



HARTMETALL
ESTECH
伊斯泰克® 硬质合金

成功源自革新

Tungsten carbide of ESTECH® made only in Switzerland, originally imported.

伊斯泰克® 硬质合金 瑞士原装进口



Since 1941 · 始于1941年



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伊斯泰克公司在中国

伊斯泰克硬质合金公司 (HARTMETALL ESTECH) 始于1941年, 70多年来一直只在瑞士设厂生产, 产品的商标名为“伊斯泰克”、“ESTECH”。工厂生产硬质合金的优势行业包括航空工业、军事工业和汽车工业等领域。

伊斯泰克总经理MANFRED及中国区首席代表张振刚先生欢迎您到瑞士工厂考察交流。

ESTECH[®] HARTMETALL 伊斯泰克[®] 硬质合金

伊斯泰克硬质合金公司 (HARTMETALL ESTECH) 是欧洲最大的硬质合金毛坯工厂之一, 工厂坐落于瑞士卢塞恩的希茨基希, 拥有70余年的生产经验。

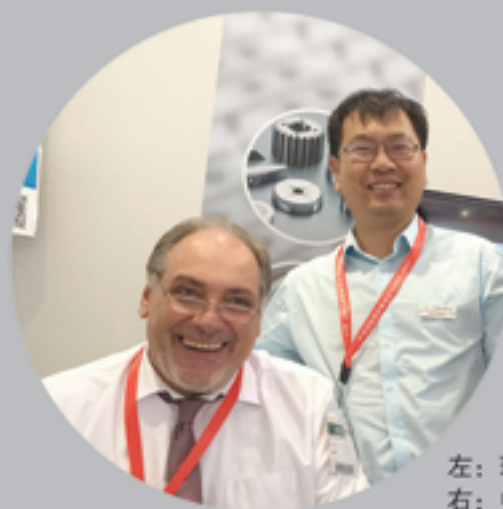
1941年一个德国家族来到瑞士, 设立了瑞士第一家硬质合金工厂CARDURO, 1972年工厂名称改为HARTMETALL AG, 2013年工厂整体并入ESTECH集团, 公司名称改为HARTMETALL ESTECH。

瑞士伊斯泰克硬质合金公司只生产硬质合金材料, 典型客户包括GLEASON、ANDRITZ、BOTEK、ALESA、DIXI和一些奔驰、宝马的供应商。

全球销售的伊斯泰克所有产品均来自于瑞士希茨基希工厂, 保证了产品的纯正。

2003年伊斯泰克硬质合金公司设立中国办事处, 由张振刚先生担任首席代表, 开始了伊斯泰克产品在中国的市场开拓。

2016年, 为应对其他瑞士硬质合金公司在中国的布局, 瑞士伊斯泰克加大对中国市场支持力度, 伊斯泰克公司中国市场扩张进入了新阶段。



左: 瑞士总经理MANFRED
右: 中国区首席代表张振刚



伊斯泰克生产基地



伊斯泰克管理层成员

左一: 技术总监ERICH 左二: 中国区首席代表张振刚 右三: 销售总监JOSEF

Chapter1: Information of ESTECH

第一章：伊斯泰克工厂介绍

公司定位：做质量最好的硬质合金产品

公司的宗旨：让我们客户的客户满意

典型客户：DIXI、ANDRITZ、ALESA、BOTEK、GLEASON

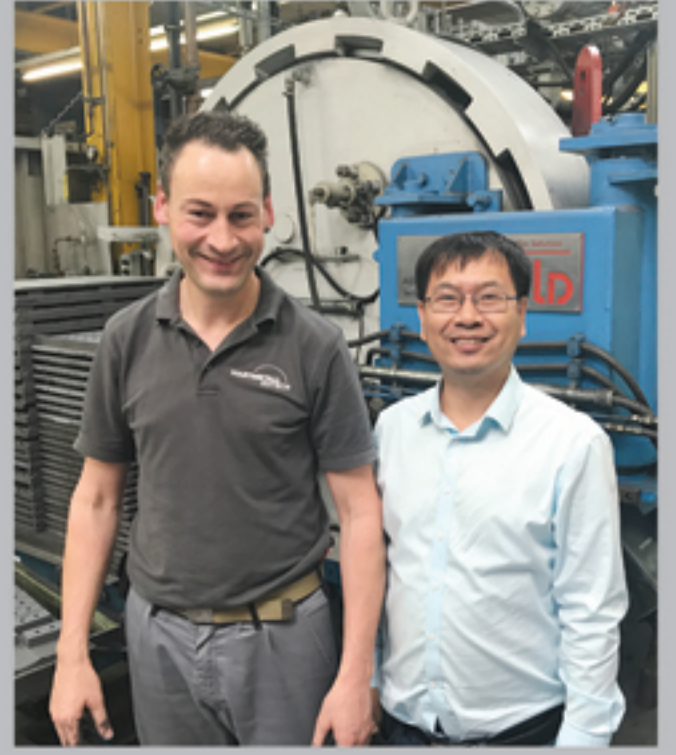
行业领域：航空航天业、汽车行业、工具和模具制造、军事工业、电子工业、塑料和造纸工业



1-混合



2-制备



3-烧结



4-研磨



5-检查



6-包装



Certificate

SQS herewith certifies that the company named below has a management system which meets the requirements of the standards specified below.



HARTMETALL ESTECH AG
Industriestrasse 13
6285 Hitzkirch
Switzerland

ISO 认证证书

Scope of certification

Whole company

Field of activity

**Development, manufacturing and distribution
of Cemented Carbides**

by

Normative basis

ISO 9001:2015
ISO 14001:2015

Quality Management System
Environmental Management System

Scope(s) 17

Validity 15.05.2017 – 14.05.2020
Issue 15.05.2017

Reg. no. 40022
Reg. no. main certificate 14444

X. Edelman
X. Edelman, President SQS

R. Glauser
R. Glauser, CEO SQS



Swiss Association for Quality and
Management Systems SQS
Bernstrasse 103, 3052 Zollikofen, Switzerland



Chapter 2: Range of services ESTECH

第二章：伊斯泰克产品范围

HARTMETALL ESTECH manufactures cemented carbide blanks and hard metal tools ground to tolerances. Our cemented carbide grades are used in punching, die-cutting, forming and pressing tools, as slide rings, nozzles, bushings, guides, cutting and machining tools, for wear protection, and special tools.

伊斯泰克硬质合金公司生产硬质合金毛坯和精磨材料，适用于冲压、模切、成型和冲压工具领域，可用于成滑环、喷嘴、轴套、导轨、切割工具和加工工具、耐磨零件和特殊工具产品。

We manufacture extruded round rods with and without holes. We produce T-slot milling cutter blanks and directly pressed cemented carbide disks. For standard products, we have an extensive finished goods warehouse with raw sintered and ground parts.

我们生产的产品有：实心圆棒和带孔圆棒（实心、单直孔、双直孔、双螺旋孔）、块料、条料、枪钻毛坯，T型槽铣刀和直接压制的锯片铣刀毛坯。对于标准品，公司/工厂有大量库存。

2.1 Superior of ESTECH

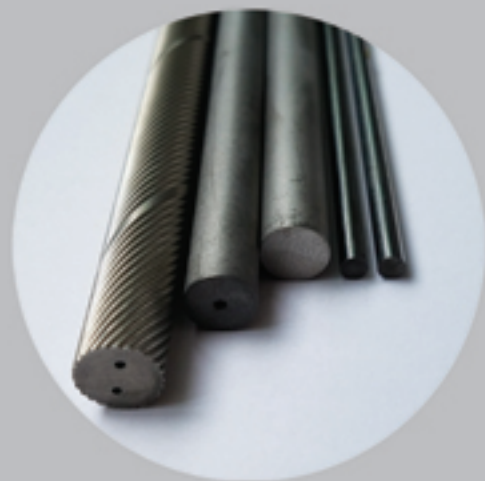
伊斯泰克优势产品

Particular specialties include: 1) carbide inserts; 2) Gun drill blanks 3) tungsten carbide rods (with and without holes, double helix round bar)

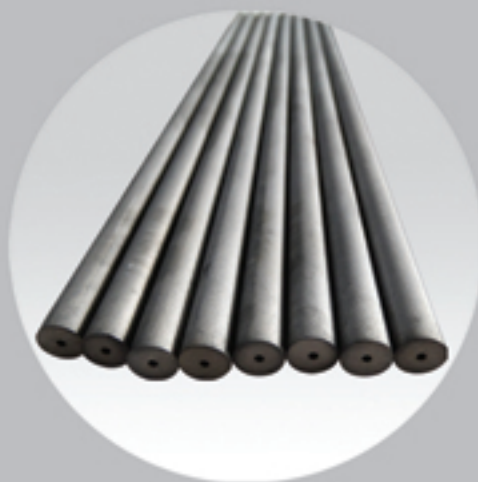
公司的优势产品包括以下几个：1) 硬质合金圆棒（实心、单直孔、双直孔、双螺旋孔）；2) 枪钻棒料；3) 硬质合金刀片

Some products at list photo

一些产品图片见下图



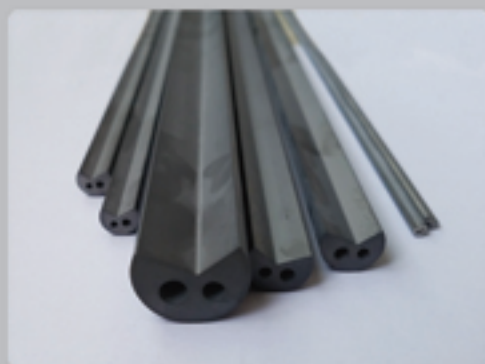
双螺旋孔、实心及精磨圆棒
※详见5-8页



内直孔圆棒
※详见6-7页



单刃枪钻头、双刃枪钻头
※详见12-13页



枪钻毛坯棒料
※详见12页



数控刀片
※详见14页



焊接刀头
※详见14页

2.2 Features of ESTECH

伊斯泰克特色产品

2.2.1 Carbide for EDM

EDM 专用硬质合金

Cemented carbide with corrosion inhibitor EDM perform for wire-cut and die sinking electrical discharge machining

含有腐蚀抑制剂的适合电火花加工的硬质合金牌号

Material specification 材料性质	Cemented carbide grades 牌号		
	RCR17	RRC24	RRC30
WC grain size 颗粒度	2.5 μm	2.5 μm	3.5 μm
WC content %w/w 碳化钨含量	90.5	87.0	84.0
Cobalt content %w/w 粘合剂含量	8.5	12.0	15.0
Other constituents %w/w 其他成分含量	1.0	1.0	1.0
Hardness HV30 硬度 HV30	1600	1400	1200
Fracture toughness N/mm ² .m ^{3/2} 抗裂强度	10.0	13.0	17.5
Transverse rupture strength N/mm ² 韧性强度	2900	3200	3400



2.2.2 Carbide used at food processing industry

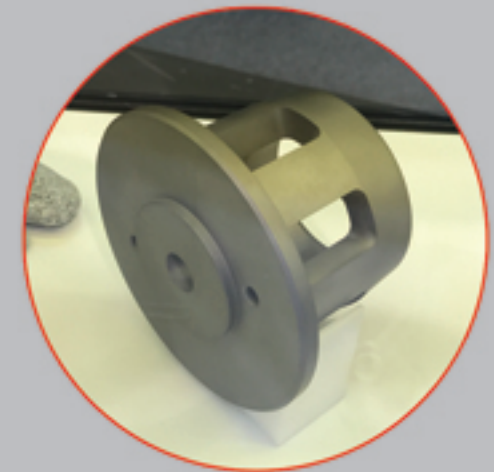
食品工业用镍基硬质合金

HARTMETALL ESTECH has obtained a certificate by the US FDA for the use of its cemented carbide grades with Nickel binder in the food processing industry

伊斯泰克硬质合金公司的镍基硬质合金牌号已获得美国 FDA 的食品加工行业认证

镍基牌号参数表

ESTECH Grades With Nickel binder 伊斯泰克镍基牌号	grain size 晶粒度	Binder content %w/w 粘合剂含量	Corrosion resistance 耐腐蚀性能	Nonmagnetic 无磁性能
RCS12	0.8μm	6	xxx	(x)
RCS17	0.8μm	8.5	xxx	(x)
RCS24	0.8μm	12	xx	(x)
RCN	1.2μm	8	xxx	(x)
RCFN22	1.2μm	11	xxxx	x
RCM30	2.5μm	15	x	



2.2.3 New type T-slot milling cutter

新型T型槽铣刀

NEW

T-slot milling cutters made of 2 different carbide grades

2个不同牌号烧制的T形槽铣刀

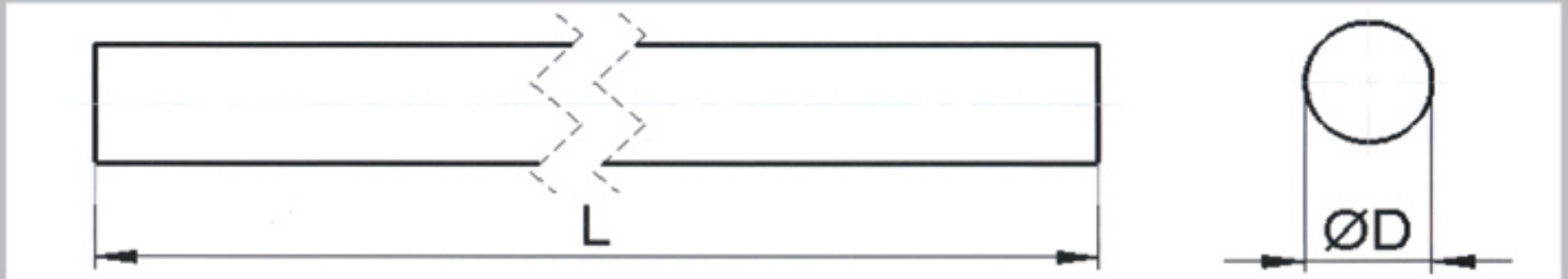
By sintering together a cutting head, which is made of a hard, easy cutting and wear-resistant carbide grade, with a shank, which is made of a different tough and break-resistant carbide grade, we reach the best possible milling results at a low risk of breaking the tool.

柄部采用高韧性和耐破裂的牌号，铣削部位采用易切削、高耐磨的牌号，然后把他们烧结在一起，这样既可以达到最好的铣削效果，同时又降低了工具折断的风险。



第三章 Stock list 标准产品库存

3.1 ESTECH tungsten carbide rods, as sintered and ground h6, L=330mm 伊斯泰克毛坯实心圆棒和精磨实心圆棒，长度330毫米



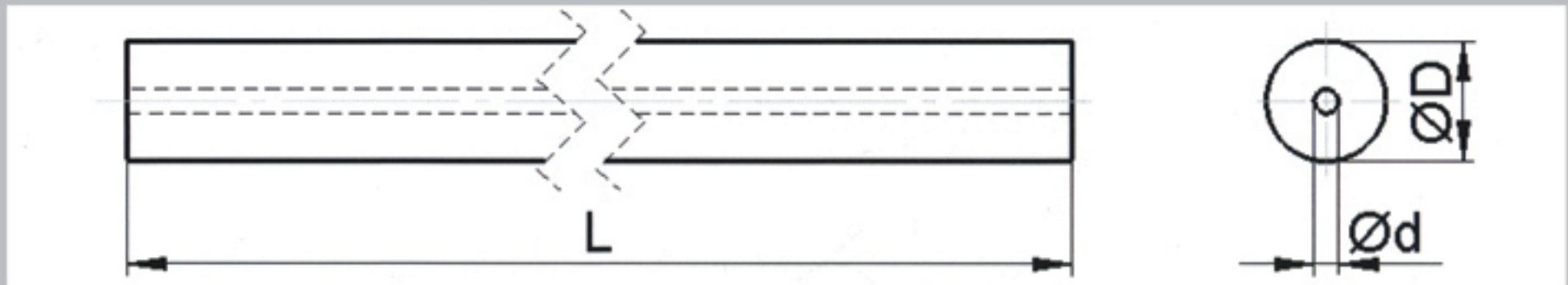
Dimension 尺寸			As sintered 伊斯泰克硬质合金毛坯圆棒库存规格				Ground 伊斯泰克硬质合金精磨圆棒库存规格			
As sinter mm 毛坯直径	Ground mm 精磨直径	length mm 长度	RX7	RX8UF	RX10	RX12UF	RX7	RX8UF	RX10	RX12UF
1.7	1.5	330		✓	✓				✓	
2.2	2.0	330	✓	✓	✓		✓		✓	
2.7	2.5	330	✓		✓				✓	
3.2	3.0	330	✓	✓	✓	✓	✓		✓	✓
3.7	3.5	330	✓		✓		✓		✓	
4.2	4.0	330	✓	✓	✓	✓	✓		✓	✓
5.2	5.0	330	✓	✓	✓	✓	✓		✓	✓
6.2	6.0	330	✓	✓	✓	✓	✓		✓	✓
6.7	6.5	330	✓		✓		✓		✓	
7.2	7.0	330	✓		✓				✓	
8.2	8.0	330	✓	✓	✓	✓	✓		✓	✓
8.7	8.5	330			✓				✓	
9.2	9.0	330	✓		✓				✓	
9.7	9.5	330			✓				✓	
10.2	10.0	330	✓	✓	✓	✓	✓		✓	✓
10.7	10.5	330			✓				✓	
11.2	11.0	330			✓				✓	
12.2	12.0	330	✓	✓	✓	✓	✓		✓	✓
13.2	13.0	330	✓		✓		✓		✓	
14.2	14.0	330	✓		✓	✓	✓		✓	✓
15.2	15.0	330	✓		✓				✓	
16.2	16.0	330	✓	✓	✓	✓	✓		✓	✓
17.2	17.0	330			✓				✓	
18.2	18.0	330	✓	✓	✓	✓	✓		✓	✓
19.2	19.0	330			✓				✓	
20.2	20.0	330	✓		✓	✓	✓		✓	✓
21.2	21.0	330			✓				✓	
22.2	22.0	330			✓				✓	
23.2	23.0	330			✓				✓	
24.2	24.0	330			✓				✓	✓
25.2	25.0	330		✓	✓	✓			✓	
26.2	26.0	330			✓				✓	
28.2	28.0	330			✓				✓	
30.2	30.0	330			✓					
31.2	31.0	330			✓				✓	
32.2	32.0	330			✓				✓	

✓: delivery from stock, 有库存。

Other: Special executions, grades or dimensions upon request 其他尺寸和牌号无库存，需要根据数量询价和交期。

※工具选型详见P23“附表一”

3.2 ESTECH tungsten carbide rods with a straight hole, as sintered, L=330mm
伊斯泰克硬质合金单直孔圆棒，长度330毫米

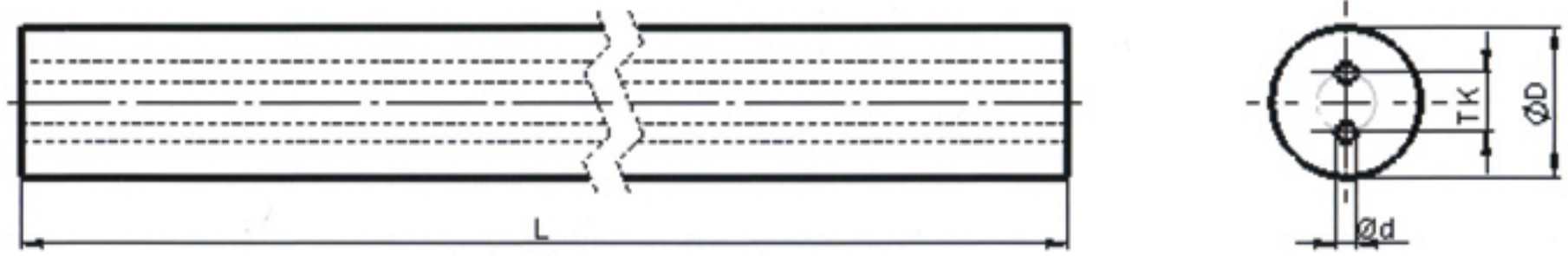


Dimension 尺寸			As sintered stock 伊斯泰克硬质合金单直孔库存规格
Out diameter mm 外直径	Hole diameter mm 冷却孔直径	Length mm 长度	RX10
2.2	0.8	330	✓
3.2	0.6	330	✓
4.2	0.6	330	✓
6.2	1.0	330	✓
6.2	1.5	330	✓
7.2	1.1	330	✓
8.2	1.2	330	✓
8.2	1.3	330	✓
8.2	1.5	330	✓
8.2	2.0	330	✓
10.2	1.0	330	✓
10.2	1.6	330	✓
10.2	2.0	330	✓
12.2	1.5	330	✓
12.2	2.0	330	✓
12.2	3.0	330	✓
14.2	2.0	330	✓
14.2	2.5	330	✓
14.2	3.0	330	✓
16.2	2.0	330	✓
16.2	3.0	330	✓
18.2	3.0	330	✓
20.2	2.0	330	✓
20.2	3.0	330	✓
20.2	3.5	330	✓
22.2	3.0	330	✓
24.2	4.0	330	✓
25.2	4.0	330	✓
26.2	4.0	330	✓
28.2	4.0	330	✓
30.2	5.0	330	✓
32.2	5.0	330	✓

✓: delivery from stock, 有库存。

Other: Special executions, grades or dimensions upon request 其他尺寸和牌号无库存，需要根据数量询价和交期。

3.3 ESTECH Tungsten carbide rods with 2 straight coolant holes, as sintered, L=330mm
伊斯泰克硬质合金双直孔圆棒，长度330毫米



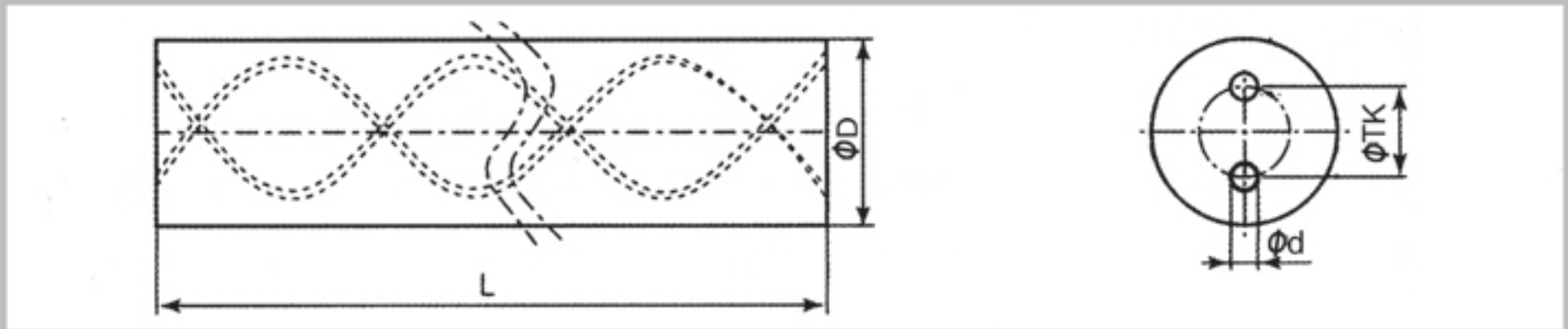
双直孔圆棒

Dimension 尺寸				Stock 库存	Dimension 尺寸				Stock 库存
D mm 外径	L mm 长度	TK mm 孔距	D mm 孔径	RX10	D mm 外径	L mm 长度	TK mm 孔距	D mm 孔径	RX10
4.2	330	1.8	0.8	✓	16.2	330	8.0	2.0	✓
5.2	330	1.9	0.8	✓	17.2	330	6.0	2.0	✓
6.2	330	1.5	0.9	✓	17.2	330	7.9	2.0	✓
6.2	330	3.0	1.2	✓	18.2	330	6.0	2.0	✓
7.2	330	1.4	0.8	✓	18.2	330	8.9	2.0	✓
7.2	330	3.4	1.0	✓	19.2	330	6.0	2.0	✓
8.2	330	2.6	0.9	✓	19.2	330	8.8	2.0	✓
8.2	330	2.8	1.0	✓	20.2	330	6.0	2.0	✓
8.2	330	3.3	0.9	✓	20.2	330	9.8	2.5	✓
9.2	330	2.5	1.0	✓	21.2	330	6.0	2.0	✓
10.2	330	2.6	1.0	✓	21.2	330	9.8	2.5	✓
10.2	330	3.5	1.5	✓	22.2	330	6.0	2.0	✓
10.2	330	5.0	1.2	✓	22.2	330	10.8	2.5	✓
11.2	330	3.4	1.2	✓	23.2	330	7.3	2.0	✓
11.2	330	4.9	1.4	✓	23.2	330	10.8	2.5	✓
12.2	330	3.5	0.9	✓	24.2	330	7.3	2.0	✓
12.2	330	6.2	1.5	✓	24.2	330	11.8	3.0	✓
13.2	330	3.4	1.2	✓	25.2	330	7.3	2.0	✓
13.2	330	5.9	1.8	✓	25.2	330	11.8	3.0	✓
14.2	330	3.5	1.5	✓	26.2	330	12.8	3.0	✓
14.2	330	5.0	1.5	✓	28.2	330	13.8	3.0	✓
15.2	330	6.9	2.0	✓	30.2	330	13.8	3.0	✓
16.2	330	5.0	1.5	✓	32.2	330	13.8	3.0	✓
16.2	330	6.2	2.0	✓	34.2	330	13.8	3.0	✓

✓: delivery from stock, 有库存。

Other: Special executions, grades or dimensions upon request 其他尺寸和牌号无库存，需要根据数量询价和交期。

3.4 ESTECH Tungsten carbide double helix round bar, L=330mm
伊斯泰克双螺旋孔圆棒，长度330毫米

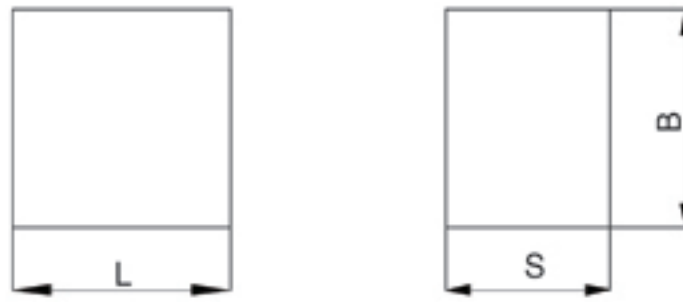


规格	外径 ϕD	孔径 ϕd	孔距TK	螺距P	库存
Bdia4×2dia0,6×2.2×330-30	4.3	0.6	2.2	21.77	✓
Bdia5×2dia0,7×2.6×330-30	5.3	0.7	2.6	21.21	✓
Bdia6×2dia0,7×2.6×330-30	6.3	0.7	2.6	32.65	✓
Bdia8×2dia1,0×4.0×330-30	8.3	1	4	43.53	✓
Bdia10×2dia1,4×4.8×330-30	10.3	1.4	4.8	54.41	✓
Bdia12×2dia1,4×6.25×330-30	12.3	1.4	6.25	65.3	✓
Bdia13×2dia1,75×6.5×330-30	13.3	1.75	6.5	70.74	✓
Bdia14×2dia1,75×7.1×330-30	14.3	1.75	7.1	76.18	✓
Bdia15×2dia1,75×7.7×330-30	15.3	1.75	7.7	81.62	✓
Bdia16×2dia1,75×8.3×330-30	16.3	1.75	8.3	87.06	✓
Bdia18×2dia2,0×9.6×330-30	18.3	2	9.55	97.95	✓
Bdia20×2dia2,0×10.4×330-30	20.3	2	10.4	108.83	✓
Bdia25×2dia2.5×13.3×330-30	25.3	2.5	13.3		✓

Other: Special executions, grades or dimensions upon request, 标准牌号RX10, 其他尺寸和牌号无库存, 需要根据数量询价和交期。
另: 可非标订制3螺旋孔圆棒。

双螺旋孔圆棒

3.5 Carbide blocks
块料



块
料

hickness (mm) 厚度 mm	Width (mm) 宽度	Length (mm) 长度	RX10	RX7	RX12	RF24	RCR17	RCR24
1.0	100	100						
4.0	100	100						
5.0	100	100						
6.0	100	100						
8.0	100	100						
10.0	100	100						
18.0	100	100						
20.0	100	100						
40.0	100	100						
45.0	100	100						
65.0	100	100						

Other: Special executions, grades or dimensions upon request 其他尺寸和牌号无库存，需要根据数量询价和交期。

3.6 ESTECH Tungsten carbide flats and squares, as sintered sizes, L=330mm
伊斯泰克硬质合金条料和方料，长度330毫米

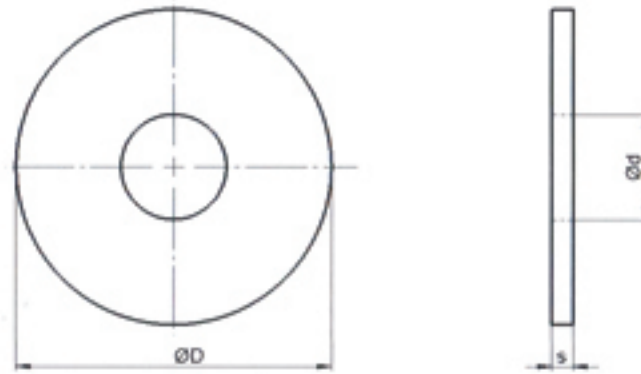


Dimension 尺寸			Stock 库存		Dimension 尺寸			Stock 库存	
S mm	B mm	Gr.	RX7	RX10	S mm	B mm	Gr.	RX7	RX10
1.3	3.3	21.2	✓	✓	3.3	20.4	333.2	✓	✓
	4.3	27.7	✓	✓		22.4	365.9	✓	✓
1.8	2.3	20.5	✓	✓		25.4	414.9	✓	✓
	3.3	29.4	✓	✓		30.4	496.6	✓	✓
	4.3	38.3	✓	✓		32.4	529.3	✓	✓
	5.3	47.2	✓	✓	4.3	91.5		✓	
	6.3	56.1	✓	✓	5.3	112.8	✓	✓	
2.3	8.3	74.0	✓	✓	6.3	134.1	✓	✓	
	10.3	91.8	✓	✓	8.3	176.7	✓	✓	
	2.3	26.2		✓	10.3	219.2	✓	✓	
	3.3	37.6	✓	✓	12.4	263.9	✓	✓	
	4.3	49.0	✓	✓	14.4	306.5	✓	✓	
	5.3	60.3	✓	✓	16.4	349.1	✓	✓	
	6.3	71.7	✓	✓	18.4	391.6	✓	✓	
	8.3	94.5	✓	✓	20.4	434.2	✓	✓	
	10.3	117.3	✓	✓	22.4	476.8	✓	✓	
	12.4	141.2	✓	✓	25.4	540.6	✓	✓	
	15.4	175.3	✓	✓	30.4	647.1	✓	✓	
	16.4	186.7	✓	✓	35.4	753.5	✓	✓	
	18.4	209.5	✓	✓	5.3	139.0		✓	
	20.4	232.3	✓	✓	8.3	217.8	✓	✓	
25.4	289.2	✓	✓	10.3	270.2	✓	✓		
2.8	4.3	59.6	✓	✓	15.4	404.0	✓	✓	
	6.3	87.3	✓	✓	16.4	430.3	✓	✓	
	8.3	115.0	✓	✓	18.4	482.7	✓	✓	
	10.3	142.8	✓	✓	20.4	535.2	✓	✓	
	12.4	171.9	✓	✓	22.4	587.7	✓	✓	
	15.4	213.4	✓	✓	25.4	666.4	✓	✓	
3.3	3.3	53.9		✓	30.4	797.5	✓	✓	
	4.3	70.2	✓	✓	35.4	928.7	✓	✓	
	5.3	86.6	✓	✓	6.3	196.5	✓	✓	
	6.3	102.9	✓	✓	16.4	511.4	✓	✓	
	8.3	135.6	✓	✓	20.4	636.2	✓	✓	
	10.3	168.3	✓	✓	25.4	792.1	✓	✓	
	12.4	202.6	✓	✓	30.4	948.0	✓	✓	
	13.4	218.9	✓	✓	35.4	1103.9	✓	✓	
	14.4	235.2	✓	✓	8.3	8.3	341.0		✓
	16.4	267.9	✓	✓	10.3	10.3	525.1		✓
	18.4	300.6	✓	✓	12.4	12.4	761.1		✓

✓: delivery from stock, 有库存。

Other: Special executions, grades or dimensions upon request 其他尺寸和牌号无库存，需要根据数量询价和交期。

3.7 ESTECH solid tungsten carbide slitting saws, as sintered
伊斯泰克硬质合金锯片铣刀毛坯



锯片铣刀毛坯

D mm	d mm	s mm	Gr.	D mm	d mm	s mm	Gr.	D mm	d mm	s mm	Gr.	D mm	d mm	s mm	Gr.								
12.5		2.8	4.43	30.5		4.3	44.12			1.5	42.22			0.8	56.64								
15.5	4.7	0.7	1.8	32.5	7.7	0.7	8.22	50.5	12.7	1.8	50.66	80.5		1	70.8								
		1	2.57			0.9	10.57			2	56.29			1.3	92.03								
		1.3	3.34			1	11.75			2.3	64.73			1.5	106.19								
		1.5	3.86			1.2	14.09			2.6	73.18			1.8	127.43								
		1.8	4.63			1.3	15.27			2.8	78.8			2.3	162.83								
		2.1	5.4			1.5	17.62			3	84.43			2.5	176.99								
		2.3	5.91			1.8	21.14			3.3	92.88			2.8	198.23								
		2.8	7.2			2	23.49			3.8	106.95			3.3	233.63								
		3.3	8.48			2.3	27.01			4.3	121.02			3.5	247.79								
		20.5	4.7			0.7	3.28			32.5	7.7			2.5	29.36	50.5	12.7	6.3	177.31	80.5		4	283.18
0.9	4.22			2.8	32.89	0.8	35.68	4.3	304.42														
1	4.69			3.3	38.76	1	44.6	4.8	339.82														
1.2	5.63			3.5	41.11	1.3	57.98	1	113.44														
1.3	6.1			3.8	44.63	1.5	66.9	1.3	147.48														
1.5	7.04			4	46.98	1.8	80.28	1.5	170.16														
1.7	7.97			4.3	50.5	2.3	102.58	1.8	204.2														
2.1	9.85			4.5	52.85	2.8	124.88	2	226.89														
2.3	10.79			0.8	14.57	3	133.8	2.3	260.92														
3.3	15.48			1	18.22	3.3	147.18	2.5	283.61														
25.5	7.7	0.7	4.87	40.5	9.7	1.3	23.68	63.5	15.7	3.8	169.48	100.5		2.8	317.64								
		1	6.96			1.5	27.32			4.3	191.78			3.3	374.36								
		1.3	9.05			1.8	32.79			4.8	214.08			3.5	397.05								
		1.5	10.44			2.3	41.9			5.3	236.38			4.3	487.81								
		1.8	12.53			2.8	51			6.3	280.98			1.1	198.01								
		2.3	16.01			3	54.65			0.8	44.52			1.3	234.01								
		3.3	22.97			3.3	60.11			1	55.65			1.5	270.01								
		30.5	7.7			0.7	7.18			40.5	9.7			3.8	69.22	70.5	15.7	1.3	72.35	125.5		2.1	378.01
						0.9	9.23							4.3	78.33			1.8	100.17			2.3	414.01
						1	10.26							4.8	87.43			2.3	128			3.3	594.02
1.3	13.34			5.8	105.65	3.3	183.65	2.1	535.51														
1.8	18.47			6.3	114.76	1.3	95.47	2.3	586.51														
2	20.52			6.6	120.22	1.5	110.16	1.3	379.13														
2.3	23.6			0.8	23.15	1.8	132.19	1.5	437.46														
2.8	28.73			1	28.94	2.3	168.91	1.8	524.96														
3	30.78			1.8	52.08	2.8	205.63	2.1	612.45														
3.3	33.86			0.8	22.52	3.3	242.35	2.3	670.78														
3.5	35.91	1	28.14	6.3	462.67	2.8	816.6																
3.8	38.99	1.3	36.59			21.7	0.7	49.56	200.5		31.7		1.8	831.17									

X: delivery from stock, 有库存。

Other: Special executions, grades or dimensions upon request 其他尺寸和牌号无库存, 需要根据数量询价和交期。

3.8 ESTECH Tungsten carbide gundrill blanks and inserts, as sintered 伊斯泰克硬质合金枪钻毛坯棒料和刀头



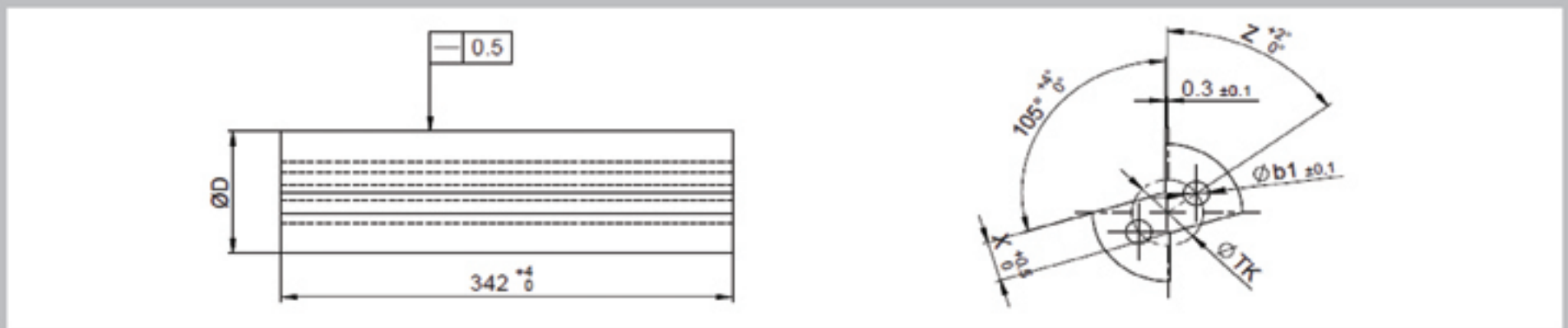
ESTECH T. C. gun drill blanks 伊斯泰克硬质合金枪钻毛坯棒料			ESTECH T. C. gun drill tips 伊斯泰克硬质合金枪钻刀头		
Dimension D*L 尺寸 直径*长度	grade		Dimension D*L 尺寸 直径*长度	grade	
	RF13	RX10		RF13	RX10
2.4*340mm					
3.5*340mm	✓				
4.5*340mm	✓				
5.5*340mm					
6.5*340mm					
7.0*342mm	✓		7.0*35mm		
7.5*342mm	✓		7.5*35mm		
8.0*342mm	✓		8.0*35mm		
8.5*342mm	✓	✓	8.5*35mm		
9.0*342mm	✓		9.0*35mm		
9.5*342mm	✓		9.5*35mm		
10.0*342mm			10.0*35mm		
10.5*342mm	✓	✓	10.5*40mm		
11.0*342mm			11.5*40mm		
11.5*342mm	✓		12.5*40mm		
12.0*342mm			13.5*40mm		
12.5*342mm	✓	✓	14.5*40mm		
13.0*342mm			15.5*40mm		
13.5*342mm	✓		16.5*40mm		
14.0*342mm			17.5*40mm		
14.5*342mm	✓		18.5*40mm		
15.0*342mm			19.5*45mm		
15.5*342mm	✓		20.5*45mm		
16.0*342mm			21.5*45mm		
16.5*342mm	✓		22.3*50mm	✓	
17.0*342mm			23.3*50mm	✓	
17.5*342mm	✓		24.3*55mm	✓	
18.0*342mm			25.3*55mm	✓	
18.5*342mm	✓		26.3*55mm	✓	
19.0*342mm			27.3*55mm	✓	
19.5*342mm	✓		28.3*65mm	✓	
20.0*342mm			29.3*65mm	✓	
20.5*342mm	✓		30.3*65mm	✓	
21.5*342mm	✓		31.3*65mm	✓	
			32.3*65mm	✓	
			33.3*65mm	✓	

✓: delivery from stock, 有库存。

Other: Special executions, grades or dimensions upon request 其他尺寸和牌号无库存, 需要根据数量询价和交期。

注: 3.5、4.5均为肾形孔

3.9 ESTECH Tungsten carbide double edged gundrill blank
伊斯泰克硬质合金双刃枪钻毛坯棒料



双刃枪钻毛坯棒料

$\varnothing D$ mm	Tol.	L mm	Tol.	X	Z	$\varnothing b 1$	TK	Tol.	RF13
7.25	± 0.15	342	+4.0	1.9	53°	1.5	3.3	± 0.15	✓
8.25		342		2.3	53°	1.7	3.7		✓
8.75		342		2.7	55°	1.8	4.0		✓
9.3	± 0.2	342		2.9	55°	1.8	4.3		✓
10.8		342		3.3	55°	2.1	4.9		✓
11.8		342		3.6	55°	2.3	5.3		✓
12.8		342		4.0	55°	2.5	5.9	✓	
13.8		342		4.3	55°	2.7	6.5	✓	
14.8		342		4.5	55°	2.9	7.2	✓	
15.8		342		4.9	55°	3.1	7.6	✓	
16.8		342		5.3	55°	3.1	8.3	± 0.20	✓
17.8		342		5.4	53°	3.3	8.9		✓
18.8	342	5.6		53°	3.3	9.4	✓		
20.8	342	5.8		53°	3.6	10.0	✓		

双刃枪钻头

$\varnothing D$ mm	Tol.	L mm	Tol.	X	Z	$\varnothing b 1$	TK	Tol.	RX10
16.1	± 0.2	55	+4.0		40°	2.5	7.0	± 0.20	✓

Other: Special executions, grades or dimensions upon request ,其他尺寸和牌号无库存, 需要根据数量询价和交期。

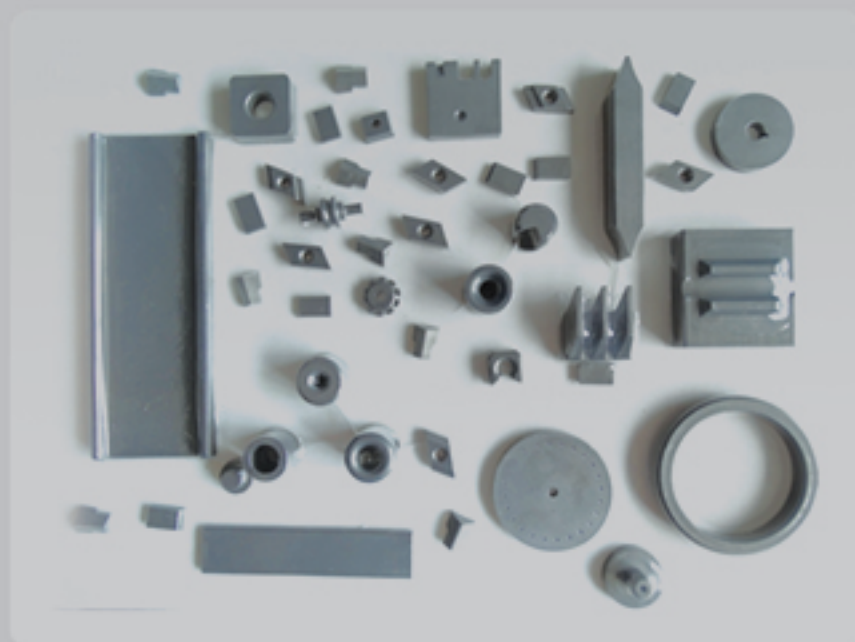
3.10 Carbide inserts. 硬质合金刀片

ESTECH directly pressed the inserts according to customer drawings within strict tolerances are specialties of HARTMETALL ESTECH, and the inserts can be used only a little grinding at blade.

伊斯泰克可以一次将刀片压铸到严格控制客户图纸要求的公差范围，这样刀片只需要刃口少许研磨即可直接使用。

	Carbide grade 牌号	Size 尺寸	Stock 库存
数控刀片	RX15	30.1*6.2*4.0	✓
焊接刀粒	RX12UF	3.3*3.3*20	✓

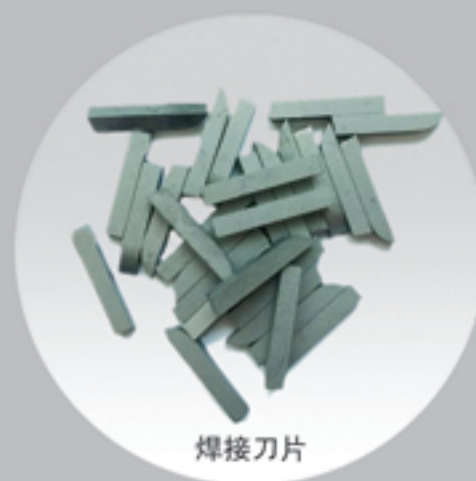
注：优势订制非标刀片，擅长走心机刀片制作，来图询问价格和交期。



非标刀片样例



数控刀片



焊接刀片

硬质合金刀片

Chapter 4: Grade choice guide

第四章：牌号选型指南

4.1 Cobalt binder carbide 钴基硬质合金

4.1.1 Ultra-fine grade RX8UF,RX12UF 超细晶粒牌号

Ultra-fine grain carbides are characterized by a very high hardness and wear resistance.

They are used for milling tools and drills for processing abrasive, soft and tough materials, in nozzles and in wear protection parts.

超细牌号具有高硬度和良好的耐磨性的特点。

这些牌号用于加工用的铣削和钻头工具，软而粘的材料，喷嘴、和耐磨零件。

WC grain size ultra-fine

grade	Cobalt content %w/w	Properties and recommendations
RX8UF	8.0	<p>This very hard grade is used particularly for manufacturing vibration-free rotating tools for processing Aluminum, copper, silver, gold, graphite and glass-fiber-reinforced plastics (GFP).</p> <p>这种超硬材料特别适用于制造用来加工铝、铜、银、金、石墨、玻璃纤维增强塑料 (GFP) 的无振动旋转工具。</p>
RX12UF	12.0	<p>Due to its higher cobalt content, this grade is suitable for machining high and low alloyed steels, cast iron, titanium and many other materials at a higher feed rate. Also ideal for high speed milling. Especially suitable for the mould construction.</p> <p>由于其较高的钴含量，这种牌号在高进给量条件下，适合加工高、低合金钢、铸铁、钛和许多其他材料。也适合于高速铣削加工，特别适用于模具制造。</p>

Note: Detailed parameter of grades at page 24

注：详细性能参数参见第24页

>RX12UF



说明：在10 μm尺寸下颗粒大小

4.1.2 Submicron grade RX3, RX6, RX7, RX10, RX15 亚微米晶粒牌号

Submicro grain cemented carbides are our most frequently used grain size class. The very homogeneous, fine microstructure of this grade allows for high hardness and cutting abilities and is excellently suited for machining and milling tools, drills, guides, cutting tools, pressing dies, in wear protection and even for fine punching tools.

我们常用的组成硬质合金的微粒规格一般是亚微米级。这种均匀、细微的结构可以赋予材料很高的硬度和优秀的切割能力，非常适合加工和铣削工具、钻头、导轨、切削刀具、冲压模具，以及精密冲压工具。

WC grain size submicron

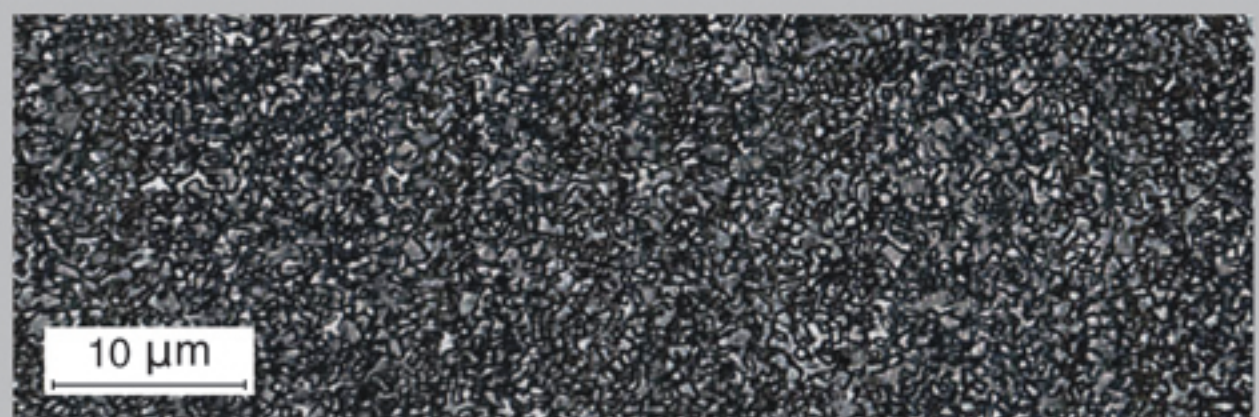
颗粒度：亚微米

Grade	Cobalt content %w/w	Properties and recommendations
RX3	3.3	Our so far hardest carbide is relatively break and impact sensitive due to its low cobalt content, and is not suitable for machining tools. In contrast, this type is used for sand blasting nozzles, spray nozzles and similar applications, drawing dies for soft metals, or in wear protection for linings against abrasive wear. 目前为止最硬的牌号，由于其含钴量低，不耐冲击，容易崩裂，不适合制作工具。适用于喷砂嘴、喷嘴和类似的其他用途，适用于软金属的拉丝模，或对衬片的磨损保护。
RX6	6.0	Very hard, easy cutting grade for machining, milling, drilling and lathing of aluminum, copper, silver, gold, graphite and glass-fiber- reinforced plastics (GFP). Also used in wear protection. 硬度高，易于做切削加工、铣、钻、车削的牌号。适合材料：铝、铜、银、金、石墨、玻璃纤维增强塑料 (GFP)，也用于耐磨零件。
RX7	7.5	Very hard, well cutting grade for machining aluminum, copper, silver, certain types of steel, graphite and glass-fiber- reinforced plastics (GFP) with increased breaking resistance and edge stability. Also used for wood processing. 很硬，相对RX6有更好的抗裂强度和切面强度。切削加工铝，铜，银，某些类型的钢，石墨，玻璃纤维增强塑料 (GFP)和木材的首选牌号。
RX10	10.0	This most important submicron grade offers a balanced ratio between high hardness and good breaking resistance and is therefore suitable for all types of machining, milling, drilling and lathing tools for processing high and low alloyed steels, cast iron, titanium and non-iron metals; in pressing dies, drawing dies, in wear protection and in tools for fine punching thin sheets. Standard grade for T-slot cutters. Manufacture of guides for the sheet processing industry. 是最重要的亚微米级牌号。硬度高，抗裂强度高，适用于所有类型的铣、钻、车等加工，可以加工高合金钢、低合金钢、铸铁、钛和非铁金属；适用于冲压模具、拉伸模，耐磨零件和精冲工具。是T形槽铣刀的标准牌号。可用于板材加工行业的导轨。
RX15	15.0	The high cobalt content of this submicron grade brings an increased level of toughness of the material. RX15 is suitable for machining at an interrupted cut, for paper cutting blades and for fine punching of thin sheets of medium to high toughness. 钴含量高，材料韧性好。适合断续切削加工、裁纸刀、中高韧性薄板的精冲。

Note: Detailed parameter of grades at page 24

注：详细性能参数参见第24页

>RX10



说明：在10 μm尺寸下颗粒大小

4.1.3 Fine grade RF13, RF24, RF40, RF54 细晶粒牌号

Fine grain cemented carbides are the standard in general wear protection. They are used for guides, bushings, nozzles, slide rings, cutting rings, linear blades, circular blades, and lathe tips, reshaping, rolling, drawing and pressing tools.

细晶粒硬质合金是耐磨的标准牌号。用于导轨、衬套、喷嘴、滑环、切割环、圆锯片、车刀、矫形、轧辊、拉伸和冲压工具。

WC grain size fine

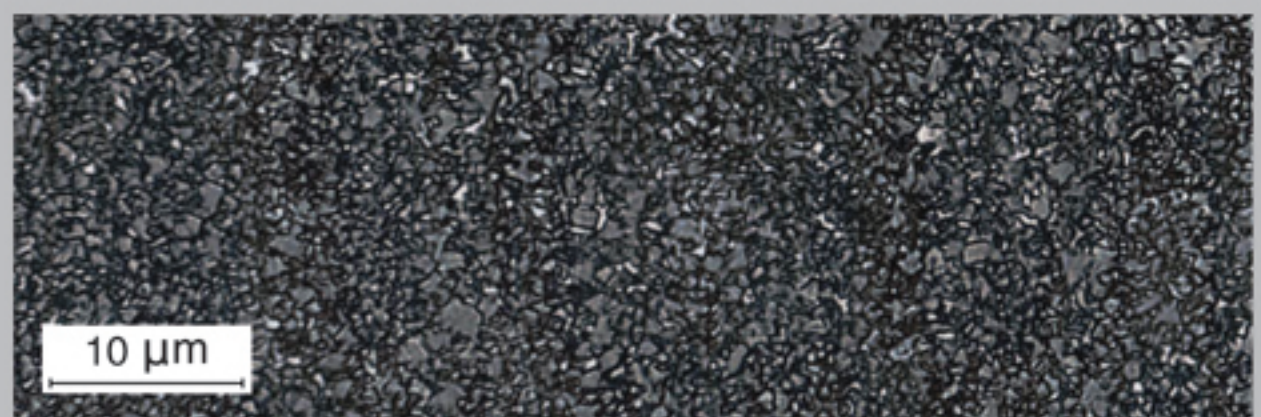
WC 晶粒尺寸, 细

Grade	Cobalt content %w/w	Properties and recommendations
RF13	6.5	<p>This grade is used for manufacturing cemented carbide slitting and milling disks and circular saw blades, for cutting inserts, nozzles, guides, bushings and linear blades, with low impact, and is also suitable for woodworking tools. For lathing, milling, drilling, reaming and countersinking of hardened steels, hard and grey cast iron, light metal, aluminum, Si-, Cu-, Mn-alloys, plastics, glass, ceramics and graphite.</p> <p>用于制造锯片铣刀和圆锯片, 数控刀片、喷嘴、导轨、衬套及线刀, 也适合木工工具。适合加工车削、铣削、钻铰孔、淬硬钢, 硬钢和灰色铸铁、轻金属, 铝, 硅-铜-锰合金、塑料、玻璃、陶瓷和石墨等材料。</p>
RF24	12.0	<p>This fine grade of medium cobalt content is used for the manufacturing of cutting rings, slide rings, blades, guides, bushings, lathe tips, dies, drawing and pressing tools.</p> <p>含钴量中等, 用于制造切割环、滑环、刀片、导轨、衬套、车刀, 模具、拉丝和冲压工具。</p>
RF40	20.0	<p>This hard metal grade contains a high percentage of cobalt binder and is therefore suitable for tools subject to high impact stresses such as hammer jaws, reshaping tools, stamping tools.</p> <p>含钴量很高。因此适合于承受高冲击力的工具, 如锤卡爪, 矫形工具, 冲压工具。</p>
RF54	27.0	<p>This grade contains the maximum possible cobalt binder content and is characterized by a very high fracture toughness and transverse rupture strength and is therefore highly impact-resistant. It is used in tools for hot and cold forming, for manufacturing steels springs, in hammer jaws and in shredders.</p> <p>含钴量最高, 具有很高的断裂韧性和横向断裂强度, 因此非常耐冲击。它用于热成型和冷成型的工具, 如制造弹簧钢, 锤爪, 碎纸机。</p>

Note: Detailed parameter of grades at page 24

注: 详细性能参数参见第24页

>RF13



说明: 在10 μm尺寸下颗粒大小

4.1.4 Medium grade RM13, RM16, RM22, RM30 中晶粒牌号

These cemented carbide grades with medium grain size combine good hardness and wear resistance with high transverse rupture strength, fracture toughness and thermal shock resistance. Application in general wear protection, for guides, bushings, slide rings, cutting rings, blades, and lathe tips, reshaping, rolling, drawing and pressing tools. 这些硬质合金牌号的硬质合金粒度为中等，具有高硬度、高耐磨性、好的横向断裂强度、好的断裂韧性和抗热震性。一般用于耐磨零件，导轨、衬套、滑环、切割环、刀片、车刀、塑形、轧辊、拉伸和冲压工具。

WC grain size medium

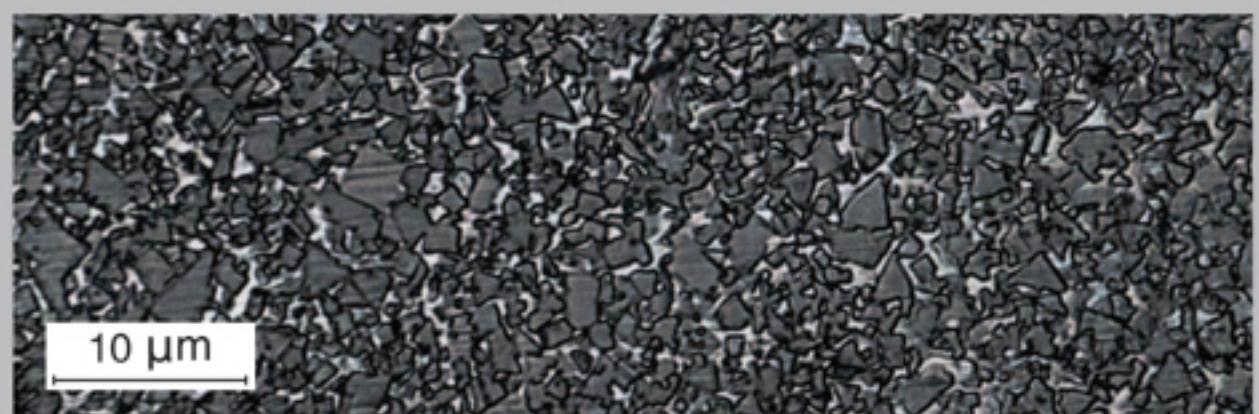
WC 晶粒度 中等

Grade	Cobalt content %w/w	Properties and recommendations
RM13	6.5	This grade has been developed for the manufacturing of guides, bushings, valve fittings, balls, blades, rotary burrs, subject to relatively low impact stresses, and is also suitable for woodworking tools. Can be used for somewhat higher toughness requirements and for interrupted cuts instead of our grade RF13. 在承受相对较低的冲击力时，可以用于导轨、衬套、阀门配件、球、刀片、旋转锉，也适合木工工具。在要求较高韧性要求的断续切削工况下，优于 RF13。
RM16	8.5	This hard metal grade is used for guides, bushings, cutting rings, cutting wheels, blades, lathe tips, grinding balls, valve fittings, plungers, slide rings, mandrels, mixers, impact bodies, deburrers, peeling tools and rotary burrs. 用于导轨、轴套、切割环、切割片、刀片、车刀，磨球、阀门配件、柱塞、滑环、心轴、搅拌机，冲击零件，去毛刺机，剥皮刀和旋转锉。
RM22	11.0	This grade with medium binder content ideally combines hardness and breaking resistance and is often used for initial equipping. In particular, it is used to manufacture dies, punches, valve fittings, cutting rings, slide rings, shaft sleeves, grinding mandrels, guides, bushings, sensor capsules, lathe tips, drawings and pressing tools. 中等粘结剂含量，理想的硬度和抗弯强度。用来制造模具、冲头、阀门配件、切割环，滑环、轴磨削心轴、导轨、衬套、传感器触头、车刀、拉深和挤压工具。
RM30	15.0	The somewhat higher cobalt content of this grade in comparison to RM22 improves the breaking resistance and the fracture toughness. It is therefore used in more sensitive tools and applications, such as dies, bending and reshaping tools, drawing tools, embossing stamps, tracers and shredders. 这个牌号具有稍高的钴含量。与 RM22 相比提高了抗折力和断裂韧性。它因此用于更敏感的工具和应用，如模具、弯曲和塑形工具，拉伸模，轧花、示踪剂和破碎机。

Note: Detailed parameter of grades at page 24

注：详细性能参数参见第24页

>RM30



说明：在10 μm尺寸下颗粒大小

4.1.4 Medium grade RCR17, RCR24, RCR30 中晶粒牌号

Our three EDM grades were especially developed for processing with electro-erosion (wire and sink erosion). They contain a corrosion inhibitor which protects them from pitting corrosion in the erosion bath. These grades ideally combine hardness and fracture toughness. They are optimized with regards to reducing the risk of tension cracks during the EDM process.

三个特别开发出来用于电火花加工的EDM 牌号，它们包含一种缓蚀剂，这可以保护它们电腐蚀。这三个牌号有良好的硬度和断裂韧性，降低了在电火花加工过程中产生张力裂缝的风险。

WC grain size medium

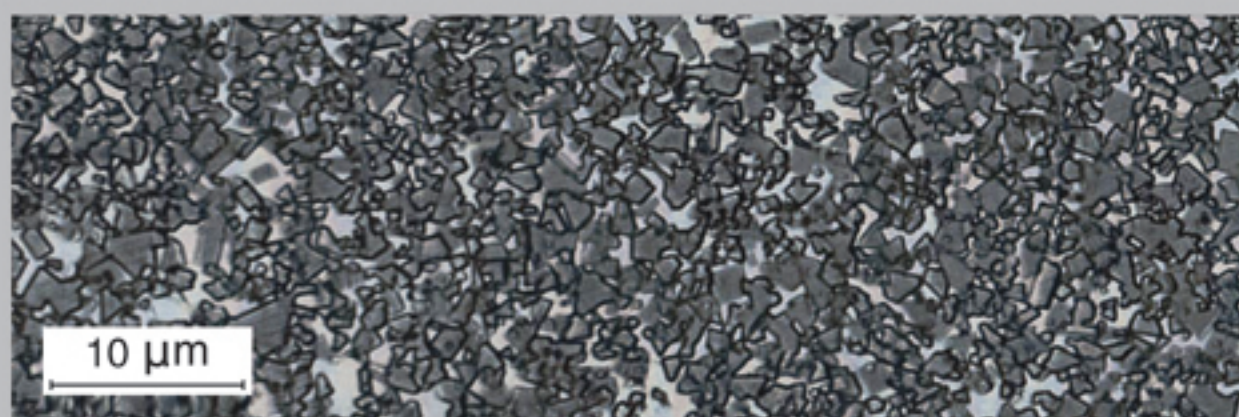
WC 晶粒度 | 中等

Grade	Cobalt content %w/w	Properties and recommendations
RCR17	8.5	Our hardest EDM grade is applied in punches and dies. It is used for punching thin foils and sheets of low toughness and for processing abrasive or soft materials. 用于冲孔和模具最硬的牌号。它用于冲孔薄板和低韧性的材料，以及用来加工耐磨和软材料。
RCR24	12.0	The grade RCR24 with 12% cobalt shows a somewhat higher toughness than RCR17. It is the standard cemented carbide grade used in electro-erosion. Its application range corresponds approximately to the one of RM22. Somewhat thicker and tougher foils and sheets can also be punched. 与 RCR17 相比，RCR24 具有较高的韧性。它是用于电蚀刻的标准硬质合金牌号。其应用范围近似地对应于 RM22，也可以冲更厚和更硬的板。
RCR30	15.0	For very large EDM blocks and plates, we have developed a special electro-erosion grade that contains a bit more cobalt and also has a slightly higher initial grain size of 3.5µm. The corrosion inhibitor has also been adjusted. This grade is characterized by a higher fracture toughness and reduces the risk of tension cracks significantly, even with asymmetrical erosion. The area of application is similar to that of RM30, whereby even thick, tough materials can be punched using RCR30 对于非常大的 EDM 板块，我们开发了特殊的电蚀的牌号，这包含更多一点的钴也有稍高的 3.5µm 晶粒尺寸，缓蚀剂也进行了调整。这种牌号的特点是高的断裂韧性，显著降低了张力裂缝的风险。应用领域是类似于 RM30，这样可以使 RCR30 冲厚材料或者坚韧的材料。

Note: Detailed parameter of grades at page 24

注：详细性能参数参见第24页

>RCR30



说明：在10 µm尺寸下颗粒大小

4.1.5 Coarse grade RB14, RB10, RB15-H, RB20-H 粗晶粒牌号

The coarse grain grades have higher fracture toughness and thermal shock resistance in comparison to the finer grades with the same cobalt content. They are therefore well suited against impact stress. A primary area of application is in mining/road construction.

在同样钴含量情况下，粗颗粒牌号具有更高的断裂韧性和抗热震性。因此，这些牌号比较耐冲击。应用的主要领域是在矿山和公路建设。

WC grain size coarse

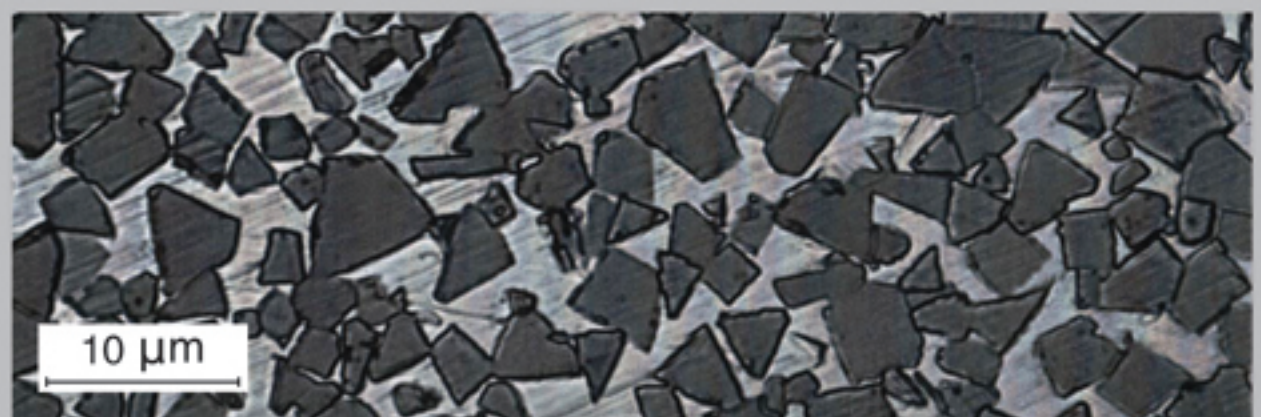
WC 晶粒度 粗

Grade	Cobalt content %w/w	Properties and recommendations
RB14	7.0	Application of this coarse grain grade for milling tools, deburrers, rollers, chisels and choppers in mining, road construction, concrete processing, ore mining and processing, crude oil production, recycling and steel manufacturing. 用做铣削工具，去毛刺机、轧辊、凿子和砍刀。应用领域为采矿、道路施工、混凝土加工、采矿和加工、原油生产、回收和钢铁制造。
RB10	10.0	Application of this coarse grain grade for milling tools, deburrers, rollers, chisels and choppers in mining, stone processing, road construction, concrete processing, ore mining and processing, crude oil production, recycling and steel manufacturing. Alternative to RB14 if higher breaking resistance and impact resistance are required. Also used in punching tools for metal sheets of very high toughness. 用做铣削工具，去毛刺机、轧辊、凿子和砍刀。应用领域为采矿、石材加工、道路施工、混凝土加工、采矿和加工、原油生产、回收和钢铁制造。在需要更高的断裂阻力和抗冲击性的情况下替代 RB14。也用于冲特别高韧性的金属板。
RB15-H	15.0	Fracture-resistant, impact-resistant coarse grain grade for shredders, hammer jaws, hammer tools, drawing tools for highly tough materials, hot wire rollers, chisels, pressing dies. Used in mining, road construction, waste processing and recycling, ore mining and processing, steel manufacturing, reshaping/forming technology. Also used in punching tools for metal sheets of very high toughness. 是抗断裂、抗冲击的粗粒级的牌号。用于破碎机、锤爪、锤工具，拉深高韧性材料的模具、热拉拔模具、凿子、冲压模具。应用领域为采矿、道路建设、废物处理和回收、采矿和加工、钢铁制造、重塑/成形技术。也用于冲压模具的非常高韧性的金属板。
RB20-H	22.0	This carbide grade combines a high cobalt content with coarse WC grains. It is extremely break-resistant and impact-resistant. Used in cold and hot forming tools, in pressing dies and drawing tools, in the fabrication of rods, valves and springs made of highly tough steels, in hammer jaws and in shredders for scrap processing and recycling. 这种是高钴含量的大晶粒度的牌号。它是非常耐破裂和耐冲击。用于冷成型和热成型工具，用于冲压模具和拉深模具，用于制造中棒，阀门和高韧性钢做的弹簧，用于锤爪和废钢回收的破碎机。

Note: Detailed parameter of grades at page 24

注：详细性能参数参见第24页

>RB20-H



说明：在10 μm尺寸下颗粒大小

4.2 Nickel binder carbide 镍基硬质合金

4.2.1 Submicron grade 亚微米晶粒牌号 RCS12, RCS17, RCS24

For applications in the food processing industry where HARTMETALL ESTECH, as one of the only two companies worldwide, has a certificate from the US-FDA which confirms the safety of these nickel grades in the food industry. 在全世界的硬质合金公司里，只有两家公司从美国 FDA 获得食品工业的硬质合金安全牌号的认证，伊斯泰克硬质合金公司就是其中之一。

WC grain size submicron

WC 晶粒度 亚微米

Grade	Nickel content %w/w	Properties and recommendations
RCS12	6.0	Our hardest nickel binder cemented carbide grade is very wear resistant; however not suitable for applications where there is risk of breakage. Use in guides, mixing rods, slide rings, spray nozzles, cutting blades and other wear parts in laboratories, chemical industry, pump construction, grinding and mixing systems and In plastics processing(GFP). 是最硬的镍基硬质合金牌号，非常耐磨；但是不适合有破裂风险的用途。用于导轨，搅拌棒、滑环、喷嘴、刀片和其他耐磨零件部件，适用领域为实验室、化工、泵，研磨和搅拌系统和塑料的制备。
RCS17	8.5	Similar area of application as RCS12; however, the nickel hard metal grade RCS17 is slightly more break resistant. Use in guides, mixing rods, slide rings, spray nozzles, cutting blades and other wear parts in laboratories, chemical industry, pump construction, grinding and mixing systems, in plastics processing and in the food industry. 应用领域的类似于 RCS12；RCS17 相对更耐断裂。用于导轨，搅拌棒、滑环、喷嘴、刀片和其他耐磨零件部件，适用领域为实验室、化工、泵，研磨和搅拌系统和塑料制备以及食品工业。
RCS24	12.0	This newly developed grade of nickel binder cemented carbide has a significantly higher binder content than the two previously mentioned grades. Thus, it is especially suitable for applications with a risk of breakage. Primary applications include slide rings, shaft sleeves and sealing elements in the chemical industry, in the pump construction and in the food processing industry. It is also used for mixing and grinding systems of materials with highly inhomogeneous composition. 这种新开发的镍基硬质合金比之前的牌号有更高的粘结剂含量。因此，它特别适合有破裂风险的用途。主要应用包括化工、泵和食品加工行业的滑环、轴套和密封元件。它也用于高度非均匀组成的系统的混合和研磨。

Note: Detailed parameter of grades at page 24

注：详细性能参数参见第24页

>RCS17



说明：在10 μm尺寸下颗粒大小

4.2.2 Fine and medium grade RCN, RCFN22, RCN30 中细晶粒牌号

Our cemented carbide grades with nickel binder and chrome additive are extremely corrosion-resistant and are generally not attacked by acids, waste water or organic Solutions. They are therefore suitable for all application in wear protection in the chemical industry, as spray nozzles in plastic manufacturing .

Upon request, most of our nickel hard metals can also be delivered completely nonmagnetic; e.g. for pressing tools in the manufacturing of magnets.

使用镍粘结剂以及增加了铬添加剂的硬质合金牌号极耐腐蚀，一般不受到酸、废水或有机溶剂的侵蚀。因此，这些牌号适合化学工业的耐磨零件，比如在塑料制造业和食品加工行业里的喷嘴。

如果需要，我们的含镍硬质合金牌号可以做到完全无磁，比如在磁铁制造中的冲压工具。

WC grain size fein, 1.0–1.5 μ m medim

WC 晶粒度 细, 1.0–1.5 μ m 中

grade	Nickel content %w/w	Properties and recommendations
RCN	8.0	Standard nickel grade with fine grain, good temperature resistance, good solder-ability. Similar uses as RCS 17. Additionally suited for guides in welding technology. 镍基硬质合金的细颗粒标准牌号。耐热性能好、具有良好的焊接能力。用途类似于 RCS 17。另外适合焊接。
RCFN22	11.0 (Nickel/Chrome)	This nickel binder cemented carbide has a high chrome content. It is the most corrosion-resistant of all our hard metal grades and is fully nonmagnetic. Use in slide rings and sealing elements in the pump construction and in the chemical industry for highly corrosive Liquids. An additional application is pressing tools in the magnet industry. 这个镍基硬质合金含有较高的铬，它是最耐腐蚀的牌号，并且完全无磁。用于存在高度腐蚀性液体的泵和化工中做滑环和用密封件。另外在磁铁行业用作冲压工具。
RCM30	15.0	Due to its increased nickel content and the medium grain size, we use RCM30 in particular as a highly breaking resistant, relatively impact and fracture resistant, temperature-resistant and easily solder nickel binder cemented carbide grade. Application especially in large slide rings, sealing element and dies. The corrosion resistance of this grade is sufficient for most applications in the chemical industry and pump construction. RCM30 有比较高的镍含量，颗粒度为中等，用于需要高温耐破裂，抗压、抗断裂、耐高温、易可焊性的场合。尤其适用于大型滑环，密封元素和模具。这种等级的耐腐蚀性能能够满足大多数的化工和泵工业。

Note: Detailed parameter of grades at page 24

注：详细性能参数参见第24页

>RCN



说明：在10 μm尺寸下颗粒大小

附表一

1) 工具用硬质合金牌号选择表

加工方式	工具	涂层 与否	瑞士伊斯泰克硬质合金的牌号推荐				
			纤维增强塑料、 树脂、石墨	软金属(非铁)铜 /铝、黄金/白银	铸铁、 纯钢	不锈钢、高 合金钢	钛,铬镍铁 合金
铣	铣削刀具、平铣刀、 高速铣刀	不涂层	RX6, RX7	RX7	RX10	RX10, RX12-UF	RX12-UF
	铣削刀具、平铣刀、 高速铣刀	涂层	RX7	RX10	RX10	RX10	RX10, RX12-UF
	粗铣刀		RF13	RF13	RF13	RM16	RX10
	扶轮毛边、旋转锉		RF13	RF13	RM16	RM16	RX10
钻孔	枪钻		RF13	RF13	RF13	RX10	RX10
	微钻		RX6	RX6	RX10	RX10	RX10
切割、切断	锯片铣刀、丝锥 T型槽铣刀		RX7	RF13	RF13	RX10	RX10
铰孔,钻孔	铰刀、镗刀		RX6	RX6	RX7	RX10	RX12-UF

2) 冲压用硬质合金牌号选择表

Cemented carbide grades 硬质合金牌号				
Thickness of metal sheet mm 板厚度	Tensile strength <500 N/mm ² 板的抗拉强度	Tensile strength 500-900 N/mm ² 板的抗拉强度	Tensile strength 900-1400 N/mm ² 板的抗拉强度	Tensile strength >1400 N/mm ² 板的抗拉强度
>2.0	RCR24	RCR24/RCR30	RCR30	RCR30/RB15-H
1.5-2.0	RCR24	RCR24/RCR30	RCR30	RCR30
0.8-1.5	RCR17/RCR24	RCR24	RCR24/RCR30	RCR24/RCR30
0.5-0.8	RCR17	RCR17	RCR24	RCR24
0.1-0.5	RX10/RX12UF	RX12UF/RX10	RX15/RCR17	RCR24
<0.1	RX7 /RX8UF	RX12UF/RX10	RX12UF/RX10	RX15/RCR17

注：RF24是通用牌号

附表二 伊斯泰克硬质合金常用牌号参数表

Carbide Grade 牌号	WC Grain Size 晶粒尺寸	Binder 粘合剂	Binder Content%/w 粘合剂含量	Density g/cm ³ 密度	Hardness HV30 硬度	Hardness HRA 硬度	Transverse Rupture StrengthN/mm ² 抗弯强度	Pressure Resistance * N/mm ² 抗压强度	Fracture Toughness** N/mm ² .m ^{1/2} 断裂韧性	Special Properties 特性		
RX8UF	Ultrafine 超细	Cobalt 钴	8	14.52	1880	93.6	3800	6300	8.5			
RX12UF			12	14.06	1680	92.6	4200	6000	9.5			
RX3	Submicron 亚微米	Cobalt 钴	3.3	15.15	2000	94.2	3000	6500	7.8			
RX6			6	14.83	1820	93.3	3300	6400	8.5			
RX7			7.5	14.65	1740	92.9	3500	6300	9.0			
RX10			10	14.43	1600	92.1	3700	6000	9.8			
RX15			15	13.95	1370	90.4	4000	5500	12.5			
RF13	Fine 细	Cobalt 钴	6.5	14.83	1690	92.7	2600	5700	9.2			
RF24			12	14.28	1380	90.5	3000	4800	11.2			
RF40			20	13.52	1080	87.2	3500	4000	18			
RF54			27	12.94	890	84.7	3600	3600	>20			
RM13			Medium 中	Cobalt 钴	6.5	14.83	1580	92.0	2700	5500	9.5	EDM grades with corrosion inhibitor EDM 牌号, 耐电腐蚀
RM16	8.5	14.64			1500	91.4	2800	5300	10.4			
RM22	11	14.41			1390	90.5	2900	5000	11.8			
RM30	15	14.01			1230	88.9	3200	4500	14.5			
RCR17	8.5	14.5			1600	92.1	2900	5400	10.0			
RCR24	Medium 中	Cobalt 钴	12	14.15	1400	90.6	3200	5000	13.0			
RCR30			15	13.85	1200	88.5	3400	4500	17.5			
RB14			Coarse 粗	Cobalt 钴	7	14.81	1450	91.0	2800	4800	10.0	Coarse grain material of high toughness 粗颗粒, 高韧性
RB10					10	14.48	1300	89.7	3000	4400	12.5	
RB15-H					15	14.03	1080	87.2	3100	3800	18.5	
RB20-H	22	13.44			870	84.5	3200	3300	>20			
RCS12	Submicron 亚微米	Nickel 镍			6	14.8	1700	92.7	2600	5400	8.1	Corrosion-resistant (nonmagnetic) 耐腐蚀, 无磁
RCS17			8.5	14.5	1650	92.4	2800	5200	8.5			
RCS24			12	14.09	1370	90.4	3000	4800	10.2			
RCN	Fine 细	Nickel 镍	8	14.53	1600	92.1	2600	5100	8.3	Corrosion-resistant 耐腐蚀		
RCFN22			Nickel/Chromium 镍	11	14.33	1600	92.1	1800	4500		8.0	
RCM30	Medium 中	Nickel 镍	15	14.00	1100	87.3	2900	4000	13.0			
RXE20	Submicron 亚微米	Iron/Nickel/Cobalt 铁/镍/钴	10	14.10	1600	92.1	3200	5500	10.8	high toughness 高韧性		
RXE40			20	13.05	1250	89.1	3600	4000	18.5			

Standard ISO codes define grain sizes from fine to medium and do not represent the today's state of the art in cemented carbides. The selection of the optimum carbide grade should therefore always be done based on application data of the customer.

标准 ISO 代码定义粒度由细至中等, 并没有反应最先进的硬质合金发展成果。最佳的硬质合金牌号的选择应因此始终基于客户的实际应用的数据。

ISO K10 K20 K30 K40 K10-F K20-F K30-F G10 G20 G30 G40

ISO	K10	K20	K30	K40	K10-F	K20-F	K30-F	G10	G20	G30	G40
ESTECH GRADE	RF13	RM13	RM16	RM22,RF24	RX6	RX7	RX10	RM16	RM22,RF24	RM30	RF40

※每个牌号适用范围详见第四章 P15-P22页

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