	0.015	0.015	0.030	0.030
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm					2.2	20	30	0.003	0.005	0.005	0.007	0.007	0.012	0.012	0.025	0.025
K	铸铁<180HB / cast iron <180 HB					3.1	60	80	0.005	0.012	0.012	0.012	0.012	0.025	0.025	0.040	0.040
	可锻铸铁 / melleable cast iron					3.2	50	60	0.005	0.012	0.012	0.012	0.012	0.025	0.025	0.040	0.040
	球墨铸铁 / ductile cast iron					3.3	50	60	0.005	0.012	0.012	0.012	0.012	0.025	0.025	0.040	0.040
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si					4.1	120	180	0.010	0.020	0.020	0.020	0.020	0.040	0.040	0.060	0.060
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si					4.2	80	120	0.006	0.015	0.015	0.020	0.020	0.030	0.030	0.050	0.050
	铝合金含矽量>12% / AL alloys >12% Si					4.3	60	80	0.006	0.015	0.015	0.020	0.020	0.030	0.030	0.050	0.050
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass					4.4	40	60	0.005	0.012	0.012	0.012	0.012	0.025	0.025	0.040	0.040
	热塑塑胶 / duro- and thermoplastics					4.5	30	50	0.003	0.006	0.006	0.008	0.008	0.015	0.015	0.030	0.030
S	钛及钛合金 / titanium and tit.-alloys					5.1	20	30	0.003	0.006	0.006	0.008	0.008	0.015	0.015	0.030	0.030

3倍径钨钢特殊涂层超硬材用钻头

3xD Solid Carbide Special Coating for HRC65 Harden Steel

AV03.1



合金钢 1.5
铸 铁 3.1~3.3
超硬材 6.1~6.3



d1h7	l2	l1	d2h6	d1h7	l2	l1	d2h6	d1h7	l2	l1	d2h6	d1h7	l2	l1	d2h6
1.00	7.00	45.00	4.00	4.30	24.00	66.00	6.00	6.90	34.00	79.00	8.00	9.50	47.00	89.00	10.00
1.30	7.00	45.00	4.00	4.50	24.00	66.00	6.00	7.00	34.00	79.00	8.00	9.60	47.00	89.00	10.00
1.40	7.00	45.00	4.00	4.60	24.00	66.00	6.00	7.10	41.00	79.00	8.00	9.70	47.00	89.00	10.00
1.50	14.00	45.00	4.00	4.70	24.00	66.00	6.00	7.30	41.00	79.00	8.00	9.90	47.00	89.00	10.00
1.80	14.00	45.00	4.00	4.80	28.00	66.00	6.00	7.40	41.00	79.00	8.00	10.00	47.00	89.00	10.00
2.00	20.00	55.00	4.00	5.00	28.00	66.00	6.00	7.50	41.00	79.00	8.00	10.20	55.00	102.00	12.00
2.10	20.00	55.00	4.00	5.20	28.00	66.00	6.00	7.60	41.00	79.00	8.00	10.50	55.00	102.00	12.00
2.30	20.00	55.00	4.00	5.30	28.00	66.00	6.00	7.70	41.00	79.00	8.00	10.80	55.00	102.00	12.00
2.50	20.00	55.00	4.00	5.40	28.00	66.00	6.00	7.80	41.00	79.00	8.00	11.20	55.00	102.00	12.00
2.60	20.00	55.00	4.00	5.50	28.00	66.00	6.00	7.90	41.00	79.00	8.00	11.50	55.00	102.00	12.00
2.80	20.00	55.00	4.00	5.60	28.00	66.00	6.00	8.00	41.00	79.00	8.00	11.90	55.00	102.00	12.00
3.00	20.00	62.00	6.00	5.70	28.00	66.00	6.00	8.10	47.00	89.00	10.00	12.00	55.00	102.00	12.00
3.20	20.00	62.00	6.00	5.80	28.00	66.00	6.00	8.20	47.00	89.00	10.00	12.20	60.00	107.00	14.00
3.30	20.00	62.00	6.00	5.90	28.00	66.00	6.00	8.30	47.00	89.00	10.00	12.50	60.00	107.00	14.00
3.50	20.00	62.00	6.00	6.00	28.00	66.00	6.00	8.40	47.00	89.00	10.00	12.80	60.00	107.00	14.00
3.60	20.00	62.00	6.00	6.10	34.00	79.00	8.00	8.50	47.00	89.00	10.00	13.50	60.00	107.00	14.00
3.70	20.00	62.00	6.00	6.40	34.00	79.00	8.00	8.90	47.00	89.00	10.00	13.80	60.00	107.00	14.00
3.80	24.00	66.00	6.00	6.50	34.00	79.00	8.00	9.00	47.00	89.00	10.00	14.50	65.00	115.00	16.00
3.90	24.00	66.00	6.00	6.60	34.00	79.00	8.00	9.10	47.00	89.00	10.00	14.80	65.00	115.00	16.00
4.00	24.00	66.00	6.00	6.70	34.00	79.00	8.00	9.20	47.00	89.00	10.00	15.00	65.00	115.00	16.00
4.20	24.00	66.00	6.00	6.80	34.00	79.00	8.00	9.30	47.00	89.00	10.00	15.80	65.00	115.00	16.00
								9.40	47.00	89.00	10.00	16.00	65.00	115.00	16.00

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV03.1												
			Vc m/min		f mm/U		f mm/U		f mm/U		f mm/U	
					Ø 1.0-3.0		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	35	45	0.050	0.080	0.080	0.120	0.120	0.150	0.150	0.200
K	铸铁<180HB / castiron <180 HB	3.1	65	85	0.070	0.150	0.150	0.250	0.250	0.450	0.450	0.550
	可锻铸铁 / melleable cast iron	3.2	60	80	0.070	0.150	0.150	0.250	0.250	0.450	0.450	0.550
	球墨铸铁 / ductile cast iron	3.3	45	30	0.070	0.120	0.120	0.140	0.140	0.180	0.180	0.200
H	热处理后钢材硬度 45-55HRC / hardened steels 45-55 HRC	6.1	20	30	0.050	0.080	0.080	0.100	0.100	0.120	0.120	0.140
	热处理后钢材硬度 55-60HRC / hardened steels 55-60 HRC	6.2	10	20	0.050	0.080	0.080	0.100	0.100	0.120	0.120	0.140
	热处理后钢材硬度 60-65HRC / hardened steels 60-65 HRC	6.3	8	15	0.050	0.080	0.080	0.100	0.100	0.120	0.120	0.140

3倍径3刃钨钢德规直柄钻头

3xD Solid Carbide Straight Shank DIN1897 Twist Drills

AV06.0



合金钢 1.1~1.9 铝合金 4.1~4.5
 不锈钢 2.1 2.2 镍, 钛 5.1
 铸 铁 3.1~3.3



d1h6	l1	l2	d1h6	l1	l2	d1h6	l1	l2	d1h6	l1	l2	d1h6	l1	l2
1.40	46.00	16.00	4.10	55.00	22.00	5.60	66.00	28.00	6.90	74.00	34.00	9.20	84.00	40.00
2.10	50.00	10.00	4.20	55.00	22.00	5.70	66.00	28.00	7.00	74.00	34.00	9.40	84.00	40.00
3.00	46.00	16.00	4.30	58.00	24.00	5.80	66.00	28.00	7.10	74.00	34.00	9.50	84.00	40.00
3.10	49.00	18.00	4.40	58.00	24.00	5.90	66.00	28.00	7.20	74.00	34.00	9.60	89.00	43.00
3.20	49.00	18.00	4.50	58.00	24.00	6.00	66.00	28.00	7.50	74.00	34.00	9.70	89.00	43.00
3.30	49.00	18.00	4.60	58.00	24.00	6.05	79.00	44.00	7.60	79.00	37.00	9.90	89.00	43.00
3.40	52.00	20.00	4.70	58.00	24.00	6.10	70.00	31.00	7.90	79.00	37.00	10.00	89.00	43.00
3.45	52.00	20.00	4.80	62.00	26.00	6.20	70.00	31.00	8.00	79.00	37.00	10.05	89.00	43.00
3.50	52.00	20.00	4.90	62.00	26.00	6.25	70.00	31.00	8.20	79.00	37.00	10.20	89.00	43.00
3.60	52.00	20.00	5.00	62.00	26.00	6.30	70.00	31.00	8.30	79.00	37.00	10.50	89.00	43.00
3.70	52.00	20.00	5.10	62.00	26.00	6.40	70.00	31.00	8.50	79.00	37.00	11.00	95.00	47.00
3.80	55.00	22.00	5.20	62.00	26.00	6.50	70.00	31.00	8.70	84.00	40.00	11.20	95.00	47.00
3.90	55.00	22.00	5.30	62.00	26.00	6.60	70.00	31.00	8.90	84.00	40.00	12.00	102.00	51.00
4.00	55.00	22.00	5.40	66.00	28.00	6.70	70.00	31.00	9.00	84.00	40.00	12.80	102.00	51.00
4.05	58.00	24.00	5.50	66.00	28.00	6.80	74.00	34.00	9.10	84.00	40.00	14.00	107.00	54.00
												14.50	111.00	56.00

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV06.0																	
					f mm/U		f mm/U		f mm/U		f mm/U		f mm/U				
					Vc m/min		Ø 0.3-2.9		Ø 3.0-5.9		Ø 6.0-9.9		Ø 10.0-15.9		Ø 16.0-20.0		
材质说明 / material description					Nr.	von	bis	von	bis	von	bis	von	bis	von	bis		
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm					1.1	60	80	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm					1.2	60	80	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm					1.3	60	80	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm					1.4	50	70	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm					1.5	20	35	0.010	0.080	0.080	0.100	0.100	0.150	0.150	0.150	0.220
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm					1.6	35	50	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm					1.7	35	50	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280
M	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm					1.8	40	56	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280
	工具钢 / tool steels					1.9	20	35	0.010	0.080	0.080	0.100	0.100	0.150	0.150	0.180	0.220
	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm					2.1	25	35	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm					2.2	20	30	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280
	铸铁<180HB / cast iron <180 HB					3.1	80	100	0.100	0.080	0.080	0.150	0.150	0.200	0.200	0.200	0.300
	可锻铸铁 / melleable cast iron					3.2	70	90	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	球墨铸铁 / ductile cast iron					3.3	60	80	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280
N	纯铝及铝合金含硅量<6% / AL- and AL-alloys <6% Si					4.1	180	220	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	纯铝及铝合金含硅量<12% / AL- and AL-alloys <12% Si					4.2	130	180	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	铝合金含硅量>12% / AL alloys >12% Si					4.3	90	130	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass					4.4	120	160	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
	热塑塑胶 / duro- and thermoplastics					4.5	40	60	0.010	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.300
S	钛及钛合金 / titanium and tit.-alloys					5.1	20	35	0.010	0.080	0.080	0.120	0.120	0.180	0.180	0.220	0.280

3倍径钨钢铣刀柄外冷钻头

3xD Solid Carbide Blue Cut OC Twist Drills

AV45.1



合金钢 1.1~1.9 铝合金 4.1~4.4
 不锈钢 2.1~2.2 镍, 钛 5.1
 铸 铁 3.1~3.3



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
1.00	3.00	8.00	38.00	3.00	5.50	20.00	28.00	66.00	6.00	10.00	35.00	47.00	89.00	10.00
1.10	3.00	8.00	38.00	3.00	5.60	20.00	28.00	66.00	6.00	10.10	40.00	55.00	102.00	12.00
1.20	3.00	8.00	38.00	3.00	5.70	20.00	28.00	66.00	6.00	10.20	40.00	55.00	102.00	12.00
1.30	3.00	8.00	38.00	3.00	5.80	20.00	28.00	66.00	6.00	10.30	40.00	55.00	102.00	12.00
1.40	3.00	8.00	38.00	3.00	5.90	20.00	28.00	66.00	6.00	10.40	40.00	55.00	102.00	12.00
1.50	7.00	5.00	50.00	3.00	6.00	20.00	28.00	66.00	6.00	10.50	40.00	55.00	102.00	12.00
1.60	7.00	5.00	50.00	3.00	6.10	24.00	34.00	79.00	8.00	10.60	40.00	55.00	102.00	12.00
1.70	9.00	7.00	50.00	3.00	6.20	24.00	34.00	79.00	8.00	10.70	40.00	55.00	102.00	12.00
1.80	9.00	7.00	50.00	3.00	6.30	24.00	34.00	79.00	8.00	10.80	40.00	55.00	102.00	12.00
1.90	9.00	7.00	50.00	3.00	6.40	24.00	34.00	79.00	8.00	10.90	40.00	55.00	102.00	12.00
2.00	10.00	16.00	50.00	3.00	6.50	24.00	34.00	79.00	8.00	11.00	40.00	55.00	102.00	12.00
2.10	10.00	16.00	50.00	3.00	6.60	24.00	34.00	79.00	8.00	11.10	40.00	55.00	102.00	12.00
2.20	10.00	16.00	50.00	3.00	6.70	24.00	34.00	79.00	8.00	11.20	40.00	55.00	102.00	12.00
2.30	10.00	16.00	50.00	3.00	6.80	24.00	34.00	79.00	8.00	11.30	40.00	55.00	102.00	12.00
2.40	10.00	16.00	50.00	3.00	6.90	24.00	34.00	79.00	8.00	11.40	40.00	55.00	102.00	12.00
2.50	14.00	20.00	50.00	3.00	7.00	24.00	34.00	79.00	8.00	11.50	40.00	55.00	102.00	12.00
2.60	14.00	20.00	50.00	3.00	7.10	29.00	41.00	79.00	8.00	11.60	40.00	55.00	102.00	12.00
2.70	14.00	20.00	50.00	3.00	7.20	29.00	41.00	79.00	8.00	11.70	40.00	55.00	102.00	12.00
2.80	14.00	20.00	50.00	3.00	7.30	29.00	41.00	79.00	8.00	11.80	40.00	55.00	102.00	12.00
2.90	14.00	20.00	50.00	3.00	7.40	29.00	41.00	79.00	8.00	11.90	40.00	55.00	102.00	12.00
3.00	14.00	20.00	62.00	6.00	7.50	29.00	41.00	79.00	8.00	12.00	40.00	55.00	102.00	12.00
3.10	14.00	20.00	62.00	6.00	7.60	29.00	41.00	79.00	8.00	12.30	43.00	60.00	107.00	14.00
3.20	14.00	20.00	62.00	6.00	7.70	29.00	41.00	79.00	8.00	12.50	43.00	60.00	107.00	14.00
3.30	14.00	20.00	62.00	6.00	7.80	29.00	41.00	79.00	8.00	12.80	43.00	60.00	107.00	14.00
3.40	14.00	20.00	62.00	6.00	7.90	29.00	41.00	79.00	8.00	13.00	43.00	60.00	107.00	14.00
3.50	14.00	20.00	62.00	6.00	8.00	29.00	41.00	79.00	8.00	13.50	43.00	60.00	107.00	14.00
3.60	14.00	20.00	62.00	6.00	8.10	35.00	47.00	89.00	10.00	13.80	43.00	60.00	107.00	14.00
3.70	14.00	20.00	62.00	6.00	8.20	35.00	47.00	89.00	10.00	14.00	43.00	60.00	107.00	14.00
3.80	17.00	24.00	66.00	6.00	8.30	35.00	47.00	89.00	10.00	14.50	45.00	65.00	115.00	16.00
3.90	17.00	24.00	66.00	6.00	8.40	35.00	47.00	89.00	10.00	14.80	45.00	65.00	115.00	16.00
4.00	17.00	24.00	66.00	6.00	8.50	35.00	47.00	89.00	10.00	15.00	45.00	65.00	115.00	16.00
4.10	17.00	24.00	66.00	6.00	8.60	35.00	47.00	89.00	10.00	15.50	45.00	65.00	115.00	16.00
4.20	17.00	24.00	66.00	6.00	8.70	35.00	47.00	89.00	10.00	15.80	45.00	65.00	115.00	16.00
4.30	17.00	24.00	66.00	6.00	8.80	35.00	47.00	89.00	10.00	16.00	45.00	65.00	115.00	16.00
4.40	17.00	24.00	66.00	6.00	8.90	35.00	47.00	89.00	10.00	16.50	51.00	73.00	123.00	18.00
4.50	17.00	24.00	66.00	6.00	9.00	35.00	47.00	89.00	10.00	16.80	51.00	73.00	123.00	18.00
4.60	17.00	24.00	66.00	6.00	9.10	35.00	47.00	89.00	10.00	17.00	51.00	73.00	123.00	18.00
4.70	17.00	24.00	66.00	6.00	9.20	35.00	47.00	89.00	10.00	17.50	51.00	73.00	123.00	18.00
4.80	20.00	28.00	66.00	6.00	9.30	35.00	47.00	89.00	10.00	17.80	51.00	73.00	123.00	18.00
4.90	20.00	28.00	66.00	6.00	9.40	35.00	47.00	89.00	10.00	18.00	51.00	73.00	123.00	18.00
5.00	20.00	28.00	66.00	6.00	9.50	35.00	47.00	89.00	10.00	18.50	55.00	79.00	131.00	20.00
5.10	20.00	28.00	66.00	6.00	9.60	35.00	47.00	89.00	10.00	19.00	55.00	79.00	131.00	20.00
5.20	20.00	28.00	66.00	6.00	9.70	35.00	47.00	89.00	10.00	19.50	55.00	79.00	131.00	20.00
5.30	20.00	28.00	66.00	6.00	9.80	35.00	47.00	89.00	10.00	19.80	55.00	79.00	131.00	20.00
5.40	20.00	28.00	66.00	6.00	9.90	35.00	47.00	89.00	10.00	20.00	55.00	79.00	131.00	20.00

※ 转速与进给建议请参考25页 Please see Page 25 for Speed and Feeding

3倍径钨钢铣刀柄内冷钻头

3xD Solid Carbide Blue Cut IC Twist Drills

AV46.1



合金钢 1.1~1.9
铝合金 4.1~4.2 4.4



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
3.00	14.00	20.00	62.00	6.00	6.80	24.00	34.00	79.00	8.00	10.60	40.00	55.00	102.00	12.00
3.10	14.00	20.00	62.00	6.00	6.90	24.00	34.00	79.00	8.00	10.70	40.00	55.00	102.00	12.00
3.20	14.00	20.00	62.00	6.00	7.00	24.00	34.00	79.00	8.00	10.80	40.00	55.00	102.00	12.00
3.30	14.00	20.00	62.00	6.00	7.10	29.00	41.00	79.00	8.00	10.90	40.00	55.00	102.00	12.00
3.40	14.00	20.00	62.00	6.00	7.20	29.00	41.00	79.00	8.00	11.00	40.00	55.00	102.00	12.00
3.50	14.00	20.00	62.00	6.00	7.30	29.00	41.00	79.00	8.00	11.10	40.00	55.00	102.00	12.00
3.60	14.00	20.00	62.00	6.00	7.40	29.00	41.00	79.00	8.00	11.20	40.00	55.00	102.00	12.00
3.70	14.00	20.00	62.00	6.00	7.50	29.00	41.00	79.00	8.00	11.30	40.00	55.00	102.00	12.00
3.80	17.00	24.00	66.00	6.00	7.60	29.00	41.00	79.00	8.00	11.40	40.00	55.00	102.00	12.00
3.90	17.00	24.00	66.00	6.00	7.70	29.00	41.00	79.00	8.00	11.50	40.00	55.00	102.00	12.00
4.00	17.00	24.00	66.00	6.00	7.80	29.00	41.00	79.00	8.00	11.60	40.00	55.00	102.00	12.00
4.10	17.00	24.00	66.00	6.00	7.90	29.00	41.00	79.00	8.00	11.70	40.00	55.00	102.00	12.00
4.20	17.00	24.00	66.00	6.00	8.00	29.00	41.00	79.00	8.00	11.80	40.00	55.00	102.00	12.00
4.30	17.00	24.00	66.00	6.00	8.10	35.00	47.00	89.00	10.00	11.90	40.00	55.00	102.00	12.00
4.40	17.00	24.00	66.00	6.00	8.20	35.00	47.00	89.00	10.00	12.00	40.00	55.00	102.00	12.00
4.50	17.00	24.00	66.00	6.00	8.30	35.00	47.00	89.00	10.00	12.30	43.00	60.00	107.00	14.00
4.60	17.00	24.00	66.00	6.00	8.40	35.00	47.00	89.00	10.00	12.50	43.00	60.00	107.00	14.00
4.70	17.00	24.00	66.00	6.00	8.50	35.00	47.00	89.00	10.00	12.80	43.00	60.00	107.00	14.00
4.80	20.00	28.00	66.00	6.00	8.60	35.00	47.00	89.00	10.00	13.00	43.00	60.00	107.00	14.00
4.90	20.00	28.00	66.00	6.00	8.70	35.00	47.00	89.00	10.00	13.50	43.00	60.00	107.00	14.00
5.00	20.00	28.00	66.00	6.00	8.80	35.00	47.00	89.00	10.00	13.80	43.00	60.00	107.00	14.00
5.10	20.00	28.00	66.00	6.00	8.90	35.00	47.00	89.00	10.00	14.00	43.00	60.00	107.00	14.00
5.20	20.00	28.00	66.00	6.00	9.00	35.00	47.00	89.00	10.00	14.50	45.00	65.00	115.00	16.00
5.30	20.00	28.00	66.00	6.00	9.10	35.00	47.00	89.00	10.00	14.80	45.00	65.00	115.00	16.00
5.40	20.00	28.00	66.00	6.00	9.20	35.00	47.00	89.00	10.00	15.00	45.00	65.00	115.00	16.00
5.50	20.00	28.00	66.00	6.00	9.30	35.00	47.00	89.00	10.00	15.50	45.00	65.00	115.00	16.00
5.60	20.00	28.00	66.00	6.00	9.40	35.00	47.00	89.00	10.00	15.80	45.00	65.00	115.00	16.00
5.70	20.00	28.00	66.00	6.00	9.50	35.00	47.00	89.00	10.00	16.00	45.00	65.00	115.00	16.00
5.80	20.00	28.00	66.00	6.00	9.60	35.00	47.00	89.00	10.00	16.50	51.00	73.00	123.00	18.00
5.90	20.00	28.00	66.00	6.00	9.70	35.00	47.00	89.00	10.00	16.80	51.00	73.00	123.00	18.00
6.00	20.00	28.00	66.00	6.00	9.80	35.00	47.00	89.00	10.00	17.00	51.00	73.00	123.00	18.00
6.10	24.00	34.00	79.00	8.00	9.90	35.00	47.00	89.00	10.00	17.50	51.00	73.00	123.00	18.00
6.20	24.00	34.00	79.00	8.00	10.00	35.00	47.00	89.00	10.00	17.80	51.00	73.00	123.00	18.00
6.30	24.00	34.00	79.00	8.00	10.10	40.00	55.00	102.00	12.00	18.00	51.00	73.00	123.00	18.00
6.40	24.00	34.00	79.00	8.00	10.20	40.00	55.00	102.00	12.00	18.50	55.00	79.00	131.00	20.00
6.50	24.00	34.00	79.00	8.00	10.30	40.00	55.00	102.00	12.00	19.00	55.00	79.00	131.00	20.00
6.60	24.00	34.00	79.00	8.00	10.40	40.00	55.00	102.00	12.00	19.50	55.00	79.00	131.00	20.00
6.70	24.00	34.00	79.00	8.00	10.50	40.00	55.00	102.00	12.00	19.80	55.00	79.00	131.00	20.00
										20.00	55.00	79.00	131.00	20.00

※ 转速与进给建议请参考25页 Please see Page 25 for Speed and Feeding

3倍径钨钢铣刀柄内冷泛用型钻头

3xD Solid Carbide Blue Cut IC Universal Twist Drills

AV47.1



不锈钢 2.1~2.2
铸 铁 3.1~3.2
铝 合 金 4.1~4.3
镍，钛 5.1



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
3.00	14.00	20.00	62.00	6.00	6.60	24.00	34.00	79.00	8.00	9.90	35.00	47.00	89.00	10.00
3.10	14.00	20.00	62.00	6.00	6.70	24.00	34.00	79.00	8.00	10.00	35.00	47.00	89.00	10.00
3.20	14.00	20.00	62.00	6.00	6.80	24.00	34.00	79.00	8.00	10.10	40.00	55.00	102.00	12.00
3.30	14.00	20.00	62.00	6.00	6.90	24.00	34.00	79.00	8.00	10.20	40.00	55.00	102.00	12.00
3.40	14.00	20.00	62.00	6.00	7.00	24.00	34.00	79.00	8.00	10.30	40.00	55.00	102.00	12.00
3.50	14.00	20.00	62.00	6.00	7.10	29.00	41.00	79.00	8.00	10.40	40.00	55.00	102.00	12.00
3.60	14.00	20.00	62.00	6.00	7.20	29.00	41.00	79.00	8.00	10.50	40.00	55.00	102.00	12.00
3.80	17.00	24.00	66.00	6.00	7.30	29.00	41.00	79.00	8.00	10.60	40.00	55.00	102.00	12.00
3.90	17.00	24.00	66.00	6.00	7.50	29.00	41.00	79.00	8.00	10.80	40.00	55.00	102.00	12.00
4.00	17.00	24.00	66.00	6.00	7.60	29.00	41.00	79.00	8.00	11.00	40.00	55.00	102.00	12.00
4.10	17.00	24.00	66.00	6.00	7.70	29.00	41.00	79.00	8.00	11.10	40.00	55.00	102.00	12.00
4.20	17.00	24.00	66.00	6.00	7.80	29.00	41.00	79.00	8.00	11.20	40.00	55.00	102.00	12.00
4.40	17.00	24.00	66.00	6.00	7.90	29.00	41.00	79.00	8.00	11.30	40.00	55.00	102.00	12.00
4.50	17.00	24.00	66.00	6.00	8.00	29.00	41.00	79.00	8.00	11.50	40.00	55.00	102.00	12.00
4.60	17.00	24.00	66.00	6.00	8.10	35.00	47.00	89.00	10.00	11.70	40.00	55.00	102.00	12.00
4.70	17.00	24.00	66.00	6.00	8.20	35.00	47.00	89.00	10.00	11.80	40.00	55.00	102.00	12.00
4.80	20.00	28.00	66.00	6.00	8.30	35.00	47.00	89.00	10.00	11.90	40.00	55.00	102.00	12.00
4.90	20.00	28.00	66.00	6.00	8.40	35.00	47.00	89.00	10.00	12.00	40.00	55.00	102.00	12.00
5.00	20.00	28.00	66.00	6.00	8.50	35.00	47.00	89.00	10.00	12.50	43.00	60.00	107.00	14.00
5.20	20.00	28.00	66.00	6.00	8.60	35.00	47.00	89.00	10.00	13.00	43.00	60.00	107.00	14.00
5.30	20.00	28.00	66.00	6.00	8.70	35.00	47.00	89.00	10.00	13.50	43.00	60.00	107.00	14.00
5.40	20.00	28.00	66.00	6.00	8.80	35.00	47.00	89.00	10.00	13.80	43.00	60.00	107.00	14.00
5.50	20.00	28.00	66.00	6.00	8.90	35.00	47.00	89.00	10.00	14.00	43.00	60.00	107.00	14.00
5.60	20.00	28.00	66.00	6.00	9.00	35.00	47.00	89.00	10.00	14.50	45.00	65.00	115.00	16.00
5.80	20.00	28.00	66.00	6.00	9.10	35.00	47.00	89.00	10.00	15.00	45.00	65.00	115.00	16.00
5.90	20.00	28.00	66.00	6.00	9.20	35.00	47.00	89.00	10.00	15.50	45.00	65.00	115.00	16.00
6.10	24.00	34.00	79.00	8.00	9.30	35.00	47.00	89.00	10.00	15.80	45.00	65.00	115.00	16.00
6.20	24.00	34.00	79.00	8.00	9.40	35.00	47.00	89.00	10.00	16.00	45.00	65.00	115.00	16.00
6.30	24.00	34.00	79.00	8.00	9.50	35.00	47.00	89.00	10.00	16.50	51.00	73.00	123.00	18.00
6.40	24.00	34.00	79.00	8.00	9.70	35.00	47.00	89.00	10.00	17.50	51.00	73.00	123.00	18.00
6.50	24.00	34.00	79.00	8.00	9.80	35.00	47.00	89.00	10.00	18.80	55.00	79.00	131.00	20.00
										20.00	55.00	79.00	131.00	20.00

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV47.1															
					f mm/U		f mm/U		f mm/U		f mm/U				
					Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0				
材质说明 / material description					Nr.	von	bis	von	bis	von	bis	von	bis		
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm				1.1	100	130	0.100	0.150	0.150	0.200	0.200	0.220	0.220	0.300
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm				2.1	40	60	0.080	0.120	0.120	0.160	0.160	0.200	0.200	0.250
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm				2.2	40	60	0.080	0.120	0.120	0.160	0.160	0.200	0.200	0.250
K	铸铁<180HB / cast iron <180 HB				3.1	60	80	0.130	0.180	0.180	0.240	0.240	0.280	0.280	0.320
	可锻铸铁 / melleable cast iron				3.2	60	80	0.130	0.180	0.180	0.240	0.240	0.280	0.280	0.320
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si				4.1	120	160	0.130	0.200	0.200	0.300	0.300	0.400	0.400	0.450
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si				4.2	120	160	0.130	0.200	0.200	0.300	0.300	0.400	0.400	0.450
	铝合金含矽量>12% / AL alloys >12% Si				4.3	100	140	0.130	0.200	0.200	0.300	0.300	0.400	0.400	0.450
S	钛及钛合金 / titanium and tit.-alloys				5.1	30	50	0.080	0.120	0.120	0.160	0.160	0.200	0.200	0.250

5倍径钨钢铣刀柄外冷钻头

5xD Solid Carbide OC Twist Drills

AV65.1



合金钢 1.1~1.9 铝合金 4.1~4.4
 不锈钢 2.1~2.2 镍, 钛 5.1
 铸 铁 3.1~3.3



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
1.00		7.00	57.00	3.00	5.40	35.00	44.00	82.00	6.00	9.90	49.00	61.00	103.00	10.00
1.10		10.00	57.00	3.00	5.50	35.00	44.00	82.00	6.00	10.00	49.00	61.00	103.00	10.00
1.20		10.00	57.00	3.00	5.55	35.00	44.00	82.00	6.00	10.10	56.00	71.00	118.00	12.00
1.30		10.00	57.00	3.00	5.60	35.00	44.00	82.00	6.00	10.20	56.00	71.00	118.00	12.00
1.40		10.00	57.00	3.00	5.70	35.00	44.00	82.00	6.00	10.30	56.00	71.00	118.00	12.00
1.50		10.00	57.00	3.00	5.80	35.00	44.00	82.00	6.00	10.40	56.00	71.00	118.00	12.00
1.60		13.00	57.00	3.00	5.90	35.00	44.00	82.00	6.00	10.50	56.00	71.00	118.00	12.00
1.70		13.00	57.00	3.00	6.00	35.00	44.00	82.00	6.00	10.60	56.00	71.00	118.00	12.00
1.80		13.00	57.00	3.00	6.10	43.00	53.00	91.00	8.00	10.70	56.00	71.00	118.00	12.00
1.90		13.00	57.00	3.00	6.20	43.00	53.00	91.00	8.00	10.80	56.00	71.00	118.00	12.00
2.00		16.00	57.00	3.00	6.30	43.00	53.00	91.00	8.00	10.90	56.00	71.00	118.00	12.00
2.10		16.00	57.00	3.00	6.40	43.00	53.00	91.00	8.00	11.00	56.00	71.00	118.00	12.00
2.20		16.00	57.00	3.00	6.50	43.00	53.00	91.00	8.00	11.10	56.00	71.00	118.00	12.00
2.30		16.00	57.00	3.00	6.60	43.00	53.00	91.00	8.00	11.20	56.00	71.00	118.00	12.00
2.40		16.00	57.00	3.00	6.70	43.00	53.00	91.00	8.00	11.30	56.00	71.00	118.00	12.00
2.50		16.00	57.00	3.00	6.80	43.00	53.00	91.00	8.00	11.40	56.00	71.00	118.00	12.00
2.60		19.00	57.00	3.00	6.90	43.00	53.00	91.00	8.00	11.50	56.00	71.00	118.00	12.00
2.70		19.00	57.00	3.00	7.00	43.00	53.00	91.00	8.00	11.60	56.00	71.00	118.00	12.00
2.80		19.00	57.00	3.00	7.10	43.00	53.00	91.00	8.00	11.70	56.00	71.00	118.00	12.00
2.90		19.00	57.00	3.00	7.20	43.00	53.00	91.00	8.00	11.80	56.00	71.00	118.00	12.00
3.00	23.00	28.00	66.00	6.00	7.30	43.00	53.00	91.00	8.00	11.90	56.00	71.00	118.00	12.00
3.10	23.00	28.00	66.00	6.00	7.40	43.00	53.00	91.00	8.00	12.00	56.00	71.00	118.00	12.00
3.20	23.00	28.00	66.00	6.00	7.50	43.00	53.00	91.00	8.00	12.20	60.00	77.00	124.00	14.00
3.30	23.00	28.00	66.00	6.00	7.60	43.00	53.00	91.00	8.00	12.30	60.00	77.00	124.00	14.00
3.40	23.00	28.00	66.00	6.00	7.70	43.00	53.00	91.00	8.00	12.50	60.00	77.00	124.00	14.00
3.50	23.00	28.00	66.00	6.00	7.80	43.00	53.00	91.00	8.00	12.80	60.00	77.00	124.00	14.00
3.60	23.00	28.00	66.00	6.00	7.90	43.00	53.00	91.00	8.00	13.00	60.00	77.00	124.00	14.00
3.70	23.00	28.00	66.00	6.00	8.00	43.00	53.00	91.00	8.00	13.50	60.00	77.00	124.00	14.00
3.80	29.00	36.00	74.00	6.00	8.10	49.00	61.00	103.00	10.00	13.80	60.00	77.00	124.00	14.00
3.90	29.00	36.00	74.00	6.00	8.20	49.00	61.00	103.00	10.00	14.00	60.00	77.00	124.00	14.00
4.00	29.00	36.00	74.00	6.00	8.30	49.00	61.00	103.00	10.00	14.50	63.00	83.00	133.00	16.00
4.10	29.00	36.00	74.00	6.00	8.40	49.00	61.00	103.00	10.00	14.80	63.00	83.00	133.00	16.00
4.20	29.00	36.00	74.00	6.00	8.50	49.00	61.00	103.00	10.00	15.00	63.00	83.00	133.00	16.00
4.30	29.00	36.00	74.00	6.00	8.60	49.00	61.00	103.00	10.00	15.50	63.00	83.00	133.00	16.00
4.40	29.00	36.00	74.00	6.00	8.70	49.00	61.00	103.00	10.00	15.80	63.00	83.00	133.00	16.00
4.50	29.00	36.00	74.00	6.00	8.80	49.00	61.00	103.00	10.00	16.00	63.00	83.00	133.00	16.00
4.60	29.00	36.00	74.00	6.00	8.90	49.00	61.00	103.00	10.00	16.50	71.00	93.00	143.00	18.00
4.65	29.00	36.00	74.00	6.00	9.00	49.00	61.00	103.00	10.00	16.80	71.00	93.00	143.00	18.00
4.70	29.00	36.00	74.00	6.00	9.10	49.00	61.00	103.00	10.00	17.00	71.00	93.00	143.00	18.00
4.80	35.00	44.00	82.00	6.00	9.20	49.00	61.00	103.00	10.00	17.50	71.00	93.00	143.00	18.00
4.90	35.00	44.00	82.00	6.00	9.30	49.00	61.00	103.00	10.00	17.80	71.00	93.00	143.00	18.00
5.00	35.00	44.00	82.00	6.00	9.40	49.00	61.00	103.00	10.00	18.00	71.00	93.00	143.00	18.00
5.10	35.00	44.00	82.00	6.00	9.50	49.00	61.00	103.00	10.00	18.50	77.00	101.00	153.00	20.00
5.20	35.00	44.00	82.00	6.00	9.60	49.00	61.00	103.00	10.00	19.00	77.00	101.00	153.00	20.00
5.30	35.00	44.00	82.00	6.00	9.70	49.00	61.00	103.00	10.00	19.50	77.00	101.00	153.00	20.00
					9.80	49.00	61.00	103.00	10.00	20.00	77.00	101.00	153.00	20.00

5倍径钨钢铣刀柄内冷钻头

5xD Solid carbide Blue Cut IC Twist Drills

AV17.1



合金钢 1.1~1.9

铝合金 4.1 4.2 4.4



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
1.00	7.00	10.00	55.00	3.00	5.50	35.00	44.00	82.00	6.00	10.10	56.00	71.00	118.00	12.00
1.10	10.00	12.00	55.00	3.00	5.55	35.00	44.00	82.00	6.00	10.20	56.00	71.00	118.00	12.00
1.20	10.00	12.00	55.00	3.00	5.60	35.00	44.00	82.00	6.00	10.30	56.00	71.00	118.00	12.00
1.30	10.00	12.00	55.00	3.00	5.70	35.00	44.00	82.00	6.00	10.40	56.00	71.00	118.00	12.00
1.40	10.00	12.00	55.00	3.00	5.80	35.00	44.00	82.00	6.00	10.50	56.00	71.00	118.00	12.00
1.50	10.00	12.00	55.00	3.00	5.90	35.00	44.00	82.00	6.00	10.60	56.00	71.00	118.00	12.00
1.60	13.00	16.00	55.00	3.00	6.00	35.00	44.00	82.00	6.00	10.70	56.00	71.00	118.00	12.00
1.70	13.00	16.00	55.00	3.00	6.10	43.00	53.00	91.00	8.00	10.80	56.00	71.00	118.00	12.00
1.80	13.00	16.00	55.00	3.00	6.20	43.00	53.00	91.00	8.00	10.90	56.00	71.00	118.00	12.00
1.90	13.00	16.00	55.00	3.00	6.30	43.00	53.00	91.00	8.00	11.00	56.00	71.00	118.00	12.00
2.00	13.00	21.00	57.00	3.00	6.40	43.00	53.00	91.00	8.00	11.10	56.00	71.00	118.00	12.00
2.10	16.00	21.00	57.00	3.00	6.50	43.00	53.00	91.00	8.00	11.20	56.00	71.00	118.00	12.00
2.20	16.00	21.00	57.00	3.00	6.60	43.00	53.00	91.00	8.00	11.30	56.00	71.00	118.00	12.00
2.30	16.00	21.00	57.00	3.00	6.70	43.00	53.00	91.00	8.00	11.40	56.00	71.00	118.00	12.00
2.40	16.00	21.00	57.00	3.00	6.80	43.00	53.00	91.00	8.00	11.50	56.00	71.00	118.00	12.00
2.50	16.00	21.00	57.00	3.00	6.90	43.00	53.00	91.00	8.00	11.60	56.00	71.00	118.00	12.00
2.60	19.00	21.00	57.00	3.00	7.00	43.00	53.00	91.00	8.00	11.70	56.00	71.00	118.00	12.00
2.70	19.00	21.00	57.00	3.00	7.10	43.00	53.00	91.00	8.00	11.80	56.00	71.00	118.00	12.00
2.80	19.00	21.00	57.00	3.00	7.20	43.00	53.00	91.00	8.00	11.90	56.00	71.00	118.00	12.00
2.90	18.00	21.00	57.00	3.00	7.30	43.00	53.00	91.00	8.00	12.00	56.00	71.00	118.00	12.00
3.00	23.00	28.00	66.00	6.00	7.40	43.00	53.00	91.00	8.00	12.20	60.00	77.00	124.00	14.00
3.10	23.00	28.00	66.00	6.00	7.50	43.00	53.00	91.00	8.00	12.30	60.00	77.00	124.00	14.00
3.20	23.00	28.00	66.00	6.00	7.60	43.00	53.00	91.00	8.00	12.50	60.00	77.00	124.00	14.00
3.30	23.00	28.00	66.00	6.00	7.70	43.00	53.00	91.00	8.00	12.80	60.00	77.00	124.00	14.00
3.40	23.00	28.00	66.00	6.00	7.80	43.00	53.00	91.00	8.00	13.00	60.00	77.00	124.00	14.00
3.45	23.00	28.00	66.00	6.00	7.90	43.00	53.00	91.00	8.00	13.50	60.00	77.00	124.00	14.00
3.50	23.00	28.00	66.00	6.00	8.00	43.00	53.00	91.00	8.00	13.80	60.00	77.00	124.00	14.00
3.60	23.00	28.00	66.00	6.00	8.10	49.00	61.00	103.00	10.00	14.00	60.00	77.00	124.00	14.00
3.70	23.00	28.00	66.00	6.00	8.20	49.00	61.00	103.00	10.00	14.50	63.00	83.00	133.00	16.00
3.80	29.00	36.00	74.00	6.00	8.30	49.00	61.00	103.00	10.00	14.80	63.00	83.00	133.00	16.00
3.90	29.00	36.00	74.00	6.00	8.40	49.00	61.00	103.00	10.00	15.00	63.00	83.00	133.00	16.00
4.00	29.00	36.00	74.00	6.00	8.50	49.00	61.00	103.00	10.00	15.50	63.00	83.00	133.00	16.00
4.10	29.00	36.00	74.00	6.00	8.60	49.00	61.00	103.00	10.00	15.80	63.00	83.00	133.00	16.00
4.20	29.00	36.00	74.00	6.00	8.70	49.00	61.00	103.00	10.00	16.00	63.00	83.00	133.00	16.00
4.30	29.00	36.00	74.00	6.00	8.80	49.00	61.00	103.00	10.00	16.50	71.00	93.00	143.00	18.00
4.40	29.00	36.00	74.00	6.00	8.90	49.00	61.00	103.00	10.00	16.80	71.00	93.00	143.00	18.00
4.50	29.00	36.00	74.00	6.00	9.00	49.00	61.00	103.00	10.00	17.00	71.00	93.00	143.00	18.00
4.60	29.00	36.00	74.00	6.00	9.10	49.00	61.00	103.00	10.00	17.30	71.00	93.00	143.00	18.00
4.65	29.00	36.00	74.00	6.00	9.20	49.00	61.00	103.00	10.00	17.50	71.00	93.00	143.00	18.00
4.70	29.00	36.00	74.00	6.00	9.30	49.00	61.00	103.00	10.00	17.80	71.00	93.00	143.00	18.00
4.80	35.00	44.00	82.00	6.00	9.40	49.00	61.00	103.00	10.00	18.00	71.00	93.00	143.00	18.00
4.90	35.00	44.00	82.00	6.00	9.50	49.00	61.00	103.00	10.00	18.50	77.00	101.00	153.00	20.00
5.00	35.00	44.00	82.00	6.00	9.60	49.00	61.00	103.00	10.00	18.80	77.00	101.00	153.00	20.00
5.10	35.00	44.00	82.00	6.00	9.70	49.00	61.00	103.00	10.00	19.00	77.00	101.00	153.00	20.00
5.20	35.00	44.00	82.00	6.00	9.80	49.00	61.00	103.00	10.00	19.50	77.00	101.00	153.00	20.00
5.30	35.00	44.00	82.00	6.00	9.90	49.00	61.00	103.00	10.00	19.80	77.00	101.00	153.00	20.00
5.40	35.00	44.00	82.00	6.00	10.00	49.00	61.00	103.00	10.00	20.00	77.00	101.00	153.00	20.00

※ 转速与进给建议请参考24页 Please see Page 24 for Speed and Feeding

5倍径钨钢铣刀柄内冷泛用型钻头

5xD Solid Carbide Blue Cut IC Universal Twist Drills

AV18.1



合金钢 1.1
 不锈钢 2.1~2.2
 铸铁 3.1~3.3

铝合金 4.1~4.3
 镍, 钛 5.2



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
1.40	10.00	12.00	55.00	3.00	6.00	35.00	44.00	82.00	6.00	10.40	56.00	71.00	118.00	12.00
1.50	10.00	12.00	55.00	3.00	6.10	43.00	53.00	91.00	8.00	10.50	56.00	71.00	118.00	12.00
1.60	13.00	16.00	55.00	3.00	6.30	43.00	53.00	91.00	8.00	10.60	56.00	71.00	118.00	12.00
1.70	13.00	16.00	55.00	3.00	6.40	43.00	53.00	91.00	8.00	10.70	56.00	71.00	118.00	12.00
1.80	13.00	16.00	55.00	3.00	6.50	43.00	53.00	91.00	8.00	10.80	56.00	71.00	118.00	12.00
1.90	13.00	16.00	55.00	3.00	6.60	43.00	53.00	91.00	8.00	10.90	56.00	71.00	118.00	12.00
2.10	16.00	21.00	57.00	3.00	6.70	43.00	53.00	91.00	8.00	11.00	56.00	71.00	118.00	12.00
2.60	19.00	21.00	57.00	3.00	6.80	43.00	53.00	91.00	8.00	11.10	56.00	71.00	118.00	12.00
3.00	23.00	28.00	66.00	6.00	6.90	43.00	53.00	91.00	8.00	11.20	56.00	71.00	118.00	12.00
3.10	23.00	28.00	66.00	6.00	7.00	43.00	53.00	91.00	8.00	11.30	56.00	71.00	118.00	12.00
3.20	23.00	28.00	66.00	6.00	7.10	43.00	53.00	91.00	8.00	11.40	56.00	71.00	118.00	12.00
3.30	23.00	28.00	66.00	6.00	7.20	43.00	53.00	91.00	8.00	11.60	56.00	71.00	118.00	12.00
3.40	23.00	28.00	66.00	6.00	7.30	43.00	53.00	91.00	8.00	11.70	56.00	71.00	118.00	12.00
3.45	23.00	28.00	66.00	6.00	7.40	43.00	53.00	91.00	8.00	11.80	56.00	71.00	118.00	12.00
3.50	23.00	28.00	66.00	6.00	7.50	43.00	53.00	91.00	8.00	11.90	56.00	71.00	118.00	12.00
3.60	23.00	28.00	66.00	6.00	7.60	43.00	53.00	91.00	8.00	12.00	56.00	71.00	118.00	12.00
3.70	23.00	28.00	66.00	6.00	7.70	43.00	53.00	91.00	8.00	12.20	60.00	77.00	124.00	14.00
3.80	29.00	36.00	74.00	6.00	7.80	43.00	53.00	91.00	8.00	12.30	60.00	77.00	124.00	14.00
3.90	29.00	36.00	74.00	6.00	7.90	43.00	53.00	91.00	8.00	12.50	60.00	77.00	124.00	14.00
4.00	29.00	36.00	74.00	6.00	8.00	43.00	53.00	91.00	8.00	12.80	60.00	77.00	124.00	14.00
4.10	29.00	36.00	74.00	6.00	8.10	49.00	61.00	103.00	10.00	13.00	60.00	77.00	124.00	14.00
4.20	29.00	36.00	74.00	6.00	8.20	49.00	61.00	103.00	10.00	13.50	60.00	77.00	124.00	14.00
4.30	29.00	36.00	74.00	6.00	8.50	49.00	61.00	103.00	10.00	13.80	60.00	77.00	124.00	14.00
4.40	29.00	36.00	74.00	6.00	8.60	49.00	61.00	103.00	10.00	14.00	60.00	77.00	124.00	14.00
4.50	29.00	36.00	74.00	6.00	8.80	49.00	61.00	103.00	10.00	14.50	63.00	83.00	133.00	16.00
4.60	29.00	36.00	74.00	6.00	8.90	49.00	61.00	103.00	10.00	14.80	63.00	83.00	133.00	16.00
4.65	29.00	36.00	74.00	6.00	9.00	49.00	61.00	103.00	10.00	15.00	63.00	83.00	133.00	16.00
4.70	29.00	36.00	74.00	6.00	9.10	49.00	61.00	103.00	10.00	15.50	63.00	83.00	133.00	16.00
4.90	35.00	44.00	82.00	6.00	9.20	49.00	61.00	103.00	10.00	15.80	63.00	83.00	133.00	16.00
5.00	35.00	44.00	82.00	6.00	9.30	49.00	61.00	103.00	10.00	16.50	71.00	93.00	143.00	18.00
5.10	35.00	44.00	82.00	6.00	9.40	49.00	61.00	103.00	10.00	16.80	71.00	93.00	143.00	18.00
5.20	35.00	44.00	82.00	6.00	9.50	49.00	61.00	103.00	10.00	17.00	71.00	93.00	143.00	18.00
5.30	35.00	44.00	82.00	6.00	9.60	49.00	61.00	103.00	10.00	17.50	71.00	93.00	143.00	18.00
5.40	35.00	44.00	82.00	6.00	9.70	49.00	61.00	103.00	10.00	17.80	71.00	93.00	143.00	18.00
5.50	35.00	44.00	82.00	6.00	9.80	49.00	61.00	103.00	10.00	18.00	71.00	93.00	143.00	18.00
5.55	35.00	44.00	82.00	6.00	9.90	49.00	61.00	103.00	10.00	18.50	77.00	101.00	153.00	20.00
5.60	35.00	44.00	82.00	6.00	10.00	49.00	61.00	103.00	10.00	19.00	77.00	101.00	153.00	20.00
5.70	35.00	44.00	82.00	6.00	10.10	56.00	71.00	118.00	12.00	19.50	77.00	101.00	153.00	20.00
5.80	35.00	44.00	82.00	6.00	10.20	56.00	71.00	118.00	12.00	20.00	77.00	101.00	153.00	20.00
5.90	35.00	44.00	82.00	6.00	10.30	56.00	71.00	118.00	12.00					

※ 转速与进给建议请参考24页 Please see Page 24 for Speed and Feeding

5倍径钨钢铣刀柄内冷泛用型钻头

5xD Solid Carbide Altop IC Universal Twist Drills

AV19.1



合金钢 1.1
不锈钢 2.1~2.2
铸 铁 3.1~3.2

铝合金 4.1~4.3
镍, 钛 5.1



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
3.00	23.00	28.00	66.00	6.00	6.60	43.00	53.00	91.00	8.00	10.40	56.00	71.00	118.00	12.00
3.10	23.00	28.00	66.00	6.00	6.70	43.00	53.00	91.00	8.00	10.50	56.00	71.00	118.00	12.00
3.20	23.00	28.00	66.00	6.00	6.80	43.00	53.00	91.00	8.00	10.60	56.00	71.00	118.00	12.00
3.30	23.00	28.00	66.00	6.00	6.90	43.00	53.00	91.00	8.00	10.70	56.00	71.00	118.00	12.00
3.40	23.00	28.00	66.00	6.00	7.00	43.00	53.00	91.00	8.00	10.80	56.00	71.00	118.00	12.00
3.50	23.00	28.00	66.00	6.00	7.10	43.00	53.00	91.00	8.00	10.90	56.00	71.00	118.00	12.00
3.60	23.00	28.00	66.00	6.00	7.30	43.00	53.00	91.00	8.00	11.00	56.00	71.00	118.00	12.00
3.70	23.00	28.00	66.00	6.00	7.50	43.00	53.00	91.00	8.00	11.10	56.00	71.00	118.00	12.00
3.80	29.00	36.00	74.00	6.00	7.60	43.00	53.00	91.00	8.00	11.30	56.00	71.00	118.00	12.00
3.90	29.00	36.00	74.00	6.00	7.70	43.00	53.00	91.00	8.00	11.40	56.00	71.00	118.00	12.00
4.10	29.00	36.00	74.00	6.00	7.80	43.00	53.00	91.00	8.00	11.50	56.00	71.00	118.00	12.00
4.20	29.00	36.00	74.00	6.00	7.90	43.00	53.00	91.00	8.00	11.60	56.00	71.00	118.00	12.00
4.30	29.00	36.00	74.00	6.00	8.00	43.00	53.00	91.00	8.00	11.70	56.00	71.00	118.00	12.00
4.40	29.00	36.00	74.00	6.00	8.10	49.00	61.00	103.00	10.00	11.80	56.00	71.00	118.00	12.00
4.50	29.00	36.00	74.00	6.00	8.20	49.00	61.00	103.00	10.00	11.90	56.00	71.00	118.00	12.00
4.60	29.00	36.00	74.00	6.00	8.30	49.00	61.00	103.00	10.00	12.00	56.00	71.00	118.00	12.00
4.65	29.00	36.00	74.00	6.00	8.40	49.00	61.00	103.00	10.00	12.20	60.00	77.00	124.00	14.00
4.80	35.00	44.00	82.00	6.00	8.45	49.00	61.00	103.00	10.00	12.80	60.00	77.00	124.00	14.00
4.90	35.00	44.00	82.00	6.00	8.50	49.00	61.00	103.00	10.00	13.00	60.00	77.00	124.00	14.00
5.00	35.00	44.00	82.00	6.00	8.60	49.00	61.00	103.00	10.00	13.50	60.00	77.00	124.00	14.00
5.10	35.00	44.00	82.00	6.00	8.80	49.00	61.00	103.00	10.00	13.80	60.00	77.00	124.00	14.00
5.20	35.00	44.00	82.00	6.00	8.90	49.00	61.00	103.00	10.00	14.50	63.00	83.00	133.00	16.00
5.30	35.00	44.00	82.00	6.00	9.00	49.00	61.00	103.00	10.00	14.80	63.00	83.00	133.00	16.00
5.40	35.00	44.00	82.00	6.00	9.10	49.00	61.00	103.00	10.00	15.50	63.00	83.00	133.00	16.00
5.50	35.00	44.00	82.00	6.00	9.20	49.00	61.00	103.00	10.00	16.00	63.00	83.00	133.00	16.00
5.55	35.00	44.00	82.00	6.00	9.30	49.00	61.00	103.00	10.00	16.80	71.00	93.00	143.00	18.00
5.60	35.00	44.00	82.00	6.00	9.40	49.00	61.00	103.00	10.00	17.00	71.00	93.00	143.00	18.00
5.70	35.00	44.00	82.00	6.00	9.50	49.00	61.00	103.00	10.00	17.50	71.00	93.00	143.00	18.00
5.80	35.00	44.00	82.00	6.00	9.60	49.00	61.00	103.00	10.00	17.80	71.00	93.00	143.00	18.00
5.90	35.00	44.00	82.00	6.00	9.70	49.00	61.00	103.00	10.00	18.50	77.00	101.00	153.00	20.00
6.00	35.00	44.00	82.00	6.00	9.90	49.00	61.00	103.00	10.00	19.00	77.00	101.00	153.00	20.00
6.20	43.00	53.00	91.00	8.00	10.00	49.00	61.00	103.00	10.00	19.50	77.00	101.00	153.00	20.00
6.30	43.00	53.00	91.00	8.00	10.10	56.00	71.00	118.00	12.00	19.80	77.00	101.00	153.00	20.00
6.40	43.00	53.00	91.00	8.00	10.20	56.00	71.00	118.00	12.00	20.00	77.00	101.00	153.00	20.00
6.50	43.00	53.00	91.00	8.00	10.30	56.00	71.00	118.00	12.00					

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV19.1														
					f mm/U		f mm/U		f mm/U		f mm/U			
					Vc m/min		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis		
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	100	130	0.100	0.150	0.150	0.200	0.200	0.250	0.250	0.300		
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels < 700 N/mm	2.1	40	60	0.080	0.120	0.120	0.160	0.160	0.200	0.200	0.250		
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels > 700 N/mm	2.2	40	60	0.080	0.120	0.120	0.160	0.160	0.200	0.200	0.250		
K	铸铁<180HB / cast iron <180 HB	3.1	60	80	0.200	0.300	0.300	0.400	0.400	0.500	0.500	0.600		
	可锻铸铁 / melleable cast iron	3.2	60	80	0.200	0.300	0.300	0.400	0.400	0.500	0.500	0.600		
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	220	260	0.150	0.250	0.250	0.380	0.380	0.450	0.450	0.550		
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	160	220	0.180	0.250	0.250	0.380	0.380	0.450	0.450	0.550		
	铝合金含矽量>12% / AL alloys >12% Si	4.3	120	160	0.150	0.200	0.200	0.300	0.300	0.380	0.380	0.400		
S	钛及钛合金 / titanium and tit.-alloys	5.1	30	50	0.080	0.120	0.120	0.160	0.160	0.200	0.200	0.250		

8倍径钨钢铣刀柄钻头

8xD Solid Carbide Twist Drills

AV66.1



合金钢 1.1~1.9 铝合金 4.1~4.3
 不锈钢 2.1~2.2 镍, 钛 5.1
 铸 铁 3.1~3.3



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
1.00	9.00	11.00	55.00	3.00	5.20	45.00	57.00	95.00	6.00	9.40	76.00	95.00	142.00	10.00
1.10	13.50	17.00	55.00	3.00	5.30	45.00	57.00	95.00	6.00	9.50	76.00	95.00	142.00	10.00
1.20	13.50	17.00	55.00	3.00	5.40	45.00	57.00	95.00	6.00	9.60	76.00	95.00	142.00	10.00
1.30	13.50	17.00	55.00	3.00	5.50	45.00	57.00	95.00	6.00	9.70	76.00	95.00	142.00	10.00
1.40	13.50	17.00	55.00	3.00	5.60	45.00	57.00	95.00	6.00	9.80	76.00	95.00	142.00	10.00
1.50	17.50	22.00	65.00	3.00	5.70	45.00	57.00	95.00	6.00	9.90	76.00	95.00	142.00	10.00
1.60	17.50	22.00	65.00	3.00	5.80	45.00	57.00	95.00	6.00	10.00	76.00	95.00	142.00	10.00
1.70	17.50	22.00	65.00	3.00	5.90	45.00	57.00	95.00	6.00	10.10	90.00	114.00	162.00	12.00
1.80	17.50	22.00	65.00	3.00	6.00	45.00	57.00	95.00	6.00	10.20	90.00	114.00	162.00	12.00
1.90	17.50	22.00	65.00	3.00	6.10	52.00	76.00	114.00	8.00	10.30	90.00	114.00	162.00	12.00
2.00	22.50	28.00	74.00	3.00	6.20	52.00	76.00	114.00	8.00	10.40	90.00	114.00	162.00	12.00
2.10	22.50	28.00	74.00	3.00	6.30	52.00	76.00	114.00	8.00	10.50	90.00	114.00	162.00	12.00
2.20	22.50	28.00	74.00	3.00	6.40	52.00	76.00	114.00	8.00	10.60	90.00	114.00	162.00	12.00
2.30	22.50	28.00	74.00	3.00	6.50	52.00	76.00	114.00	8.00	10.70	90.00	114.00	162.00	12.00
2.40	22.50	28.00	74.00	3.00	6.60	52.00	76.00	114.00	8.00	10.80	90.00	114.00	162.00	12.00
2.50	22.50	32.00	81.00	3.00	6.70	52.00	76.00	114.00	8.00	10.90	90.00	114.00	162.00	12.00
2.60	22.50	32.00	81.00	3.00	6.80	52.00	76.00	114.00	8.00	11.00	90.00	114.00	162.00	12.00
2.70	22.50	32.00	81.00	3.00	6.90	52.00	76.00	114.00	8.00	11.10	90.00	114.00	162.00	12.00
2.80	22.50	32.00	81.00	3.00	7.00	60.00	76.00	114.00	8.00	11.20	90.00	114.00	162.00	12.00
2.90	22.50	32.00	81.00	3.00	7.10	60.00	76.00	114.00	8.00	11.30	90.00	114.00	162.00	12.00
3.00	27.00	34.00	72.00	6.00	7.20	60.00	76.00	114.00	8.00	11.40	90.00	114.00	162.00	12.00
3.10	27.00	34.00	72.00	6.00	7.30	60.00	76.00	114.00	8.00	11.50	90.00	114.00	162.00	12.00
3.20	27.00	34.00	72.00	6.00	7.40	60.00	76.00	114.00	8.00	11.60	90.00	114.00	162.00	12.00
3.30	27.00	34.00	72.00	6.00	7.50	60.00	76.00	114.00	8.00	11.70	90.00	114.00	162.00	12.00
3.40	27.00	34.00	72.00	6.00	7.60	60.00	76.00	114.00	8.00	11.80	90.00	114.00	162.00	12.00
3.50	27.00	34.00	72.00	6.00	7.70	60.00	76.00	114.00	8.00	11.90	90.00	114.00	162.00	12.00
3.60	27.00	34.00	72.00	6.00	7.80	60.00	76.00	114.00	8.00	12.00	90.00	114.00	162.00	12.00
3.70	27.00	34.00	72.00	6.00	7.90	60.00	76.00	114.00	8.00	12.50	106.00	133.00	178.00	14.00
3.80	35.00	43.00	81.00	6.00	8.00	60.00	76.00	114.00	8.00	12.80	106.00	133.00	178.00	14.00
3.90	35.00	43.00	81.00	6.00	8.10	68.00	95.00	142.00	10.00	13.00	106.00	133.00	178.00	14.00
4.00	35.00	43.00	81.00	6.00	8.20	68.00	95.00	142.00	10.00	13.50	106.00	133.00	178.00	14.00
4.10	35.00	43.00	81.00	6.00	8.30	68.00	95.00	142.00	10.00	14.00	106.00	133.00	178.00	14.00
4.20	35.00	43.00	81.00	6.00	8.40	68.00	95.00	142.00	10.00	14.50	122.00	152.00	203.00	16.00
4.30	35.00	43.00	81.00	6.00	8.50	68.00	95.00	142.00	10.00	15.00	122.00	152.00	203.00	16.00
4.40	35.00	43.00	81.00	6.00	8.60	68.00	95.00	142.00	10.00	15.50	122.00	152.00	203.00	16.00
4.50	35.00	43.00	81.00	6.00	8.70	68.00	95.00	142.00	10.00	16.00	122.00	152.00	203.00	16.00
4.60	35.00	43.00	81.00	6.00	8.80	68.00	95.00	142.00	10.00	16.50	150.00	171.00	222.00	18.00
4.70	35.00	57.00	95.00	6.00	8.90	68.00	95.00	142.00	10.00	17.80	150.00	171.00	222.00	18.00
4.80	45.00	57.00	95.00	6.00	9.00	68.00	95.00	142.00	10.00	18.00	170.00	190.00	243.00	20.00
4.90	45.00	57.00	95.00	6.00	9.10	76.00	95.00	142.00	10.00	18.50	170.00	190.00	243.00	20.00
5.00	45.00	57.00	95.00	6.00	9.20	76.00	95.00	142.00	10.00	18.80	170.00	190.00	243.00	20.00
5.10	45.00	57.00	95.00	6.00	9.30	76.00	95.00	142.00	10.00	19.00	170.00	190.00	243.00	20.00

※ 转速与进给建议请参考26页 Please see Page 26 for Speed and Feeding

12倍径钨钢钻头

12xD Solid Carbide Twist Drills

AV67.1



合金钢 1.1~1.9
铸 铁 3.1~3.3
铝合金 4.1~4.3 4.5
镍, 钛 5.1



d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6	d1	l3	l2	l1	d2h6
1.00	12.00	15.00	55.00	3.00	3.70	48.00	54.00	92.00	6.00	8.10	110.00	120.00	162.00	10.00
1.10	185.00	23.00	55.00	3.00	3.80	58.00	64.00	102.00	6.00	8.20	110.00	120.00	162.00	10.00
1.20	185.00	23.00	55.00	3.00	3.90	58.00	64.00	102.00	6.00	8.50	110.00	120.00	162.00	10.00
1.30	185.00	23.00	55.00	3.00	4.00	58.00	64.00	102.00	6.00	8.80	110.00	120.00	162.00	10.00
1.40	185.00	23.00	55.00	3.00	4.20	58.00	64.00	102.00	6.00	9.00	110.00	120.00	162.00	10.00
1.50	24.00	30.00	65.00	3.00	4.30	58.00	64.00	102.00	6.00	9.50	110.00	120.00	162.00	10.00
1.60	24.00	30.00	65.00	3.00	4.50	58.00	64.00	102.00	6.00	9.80	110.00	120.00	162.00	10.00
1.70	24.00	30.00	65.00	3.00	4.80	70.00	78.00	118.00	6.00	10.00	110.00	120.00	162.00	10.00
1.80	24.00	30.00	65.00	3.00	5.00	70.00	78.00	118.00	6.00	10.20	142.00	156.00	204.00	12.00
1.90	24.00	30.00	65.00	3.00	5.20	70.00	78.00	118.00	6.00	10.50	142.00	156.00	204.00	12.00
2.00	24.00	30.00	65.00	3.00	5.30	70.00	78.00	118.00	6.00	10.80	142.00	156.00	204.00	12.00
2.10	30.50	38.00	74.00	3.00	5.50	70.00	78.00	118.00	6.00	11.00	142.00	156.00	204.00	12.00
2.20	30.50	38.00	74.00	3.00	5.80	70.00	78.00	118.00	6.00	11.20	142.00	156.00	204.00	12.00
2.30	30.50	38.00	74.00	3.00	5.90	70.00	78.00	118.00	6.00	11.50	142.00	156.00	204.00	12.00
2.40	30.50	38.00	74.00	3.00	6.00	70.00	78.00	118.00	6.00	11.80	142.00	156.00	204.00	12.00
2.50	35.00	44.00	74.00	3.00	6.10	94.00	108.00	146.00	8.00	12.00	142.00	156.00	204.00	12.00
2.60	35.00	44.00	81.00	3.00	6.20	94.00	108.00	146.00	8.00	12.50	166.00	182.00	230.00	14.00
2.70	35.00	44.00	81.00	3.00	6.50	94.00	108.00	146.00	8.00	12.80	166.00	182.00	230.00	14.00
2.80	35.00	44.00	81.00	3.00	6.60	94.00	108.00	146.00	8.00	13.00	166.00	182.00	230.00	14.00
2.90	35.00	44.00	81.00	3.00	6.80	94.00	108.00	146.00	8.00	13.50	166.00	182.00	230.00	14.00
3.00	48.00	54.00	92.00	6.00	7.00	94.00	108.00	146.00	8.00	14.00	166.00	182.00	230.00	14.00
3.20	48.00	54.00	92.00	6.00	7.60	94.00	108.00	146.00	8.00	14.50	192.00	208.00	260.00	16.00
3.30	48.00	54.00	92.00	6.00	7.80	94.00	108.00	146.00	8.00	15.00	192.00	208.00	260.00	16.00
3.50	48.00	54.00	92.00	6.00	8.00	94.00	108.00	146.00	8.00	16.00	192.00	208.00	260.00	16.00
										18.00	192.00	208.00	260.00	16.00

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV67.1														
			Vc m/min		f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
					Ø 1.0-3.0		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	90	100	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	70	90	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm	1.3	70	90	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	30	45	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm	1.6	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm	1.7	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm	1.8	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	工具钢 / tool steels	1.9	30	50	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm	2.1	30	50	0.050	0.100	0.100	0.120	0.120	0.140	0.140	0.240	0.240	0.300
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm	2.2	30	40	0.050	0.100	0.100	0.120	0.120	0.140	0.140	0.240	0.240	0.300
K	铸铁<180HB / cast iron <180 HB	3.1	60	80	0.100	0.180	0.180	0.250	0.250	0.320	0.320	0.370	0.370	0.420
	可锻铸铁 / melleable cast iron	3.2	60	80	0.100	0.180	0.180	0.250	0.250	0.320	0.320	0.370	0.370	0.420
	球墨铸铁 / ductile cast iron	3.3	60	70	0.080	0.160	0.160	0.220	0.220	0.300	0.300	0.360	0.360	0.400
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	170	220	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	150	200	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	铝合金含矽量>12% / AL alloys >12% Si	4.3	100	150	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	热塑塑胶 / duro- and thermoplastics	4.5	30	50	0.050	0.080	0.080	0.120	0.120	0.150	0.150	0.220	0.220	0.300
S	钛及钛合金 / titanium and tit.-alloys	5.1	20	35	0.050	0.100	0.100	0.120	0.120	0.140	0.140	0.240	0.240	0.300

15倍径钨钢铣刀柄钻头

15xD Solid Carbide Twist Drills

AV74.1



合金钢 1.1~1.9 铝合金 4.1~4.3 4.5
 不锈钢 2.1~2.2 镍, 钛 5.1
 铸 铁 3.1~3.3



d1	l3	l2	l1	d2	d1	l3	l2	l1	d2
1.10	17.00	22.00	60.00	3.00	4.50	68.00	78.00	115.00	6.00
1.20	18.00	24.00	60.00	3.00	5.00	75.00	92.00	130.00	6.00
1.60	24.00	32.00	65.00	3.00	5.50	83.00	100.00	145.00	6.00
1.70	26.00	32.00	65.00	3.00	6.00	90.00	100.00	145.00	6.00
1.80	27.00	35.00	65.00	3.00	6.50	97.00	130.00	170.00	8.00
1.90	29.00	35.00	65.00	3.00	6.80	102.00	130.00	170.00	8.00
2.10	32.00	40.00	75.00	3.00	7.00	105.00	130.00	170.00	8.00
2.30	35.00	40.00	75.00	3.00	7.50	115.00	130.00	170.00	8.00
2.40	36.00	45.00	75.00	3.00	8.00	120.00	130.00	170.00	8.00
2.50	38.00	45.00	75.00	3.00	8.50	128.00	163.00	208.00	10.00
2.60	39.00	48.00	80.00	3.00	9.00	135.00	163.00	208.00	10.00
2.80	42.00	50.00	80.00	3.00	10.00	150.00	163.00	208.00	10.00
3.00	45.00	60.00	100.00	6.00	10.50	158.00	195.00	245.00	12.00
3.30	50.00	60.00	100.00	6.00	11.00	165.00	195.00	245.00	12.00
3.50	53.00	60.00	100.00	6.00	12.00	180.00	195.00	245.00	12.00
4.00	60.00	78.00	115.00	6.00	15.00	225.00	260.00	310.00	16.00
4.20	63.00	78.00	115.00	6.00					

※ 请参考下列转速及进给建议 Speed and Feeding as below:

AV74.1														
			Vc m/min		f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
					Ø 1.0-3.0		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	90	100	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	70	90	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm	1.3	70	90	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	30	45	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm	1.6	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm	1.7	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm	1.8	60	80	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	工具钢 / tool steels	1.9	30	50	0.060	0.100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm	2.1	30	50	0.050	0.100	0.100	0.120	0.120	0.140	0.140	0.240	0.240	0.300
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm	2.2	30	40	0.050	0.100	0.100	0.120	0.120	0.140	0.140	0.240	0.240	0.300
K	铸铁<180HB / cast iron <180 HB	3.1	60	80	0.100	0.180	0.180	0.250	0.250	0.320	0.320	0.370	0.370	0.420
	可锻铸铁 / melleable cast iron	3.2	60	80	0.100	0.180	0.180	0.250	0.250	0.320	0.320	0.370	0.370	0.420
	球墨铸铁 / ductile cast iron	3.3	60	70	0.080	0.160	0.160	0.220	0.220	0.300	0.300	0.360	0.360	0.400
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	170	220	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	150	200	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	铝合金含矽量>12% / AL alloys >12% Si	4.3	100	150	0.080	0.150	0.150	0.200	0.200	0.300	0.300	0.400	0.350	0.450
	热塑塑胶 / duro- and thermoplastics	4.5	30	50	0.050	0.080	0.080	0.120	0.120	0.150	0.150	0.220	0.220	0.300
S	钛及钛合金 / titanium and tit.-alloys	5.1	20	35	0.050	0.100	0.100	0.120	0.120	0.140	0.140	0.240	0.240	0.300

3倍径~20倍径钨钢舍弃式刀片镶钻

3xD~20xD Straight Flute Insert Drills

AV61.0



d1	l2	l3	l1	d2	Insert T	d1	l2	l3	l1	d2	Insert T
10.00~11.75	20.00	50.00	90.00	20.00	2.50	24.00~29.00	170.00	213.00	273.00	32.00	5.00
10.00~11.75	45.00	75.00	115.00	20.00	2.50	24.00~29.00	240.00	283.00	343.00	32.00	5.00
10.00~11.75	90.00	119.00	159.00	20.00	2.50	24.00~29.00	330.00	373.00	433.00	32.00	5.00
11.80~14.00	20.00	50.00	90.00	20.00	2.50	24.00~29.00	400.00	443.00	503.00	32.00	5.00
11.80~14.00	45.00	75.00	115.00	20.00	2.50	24.00~29.00	580.00	623.00	683.00	32.00	5.00
11.80~14.00	90.00	119.00	159.00	20.00	2.50	29.00~36.00	45.00	83.00	143.00	32.00	5.00
11.80~14.00	110.00	139.00	179.00	20.00	2.50	29.00~36.00	75.00	113.00	173.00	32.00	5.00
13.50~16.50	25.00	55.00	95.00	20.00	3.50	29.00~36.00	125.00	163.00	225.00	32.00	5.00
13.50~16.50	55.00	85.00	125.00	20.00	3.50	29.00~36.00	170.00	213.00	273.00	32.00	5.00
13.50~16.50	110.00	138.50	178.50	20.00	3.50	29.00~36.00	290.00	333.00	393.00	32.00	5.00
13.50~16.50	130.00	158.50	198.50	20.00	3.50	29.00~36.00	370.00	413.00	473.00	32.00	5.00
13.50~16.50	170.00	198.50	238.50	20.00	3.50	29.00~36.00	450.00	493.00	553.00	32.00	5.00
13.50~16.50	250.00	278.50	318.50	20.00	3.50	29.00~36.00	660.00	703.00	763.00	32.00	5.00
15.00~17.50	25.00	55.00	95.00	20.00	3.50	34.00~40.50	50.00	88.00	148.00	32.00	5.00
15.00~17.50	55.00	85.00	125.00	20.00	3.50	34.00~40.50	75.00	113.00	173.00	32.00	5.00
15.00~17.50	110.00	138.50	178.50	20.00	3.50	34.00~40.50	125.00	163.00	223.00	32.00	5.00
15.00~17.50	130.00	158.50	198.50	20.00	3.50	34.00~40.50	170.00	213.00	273.00	32.00	5.00
15.00~17.50	170.00	198.50	238.50	20.00	3.50	34.00~40.50	250.00	333.00	393.00	32.00	5.00
15.00~17.50	200.00	228.50	368.50	20.00	3.50	34.00~40.50	400.00	443.00	503.00	32.00	5.00
15.00~17.50	330.00	258.50	398.50	20.00	3.50	34.00~40.50	500.00	543.00	603.00	32.00	5.00
16.50~20.00	25.00	55.00	95.00	20.00	3.50	34.00~40.50	720.00	763.00	823.00	32.00	5.00
16.50~20.00	65.00	95.00	135.00	20.00	3.50	35.00~46.00	60.00	107.00	167.00	32.00	7.00
16.50~20.00	116.00	146.50	186.50	20.00	3.50	35.00~46.00	110.00	157.00	217.00	32.00	7.00
16.50~20.00	150.00	180.50	220.50	20.00	3.50	35.00~46.00	125.00	262.00	322.00	32.00	7.00
16.50~20.00	190.00	220.50	260.50	20.00	3.50	35.00~46.00	350.00	397.00	457.00	32.00	7.00
16.50~20.00	225.00	255.50	295.50	20.00	3.50	35.00~46.00	500.00	547.00	607.00	32.00	7.00
16.50~20.00	340.00	370.50	410.50	20.00	3.50	45.00~56.00	60.00	107.00	177.00	40.00	7.00
18.95~22.50	30.00	65.00	150.00	20.00	4.00	45.00~56.00	110.00	157.00	227.00	40.00	7.00
18.95~22.50	70.00	105.00	145.00	20.00	4.00	45.00~56.00	215.00	262.00	332.00	40.00	7.00
18.95~22.50	130.00	164.00	204.00	20.00	4.00	45.00~56.00	350.00	397.00	467.00	40.00	7.00
18.95~22.50	180.00	214.00	254.00	20.00	4.00	45.00~56.00	500.00	457.00	617.00	40.00	7.00
18.95~22.50	230.00	264.00	304.00	20.00	4.00	55.00~66.00	60.00	107.00	177.00	40.00	7.00
18.95~22.50	270.00	304.00	344.00	20.00	4.00	55.00~66.00	110.00	157.00	227.00	40.00	7.00
18.95~22.50	390.00	424.00	464.00	20.00	4.00	55.00~66.00	215.00	262.00	332.00	40.00	7.00
22.50~26.00	35.00	70.00	110.00	20.00	4.00	55.00~66.00	350.00	397.00	467.00	40.00	7.00
22.50~26.00	80.00	115.00	155.00	20.00	4.00	55.00~66.00	500.00	547.00	617.00	40.00	7.00
22.50~26.00	137.00	172.00	212.00	20.00	4.00	65.00~80.00	110.00	160.00	230.00	40.00	9.00
22.50~26.00	210.00	245.00	285.00	20.00	4.00	65.00~80.00	220.00	270.00	340.00	40.00	9.00
22.50~26.00	270.00	305.00	345.00	20.00	4.00	65.00~80.00	500.00	550.00	620.00	40.00	9.00
22.50~26.00	310.00	345.00	385.00	20.00	4.00	78.00~91.00	110.00	160.00	240.00	50.00	9.00
22.50~26.00	460.00	495.00	535.00	20.00	4.00	78.00~91.00	220.00	270.00	350.00	50.00	9.00
24.00~29.00	40.00	78.00	138.00	32.00	5.00	78.00~91.00	500.00	550.00	630.00	50.00	9.00
24.00~29.00	75.00	113.00	173.00	32.00	5.00	90.00~120.00	110.00	160.00	240.00	50.00	9.00
24.00~29.00	125.00	163.00	225.00	32.00	5.00	90.00~120.00	220.00	270.00	350.00	50.00	9.00
						90.00~120.00	500.00	550.00	630.00	50.00	9.00

镶钻用舍弃式刀片

Insert for AV61.0 Straight Flute Drill AV61.0

	AV64.2 Blue cut	AV64.3 TIN	AV64.4 Blue cut	AV64.5 Blank
				
工件材质				
合金钢	1.1~1.9	1.1~1.9	1.1~1.9	
不锈钢	2.1~2.2	2.1~2.2	2.1~2.2	
铸铁	3.1~3.3	3.1~3.3	3.1~3.3	3.1~3.3
铝合金				4.1~4.5
镍, 钛	5.1~5.2	5.1~5.2	5.1~5.2	
d1	Insert Thickness	Insert Thickness	Insert Thickness	Insert Thickness
10.00~14.00	2.5	2.5	2.5	2.5
13.50~20.00	3.5	3.5	3.5	3.5
18.95~26.00	4.0	4.0	4.0	4.0
24.00~29.00	5.0	5.0	5.0	5.0
29.10~36.00	5.0	5.0	5.0	5.0
35.00~45.50	7.0	7.0	7.0	7.0
36.10~40.50	5.0		5.0	5.0
46.00~55.50	7.0	7.0	7.0	7.0
56.00~66.00	7.0	7.0	7.0	
65.00~75.00		9.0	9.0	
76.00~90.00		9.0	9.0	
91.00~102.00		9.0	9.0	
103.00~130.00		9.0	9.0	

※ AV64.2请参考下列转速及进给建议 Speed and Feeding for AV64.2 as below:

※ AV64.3/64.4 转速与进给建议请参考26页 Please see Page 26 for Speed and Feeding of AV64.3/64.4

※ AV64.5 转速与进给建议请参考25页 Please see Page 25 for Speed and Feeding of AV64.5

AV64.2 - only up to 100 mm depth

5XD 请参考下列表格 8XD 转速进给依下表降低10% 12XD/16XD 转速进给依下表降低20% 20XD 转速进给依下表降低25%					f mm/U		f mm/U		f mm/U		f mm/U	
			Vc m/min		Ø 10.0-18.0		Ø 18.0-25.0		Ø 25.0-36.0		Ø 36.0-66.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	135	160	0.180	0.350	0.350	0.450	0.450	0.500	0.500	0.600
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	120	140	0.180	0.350	0.350	0.450	0.450	0.500	0.500	0.600
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm	1.3	120	140	0.180	0.350	0.350	0.450	0.450	0.500	0.500	0.600
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	80	100	0.150	0.250	0.250	0.320	0.320	0.400	0.400	0.500
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	45	65	0.100	0.200	0.200	0.250	0.250	0.300	0.300	0.400
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm	1.6	70	100	0.150	0.250	0.250	0.320	0.320	0.400	0.400	0.500
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm	1.7	70	100	0.150	0.250	0.250	0.320	0.320	0.400	0.400	0.500
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm	1.8	70	100	0.150	0.250	0.250	0.320	0.320	0.400	0.400	0.500
	工具钢 / tool steels	1.9	50	70	0.100	0.200	0.200	0.250	0.250	0.300	0.300	0.400
M	不锈钢 抗拉力 <700牛顿/mm corrosion- and acid- proof steels <700 N/mm	2.1	60	80	0.180	0.250	0.250	0.300	0.300	0.380	0.380	0.450
	不锈钢 抗拉力 >700牛顿/mm corrosion- and acid- proof steels >700 N/mm	2.2	50	70	0.150	0.250	0.220	0.280	0.280	0.300	0.300	0.400
K	铸铁<180HB / cast iron <180 HB	3.1	145	165	0.180	0.350	0.350	0.450	0.450	0.500	0.500	0.600
	可锻铸铁 / melleable cast iron	3.2	135	160	0.150	0.250	0.250	0.320	0.320	0.400	0.400	0.500
	球墨铸铁 / ductile cast iron	3.3	125	150	0.150	0.250	0.250	0.320	0.320	0.400	0.400	0.500
S	钛及钛合金 / titanium and tit.- alloys	5.1	50	70	0.150	0.220	0.220	0.280	0.280	0.300	0.300	0.400
	镍金属 / nickel	5.2	50	70	0.150	0.220	0.220	0.280	0.280	0.300	0.300	0.400

转速与进给建议表

Cutting Data

AV65.1														
			Vc m/min		f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
					Ø 1.0-3.0	Ø 3.0-6.0	Ø 6.0-10.0	Ø 10.0-16.0	Ø 16.0-20.0					
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	80	100	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	80	100	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm	1.3	80	100	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	70	90	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	30	50	0.030	0.060	0.060	0.120	0.120	0.150	0.150	0.200	0.200	0.300
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm	1.6	60	80	0.030	0.070	0.070	0.130	0.130	0.160	0.160	0.220	0.220	0.300
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm	1.7	60	80	0.030	0.070	0.070	0.130	0.130	0.160	0.160	0.220	0.220	0.300
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm	1.8	50	70	0.030	0.070	0.070	0.130	0.130	0.160	0.160	0.220	0.220	0.300
	工具钢 / tool steels	1.9	30	50	0.030	0.070	0.070	0.120	0.120	0.150	0.150	0.200	0.200	0.300
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm	2.1	30	50	0.020	0.060	0.060	0.100	0.100	0.150	0.150	0.180	0.180	0.250
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm	2.2	25	40	0.020	0.060	0.060	0.100	0.100	0.150	0.150	0.180	0.180	0.250
K	铸铁<180HB / cast iron <180 HB	3.1	100	120	0.030	0.060	0.060	0.130	0.130	0.170	0.170	0.220	0.220	0.350
	可锻铸铁 / melleable cast iron	3.2	100	120	0.030	0.050	0.050	0.130	0.130	0.170	0.170	0.220	0.220	0.350
	球墨铸铁 / ductile cast iron	3.3	80	110	0.030	0.050	0.050	0.130	0.130	0.170	0.170	0.220	0.220	0.350
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	200	250	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	160	200	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
	铝合金含矽量>12% / AL alloys >12% Si	4.3	120	180	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass	4.4	160	200	0.040	0.080	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350
S	钛及钛合金 / titanium and tit.-alloys	5.1	25	40	0.020	0.060	0.060	0.100	0.100	0.150	0.150	0.180	0.180	0.250

AV17.1															
						f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
				Vc m/min		Ø 1.0-3.0		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	von	bis	
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	100	130	0.070	0.120	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300	
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	100	130	0.070	0.120	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300	
	一般钢材抗拉力<850牛顿/mm / general steels <850 N/mm	1.3	100	130	0.070	0.120	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300	
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	90	120	0.070	0.120	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300	
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	35	55	0.040	0.060	0.060	0.090	0.090	0.150	0.150	0.200	0.200	0.230	
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm	1.6	80	100	0.060	0.100	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250	
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm	1.7	80	100	0.060	0.100	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250	
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm	1.8	80	100	0.060	0.100	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250	
	工具钢 / tool steels	1.9	50	80	0.050	0.100	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250	
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	220	260	0.100	0.150	0.150	0.250	0.250	0.380	0.380	0.420	0.420	0.550	
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	220	260	0.100	0.150	0.150	0.250	0.250	0.380	0.380	0.420	0.420	0.550	
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass	4.4	90	110	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.400	0.400	0.500	

AV18.1														
					f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
			Vc m/min		Ø 1.0-3.0		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力 <500牛顿/mm / general steels <500 N/mm	1.1	100	130	0.060	0.100	0.100	0.150	0.150	0.200	0.200	0.220	0.220	0.300
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm	2.1	40	60	0.030	0.070	0.070	0.120	0.120	0.160	0.160	0.200	0.200	0.250
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels >700 N/mm	2.2	40	60	0.030	0.070	0.070	0.120	0.120	0.160	0.160	0.200	0.200	0.250
K	铸铁<180HB / cast iron <180 HB	3.1	60	80	0.100	0.130	0.130	0.180	0.180	0.240	0.240	0.280	0.280	0.320
	可锻铸铁 / melleable cast iron	3.2	60	80	0.100	0.130	0.130	0.180	0.180	0.240	0.240	0.280	0.280	0.320
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	120	160	0.100	0.130	0.130	0.200	0.200	0.300	0.300	0.400	0.400	0.450
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	120	160	0.100	0.130	0.130	0.200	0.200	0.300	0.300	0.400	0.400	0.450
	铝合金含矽量>12% / AL alloys >12% Si	4.3	100	140	0.100	0.130	0.130	0.200	0.200	0.300	0.300	0.400	0.400	0.450
S	钛及钛合金 / titanium and tit.-alloys	5.1	30	50	0.030	0.070	0.070	0.120	0.120	0.160	0.160	0.200	0.200	0.250

转速与进给建议表

Cutting Data

AV45.1													
						f mm/U		f mm/U		f mm/U		f mm/U	
				Vc m/min		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	80	100	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	80	100	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm	1.3	80	100	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	70	90	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	30	50	0.060	0.120	0.120	0.150	0.150	0.200	0.200	0.300	
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm	1.6	60	80	0.070	0.130	0.130	0.160	0.160	0.220	0.220	0.300	
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm	1.7	60	80	0.070	0.130	0.130	0.160	0.160	0.220	0.220	0.300	
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm	1.8	50	70	0.070	0.130	0.130	0.160	0.160	0.220	0.220	0.300	
工具钢 / tool steels	1.9	30	50	0.060	0.120	0.120	0.150	0.150	0.220	0.220	0.300		
M	不锈钢 抗拉力 < 700牛顿/mm corrosion- and acid-proof steels <700 N/mm	2.1	30	50	0.060	0.100	0.100	0.150	0.150	0.180	0.180	0.250	
	不锈钢 抗拉力 > 700牛顿/mm corrosion- and acid-proof steels > 700 N/mm	2.2	25	40	0.060	0.100	0.100	0.150	0.150	0.180	0.180	0.250	
K	铸铁<180HB / cast iron <180 HB	3.1	100	120	0.050	0.130	0.130	0.170	0.170	0.220	0.220	0.350	
	可锻铸铁 / melleable cast iron	3.2	100	120	0.050	0.130	0.130	0.170	0.170	0.220	0.220	0.350	
	球墨铸铁 / ductile cast iron	3.3	80	110	0.050	0.130	0.130	0.170	0.170	0.220	0.220	0.350	
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	200	250	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	160	200	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
	铝合金含矽量>12% / AL alloys >12% Si	4.3	120	180	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass	4.4	10	200	0.080	0.150	0.150	0.200	0.200	0.250	0.250	0.350	
S	钛及钛合金 / titanium and tit.-alloys	5.1	25	40	0.060	0.100	0.100	0.150	0.150	0.180	0.180	0.250	

AV46.1															
					f mm/U		f mm/U		f mm/U		f mm/U				
					Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0				
材质说明 / material description					Nr.	von	bis	von	bis	von	bis	von	bis		
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm				1.1	100	130	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm				1.2	100	130	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300
	一般钢材抗拉力<850牛顿/mm / general steels <850 N/mm				1.3	100	130	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm				1.4	60	120	0.120	0.180	0.180	0.230	0.230	0.270	0.270	0.300
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm				1.5	35	55	0.060	0.090	0.090	0.150	0.150	0.200	0.200	0.230
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm				1.6	80	100	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm				1.7	80	100	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm				1.8	80	100	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250
	工具钢 / tool steels				1.9	50	80	0.100	0.160	0.160	0.200	0.200	0.220	0.220	0.250
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si				4.1	220	260	0.150	0.250	0.250	0.380	0.380	0.420	0.420	0.550
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si				4.2	220	260	0.150	0.250	0.250	0.380	0.380	0.420	0.420	0.550
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass				4.4	90	110	0.150	0.220	0.220	0.300	0.300	0.400	0.400	0.500

AV64.5 - only up to 100 mm depth													
5XD 请参考下列表格 8XD 转速进给依下表降低10% 12XD/16XD 转速进给依下表降低20% 20XD 转速进给依下表降低25%					f mm/U		f mm/U		f mm/U		f mm/U		
			Vc m/min		Ø 10.0-18.0		Ø 18.0-25.0		Ø 25.0-36.0		Ø 36.0-66.0		
材质说明 / material description			Nr.	von	bis	von	bis	von	bis	von	bis	von	bis
K	铸铁<180HB / cast iron <180 HB		3.1	90	110	0.300	0.450	0.450	0.630	0.630	0.680	0.680	0.130
	可锻铸铁 / malleable cast iron		3.2	70	100	0.300	0.450	0.450	0.630	0.630	0.680	0.680	0.130
	球墨铸铁 / ductile cast iron		3.3	70	90	0.300	0.450	0.450	0.630	0.630	0.680	0.680	0.130
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si		4.1	160	200	0.300	0.450	0.450	0.630	0.630	0.680	0.680	0.130
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si		4.2	140	160	0.300	0.450	0.450	0.630	0.630	0.680	0.680	0.130
	铝合金含矽量>12% / AL alloys >12% Si		4.3	100	140	0.300	0.450	0.450	0.630	0.630	0.680	0.680	0.130
	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass		4.4	60	90	0.250	0.350	0.350	0.500	0.500	0.580	0.580	0.100
	热塑塑胶 / duro- and thermoplastics		4.5	45	60	0.200	0.280	0.280	0.400	0.400	0.480	0.480	0.800

转速与进给建议表

Cutting Data

AV66.1

					f mm/U		f mm/U		f mm/U		f mm/U	
			Vc m/min		Ø 3.0-6.0		Ø 6.0-10.0		Ø 10.0-16.0		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis
P	一般钢材抗拉力<500牛顿/mm / general steels<500 N/mm	1.1	90	120	0.120	0.200	0.200	0.250	0.250	0.400	0.400	0.480
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	80	100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm	1.3	80	100	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	60	80	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm	1.5	30	45	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	表面硬化钢抗拉力<1000牛顿/mm / case hardening steels <1000 N/mm	1.6	60	80	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	氮化钢抗拉力<1000牛顿/mm / nitriding steels <1000 N/mm	1.7	60	80	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm	1.8	60	80	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
	工具钢 / tool steels	1.9	30	50	0.100	0.150	0.150	0.220	0.220	0.300	0.300	0.350
M	不锈钢 抗拉力 <700牛顿/mm corrosion- and acid-proof steels <700 N/mm	2.1	35	50	0.050	0.100	0.100	0.120	0.100	0.180	0.180	0.220
	不锈钢 抗拉力 >700牛顿/mm corrosion- and acid-proof steels >700 N/mm	2.2	30	45	0.050	0.100	0.100	0.120	0.100	0.180	0.180	0.220
K	铸铁<180HB / cast iron <180 HB	3.1	70	90	0.150	0.250	0.250	0.320	0.320	0.360	0.360	0.420
	可锻铸铁 / melleable cast iron	3.2	70	90	0.150	0.250	0.250	0.320	0.320	0.360	0.360	0.420
	球墨铸铁 / ductile cast iron	3.3	65	85	0.150	0.220	0.220	0.300	0.300	0.350	0.350	0.380
N	纯铝及铝合金含矽量<6% / AL- and AL-alloys <6% Si	4.1	180	220	0.120	0.200	0.200	0.250	0.250	0.400	0.400	0.480
	纯铝及铝合金含矽量<12% / AL- and AL-alloys <12% Si	4.2	150	200	0.120	0.200	0.200	0.250	0.250	0.400	0.400	0.480
	铝合金含矽量>12% / AL alloys >12% Si	4.3	100	150	0.120	0.200	0.200	0.250	0.250	0.400	0.400	0.480
S	钛及钛合金 / titanium and tit.-alloys	5.1	20	35	0.050	0.080	0.080	0.110	0.100	0.150	0.140	0.170

AV64.3 / AV64.4

5XD 请参考下列表格 8XD 转速进给依下表降低10% 12XD/16XD 转速进给依下表降低20% 20XD 转速进给依下表降低25%					f mm/U		f mm/U		f mm/U		f mm/U		f mm/U			
					Vc m/min		Ø 10.0-18.0		Ø 18.0-25.0		Ø 25.0-36.0		Ø 36.0-66.0		Ø 66.0-130.0	
	材质说明 / material description				Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm				1.1	75	95	0.150	0.300	0.300	0.380	0.380	0.480	0.480	0.550	0.750
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm				1.2	70	95	0.150	0.300	0.300	0.380	0.380	0.480	0.480	0.550	0.750
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm				1.3	70	95	0.150	0.300	0.300	0.380	0.380	0.480	0.480	0.550	0.750
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm				1.4	60	75	0.130	0.250	0.250	0.300	0.300	0.420	0.420	0.500	0.680
	一般钢材抗拉力<1400牛顿/mm / general steels <1400 N/mm				1.5	20	35	0.100	0.200	0.200	0.250	0.250	0.300	0.300	0.420	0.480
	可热处理钢抗拉力<850牛顿/mm / heat treatable steels <850 N/mm				1.8	40	60	0.130	0.250	0.250	0.300	0.300	0.420	0.420	0.500	0.680
	工具钢 / tool steels				1.9	35	55	0.100	0.200	0.200	0.250	0.250	0.300	0.300	0.420	0.480
M	不锈钢 抗拉力 <700牛顿/mm corrosion- and acid-proof steels <700 N/mm				2.1	30	40	0.100	0.200	0.200	0.300	0.300	0.380	0.380	0.420	0.520
	不锈钢 抗拉力 >700牛顿/mm corrosion- and acid-proof steels >700 N/mm				2.2	25	35	0.100	0.180	0.180	0.250	0.250	0.300	0.300	0.380	0.460
K	铸铁<180HB / cast iron <180 HB				3.1	70	95	0.150	0.400	0.400	0.520	0.520	0.620	0.620	0.700	0.780
	可锻铸铁 / melleable cast iron				3.2	65	85	0.130	0.360	0.360	0.480	0.480	0.550	0.550	0.650	0.710
	球墨铸铁 / ductile cast iron				3.3	50	70	0.130	0.360	0.360	0.480	0.480	0.550	0.550	0.650	0.700
S	钛及钛合金 / titanium and tit.-alloys				5.1	12	20	0.100	0.180	0.180	0.250	0.250	0.300	0.300	0.380	0.460
	镍金属 / nickel				5.2	12	20	0.100	0.180	0.180	0.250	0.250	0.300	0.300	0.380	0.460

AH05.0/ AH05.1

						f mm/U		f mm/U		f mm/U		f mm/U		f mm/U	
				Vc m/min		Ø 1.0-2.9		Ø 3.0-5.9		Ø 6.0-9.9		Ø 10.0-15.9		Ø 16.0-20.0	
	材质说明 / material description	Nr.	von	bis	von	bis	von	bis	von	bis	von	bis	von	bis	
P	一般钢材抗拉力<500牛顿/mm / general steels <500 N/mm	1.1	35	45	0.040	0.080	0.080	0.150	0.150	0.220	0.220	0.300	0.300	0.380	
	一般钢材抗拉力<700牛顿/mm / general steels <700 N/mm	1.2	35	45	0.040	0.080	0.080	0.150	0.150	0.220	0.220	0.300	0.300	0.380	
	一般钢材抗拉力<850牛顿/mm / general steels < 850 N/mm	1.3	20	30	0.040	0.080	0.080	0.150	0.150	0.220	0.220	0.300	0.300	0.380	
	一般钢材抗拉力<1000牛顿/mm / general steels <1000 N/mm	1.4	10	15	0.020	0.050	0.050	0.080	0.080	0.120	0.120	0.160	0.160	0.200	
K	铸铁<180HB / cast iron <180 HB	3.1	20	30	0.040	0.080	0.080	0.150	0.150	0.220	0.220	0.300	0.300	0.380	
N	黄铜、铜、青铜、红铜 brass, copper, bronze, red brass	4.4	70	90	0.040	0.080	0.080	0.150	0.150	0.220	0.220	0.300	0.300	0.380	

其他可供应钨钢钻头项目表

Available Other Drills from Catalogue

型号/Art. No.	品名/Description	尺寸范围/Range
AV31.0	90度右旋定点钻 90 Right Hand NC Spot Drills	1.00~20.00
AV32.0	90度左旋定点钻 90 Left Hand NC Spot Drills	3.00~16.00
AV34.1	90度右旋定点加长钻 90 Extra Long NC Spot Drills	3.00~12.00
AV33.0	120度右旋定点钻 120 NC Spot Drills	3.00~22.00
AV71.0	142度右旋定点钻 142 NC Spot Drills	3.00~20.00
AV38.0	60度中心钻 60 Center Drills	0.50~6.30
AV39.1	挤压丝攻下孔径用140度/180度涂层阶梯钻 140/180 Blue Cut Coating Step Drills for M4~M12 Formex Taps	3.40~11.00
AV40.1	机用丝攻下孔径用140度/90度涂层阶梯钻 140/90 Blue Cut Coating Step Drills for M2.5~M16 Taps	2.05~14.00
AV42.0	挤压丝攻下孔径用140度/90度阶梯钻 140/90 Step Drills for M2.5~M12 Formex Taps	2.35~11.20
AV43.1	机用丝攻下孔径用140度/90度涂层阶梯钻 140/90 Blue Cut Coating Step Drills for M4~M16 Machine Taps	3.30~14.00
AV01.0	微小径钻头 Micro Drills	0.10~2.00
AV77.0	左旋直柄钻头 Left Hand Straight Shank Twist Drills per DIN1897	0.30~9.00
AV09.0	DIN340加长直柄钻 DIN340 Straight Shank Twist Drills	0.97~13.00
AV84.1	3倍径6mm铣刀柄涂层钻头 3xD with 6mm Shank Blue Cut Coating Twist Drills	2.00~2.90
AV85.1	5倍径6mm铣刀柄涂层钻头 5xD with 6mm Shank Blue Cut Coating Twist Drills	1.50~2.90
AV49.1	5倍径涂层内冷4落量钻头 5xD Blue Cut Coating 4 Margins with Internal Coolant Drills	3.00~20.00
AV50.1	5倍径涂层内冷3落量钻头 5xD Blue Cut Coating 3 Margins with Internal Coolant Drills	3.00~20.00
AV51.1	5倍径涂层内冷钻头 5xD Blue Cut Coating with Internal Coolant Drills	3.00~20.00
AV28.0	5倍径4落量内冷直槽钻头 5xD Straight Fluted with Internal Coolant and 4 margins Drills	2.80~19.00
AV23.1	8倍径涂层内冷钻头 8xD Blue Cut Coating with Internal Coolant Drills	3.00~17.50
AV24.1	8倍径铝用涂层内冷钻头 8xD Altop Coating with Internal Coolant Drills	3.00~12.00
AV29.0	8倍径4落量内冷直槽钻头 8xD Straight Fluted with Internal Coolant and 4 margins Drills	2.50~16.00

※ 以上钻头在我司仓库亦备有常用尺寸库存，欢迎来电查询详细规范。

Above drills also available from our stock but didn't shown on this catalog, Please call us for more detailed information when you can't find suitable drills from this catalog.

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