

牌号介绍

Grade Chart

Grade 牌号	选对 ISO	Density 密度 (g/cm ³)	Bending Strength 抗弯强度 (N/MM ²)	Hardness less than HRA 硬度不低于 HRA	Application Performances & Scopes 应用范围及领域
XH7228	P20	13.9-14.1	≥1500	91.5	刃口安全性良好的韧性基体与MT-TiCN、厚Al ₂ O ₃ 、TiN涂层最佳组合，是钢材加工的通用牌号。适用于钢、铸铁和不锈钢的半精加工、精加工等。 The toughness substrate material is of good cutting edge safety which is excellently combined with MT-TiCN, thick Al ₂ O ₃ , and TiN coating. It is mainly a general grade for steel processing, and applies to semi-finishing and finishing of steel, cast iron and stainless steel.
XH7226	P30 M30	13.7-14	≥1650	91	高强度与抗塑性变形基体与MT-TiCN、厚Al ₂ O ₃ 、TiN涂层的结合；具有好的韧性及抗塑性变形。适用于钢材和不锈钢的粗加工。 This substrate material is of high strength and plastic deformation resistance which combined with MT-TiCN, thick Al ₂ O ₃ , TiN coating; it has good toughness and resistance of plastic deformation. It applies to rough machining of steel and stainless steel.
XH7326	P30-40 M30-40	14.4-14.6	≥1700	91	适用于冲击性较大工况、要求大切深高进给的大型钢和不锈钢部件的粗加工领域 It is suitable to require large cutting depth and high feed parameter under large impact condition for dealing rough machining of large steel and stainless steel parts.
XH9125	K10	14.8-15.1	≥1420	91	该合金适合加工冷硬合金铸铁与耐热合金，可获得良好的效果。 This alloy is suitable for processing chilled alloy cast iron and heat-resistant alloys, it can obtain good effectiveness.
XH9225	K20-K30	14.7-15.1	≥1520	89.5	适于铸铁、有色金属及其合金与非金属材料的半精加工、半粗加工。精车小断面，粗车螺纹、旋风车丝和连续断面的半精铣与精铣，以及扩孔等 It is suitable for semi-finishing and semi-rough machining of cast iron, non-ferrous metals, alloys and non-metallic materials, fine machining turning small sections, semi-finishing and finishing milling of rough threading, cyclone wire and continuous sections, as well as reaming aperture, etc.

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XH9325	K30	14.6-14.9	≥1520	89.5	适于铸铁、有色金属及其合金与非金属材料不平整表面和间断切削时的粗车、粗刨、粗铣，一般孔和深孔的钻孔、扩孔 It is suitable for rough turning, rough planing, rough milling of cast iron, non-ferrous metals, alloys and non-metallic materials with uneven surfaces and intermittent cutting, drilling and reaming of general aperture and deep aperture.
XH7238	P20-30 M20-30 K20-30	14.4-14.6	≥1650	91.2	通用性很强的细颗粒基体，广泛适用于P、M、K、S类材料的半粗半精车削或铣削。 The fine-particle is of universal substrate material, which is widely used for semi-rough and semi-finishing turning or milling of P, M, K and S materials.
XH7335	P25-30	12.4-13	≥1600	91	用于钢、铸钢的重型铣削，有较高的抗热烈性和优良的韧性。 It's used for Heavy-type milling of steel and cast steel, with high heat resistance and excellent toughness.
XH7336	P30-40 M30-40	12.5-13.2	≥1800	90	粗颗粒基体具有良好的抗冲击性，而比P30更具耐磨性，适用于钢和不锈钢的粗加工。 The coarse particle substrate material has good impact resistance, it is more wear-resistant than P30, and suit for rough machining of steel and stainless steel.
XH7136	P10 M10 K10	14-14.3	≥1620	92	超细颗粒的基体结合PVD涂层，适于高强度、不锈钢、高锰钢以及高温合金、硅钢片和各种喷涂材料的切削加工，也适于高硬度铸铁和玻璃等工件材料的精加工 The substrate material of ultra-fine particles combined with PVD coating which is suitable for cutting high-strength steel, stainless steel, high-manganese steel, high-temperature alloys, silicon steel sheets and various spraying materials, and also suitable for finishing high-hardness cast iron and glass workpiece materials etc.
X715	P10-20	11.2-11.8	≥1270	90.5	适于在碳素钢与合金钢不平整表面和连续面切削时的粗车，间断切削时的半精车，连续级面的粗铣等 It is suitable for rough turning under treating uneven surface and continuous surface of carbon steel and alloy steel, semi-finishing turning under cutting intermittently, and rough milling of continuous forging surface etc.

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Grade 牌号	选对ISO	Density 密度 (g/cm ³)	Bending Strength 抗弯强度 (N/MM ²)	Hardness less than HRA 硬度不高于 HRA	Application Performances & Scopes 应用范围及领域
X735	P30	12.5-13.2	≥1430	89.5	适于加工碳素钢与合金钢(包括钢锻件、衡压件及铸件表面) 不平整面与间断切削时的粗车粗刨、半精刨、及钻孔 It is suitable for roughing, semi-finishing, and drilling of uneven surfaces and intermittent cutting of carbon steel and alloy steel (including the surface of steel forgings, constant pressure parts and casting parts)
X738	P10-30 M10-30 K10-30	12.7-13.5	≥1180	90	通用牌号。适于耐热钢、高锰钢、不锈钢等难加工钢材及普通钢和铸铁加工 It is general grade which suit to difficult process steel such as heat-resistant steel, high manganese steel, stainless steel, and ordinary steel and cast iron.
X915	N10	14.8-15.1	≥1420	91	适用于非金属合金的精加工。 It is suitable for fine-machining of non-metallic alloys.
X725	P20-30	12.8-13.2	≥1620	90.5	适于碳素钢、铸钢、高锰钢、高强度钢及合金钢的粗车。 It is suitable for rough turning of carbon steel, cast steel, high manganese steel, high strength steel and alloy steel.
XH7135	P10 M10-20	6.8	≥1400	91.5	细颗粒具有较高的耐磨性和热稳定性, 良好的抗粘着磨损。韧性较好, 可以在较高速下精加工和半精加工普通钢、合金钢、不锈钢、高强度钢、轴承钢等。 The fine particle have high wear resistance and thermal stability, which is good resistance to adhesive wear. It has good toughness and can be processing to finishing and semi-finished at a higher speed for ordinary steel, alloy steel, stainless steel, high-strength steel, bearing steel, etc.
XH8136	P10-20	≥7.05	≥1550	91.7	细颗粒基体具有较高的韧性和耐磨性、抗冲击性、抗热裂纹, 适用于连续切削各类铸钢、合金钢、不锈钢、高强度钢。 The fine particle substrate material has high toughness, wear resistance, impact resistance, and thermal crack resistance, and it is suitable for continuous cutting of various cast steel, alloy steel, stainless steel, and high-strength steel.

车削牌号一览表 TURNING INSERT GRADE TABLE

工作材料 MATERIAL	ISO 使用代号 ISO CODE	涂层 COATING		金属陶瓷 METAL CERMET	涂层金属陶瓷 COATED METAL CERMET	硬质合金 CEMENT CARBIDE
		CVD	PVD			
P 钢	10	XH7228		XH7136	XH8136	XH8136
	20		XH7226			XH735
	30					
	40					
M 不锈钢	10	XH7238		XH7136		XH8136
	20					
	30			XH7336		
K 铸铁	10	XH7228	XH9125			
	20			XH9225		
	30					XH9325
	40					
N 有色金属	01	XH9125				
	10			XH9225		
	20					XH9325
	30					
40						

ISO车削刀片型号表示规则 ISO TURNING INSERT MODEL TYPE RULE

刀片形状/代号 SHAPE/CODE			公差 MATRIC SYSTEM							
形状代号			断屑槽及尖圆形式							
	A		B	有	无		N	无	无	
	D		H	有	单面		R	无	单面	
	K		C	有	无		F	无	双面	
	O		J	有	双面		A	有	无	
	S		W	有	无		M	有	单面	
	V		T	有	单面		G	有	双面	
	Z		Q	有	无		X	---	---	特殊
	Z		U	有	双面		U	---	---	特殊

T N M G

主切削刃后角				公差			
代号	后角	代号	后角	公差			
A	3°	B	6°	公差			
C	7°	D	15°	公差			
E	20°	F	25°	公差			
G	30°	N	0°	公差			
P	11°	O	其他的后角	公差			

代号	刀片高度(m公差(mm))	内径圆(R)公差(mm)	厚度S公差(mm)	(参考) M级精度详细情况(按形状、大小分)						
				内径圆	正三角形	正方形	80°菱形	55°菱形	35°菱形	圆形
A	±0.005	±0.025	±0.025	6.35	±0.08	±0.08	±0.08	±0.11	±0.16	---
F	±0.005	±0.013	±0.025	9.525	±0.08	±0.08	±0.08	±0.11	±0.16	---
C	±0.013	±0.025	±0.025	12.7	±0.13	±0.13	±0.13	±0.15	---	---
H	±0.013	±0.013	±0.025	15.875	±0.15	±0.15	±0.15	±0.18	---	---
E	±0.025	±0.025	±0.025	19.05	±0.15	±0.15	±0.15	±0.18	---	---
G	±0.025	±0.025	±0.13	25.4	---	---	---	---	---	---
J	±0.005	±0.05±0.13	±0.025							
K	±0.013	±0.05±0.13	±0.025							
L	±0.025	±0.05±0.13	±0.025							
M	±0.08±0.18	±0.05±0.13	±0.13							
N	±0.08±0.18	±0.05±0.13	±0.025							
U	±0.13±0.38	±0.08±0.25	±0.13							

内切圆直径 (mm)	刀片形状								刀片厚度 (mm)
	C	D	R	S	T	V	W	K	
3.97									0.79
5.0									0.99
5.56			05						1.59
6.0			06						1.98
6.35	06	07			11	11			2.38
8.0			08						2.58
9.525	09	11	09	09	16	16	06	16	3.18
10.0			10						3.97
12.0			12						4.76
12.7	12	15	12	12	22	22	08		4.96
15.875	16		15	15	27				5.56
16.0		19	16						5.95
19.05	19		19	19	33				6.35
20.0			20						6.75
25.0	25	25	25	25					7.94
25.4			25	25					9.52
31.75			31						9.72
32			32						11.11
									12.70

22 04 08 - DM (ISO)
4 3 2 (inch)

内切圆	
代号	内切圆直径(mm)
2	6.35
3	9.525
4	12.7
5	15.875
6	19.05
8	25.4

厚度	
代号	厚度(mm)
2	3.18
3	4.76
4	6.35
5	7.94
6	9.52

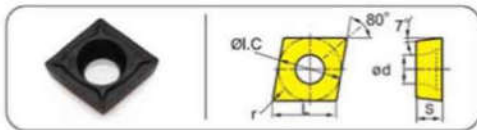
刀尖圆弧半径	
代号	刀尖圆弧半径(mm)
0	0.2
1	0.4
2	0.8
3	1.2
4	1.6
5	2.0
6	2.4

刀尖圆弧代号	
代号	刀尖圆弧半径(mm)
00	无圆弧
02	0.2
04	0.4
08	0.8
16	1.6
20	2.0
24	2.4
32	3.2
X	其他

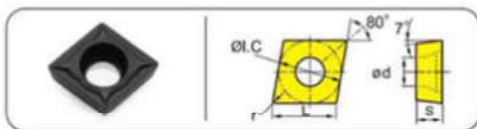
断屑槽型代号		
DF	DM	DR

CCMT-HM	CCMT-HF	CCGW	CNMA	CNMG	CNMG-BA	CNMG-BM	CNMG-CQ
P13	P13	P13	P14	P14	P15	P15	P15
页码 PAGE							
CNMG-HA	CNMG-MPB	CNMG-PM	CNMG-DR	DCGW	DCMT	DCMT-HM	DNMA
P16	P16	P16	P17	P17	P17	P18	P18
页码 PAGE							
DNMG-DM	DNMG-PM	RCMT	RCMX	SCET	SCMH	SCMT	SCMT-HF
P18	P19	P19	P19	P20	P20	P20	P21
页码 PAGE							
SCMT-HM	SNR	SNRA	SNMA	SNMG	SNMG-PM	SNMG-R	SNMG-L
P21	P21	P22	P22	P22	P23	P23	P23
页码 PAGE							
SNMM	SPEB	SPMH	TCMT-MP	TNR	TNRA	TNMA	TNMG
P24	P24	P25	P25	P25	P26	P26	P26
页码 PAGE							
TNMG-BA	TNMG-BM	TNMG-CQ	TNMG-DM	TNMG-HA	TNMG-PM	TNMG-R-S	TNMG-L-S
P27	P27	P27	P28	P28	P28	P29	P29
页码 PAGE							
TNMX	TNMX-X	TNMX-3	TPUN	VBMW	VCGW	VCMT-MD	VNMG-XH
P29	P30	P30	P30	P31	P31	P31	P32
页码 PAGE							
VNMG-DM	VNMG-PM	WCMX	WCMT-X	WNGA	WNMA	WNMG	WNMG-DM
P32	P32	P33	P33	P34	34	P34	P35
页码 PAGE							

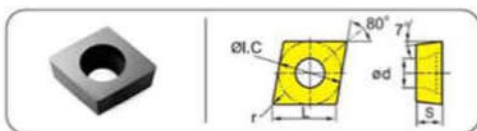
WNMG-EM	WNMG-MT	WNMG-OPM1	WNMG-PM	WNMG-R-S	WNMG-L-S	175.32	CCGW
P35	P35	P36	P36	P36	P37	P37	P39
页码 PAGE							
CCMT	CCMT-FGH	CCMT-MTH	CNMG-FGH	CNMG-MTH	DCMT-FGH	DCMT-MTH	DNMG-MTH
P39	P39	P40	P40	P40	P41	P41	P41
页码 PAGE							
DNMG-VFH	SCMT-MTH	SNMG-MTH	TCMT-MTH	TNMG-R-2G	TNMG-L-2G	TNMG-R-F	TNMG-L-F
P42	P42	P42	P43	P43	P44	P44	P45
页码 PAGE							
TNMG-R-FSH	TNMG-L-FSH	TNMG-R-VFH	TNMG-L-VFH	TNMG-FGH	TNMG-MTH	TPGH-R	TPGH-I
P45	P45	P46	P46	P46	P47	P47	P48
页码 PAGE							
VNMG	VNMG-FGH	VNMG-MTH	WNMG-FGH	WNMG-MSH	WNMG-MTH	WNMG-R-SH	WNMG-L-SH
P48	P49	P49	P49	P50	P50	P51	P51
页码 PAGE							
WNMG-TSH	APMT-H2H	APKT-MA	APGT-G2	CNMG-HA	CCGT-LH	DCGT-LH	DNMG-LH
P51	P52	P53	P53	P53	P54	P54	P55
页码 PAGE							
RBGT	RCGT	SCGT-LH	SEET-LH	SNMG-VH	TCGT-LH	TNMG-HA	VBGT-LH
P55	P55	P56	P56	P57	P57	P58	P58
页码 PAGE							
WNMG-HA	VCGT-LH	WCGX-LH	GIPA6.0-3.0	GIPATZ	GIPA6.0-4.0		
P58	P59	P59	P60	P60	P60		
页码 PAGE							



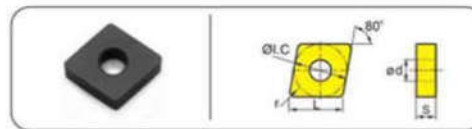
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	ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7226	XM7326	XP125	XP225	XP325	XP7238	XP7335	XP7336	XP7136	X715	X735	X738	X725	XP15	XP7135	XP8136	
CCMT	060204-HM	2 (1.5) 1-HM	6.4	6.35	2.38	2.8	0.4	●	●																	
	060208-HM	2 (1.5) 2-HM	6.4	6.35	2.38	2.8	0.8	●	●																	
	09T304-HM	3 (2.5) 1-HM	9.7	9.525	3.97	4.4	0.4	●	●																	
	09T308-HM	3 (2.5) 2-HM	9.7	9.525	3.97	4.4	0.8	●	●																	



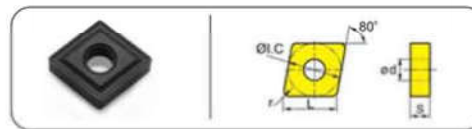
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CCMT	120404-HF	431-HF	12.9	12.7	4.76	5.56	0.4	●																	



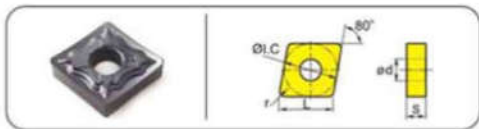
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CCGW	060202	2 (1.5) 0	6.2	6.35	2.38	2.8	0.2				●	●													●
	09T302	3 (2.5) 0	9.4	9.525	3.97	4.4	0.2				●	●													●
	09T304	3 (2.5) 1	9.2	9.525	3.97	4.4	0.4				●	●													●
	120404	431	12.4	12.7	4.76	5.5	0.4				●	●													●



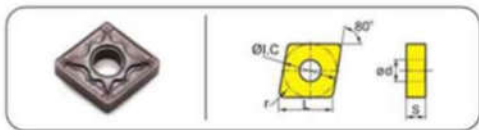
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CNMA	120404	431	12.9	12.7	4.76	5.16	0.4							●	●										
	120408	432	12.9	12.7	4.76	5.16	0.8							●	●										
	120412	433	12.9	12.7	4.76	5.16	1.2							●	●										
	120416	434	12.9	12.7	4.76	5.16	1.6							●	●										



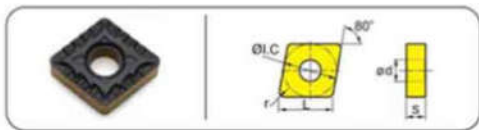
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CNMG	120404	431	12.9	12.7	4.76	5.16	0.4	●																	
	120408	432	12.9	12.7	4.76	5.16	0.8	●																	
	120412	433	12.9	12.7	4.76	5.16	1.2	●																	
	190608	642	19.3	19.05	6.35	7.94	0.8	●																	



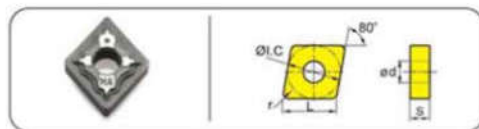
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	ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7226	XH7226	XH7125	XH7225	XH7225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136
CNMG	120408-BA	432-BA	12.9	12.7	4.76	5.16	0.8									●									



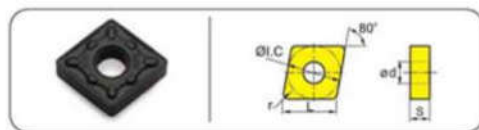
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CNMG	120408-BM	432-BM	12.9	12.7	4.76	5.16	0.8									●									



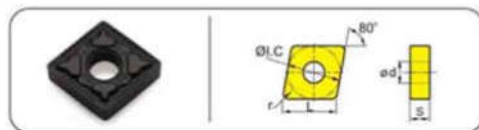
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CNMG	120408-CQ	432-CQ	12.9	12.7	4.76	5.16	0.8	●																	
	120412-CQ	433-CQ	12.9	12.7	4.76	5.16	1.2	●																	



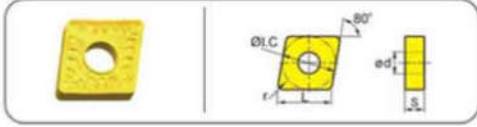
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CNMG	120408-HA	432-HA	12.9	12.7	4.76	5.16	0.8									●									



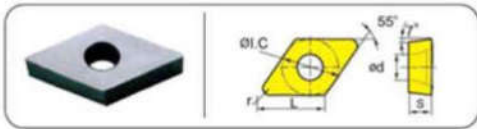
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CNMG	120408-MPB	432-MPB	12.9	12.7	4.76	5.16	0.8	●	●																



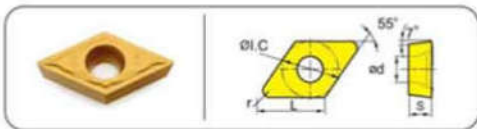
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CNMG	120404-PM	431-PM	12.9	12.7	4.76	5.16	0.4	●	●																
	120408-PM	432-PM	12.9	12.7	4.76	5.16	0.8	●	●																
	120412-PM	433-PM	12.9	12.7	4.76	5.16	1.2	●	●																
	190612-PM	643-PM	19.3	19.05	6.35	7.94	1.2	●	●																



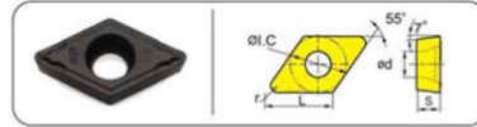
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CNMG	190616-DR	644-DR	19.3	19.05	6.35	7.94	1.6	●																	



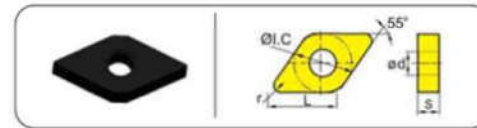
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DCGW	11T302	3 (2.5) 0	11.4	9.525	3.97	4.4	0.2				●	●													●
	11T304	3 (2.5) 1	11.2	9.525	3.97	4.4	0.4				●	●													●



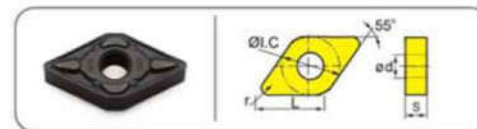
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DCMT	070202-HF	2 (1.5) 0	7.8	6.35	2.38	2.8	0.2	●																	



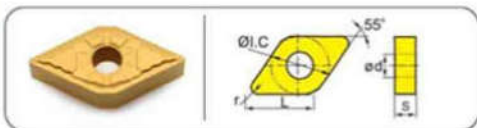
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DCMT	070204-HM	2 (1.5) 1-HM	7.8	6.35	2.38	2.8	0.4	●																	
	11T304-HM	3 (2.5) 1-HM	11.6	9.525	3.97	4.4	0.4	●																	
	11T308-HM	3 (2.5) 2-HM	11.6	9.525	3.97	4.4	0.8	●																	



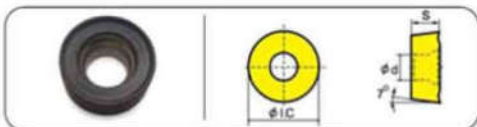
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DNMA	150602	440	15.5	12.7	6.35	5.16	0.2						●												



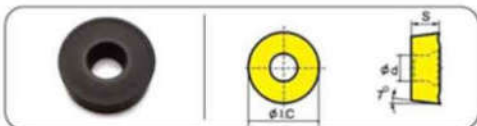
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DNMG	150408-DW	432-DW	15.5	12.7	4.76	5.16	0.8		●																
	150604-DW	441-DW	15.5	12.7	6.35	5.16	0.4		●																
	150608-DW	442-DW	15.5	12.7	6.35	5.16	0.8		●																



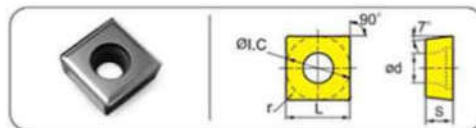
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	ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7238	XH7335	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136	
DNMG	150404-PM	431-PM	15.5	12.7	4.76	5.16	0.4	●																
	150604-PM	441-PM	15.5	12.7	6.35	5.16	0.4	●																



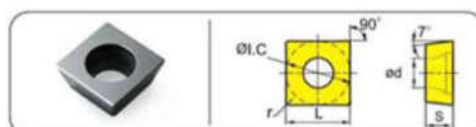
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RCMT	0602M0	6	6	2.38	2.8							●											
	1003M1	10	10	3.18	3.6							●											
	1204M0	12	12	4.76	4.4							●											



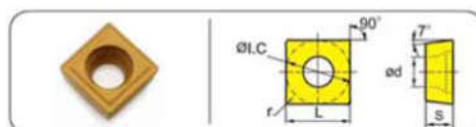
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RCMX	1204M0	12	12	4.76	4.4							●											
	1606M0	16	16	6.35	5.5							●											
	2006M0	20	20	6.35	6.5							●											
	2507M0	25	25	7.94	7.2							●											
	3209M0	32	32	9.52	9.5							●											



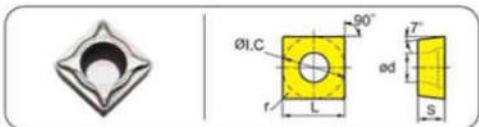
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SCET	150510	15.88	15.88	5.7	5.56	1.2					●												



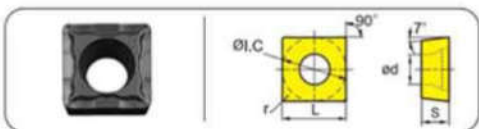
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SCMW	09T302	3(2.5)0	9.525	9.525	3.97	4.4	0.2					●	●										



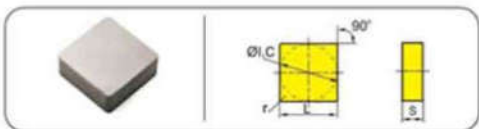
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SCMT	09T304	3(2.5)1	9.525	9.525	3.97	4.4	0.4	●	●														
	09T304-TC	3(2.5)1-TC	9.525	9.525	3.97	4.4	0.4	●						●									



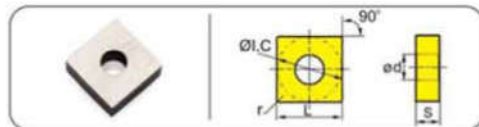
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ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7125	XM7225	XM7325	XM7238	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
SCMT	09T304-HF	3 (2.5) 1-HF	9.525	9.525	3.97	4.4	0.4	●														
	09T308-HF	3 (2.5) 2-HF	9.525	9.525	3.97	4.4	0.8	●														



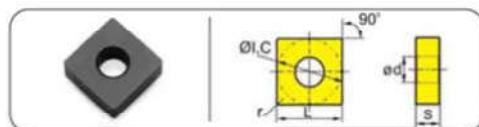
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SCMT	09T308-HM	3 (2.5) 2-HM	9.525	9.525	3.97	4.4	0.8	●														



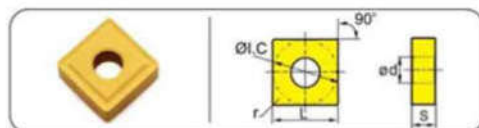
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ISO	INCH	L	φ I.C	S	r	XM7228	XM7226	XM7326	XM7125	XM7225	XM7325	XM7238	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
SNR	120402	430	12.7	12.7	4.76	0.2							●		●							●
	150402	530	15.88	15.88	4.76	0.2							●		●							●
SNUN	120412	433	12.7	12.7	4.76	1.2									●							
	190408	632	19.05	19.05	4.76	0.8									●							



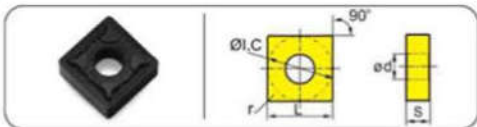
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SNRA	120402	430	12.7	12.7	4.76	5.16	0.2																●
SNGA	150612	543	15.88	15.88	6.35	6.35	1.2																●
	250716	854	23.4	23.4	7.94	9	1.6																●



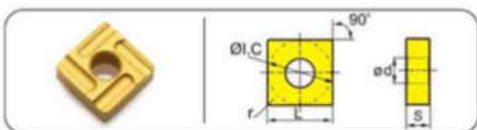
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SNMA	120412	433	12.7	12.7	4.76	5.16	1.2				●	●											
	190616	644	19.05	19.05	6.35	7.94	1.6				●	●											



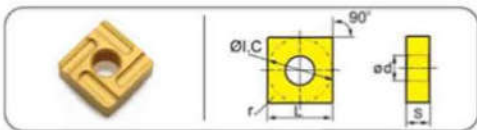
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SNMG	120408	432	12.7	12.7	4.76	5.16	0.8	●															



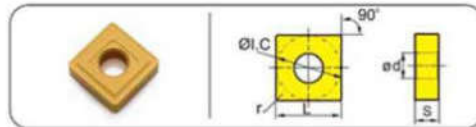
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SNMG	120404-PM	431-PM	12.7	12.7	4.76	5.16	0.4	●																		
	190612-PM	643-PM	19.05	19.05	6.35	7.94	1.2	●																		



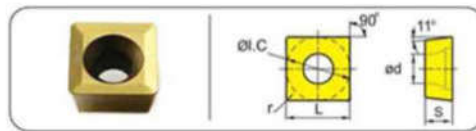
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SNMG	120408R-S	432R-S	12.7	12.7	4.76	5.16	0.8	●																	



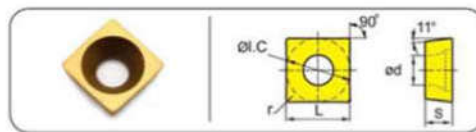
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SNMG	120408L-S	432L-S	12.7	12.7	4.76	5.16	0.8	●																	



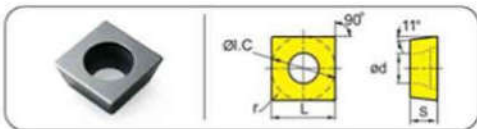
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SNMM	150612	543	15.875	15.875	6.35	6.35	1.2	●																	



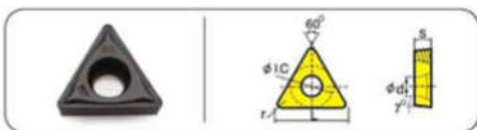
INSERT SHAPE 型号		DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金													CEMET 陶瓷					
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SPEB	090408P	332P	9.525	9.525	4.76	3.85	0.8	●																	



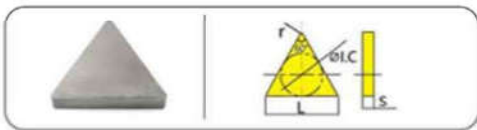
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SPEB	090308	322	9.525	9.525	3.18	4.4	0.4	●																	



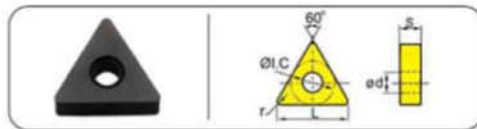
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SPWH	090304	321	9.525	9.525	3.18	4.4	0.4	●											●						



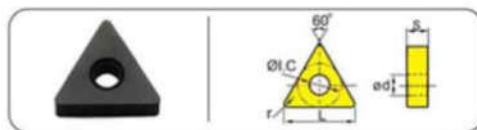
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TCMT	16T304-MP	3 (2.5) 1-MP	16.5	9.53	3.97	4.4	0.4	●																	
	16T308-MP	3 (2.5) 2-MP	16.5	9.53	3.97	4.4	0.8	●																	



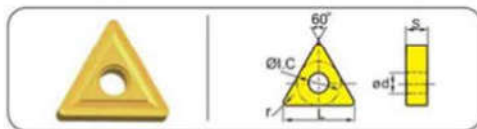
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TNR	220402	430	22	12.7	4.76	0.2																			
	270402	530	27	15.875	4.76	0.2																			
	330402	630	33	19.05	4.76	0.2																			



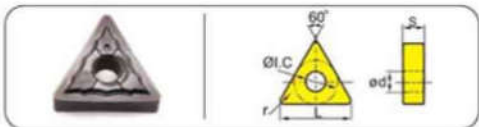
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ISO	INCH		L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7228	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136	
TNRA	220402	430	22	12.7	4.76	5.16	0.2																		
	220404	431	22	12.7	4.76	5.16	0.4																		



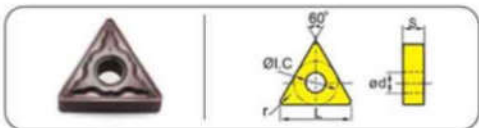
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TNWA	160404	331	16.5	9.525	4.76	3.81	0.4																		
	160408	332	16.5	9.525	4.76	3.81	0.8																		
	160412	333	16.5	9.525	4.76	3.81	1.2																		
	220408	432	22	12.7	4.76	5.16	0.8																		
	27.48		27.48	15.86	8	6.5	0																		



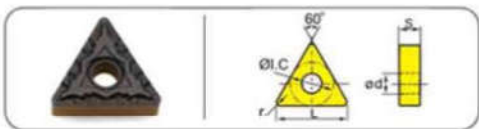
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ISO	INCH		L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7228	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136	
TNMG	270616	544	27.5	15.87	6.35	6.35	1.6	●																	



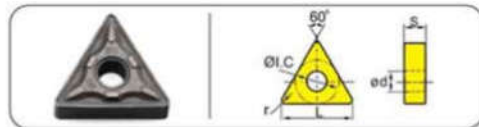
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TNMG	160408-BA	332-BA	16.5	9.525	4.76	3.81	0.8							●											



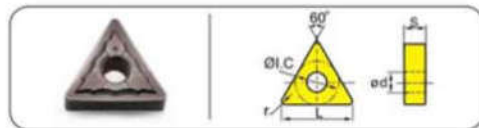
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TNMG	160408-BM	332-BM	16.5	9.525	4.76	3.81	0.8							●											



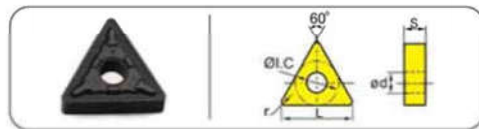
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TNMG	160408-CQ	332-CQ	16.5	9.525	4.76	3.81	0.8	●	●																
	160412-CQ	333-CQ	16.5	9.525	4.76	3.81	1.2	●	●																



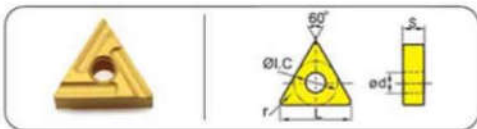
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TNMG	160408-DM	332-DM	16.5	9.525	4.76	3.81	0.8							●											
	220408-DM	432-DM	22	12.7	4.76	5.16	0.8	●							●						●				



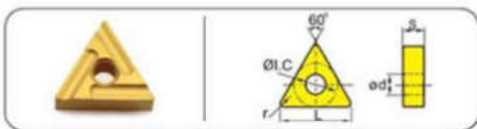
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TNMG	160408-HA	332-HA	16.5	9.525	4.76	3.81	0.8							●											



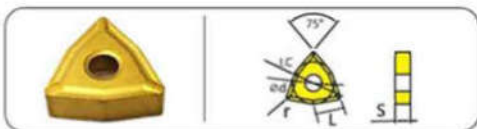
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TNMG	160404-PM	331-PM	16.5	9.525	4.76	3.81	0.4	●																	
	160408-PM	332-PM	16.5	9.525	4.76	3.81	0.8	●																	



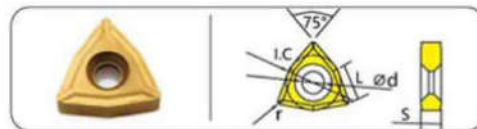
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TNMG	160404R-S	331R-S	16.5	9.525	4.76	3.81	0.4	●																	
	160408R-S	332R-S	16.5	9.525	4.76	3.81	0.8	●																	



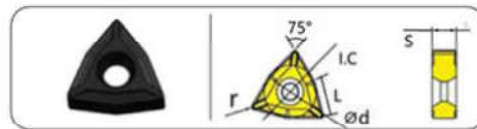
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TNMG	160404L-S	331L-S	16.5	9.525	4.76	3.81	0.4	●																	
	160408L-S	332L-S	16.5	9.525	4.76	3.81	0.8	●																	



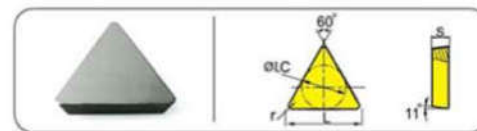
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	ISO	L	ϕ I.C	S	ϕ d	r	XM7228	XM7226	XM7326	XM9125	XM9225	XM9225	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136		
TNMX	1509-2	15.9	22.225	9.52	7.94	1.6	●																		



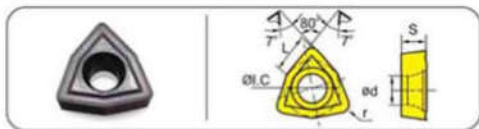
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TNMX	1106-2	11.3	15.87	6.35	6.35	1.6	●																	
	1509-1	15.9	22.22	9.65	8	1.6	●																	
	1509-X	15.8	22.22	9.65	8.1	1.6	●																	



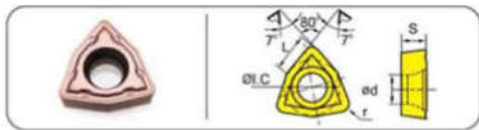
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TNMX	15T9-3	15.9	22.22	9.96	8	1.2	●																	



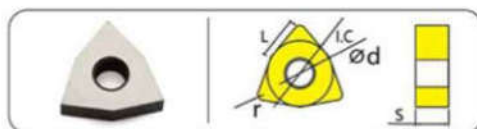
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TPUN	160308	16.5	9.525	3.18		0.8	●	●						●							●	●		
	220408	22	12.7	4.76		0.8	●	●						●							●	●		
	220412	22	12.7	4.76		1.2	●	●						●							●	●		



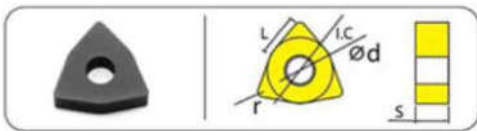
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ISO		L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7326	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	XP15	XM8135	XM8136	
WCMX	020104	2.7	3.97	1.65	2.38	0.4	●	●																
	030208-53	3.8	5.56	2.38	2.8	0.8		●																
	040208R-53	4.3	6.35	2.38	3.1	0.8		●																
	050308-53	5.4	7.938	3.18	3.2	0.8		●																
	06T308-53	6.5	9.525	3.97	3.7	0.8		●																
	080412-53	8.7	12.7	4.76	4.3	1.2		●																



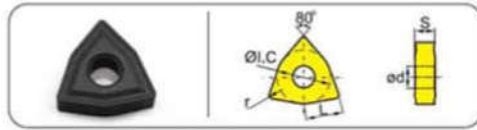
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ISO		L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7326	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	XP15	XM8135	XM8136	
WCMT	030208-X	3.8	5.56	2.38	2.8	0.8		●																
	040208-X	4.3	6.35	2.38	3	0.8		●																
	050308-X	5.4	7.94	3.18	3.4	0.8		●																
	06T308-X	6.5	9.525	3.97	3.8	0.8		●																
	080412-X	8.7	12.7	4.76	4.4	1.2		●																



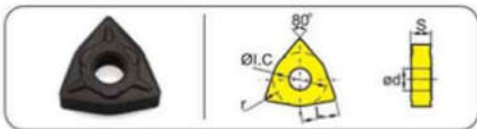
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ISO	INCH	L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7326	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	XP15	XM8135	XM8136	
WNMA	080404	431	8.7	12.7	4.76	5.16	0.4																	●



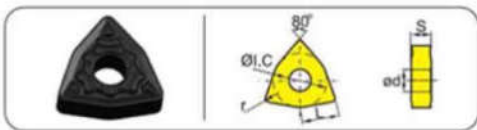
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WNMA	080408	432	8.7	12.7	4.76	5.16	0.8					●												
	080412	433	8.7	12.7	4.76	5.16	1.2					●												



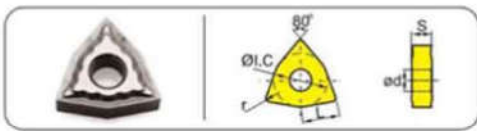
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ISO	INCH	L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7326	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	XP15	XM8135	XM8136	
WNMG	080404	431	8.7	12.7	4.76	5.16	0.4	●																
	080408-TC	432-TC	8.7	12.7	4.76	5.16	0.8	●																



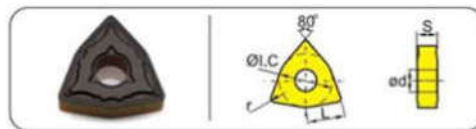
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WNMG	080412-DM	433-DM	8.7	12.7	4.76	5.16	1.2	●																	



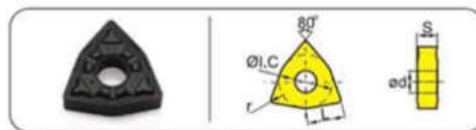
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WNMG	080412-EM	433-EM	8.7	12.7	4.76	5.16	1.2	●	●																



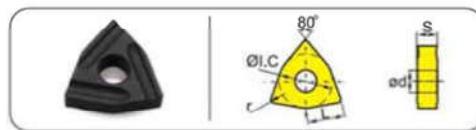
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	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7334	XH7134	X715	X735	X738	X725	X915	XH7135	XH8134	
WNMG	080408-MT	432-MT	8.7	12.7	4.76	5.16	0.8	●																	



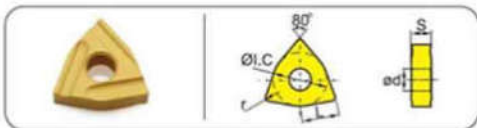
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	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7334	XH7134	X715	X735	X738	X725	X915	XH7135	XH8134	
WNMG	080408-OPM1	432-OPM1	8.7	12.7	4.76	5.16	0.8	●																	



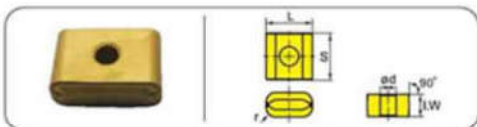
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	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7334	XH7134	X715	X735	X738	X725	X915	XH7135	XH8134	
WNMG	080404-PM	431-PM	8.7	12.7	4.76	5.16	0.4	●																	
	080408-PM	432-PM	8.7	12.7	4.76	5.16	0.8	●																	



INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金												CEMENT 陶瓷					
	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7334	XH7134	X715	X735	X738	X725	X915	XH7135	XH8134	
WNMG	080404R-S	431R-S	8.7	12.7	4.76	5.16	0.4	●																	
	080408R-S	432R-S	8.7	12.7	4.76	5.16	0.8	●																	



INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金												CEMET 金陶					
	ISO	INCH	L	φ L.C	S	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7228	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136	
WNMG	080404L-S	431L-S	8.7	12.7	4.76	5.16	0.4	●																	
	080408L-S	432L-S	8.7	12.7	4.76	5.16	0.8	●																	



INSERT SHAPE 型号		DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金												CEMET 金陶				
	L	LW	S	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7228	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
175.32-301940	30	10	19.05	6.35	4	●																	

金属陶瓷硬质相的主要成分为TiCN。这种硬质相与硬质合金的硬质相WC相比，高温强度和抗氧化性能更优越，并难与被切削材料发生反应。

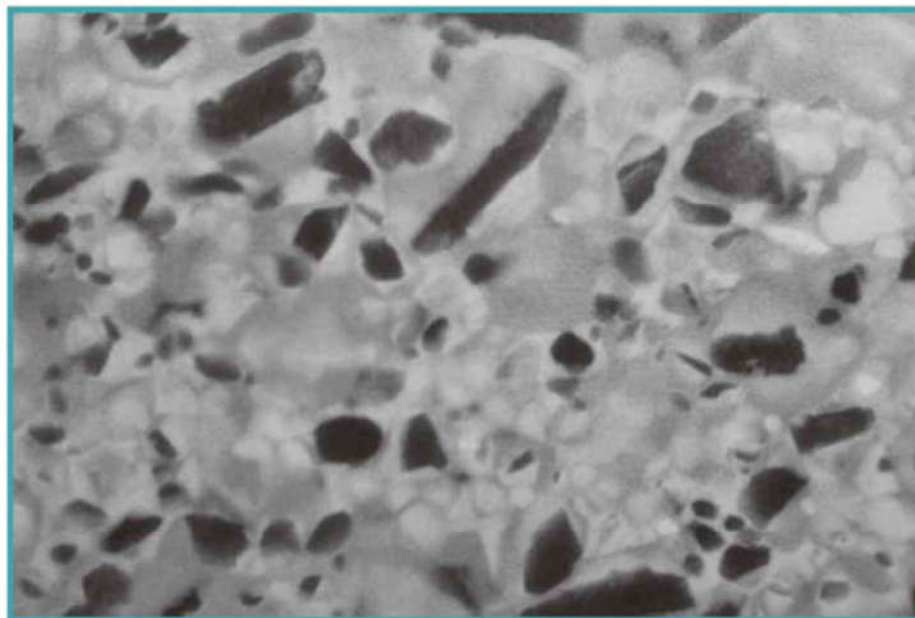
XH7135、XH8136 TiCN 基金属陶瓷，提高了化学稳定性和耐磨性，结合锋利的切削刃槽型使用，无论在高速和低速条件下都能保证加工件的表面质量。适合于钢、不锈钢、铸铁的精加工。

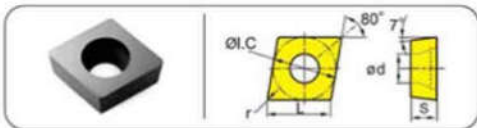
XH7135、XH8136 TiCN 基金属陶瓷，于XH7135、XH8136相比，韧性更好，具有极好的抗塑性变形和积屑瘤性。适合于钢、不锈钢、铸铁的半精和精加工。

TiCN are the main composition of cermet. WC of cermet has higher hardness and oxygen-resistant than cemented carbide in high temperature. It is hard to react with work-piece.

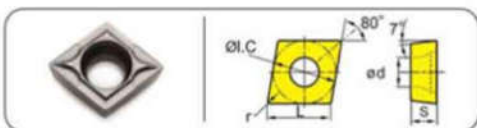
XH7135、XH8136 TiCN based cermet, improves chemic stability and wear-resistant. Using with sharp cutting edge and chip-breaker, it can be got good surface quality whether under conditions of high speed or low speed. It is suitable for finishing machining steel, stainless steel and cast iron.

XH7135、XH8136 TiCN based cermet, with better toughness than XH7135、XH8136, fine resistant thermoplastic transmutation and resistant built-up. It is suitable for semi-finishing and finishing machining steel, stainless steel and cast iron.

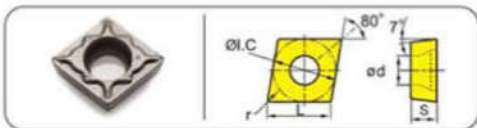




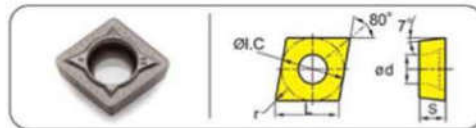
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ISO	INCH	L	φ1.C	S	φd	r	XM7228	XM7226	XM7224	XM7220	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X755	X915	XM7135	XM8136
CCGM	09T302	3 (2.5) 0	9.7	9.525	3.97	4.4	0.2																●	●



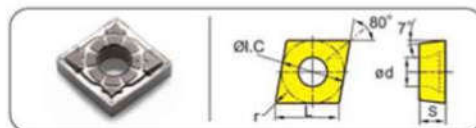
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ISO	INCH	L	φ1.C	S	φd	r	XM7228	XM7226	XM7224	XM7220	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X755	X915	XM7135	XM8136
CCMT	060204	2 (1.5) 1	6.4	6.35	2.38	2.8	0.4																●	●
	09T304	3 (2.5) 1	9.7	9.525	3.97	4.4	0.4																●	●



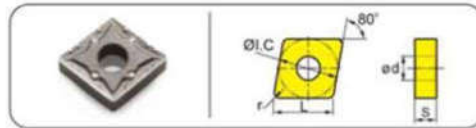
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ISO	INCH	L	φ1.C	S	φd	r	XM7228	XM7226	XM7224	XM7220	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X755	X915	XM7135	XM8136
CCMT	060204-FGH	2 (1.5) 1-FGH	6.4	6.35	2.38	2.8	0.4																●	●
	09T304-FGH	3 (2.5) 1-FGH	9.7	9.525	3.97	4.4	0.4																●	●
	09T308-FGH	3 (2.5) 2-FGH	9.7	9.525	3.97	4.4	0.8																●	●



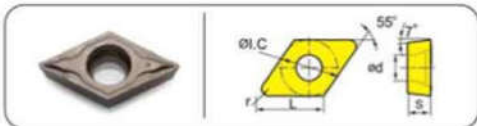
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ISO	INCH	L	φ1.C	S	φd	r	XM7228	XM7226	XM7224	XM7220	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X755	X915	XM7135	XM8136
CCMT	060204-MTH	2 (1.5) 1-MTH	6.4	6.35	2.38	2.8	0.4																●	●
	060208-MTH	2 (1.5) 2-MTH	6.4	6.35	2.38	2.8	0.8																●	●
	09T304-MTH	3 (2.5) 1-MTH	9.7	9.525	3.97	4.4	0.4																●	●
	09T308-MTH	3 (2.5) 2-MTH	9.7	9.525	3.97	4.4	0.8																●	●



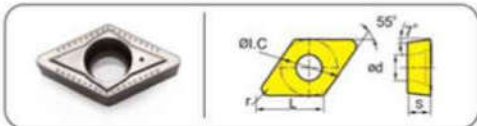
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ISO	INCH	L	φ1.C	S	φd	r	XM7228	XM7226	XM7224	XM7220	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X755	X915	XM7135	XM8136
CNMG	120404-FGH	431-FGH	12.9	12.7	4.76	5.16	0.4																●	●
	120408-FGH	432-FGH	12.9	12.7	4.76	5.16	0.8																●	●



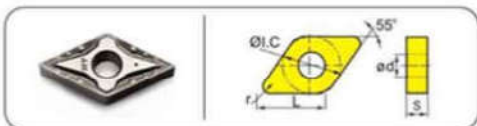
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ISO	INCH	L	φ1.C	S	φd	r	XM7228	XM7226	XM7224	XM7220	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X755	X915	XM7135	XM8136
CNMG	120404-MTH	431-MTH	12.9	12.7	4.76	5.16	0.4																●	●
	120408-MTH	432-MTH	12.9	12.7	4.76	5.16	0.8																●	●



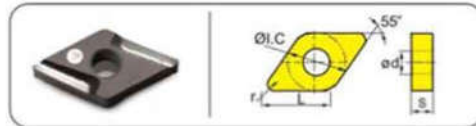
INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金												CERMET 金属陶瓷						
	ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7226	XM7226	XM9125	XM9225	XM9225	XM7228	XM7326	XM7326	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
DCMT	070204-FGH	2 (1.5) 1-FGH	7.8	6.35	2.38	2.8	0.4																			●●
	11T304-FGH	3 (2.5) -FGH	11.6	9.525	3.97	4.4	0.4																			●●
	11T308-FGH	3 (2.5) 2-FGH	11.6	9.525	3.97	4.4	0.8																			●●



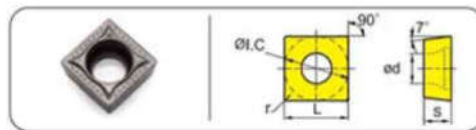
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	ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7226	XM7226	XM9125	XM9225	XM9225	XM7228	XM7326	XM7326	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
DCMT	11T304-MTH	3 (2.5) 1-MTH	11.6	9.525	3.97	4.4	0.4																			●●
	11T308-MTH	3 (2.5) 2-MTH	11.6	9.525	3.97	4.4	0.8																			●●



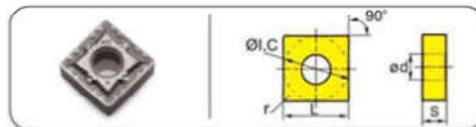
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	ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7226	XM7226	XM9125	XM9225	XM9225	XM7228	XM7326	XM7326	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
DNMG	150404-MTH	431-MTH	15.5	12.7	4.76	5.16	0.4																			●●
	150408-MTH	432-MTH	15.5	12.7	4.76	5.16	0.8																			●●



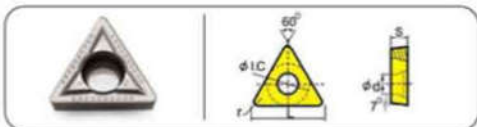
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	ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7226	XM7226	XM9125	XM9225	XM9225	XM7228	XM7326	XM7326	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
DNMG	150404R-VFH	431R-VFH	15.5	12.7	4.76	5.16	0.4																			●●



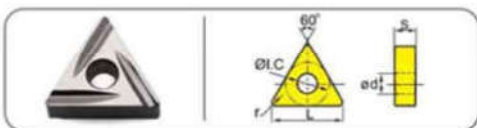
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	ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7226	XM7226	XM9125	XM9225	XM9225	XM7228	XM7326	XM7326	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
SCMT	09T304-MTH	3 (2.5) 1-MTH	9.525	9.525	3.97	4.4	0.4																			●●



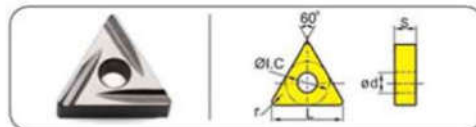
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	ISO	INCH	L	φ I.C	S	φ d	r	XM7228	XM7226	XM7226	XM7226	XM9125	XM9225	XM9225	XM7228	XM7326	XM7326	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
SNMG	120408-MTH	432-MTH	12.7	12.7	4.76	5.16	0.8																			●●



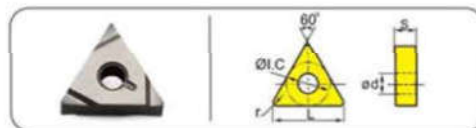
INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金														CERMET 金陶													
ISO	INCH	L	φ I.C.	S	φ d	r	XH728	XH726	XH725	XH724	XH723	XH722	XH721	XH720	XH719	XH718	XH717	XH716	XH715	XH714	XH713	XH712	XH711	XH710	XH709	XH708	XH707	XH706	XH705	XH704	XH703	XH702	XH701	XH700	
TCMT	090204-MTH	1.8 (1.5) 1-MTH	9.6	5.56	2.38	2.5	0.4																												●●
	110204-MTH	2 (1.5) 1-MTH	11	6.35	2.38	2.8	0.4																												●●
	16T304-MTH	3 (2.5) 1-MTH	16.5	9.525	3.97	4.4	0.4																												●●
	16T308-MTH	3 (2.5) 2-MTH	16.5	9.525	3.97	4.4	0.8																												●●



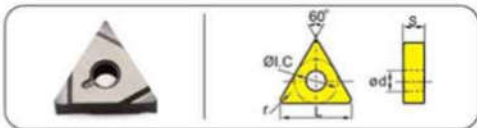
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ISO	INCH	L	φ I.C.	S	φ d	r	XH728	XH726	XH725	XH724	XH723	XH722	XH721	XH720	XH719	XH718	XH717	XH716	XH715	XH714	XH713	XH712	XH711	XH710	XH709	XH708	XH707	XH706	XH705	XH704	XH703	XH702	XH701	XH700	
TNGG	160402R-2G	430R-2G	16.5	9.525	4.76	3.81	0.2																												●●
	160404R-2G	431R-2G	16.5	9.525	4.76	3.81	0.4																												●●
	160408R-2G	432R-2G	16.5	9.525	4.76	3.81	0.8																												●●



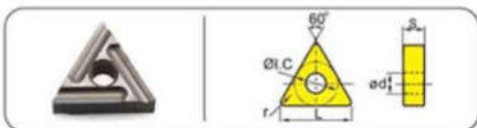
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ISO	INCH	L	φ I.C.	S	φ d	r	XH728	XH726	XH725	XH724	XH723	XH722	XH721	XH720	XH719	XH718	XH717	XH716	XH715	XH714	XH713	XH712	XH711	XH710	XH709	XH708	XH707	XH706	XH705	XH704	XH703	XH702	XH701	XH700	
TNGG	160402L-2G	430L-2G	16.5	9.525	4.76	3.81	0.2																												●●
	160404L-2G	431L-2G	16.5	9.525	4.76	3.81	0.4																												●●
	160408L-2G	432L-2G	16.5	9.525	4.76	3.81	0.8																												●●



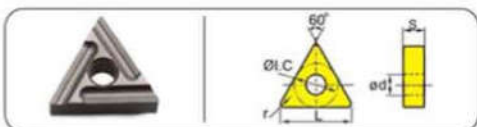
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ISO	INCH	L	φ I.C.	S	φ d	r	XH728	XH726	XH725	XH724	XH723	XH722	XH721	XH720	XH719	XH718	XH717	XH716	XH715	XH714	XH713	XH712	XH711	XH710	XH709	XH708	XH707	XH706	XH705	XH704	XH703	XH702	XH701	XH700	
TNGG	160402R-F	430R-F	16.5	9.525	4.76	3.81	0.2																												●●
	160404R-F	431R-F	16.5	9.525	4.76	3.81	0.4																												●●
	160408R-F	432R-F	16.5	9.525	4.76	3.81	0.8																												●●



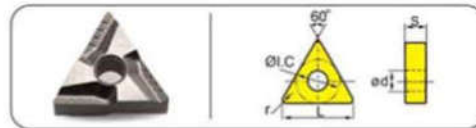
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TNMG	160402L-F	430L-F	16.5	9.525	4.76	3.81	0.2																		●●
	160404L-F	431L-F	16.5	9.525	4.76	3.81	0.4																		●●
	160408L-F	432L-F	16.5	9.525	4.76	3.81	0.8																		●●



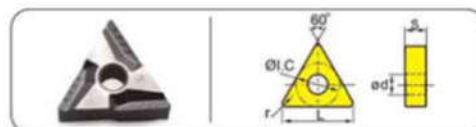
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	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM7228	XM7226	XM7326	XM9125	XM9225	XM9325	XM7228	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
TNMG	160404R-FSH	431R-FSH	16.5	9.525	4.76	3.81	0.4																		●●
	160408R-FSH	432R-FSH	16.5	9.525	4.76	3.81	0.8																		●●



INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金											CERMET 金陶						
	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM7228	XM7226	XM7226	XM9125	XM9225	XM9325	XM7228	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
TNMG	160404L-FSH	431L-FSH	16.5	9.525	4.76	3.81	0.4																		●●
	160408L-FSH	432L-FSH	16.5	9.525	4.76	3.81	0.8																		●●



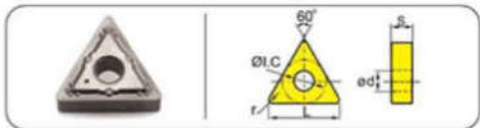
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TNMG	160404R-VFH	431R-VFH	16.5	9.525	4.76	3.81	0.4																		●●
	160408R-VFH	432R-VFH	16.5	9.525	4.76	3.81	0.8																		●●



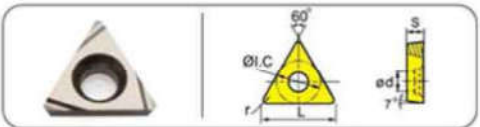
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TNMG	160404L-VFH	431L-VFH	16.5	9.525	4.76	3.81	0.4																		●●
	160408L-VFH	432L-VFH	16.5	9.525	4.76	3.81	0.8																		●●



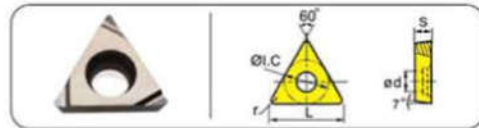
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	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM7228	XM7226	XM7326	XM9125	XM9225	XM9325	XM7228	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
TNMG	160404L-FGH	431L-FGH	16.5	9.525	4.76	3.81	0.4																		●●
	160408L-FGH	432L-FGH	16.5	9.525	4.76	3.81	0.8																		●●



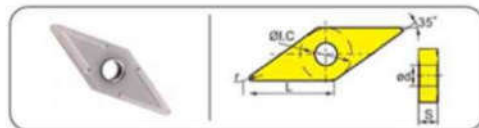
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ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM7228	XM7226	XM7218	XM9125	XM9225	XM9325	XM7228	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
TNMG	160404-MTH	431-MTH	16.5	9.525	4.76	3.81	0.4																	●●
	160408-MTH	432-MTH	16.5	9.525	4.76	3.81	0.8																	●●



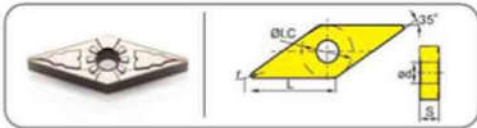
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ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM7228	XM7226	XM7218	XM9125	XM9225	XM9325	XM7228	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
TPGH	080202R		8.2	4.76	2.38	2.44	0.2																	●●
	080204R		8.2	4.76	2.38	2.44	0.4																	●●
	090202R		9.6	5.56	2.38	3.2	0.2																	●●
	090204R		9.6	5.56	2.38	3.2	0.4																	●●
	110302R		11	6.35	3.18	3.4	0.2																	●●
	110304R		11	6.35	3.18	3.4	0.4																	●●



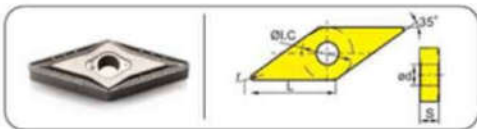
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TPGH	080202L		8.2	4.76	2.38	2.44	0.2																	●●
	080204L		8.2	4.76	2.38	2.44	0.4																	●●
	090202L		9.6	5.56	2.38	3.2	0.2																	●●
	090204L		9.6	5.56	2.38	3.2	0.4																	●●
	110302L		11	6.35	3.18	3.4	0.2																	●●
	110304L		11	6.35	3.18	3.4	0.4																	●●



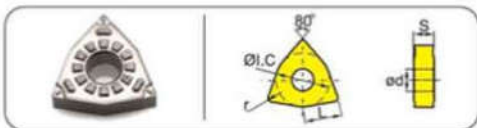
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ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM7228	XM7226	XM7218	XM9125	XM9225	XM9325	XM7228	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
VNMG	160404	431	16.6	9.525	4.76	3.81	0.4																	●●



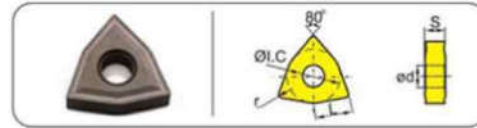
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ISO	INCH	L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7226	XM7226	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136	
VNMG	160404-FGH	431-FGH	16.6	9.525	4.76	3.81	0.4																	●	●



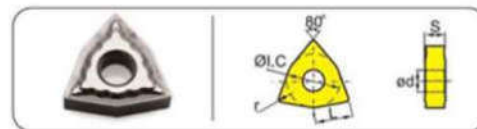
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ISO	INCH	L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7226	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136		
VNMG	160404-MTH	431-MTH	16.6	9.525	4.76	3.81	0.4																	●	●
	160408-MTH	432-MTH	16.6	9.525	4.76	3.81	0.8																		●



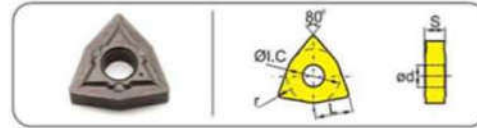
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WNMG	080404-FGH	431-FGH	8.7	12.7	4.76	5.16	0.4																	●	●
	080408-FGH	432-FGH	8.7	12.7	4.76	5.16	0.8																		●



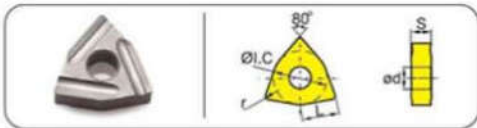
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ISO	INCH	L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7226	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136		
WNMG	080404-MSH	431-MSH	8.7	12.7	4.76	5.16	0.4																	●	●
	080408-MSH	432-MSH	8.7	12.7	4.76	5.16	0.8																		●



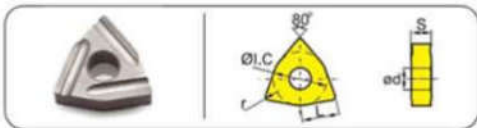
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ISO	INCH	L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7226	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136		
WNMG	080404-MTH	431-MTH	8.7	12.7	4.76	5.16	0.4																	●	●



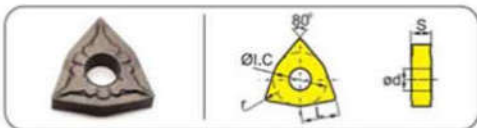
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ISO	INCH	L	φ I.C.	S	φ d	r	XM7228	XM7226	XM7226	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM7135	XM8136		
WNMG	080408-MTH	431-MTH	8.7	12.7	4.76	5.16	0.8																	●	●



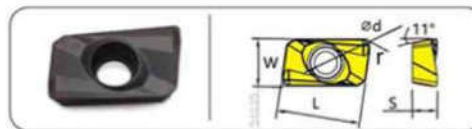
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WNMG	080404R-SH	431R-SH	8.7	12.7	4.76	5.16	0.4																		● ●
	080408R-SH	432R-SH	8.7	12.7	4.76	5.16	0.8																		● ●



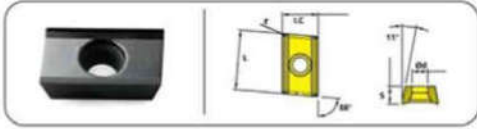
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	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM728	XM726	XM720	XP9125	XP9225	XP9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	XP915	XM7135	XM8136	
WNMG	080404L-SH	431L-SH	8.7	12.7	4.76	5.16	0.4																		● ●
	080408L-SH	432L-SH	8.7	12.7	4.76	5.16	0.8																		● ●



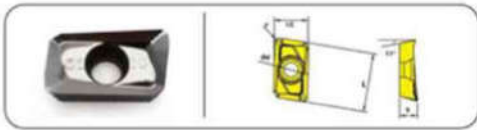
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	ISO	INCH	L	ϕ I.C	S	ϕ d	r	XM728	XM726	XM720	XP9125	XP9225	XP9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	XP915	XM7135	XM8136	
WNMG	080404-TSH	431-TSH	8.7	12.7	4.76	5.16	0.4																		● ●



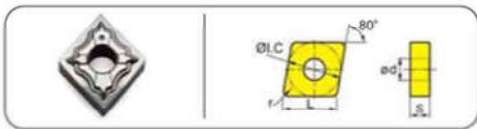
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	ISO	INCH	L	W	S	ϕ d	r	XM728	XM726	XM7326	XP9125	XP9225	XP9225	XP9225	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	XP915	XM7135	XM8136
APMT	1135PDER-H2H		11.25	6.2	3.5	2.8	0.8																		● ●
	1604PDER-H2H		17.25	9.25	4.76	4.4	0.8																		



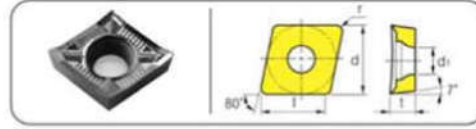
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ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH7125	XH7225	XH7325	XH7238	XH7335	XH7336	XH7136	X715	X735	X725	X915	XH7135	XH8136
APKT	1604P DFA-MA	16.4	9.525	4.76	4.4	0.2														●		



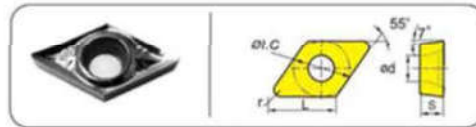
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ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH7125	XH7225	XH7325	XH7238	XH7335	XH7336	XH7136	X715	X735	X725	X915	XH7135	XH8136
APGT	1135P DER-G2	11	6.35	3.5	2.8	0.8															●	
	1604P DER-G2	16.5	9.525	4.76	4.4	0.8															●	



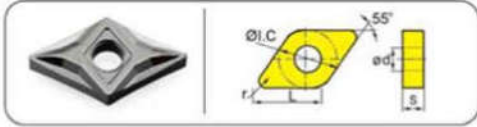
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ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH7125	XH7225	XH7325	XH7238	XH7335	XH7336	XH7136	X715	X735	X725	X915	XH7135	XH8136
CNMG	120402-HA	430-HA	12.9	12.7	4.76	5.16	0.2														●	
	120404-HA	431-HA	12.9	12.7	4.76	5.16	0.4														●	
	120408-HA	432-HA	12.9	12.7	4.76	5.16	0.8														●	



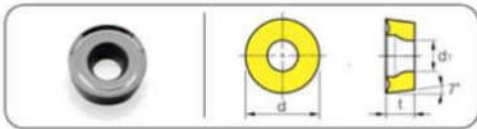
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ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH7125	XH7225	XH7325	XH7238	XH7335	XH7336	XH7136	X715	X735	X725	X915	XH7135	XH8136
CCGT	060202-LH	2 (1.5) 0-LH	6.4	6.35	2.38	±2.8	0.2														●	
	060204-LH	2 (1.5) 1-LH	6.4	6.35	2.38	±2.8	0.4														●	
	060208-LH	2 (1.5) 2-LH	6.4	6.35	2.38	2.8	0.8														●	
	09T302-LH	3 (2.5) 0-LH	9.7	9.525	3.97	±4.4	0.2														●	
	09T304-LH	3 (2.5) 1-LH	9.7	9.525	3.97	4.4	0.4														●	
	09T308-LH	3 (2.5) 2-LH	9.7	9.525	3.97	4.4	0.8														●	
	120402-LH	430-LH	12.9	12.7	4.76	5.5	0.2														●	
120404-LH	431-LH	12.9	12.7	4.76	5.5	0.4														●		
120408-LH	432-LH	12.9	12.7	4.76	5.5	0.8														●		



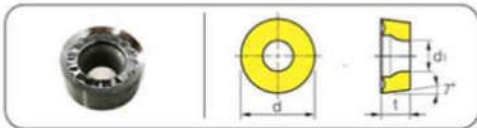
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ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH7125	XH7225	XH7325	XH7238	XH7335	XH7336	XH7136	X715	X735	X725	X915	XH7135	XH8136
DCGT	070202-LH	2 (1.5) 0-LH	7.8	6.35	2.38	±2.8	0.2														●	
	070204-LH	2 (1.5) 1-LH	7.8	6.35	2.38	±2.8	0.4														●	
	11T302-LH	3 (2.5) 0-LH	11.6	9.525	3.97	±4.4	0.2														●	
	11T304-LH	3 (2.5) 1-LH	11.6	9.525	3.97	±4.4	0.4														●	
	11T308-LH	3 (2.5) 2-LH	11.6	9.525	3.97	±4.4	0.8														●	



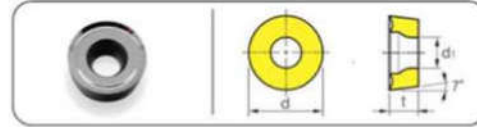
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ISO		L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136		
DNGG	150404-LH	431-LH	15.5	12.7	4.76	5.16	0.4																		●



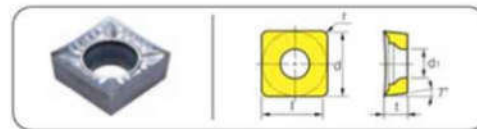
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ISO		φ I.C	S	φ d	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136				
RBGT	1906M0	19.05	6.35	7.94																					●



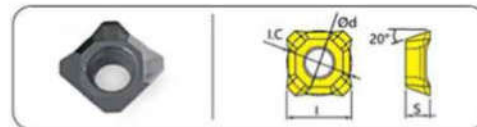
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ISO		φ I.C	S	φ d	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136					
RCGT	0803M0-FX	8	3.18	3.35																					●	
	1003M0-LH	10	3.18	4																						●
	1204-LH	12	4.76	4.4																						●



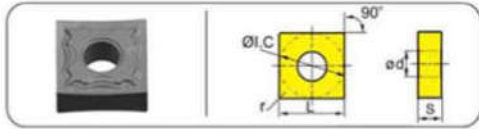
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RCGT	1204M0-12	12	4.76	4.4																					●
	1204-FX	12	4.76	4.4																					



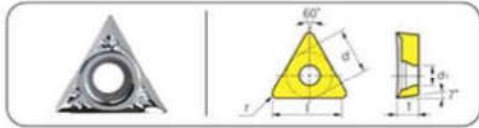
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SCGT	09T304-LH	3 (2.5) 1-LH	9.525	9.525	3.97	4.4	0.4																		●	
	09T308-LH	3 (2.5) 2-LH	9.525	9.525	3.97	4.4	0.8																			●
	120404-LH	431-LH	12.7	12.7	4.76	5.5	0.4																			●
	120408-LH	432-LH	12.7	12.7	4.76	5.5	0.8																			●



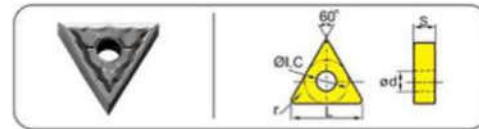
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SEET	1204AFN-LH		12.7	12.7	4.76	5.5																			●



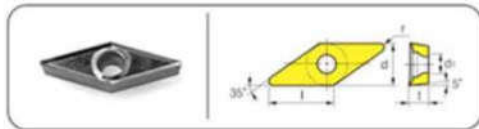
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SNMG	120404-VH	431-VH	12.7	12.7	4.76	5.16	0.4															●		



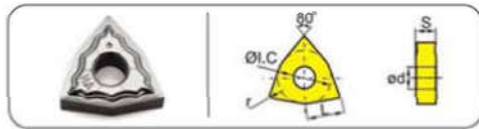
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TCGT	090204-LH	1.8 (1.5) 1-LH	9.6	5.56	2.38	2.5	0.4															●		
	090208-LH	1.8 (1.5) 2-LH	9.6	5.56	2.38	2.5	0.8															●		
	110202-LH	2 (1.5) 0-LH	11	6.35	2.38	2.8	0.2															●		
	110204-LH	2 (1.5) 1-LH	11	6.35	2.38	2.8	0.4															●		
	110208-LH	2 (2.5) 2-LH	11	6.35	2.38	2.8	0.2															●		
	16T302-LH	3 (2.5) 0-LH	16.5	9.525	3.97	4.4	0.4															●		
	16T304-LH	3 (2.5) 1-LH	16.5	9.525	3.97	4.4	0.4															●		
16T308-LH	3 (2.5) 2-LH	16.5	9.525	3.97	4.4	0.8															●			



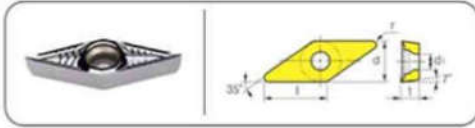
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TNMG	160404-HA	431-HA	16.5	9.525	4.76	3.81	0.4															●		
	160408-HA	432-HA	16.5	9.525	4.76	3.81	0.8															●		



INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金													CEMENT 金陶			
	ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH7125	XH9225	XH7238	XH7335	XH7336	XH7134	X715	X735	X738	X725	X915	XH7135	XH8134	
VBGT	110304-LH	2 (1.5) 1-LH	11	6.35	3.18	2.8	0.4															●		



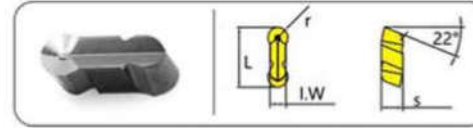
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WNMG	080408-HA	432-HA	8.7	12.7	4.76	5.16	0.8															●		
	080404-HA	431-HA	8.7	12.7	4.76	5.16	0.4															●		



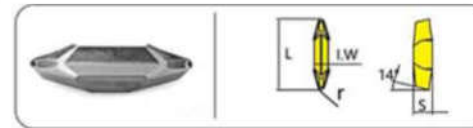
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VC6T	110302-LH	2(1.5)0-LH	11	6.35	3.18	2.8	0.2																
	110304-LH	2(1.5)1-LH	11	6.35	3.18	2.8	0.4																
	160402-LH	330-LH	16.6	9.525	4.76	4.4	0.2																
	160404-LH	331-LH	16.6	9.525	4.76	4.4	0.4																
	160408-LH	332-LH	16.6	9.525	4.76	4.4	0.8																
	160412-LH	333-LH	16.6	9.525	4.76	4.4	1.2																
	220525-LH		15.6	12.7	5.56	5.6	2.5																
	220530-LH		15.6	12.7	5.56	5.6	3.0																



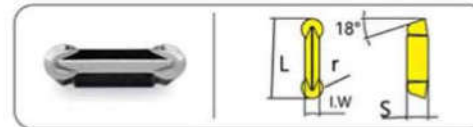
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ISO	INCH	L	φ I.C	S	φ d	r	XH7228	XH7226	XH7326	XH7125	XH9225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136	
WCGX	030208-LH		3.47	5.55	2.38	2.65	0.8																
	040208-LH		4.2	6.35	2.38	2.85	0.8																
	050308-LH		5.3	7.94	3.18	3.4	0.8																
	06T308-LH		6.1	9.525	3.97	4	0.8																
	080408-LH		8.3	12.7	4.76	4.4	0.8																



INSERT SHAPE 型号		DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶				
L	I.W	S	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136			
GIPA6.0-3.0		18	4.8	6.5	3.0																	



INSERT SHAPE 型号		DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶				
L	I.W	S	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136			
GIPATZ-35Y-1.2KF-P		30	6	8.2	1.2																	



INSERT SHAPE 型号		DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶				
L	I.W	S	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH7135	XH8136			
GIPA6.0-4.0		30	5.6	8.2	4																	

原因		解决方法	刀具材料		切削条件			刀具形状				机床装夹				
			硬度更高的材料	进给量	切削速度	进给	切深	切削液	改变刀片槽型	前角	刀尖圆弧半径	主偏角	切削刃强度	提高刀片精度	提高刀柄刚性	工件刀柄装夹
常见问题	刀尖磨损过大	加工中精度超标	后刀面磨损增大	✓							↑					
			切削条件不适合		↓	↑										
表面精度恶化	表面质量差	刀具磨损增大、刀刃不够锋利	✓	↓		✓	↑	↑	↓	✓						
		切削刃缺损	✓	↓	↓	✓	↑	↑	↓	✓	✓	✓	✓			
		切削刃几何形状不合适					✓	↑	↓	✓						
		切削条件不适合		↑	↓	↓	✓	↑	↓	✓	✓	✓	✓			
		抖动、发颤	✓	↑	↓	↓	✓	↑	↑	↓	✓	✓	✓	✓	✓	
		积屑瘤		↑	↑	✓	✓	↑	↓	✓						
发热	切削热的影响	切削条件不适合		↓	↓											
		切削刃几何形状不合适	✓				✓	↑	↓							
尺寸精度差	加工中尺寸波动	刀片精度不合适										↓				
		工件、刀具位置偏移					✓	↑	↓	↑	✓	✓	✓	✓	✓	
刀具切削刃损伤	后刀面、前刀面磨损增大	后刀面磨损	✓		↓		✓	↑	↑	↓						
		前刀面磨损	✓	↓	↓	↓	✓	↑	↓	↓	✓					
	微崩	振动、冲击	✓	↓	↓	↓	✓	↑	↓	↓	✓	✓	✓	✓		
	积屑瘤	工件硬度与刀具切削条件不适合		↑	↑	✓	✓	↑		↓	✓					
	热龟裂	工件材料的硬度与刀具材料和切削条件不适应		↓	↓	↓	✓	✓		↓						
	切削刃尖端部分变形	在断续切削大进给时发生	✓	↑	↓	↓	✓	↑	↑	↓	↓					
	刀具寿命	材料、切削条件不适合	✓	↓	↓		✓	↑	↑	↓	↓	✓	✓	✓	✓	
切屑控制	长切屑缠绕	切削条件不适合		↓	↑	↑	✓									
		刀刃几何形状不合适					↑	↓	↑							
	切屑太短, 导致飞溅	切削条件不适合		↓	↓	↓	✓									
	刀刃几何形状不合适					✓	↑	↓								
毛刺、塌边	钢、铝, 产生毛刺	切削条件不适合		↑	↓	✓										
		刀具磨损, 几何形状不合适	✓				✓	↑	↓	↓	↑					
	铸铁, 塌边	切削条件不适合		↓	↑	✓										
		刀具磨损, 几何形状不合适	✓				✓	✓	↓	↓	↓					
软钢, 毛边	切削条件不适合			↓	↓											
	刀具磨损, 几何形状不合	✓				✓	↑	↑	↑	✓	✓	✓	✓	✓		

Frequent problems of turning and solutions

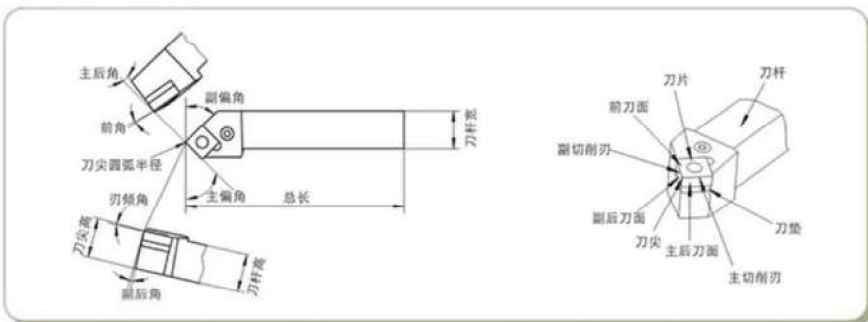
Common problem		Cause	Tool material		Cutting conditions			Tool shape					Machine clamping				
			Harder materials	Tougher materials	Cutting speed	Feed rate	Cutting depth	Cutting liquid	Change chip breaker of inserts	Back face	Rake radius	Approach angle	Cutting edge strength	Increase rigidity of tool holder	Increase precision of inserts	Reduce work piece overhang of tool holder	Overhang of tool holder
Chatter	Bad precision during machining	Abrasion intensified on flank	✓														
		Unsuitable cutting conditions			↓	↑											
Surface precision deterioration	Bad surface quality	Abrasion intensified and cutting edge not sharp enough	✓		↓			✓		↑	↑	↓	✓				
		Cutting edge breakage		✓	↓	↓	↓	✓		↑	↑	↓	✓	✓	✓	✓	
		Unsuitable geometrical shape of cutting edge						✓		↑	↑	↓	✓				
		Unsuitable cutting conditions			↓	↓	↓	✓		↑	↑	↓	✓	✓	✓	✓	✓
		vibration		✓	↑	↓	↓	✓	✓	↑	↑	↓	✓	✓	✓	✓	✓
	Built-up edge			↑	↑	↓	✓	✓	↑	↑	↓	✓					
Reduction	Effect of cutting heat	Unsuitable cutting conditions			↓	↓	↓										
		Unsuitable geometrical shape of cutting edge	✓					✓	↑	↑	↓						
Bad	Dimensions fluctuate during cutting	Insert tolerance											✓				
		Offset of work piece or tools								✓	↑	↑	↓	✓	✓	✓	✓
Breakage	Abrasion on flank and rake face	Abrasion on clearance face	✓		↓			✓	↑	↑	↓						
		Abrasion and impact	✓		↓	↓	↓	✓	↑	↑	↓						
	Edge chipping	Vibration and impact		✓	↓	↓	↓	✓		↑	↑	↓	✓	✓	✓	✓	
	Built-up edge	Unsuitable work piece hardness for cutting conditions			↑	↑		✓	↑	↑	↓	✓					
	Thermal cracking	Hardness of work piece material and tool material unsuitable for cutting conditions			↓	↓	↓	✓	↑	↑	↓						
	Cutting edge nose deformation	Occurring during intermittent machining with high feed	✓		↑	↓	↓	✓	↑	↑	↓						
	Tool life	Unsuitable materials and cutting conditions	✓		↓	↓	↓	✓	↑	↑	↓	✓	✓	✓	✓	✓	
Chip controlling	Long, unbroken and snarled chips	Unsuitable cutting condition			↓	↑	↑	✓									
		Unsuitable geometry						✓		↑	↑						
Burn and breakdown range	Too short and hard chips	Unsuitable cutting condition			↓	↓	↓	✓									
		Unsuitable geometrical shape of cutting edge						✓		↑	↑	↓					
	Steel and Al burrs occurring	Unsuitable cutting condition			↑	↓	↓	✓									
Edge break out on cast iron	Tool abrasion and unsuitable geometrical shape	Unsuitable cutting conditions			↓	↑	↓	✓									
		Tool abrasion and unsuitable geometrical shape	✓					✓	↑	↑	↓						
	Heavy burr on soft steel	Unsuitable cutting condition			↓	↓	↓	✓									
	Tool abrasion and unsuitable geometrical shape	✓					✓	↑	↑	↓							

刀具磨损类型	现象	原因	对应
后刀面磨损	切削阻力增加 在后刀面逐渐形成沟槽磨损	刀具材料过软 切削速度过高 后角过小 进给量太小	◆选用高耐磨性刀具材料 ◆降低切削速度 ◆增大后角 ◆加大进给量
前刀面磨损 (月牙洼磨损)	断屑控制不好 精加工表面恶化	刀具材料过软 切削速度过高 进给量太大	◆选用耐磨性高的刀具材料 ◆降低切削速度 ◆降低进给量
崩刃	突发性崩刃 刀具寿命不稳定	刀具材料过硬 进给量大 切削强度不足 刀杆、刀柄刚性不足	◆选用韧性好的刀具材料 ◆降低进给量 ◆加大刀口修磨量 (若是倒圆改为倒棱) ◆加大刀杆尺寸
破损	切削阻力增加 表面粗糙度恶化	刀具材料过硬 进给量大 切削刃强度不足 刀杆、刀柄刚性不足	◆选用韧性好的刀具材料 ◆降低进给量 ◆加大刀口修磨量 (若是倒圆改为倒棱) ◆加大刀杆尺寸
塑性变形 (刀刃塌下)	工件尺寸变化 刀尖磨损	刀具材料过软 切削速度过高 切削深度、进给量太大 切削刃温度过高	◆选用高耐磨性刀具材料 ◆降低切削速度 ◆减小切削深度、进给量 ◆选用导热系数高的刀具材料
积屑瘤 (粘结)	精加工表面恶化 切削阻力增加	切削速度低 切削刃不锋利 刀具材料不适合	◆提高切削速度 ◆增大前角 ◆选用亲和力小的刀具材料 (涂层、金属陶瓷等)
热龟裂	由于热循环而崩损 多出现在断续切削	切削热引起的膨胀与收缩 刀具材料过硬	◆干式切削 ◆选用韧性好的刀具材料
边界磨损	产生毛刺 切削阻力增加	进刀量过大、切削速度过高	◆选用高耐磨性刀具材料 ◆增大前角使切削刃锋利 ◆降低切削速度
剥落	多出现在高硬度材料、有振动的切削	切削刃上粘结 切屑排出不畅	◆增大前角使切削刃锋利 ◆增大刀片容屑槽

Tool damage type	Phenomenon	Cause	Solution
Flank wear	Cutting resistant force increasing Groove wear on flank	Tool material is too soft. Cutting speed is too high. Clearance angle is too small. Feed rate is too low.	◆Select tool materials with good wear resistance. ◆Reduce cutting speed. ◆Enlarge clearance angle. ◆Increase feed rate.
Rake face wear (Crater wear)	Bad chip controlling Surface quality deterioration	Tool material is too soft. Cutting speed is too high. Feed rate is too low.	◆Select tool materials with good wear resistance. ◆Reduce cutting speed. ◆Increase feed rate.
Cutting edge breakage	Occasional breakage Instability of tool life	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is small.	◆Select tool materials with good toughness. ◆Reduce feed rate. ◆Increase land width(if rounding changes into chamfering). ◆Enlarge tool bar size.
Breakage	Cutting resistant force increasing Deterioration of surface roughness	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is low.	◆Select tool materials with good toughness. ◆Reduce feed rate. ◆Increase land width(if rounding changes into chamfering). ◆Enlarge tool bar size.
Plastic deformation (Cutting edge collapse)	Work piece dimensions change Nose abrasion	Tool material is too soft. Cutting speed is too high. Cutting depth and feed rate are too high. Cutting edge temperature is too high.	◆Select tool materials with good wear resistance. ◆Reduce cutting speed. ◆Reduce cutting depth and feed rate. ◆Select tool materials with good heat conductivity.
Built-up edge (Bonding)	Surface quality deterioration during finishing Cutting resistant force increasing	Cutting speed is low. Cutting edge is not sharp enough. Tool material is unsuitable.	◆Increase cutting speed. ◆Enlarge rake angle. ◆Select tool materials that are not easy to adhere together(coating,cermet,etc).
Thermal cracking	Damage because of thermal circulation Normally occurring during intermittent machining	Premature edge failure due to thermal cracks. Tool material is too hard.	◆Adopt dry cutting. ◆Select tool materials with good toughness.
Chattering	Burrs occurring Cutting resistant force increasing	Feed rate and cutting speed are too high.	◆Select tool materials with good wear resistance. ◆Sharpen cutting edge by enlarging rake angle. ◆Reduce cutting speed.
Flaking	Usually occurring when machining super hard materials,which is accompanied with vibration	Bonding occurs on cutting edge. Chip flow is obstructed.	◆Sharpen cutting edge by enlarging rake angle. ◆Enlarge chip pocket.

车削刀具各部分作用

1 车刀各部分的名称



2 前角的影响

前角增大使切削刃锋利，切削流出阻力小，摩阻力小，切削变形小，因此切削力和切削功率小，切削温度低，刀具磨损小，加工表面质量高。但过大前角使刀具的刚性和强度降低，热量不易传散，刀具磨损和破损严重，刀具寿命低。在确定刀具前角时，应根据加工条件考虑选择。

选值	具体情况
小前角	<ul style="list-style-type: none"> 加工脆性材料和硬材料时 粗加工和断续切削时
大前角	<ul style="list-style-type: none"> 加工塑性材料和软材料时 精加工时

3 后角的影响

后角在加工中的主要作用是减小刀具后刀面与加工表面的摩擦。当前角固定时，后角的增大能增大刀刃的锋利程度，切削力减小，摩擦减小，故加工表面质量高；但是过大的后角使切削刃强度降低，散热条件差，磨损量大，因为刀具寿命降低。

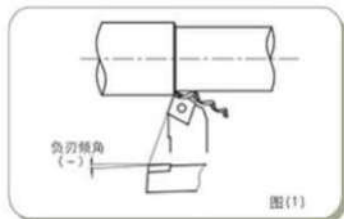
后角选择原则是：在摩擦不严重的情况下，选择较小的后角。

选值	具体情况
小后角	<ul style="list-style-type: none"> 粗加工时为提高刀尖强度 加工脆性材料和硬材料时
大后角	<ul style="list-style-type: none"> 精加工时为了减小摩擦 加工易产生硬化层的材料时

4 刃倾角的作用

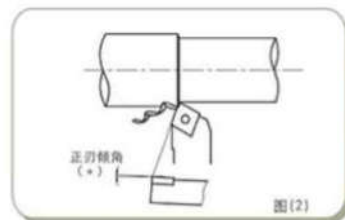
刃倾角的正负决定了切屑的排出方向，还影响刀尖强度和抗冲击性能。

◆如图(1)所示，当刃倾角为负时，即刀尖相对于车刀的底平面处于最低点，切削流向工件已加工表面。



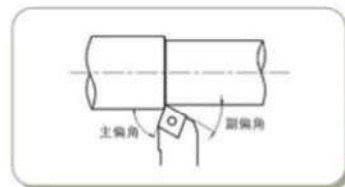
◆如图(2)所示，当刃倾角为正时，即刀尖相对于车刀的底平面处于最高点，切削流向工件未加工表面。

◆刃倾角的变化还能影响刀尖的强度和抗冲击性能。当刃倾角取负值时，刀尖在切削刃的最低点，切削刃切入工件时，切入点在切削刃或前刀面，保护刀尖免受冲击，增强刀尖强度。一般大前角刀具通常选用负的刃倾角，既可增强刀尖强度，又可避免刀尖切入时产生的冲击。



5 主偏角的影响

减小主偏角可以使刀具强度提高，散热条件好，加工表面粗糙度小。这是因为主偏角小时，切削速度长，故单位切削刃长度上受力小，同时主偏角减小能提高刀具的寿命。



通常，在车细长轴和阶梯轴时，选90°主偏角；在车外圆、端面和倒角时，选45°主偏角。
增大主偏角，径向分力减小，切削平稳，切削厚度增大，断屑性能好。

选值	具体情况
小主偏角	<ul style="list-style-type: none"> 高强度、高硬度和表面有硬化层的材料
大主偏角	<ul style="list-style-type: none"> 机床刚性不足时

6 副偏角的影响

副偏角是影响表面粗糙度的主要角度，它的大小也影响刀具强度。过小的副偏角，会增加副后面与已加工表面间摩擦，引起振动。

副偏角的选择原则是，在粗加工或者不影响摩擦和产生振动的条件下，应选取较小的副偏角；在精加工时可选择较大的副偏角。

7 刀尖圆弧半径

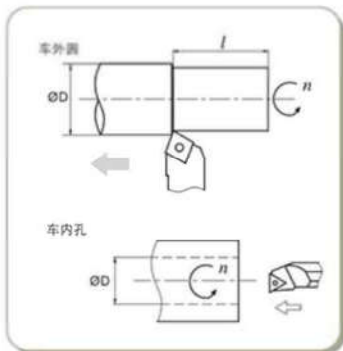
刀尖圆弧半径对刀尖强度及加工表面粗糙度影响很大。

刀尖圆弧半径大，切削刃强度增大，刀具前、后刀面磨损可以在某种程度上减小。但刀尖圆弧半径过大时，径向切削力增加，易产生振动，影响加工精度和工件表面粗糙度。

选值	具体情况
小的刀尖圆弧半径	<ul style="list-style-type: none"> 小切深的精加工 加工细长轴类零件 机床刚性不足时
大的刀尖圆弧半径	<ul style="list-style-type: none"> 粗加工时 加工硬材料、断续切削时 机床刚性好时

车削加工参数计算方法

1 切削速度的计算



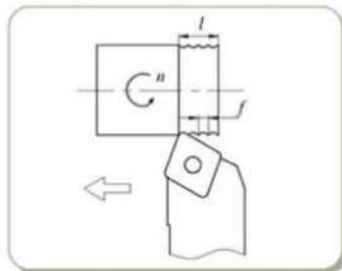
$$V_c = \frac{\pi \times D \times n}{1000} \quad (m/min)$$

式中: V_c : 切削速度(m/min)
 n : 主轴转速(rev/min)
 D : 工件直径(mm)

例如: 主轴转速为280rev/min, 切削直径为150mm的工件,
其切削速度为:

$$V_c = \frac{\pi \times D \times n}{1000} \quad (m/min) = 132(m/min)$$

2 进给量的计算



$$f = \frac{l}{n} \quad (mm/rev)$$

式中: f : 每转进给量(mm/rev)
 l : 每分钟切削长度(mm/min)
 n : 主轴转速(rev/min)

例如: 主轴转速为500rev/min, 每分钟切削长度为100mm/min,
其每转进给量为:

$$f = \frac{l}{n} = \frac{100}{500} = 0.2(mm/rev)$$



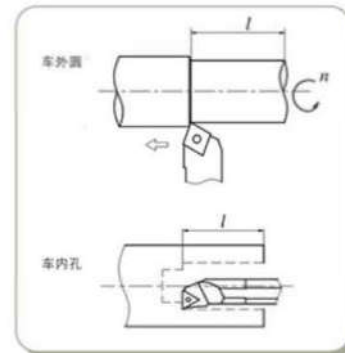
3 外圆、内孔切削时间的计算

$$T = \frac{l}{f \times n} \quad (min)$$

式中: T : 切削时间(min)
 l : 被切削部分长度(mm)
 f : 进给量(mm/rev)
 n : 主轴转速(rev/min)

例如: 求主轴转速为250rev/min, 进给量为0.2mm/rev,
切削长度为150mm的工件所用时间。

$$T = \frac{l}{f \times n} = \frac{150}{0.2 \times 250} = 3(min)$$

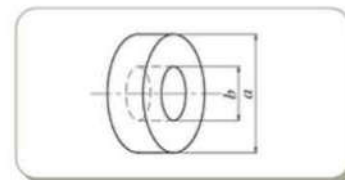


4 端面切削时间的计算(恒线速)

$$T = \frac{\pi \times (a^2 - b^2)}{4000 \times V_c \times f} \quad (min)$$

式中: T : 切削时间(min)
 V_c : 切削速度(m/min)
 f : 进给量(mm/rev)

当所切削的端面无内孔时, $b=0$, 公式亦适用。



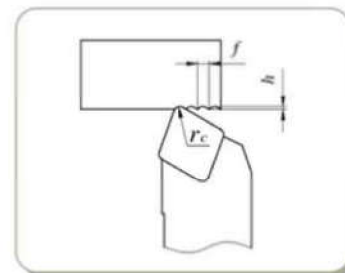
5 已加工表面粗糙度的理论值计算

$$R = \frac{f^2}{8r_c} \times 1000 \quad (\mu m)$$

式中: R : 已加工表面粗糙度理论值(μm)
 f : 进给量(mm/rev)
 r_c : 刀尖圆弧半径(mm)

例如: 进给量为0.2mm/rev, 刀尖圆弧半径为0.4mm时,
其已加工表面粗糙度理论值为:

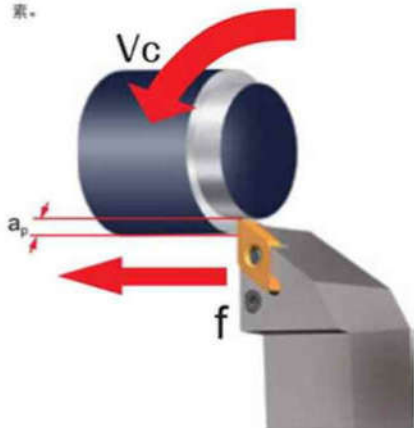
$$R = \frac{f^2}{8r_c} \times 1000 = \frac{0.2^2}{8 \times 0.4} \times 1000 = 12.5(\mu m)$$



车削三要素对加工的影响

三要素的影响

在切削加工中，通常都希望获得短的加工时间，长的刀具寿命和高的加工精度。因此，必须充分考虑工件材料的材质、硬度、形状状况及机床的性能，选择合适的刀具并使用高效率的切削条件，即我们所说的三要素。



切削速度 (Vc)

工件在车床上旋转，将其每分钟的转数定义为主轴转速 (n)。由于工件旋转，在其直径的切削点处产生切削速度，称为线速度，单位米/分钟。通常用线速度来考虑切削速度对加工的影响。

切削速度的影响

切削速度对刀具寿命有非常大的影响。提高切削速度时，切削温度就上升，而使刀具寿命大大缩短。加工不同种类、硬度的工件，切削速度会有相应的变化。通过大量的切削实验得出：

(1) 在通常情况下，切削速度提高20%，刀具耐用

度降低1/2；切削速度提高50%，刀具耐用度将降至原来的1/5。

(2) 低速 (20-40m/min) 切削易产生振动，使刀具寿命缩短。

进给量 (fn)

进给量是指工件每旋转一周，刀具的移动量，单位为毫米/转。

进给量的影响

进给量是决定被加工表面质量的关键因素，同时也影响加工时切屑形成的范围和切屑的厚度。

在对刀具寿命影响方面，进给量过小，后刀面磨损大，刀具寿命大幅降低；进给量过大，切削温度升高，后刀面磨损也增大，但较之切削速度对刀具寿命的影响要小。

切削深度 (ap)

切削深度指未加工表面与已加工表面之间的差值，单位毫米。它是工件未加工直径与已加工直径差值的一半。

切削深度的影响

切削深度应根据工件的加工余量、形状、机床功率、刚性及刀具的刚性来确定。

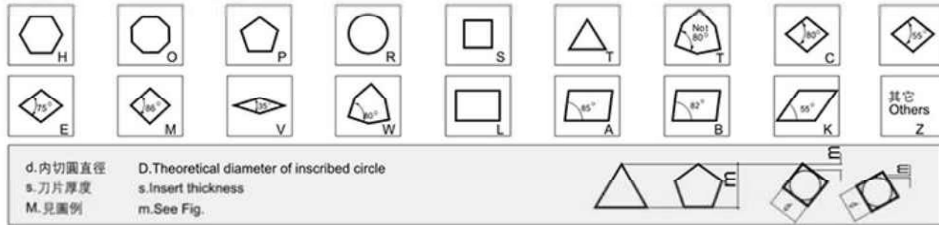
切削深度变化对刀具寿命影响不大。切削深度过小时，会造成刮擦，只切削工件表面的硬化层，缩短刀具寿命。当工件表面具有硬化的氧化层时，应在机床功率允许范围内选择尽可能大的切削深度，以避免刀尖只切削工件的表面硬化层，造成刀尖的异常磨损甚至破损。

工作材料 MATERIAL	ISO 使用 代号 ISO CODE	涂层硬质合金 COATED CEMENTED CARBIDE		金属陶瓷 METAL CERMET	硬质合金 CEMET CARBIDE
		CVD	PVD		
P 钢	10		XH7238	XH8136	XH7136 X715
	20			XH9135	X725 X738
	30	XH7326	XH7335		X735
	40				
M 不锈钢	10		XH7238		XH7136 X738
	20				
	30	XH7326			
	40				
K 铸铁	10		XH7238		XH7136 X915
	20				X738 X925
	30				X935
N 有色金属	10				X915
	20				X925

範例 Example



刀片形状 Insert shape



主切削刃后角 Major cutting edge Clearance angle



公差 Tolerances, mm inch

級別符號 Letter Symbol	公差 Tolerances in mm			公差-英寸 Tolerances in inches		
	m	s	d	m	s	d
A	±0.005	±0.025	±0.025	±0.0002	±0.001	±0.0010
F	±0.005	±0.025	±0.013	±0.0002	±0.001	±0.0005
C	±0.013	±0.025	±0.025	±0.0005	±0.001	±0.0010
H	±0.013	±0.025	±0.013	±0.0005	±0.001	±0.0005
E	±0.025	±0.025	±0.025	±0.0010	±0.001	±0.0010
G	±0.025	±0.13	±0.025	±0.0010	±0.005	±0.0010
J	±0.005	±0.025	±0.05 ±0.13	±0.0002	±0.001	±0.002 ±0.005
K	±0.013	±0.025	±0.05 ±0.13	±0.0005	±0.001	±0.002 ±0.005
L	±0.025	±0.025	±0.05 ±0.13	±0.0010	±0.001	±0.002 ±0.005
M	±0.05 ±0.15	±0.13	±0.05 ±0.13	±0.003 ±0.007	±0.005	±0.002 ±0.005
N	±0.05 ±0.15	±0.025	±0.05 ±0.13	±0.003 ±0.007	±0.001	±0.002 ±0.005
U	±0.13 ±0.38	±0.13	±0.05 ±0.25	±0.005 ±0.015	±0.005	±0.003 ±0.010

關於H, O, P, S, T, C, E, M, W, R, V, D型刀片，取決於刀片尺寸，參考下表。
Varies depending on the insert size for insert shapes H, O, P, S, T, C, E, M, W, R, V and D See table below
刀片形狀 H, O, P, S, T, C, E, M, W, R Insert shape H, O, P, S, T, C, E, M, W, R

内切圆直径 d Inscribed circle diameter		公差 m Tolerances for M				公差 d Tolerances for d			
		級別 M Class M		級別 U Class U		級別 M, J, K, L Class M, J, K, L		級別 U Class U	
(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in
6.35	0.250	±0.08	±0.003	±0.13	±0.005	±0.05	±0.002	±0.08	±0.003
9.525	0.375	±0.08	±0.003	±0.13	±0.005	±0.05	±0.002	±0.08	±0.003
12.7	0.500	±0.13	±0.005	±0.20	±0.008	±0.08	±0.003	±0.13	±0.005
15.875	0.625	±0.15	±0.006	±0.27	±0.011	±0.10	±0.004	±0.18	±0.007
19.05	0.750	±0.15	±0.006	±0.27	±0.011	±0.10	±0.004	±0.18	±0.007
25.4	1.000	±0.18	±0.007	±0.38	±0.015	±0.13	±0.005	±0.25	±0.010

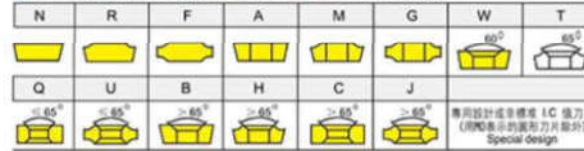
刀片形状 D Insert shape D

内切圆直径 d Inscribed circle diameter		公差 m Tolerance for m		公差 d Tolerance for d	
(mm)	in	(mm)	in	(mm)	in
6.35	0.250	±0.11	±0.004	±0.005	±0.002
9.525	0.375	±0.11	±0.004	±0.005	±0.002
12.70	0.500	±0.15	±0.006	±0.008	±0.003
15.875	0.625	±0.18	±0.007	±0.10	±0.004
19.05	0.750	±0.18	±0.007	±0.10	±0.004

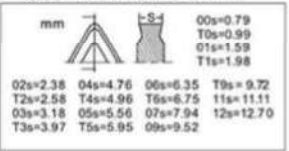
刀片形状 V Insert shape V

内切圆直径 d Inscribed circle diameter		公差 m Tolerance for m		公差 d Tolerance for d	
(mm)	in	(mm)	in	(mm)	in
6.35	0.250	±0.15	±0.006	±0.05	±0.002
9.525	0.375	±0.15	±0.006	±0.05	±0.002
12.70	0.500	±0.20	±0.008	±0.08	±0.003
15.875	0.625	±0.27	±0.011	±0.10	±0.004
19.05	0.750	±0.27	±0.011	±0.10	±0.004

新屑槽及夾固形式 Chipbreaker and/or fixing type



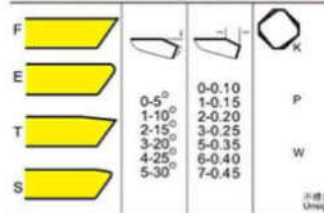
厚度 Insert thickness, s mm



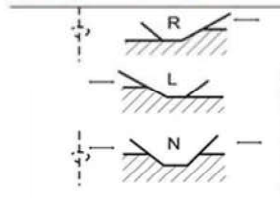
修光刃 Wiper land



切削刃倒棱 Cutting edge condition



進給方向 Feeding direction



切削刃長度 (mm) Cutting edge length (mm)

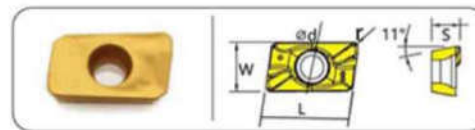
ic mm	ic inch	C	D	R	S	T	V	W	K
3.97	5/32"					06			
5.0				05					
5.56	7/32"					09			
6.0						06			
6.35	1/4"	06	07			11	11		
8.0						08			
9.525	3/8"	09	11	09	09	16	16	06	16"
10.0						10			
12.0						12			
12.7	1/2"	12	15	12	12	22	22	08	
15.875	5/8"	16				15	15	27	
16.0						16			
19.05	3/4"	19	19	19	19	33			
20.0						20			
25.0	1"	25	25	25					
25.4						25	25		
31.75						31			
32						32			

-DM 槽型代碼

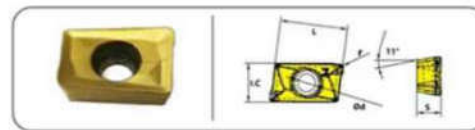
APTK-MM	APKT-XM	APMT-DM	MPHT-DM	OFHW	OFKR-DM	ONHU-PM	ONMU-NL
P74	P74	P74	P75	P75	P75	P76	P76
RBMT-MM	SDMT	SEKN	SEEN	SEKR	SEET-PF	SEET-PM	SEET-DM
P76	P77	P77	P77	P78	P78	P78	P79
SEKW	SNEX-MP	SNMX-MM	SPCN-XE (T) R	SPKN	SPCK/SPKW	SPKN-ED	TPCN/TPKN
P79	P79	P80	P80	P81	P82	P82	P83
TPKR-PDSR	R390-PL	R390-H13A	APKT-PM	APKT-R	APMT-M2	APMT-H2	APMT-DP
P84	P84	P84	P85	P85	P85	P86	P86
APMT-M02	RCET-M0	RDWT-M0	RDRT-M0T	RDKW-M0	ROKW-M0	ROKT-M0	RPKT-W0
P86	P87	P87	P87	P88	P88	P88	P89
RPKW/RPW	RPMT	RPMT-U	RPMT-DP	GL0L	LINE	SNC	LSE
P89	P89	P90	P90	P91	P91	P92	P92
SPE	SPMG-DG	WCMX	WCMT-X	CPMT	SDWH	SDWH-R1	SDWH-R2
P93	P94	P94	P95	P95	P96	P96	P97
SNMG-KH	SNMG-LF	SPEB	SPMW				
P97	P98	P98	P98				



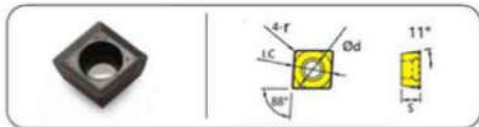
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	L	W	S	ϕd	r		XM7228	XM7226	XM7326	XM7125	XM7225	XM7325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X715	X915	XM8135	XM8136	
APKT 1604PDER-MM	16.41	9.525	5.2	4.4	0.8				●				●	●	●							●			



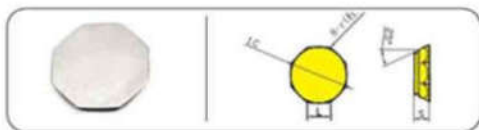
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	L	W	S	ϕd	r		XM7228	XM7226	XM7326	XM7125	XM7225	XM7325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X715	X915	XM8135	XM8136	
APKT 1135PDER-XM	10.9	6.26	3.5	2.8	0.8				●				●												



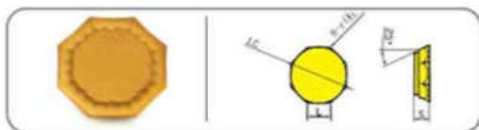
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APMT 100308PDER-DM	10.4	6.8	3.5	2.8	0.8				●				●												



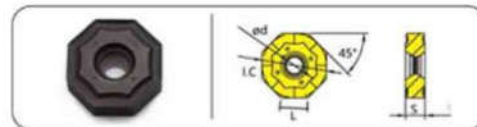
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MPHT	060304-DM	6.35	3.18	2.8	0.4						●										



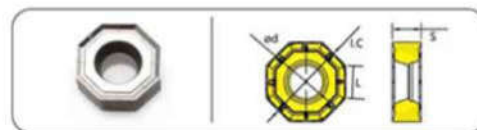
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OFHW	0704	7.45	18	4.87					●	●										



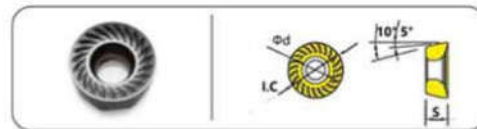
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OFKR	0704-DM	7.45	17.94	4.76		●						●								



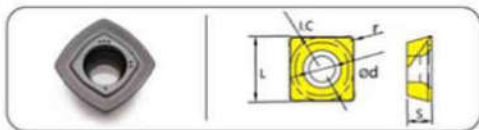
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ONHU	08T506-PM	8.3	20.2	5.78	5.3	0.8								●							



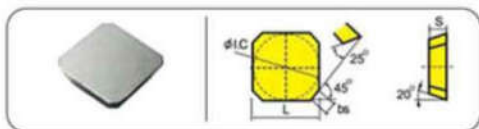
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ONMU	0505	5.4	12.95	5.54	5.6	0.8								●							
	0705NPN-NL	7	17.25	6.3	7.45	0.8				●	●		●	●							



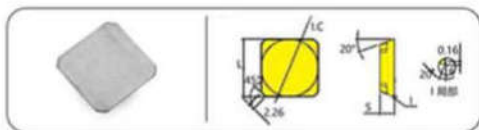
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RBMT	1204M0-MM	12	4.76	4.2																



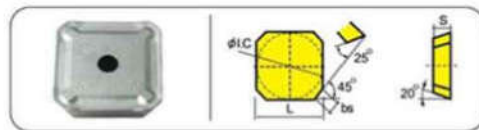
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	L	I.C.	s	φd	r	XH7228	XH7226	XH7326	XP125	XP225	XP325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	XP15	XH8135	XH8136		
SDMT	120512	12.7	12.7	5.6	4.5	1.2							●											
	150512	15.88	15.88	5.6	5.6	1.2							●											



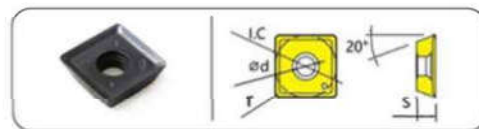
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SEKN	1203AFN	12.7	12.7	3.18			●	●	●															
	1203AFTN	12.7	12.7	3.18	●	●	●	●	●	●	●													
	1504AFN	15.875	15.875	4.76			●	●	●															
	1504AFTN	15.875	15.875	4.76	●	●	●	●	●	●	●													



INSERT SHAPE 型号	DIMENSIONS 基本尺寸			CEMENTED CARBIDE 硬质合金											CEMET 金陶								
	L	I.C.	s	XH7228	XH7226	XP125	XP225	XP325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	XP15	XH8135	XH8136				
SEEN	1203AFTN	12.7	12.7	3.18																			●



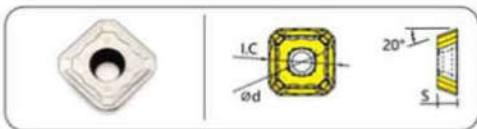
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SEKR	1203AZ-X	12.7	12.7	3.18	2.3							●											
	1504AZ-X	15.8	15.8	4.76	3.1							●											



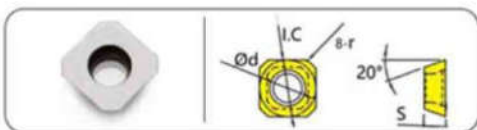
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SEET	120308PER-PF	13.3	13.3	4.04	4.1	0.8								●		●							



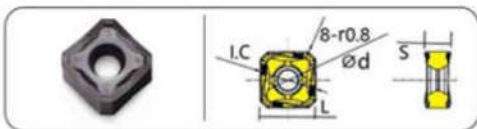
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SEET	1203ATFN-PM	12.7	12.7	3.32	1.2									●		●							



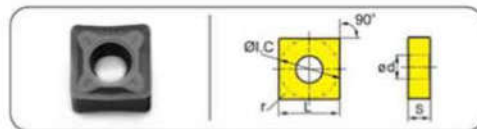
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SEET	13T3AFN-DM	13.4	13.4	3.97	4.1	1.6							●		●									



INSERT SHAPE 型号		DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金												CEMENT 金陶					
		L	I.C	s	φd	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	XH9135	XH8136		
SEKW	1204AFN	12.7	12.7	4.76	5.6	0.8	●			●		●												
SEEX	1204AFN	12.7	12.7	4.76	5.6	0.8				●														



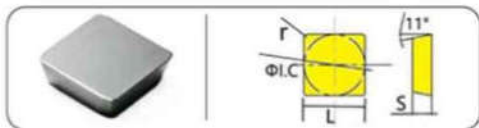
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SNEX	120612ANN-MP	12.7	12.7	6.27	4.55		●			●	●	●	●											



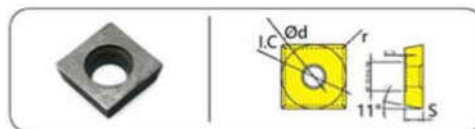
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SNMX	120612-MM	12.7	12.7	6.27	5.16	1.2							●	●										



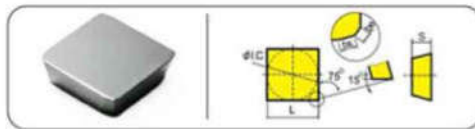
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SPCN	1203XE(T)R	12.7	12.7	3.18					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1204XE(T)R	12.7	12.7	4.76					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1504XE(T)R	15.875	15.875	4.76					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SPKN	1203XE(T)R	12.7	12.7	3.18					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1204XE(T)R	12.7	12.7	4.76					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1504XE(T)R	15.875	15.875	4.76					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



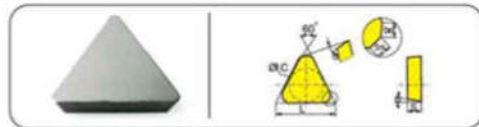
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SPCN	120308	12.7	12.7	3.18	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120312	12.7	12.7	3.18	1.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120400	12.7	12.7	4.76	0				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120402	12.7	12.7	4.76	0.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120404	12.7	12.7	4.76	0.4				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120408	12.7	12.7	4.76	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120412	12.7	12.7	4.76	1.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	150408	15.875	15.875	4.76	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	150412	15.875	15.875	4.76	1.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SPKN	120308	12.7	12.7	3.18	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120312	12.7	12.7	3.18	1.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120400	12.7	12.7	4.76					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120402	12.7	12.7	4.76	0.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120404	12.7	12.7	4.76	0.4				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120408	12.7	12.7	4.76	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120412	12.7	12.7	4.76	1.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	150408	15.875	15.875	4.76	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
150412	15.875	15.875	4.76	1.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	



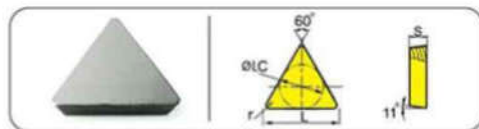
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SPCW	120408	12.7	12.7	4.76	5.6	0.8	●																			
	150408	15.875	15.875	4.76	5.6	0.8	●																			
SPKW	100308	10	10	3.18	4.4	0.8	●						●	●	●											
	120308	12.7	12.7	3.18	5.6	0.8	●						●	●	●											
	120408	12.7	12.7	4.76	5.6	0.8	●						●	●	●											
	150408	15.875	15.875	4.76	5.6	0.8	●						●	●	●											
	190605	19.05	19.05	6.35	6.7	0.5	●	●	●																	



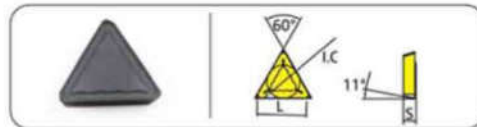
INSERT SHAPE 型号	DIMENSIONS 基本尺寸			CEMENTED CARBIDE 硬质合金													CERMET 金陶							
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SPCN	1203ED (T) R	12.7	12.7	3.18				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1204ED (T) R	12.7	12.7	4.76				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1504ED (T) R	15.875	15.875	4.76				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SPKN	1203ED (T) R	12.7	12.7	3.18				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1204ED (T) R	12.7	12.7	4.76				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1504ED (T) R	15.875	15.875	4.76				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



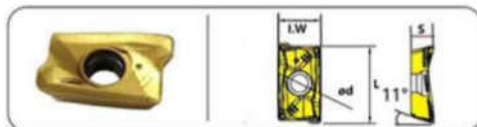
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		L	φ I.C	S	XM7228	XM7226	XM7326	XM9125	XM9225	XM9325	XM7238	XM7335	XM7336	XM7136	X715	X735	X738	X725	X915	XM8135	XM8136	
TPCN	1603PD (T) R	16.5	9.525	3.18				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	2204PD (T) R	22	12.7	4.76				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TPKN	1603PD (T) R	16.5	9.525	3.18				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	2204PD (T) R	22	12.7	4.76				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



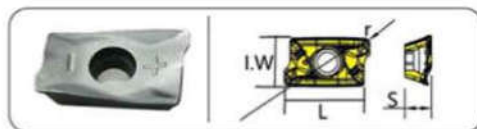
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TPCN	160308	16.5	9.525	3.18	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	220408	22	12.7	4.76	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	220412	22	12.7	4.76	1.2				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TPKN	160308	16.5	9.525	3.18	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	220408	22	12.7	4.76	0.8				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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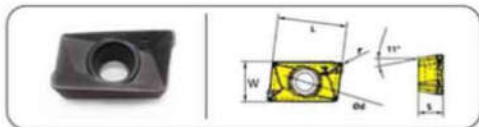
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TPKR	1603PDSR	16.5	9.525	3.25				●				●		●									
	2204PDSR	22	12.7	4.76				●				●		●									



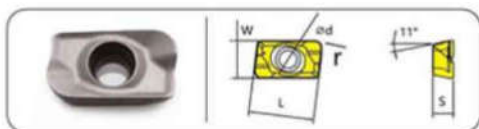
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R390	11T308R-PL	11	6.8	3.5	2.8	0.73								●		●	●							
R390	170408E-PL	17	9.6	4.76	4	0.8								●										



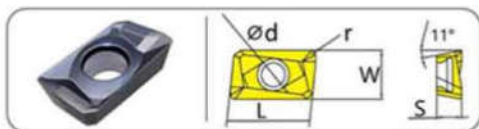
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R390	170408Z-H13A	17	9.6	4.76	4	0.8								●		●								



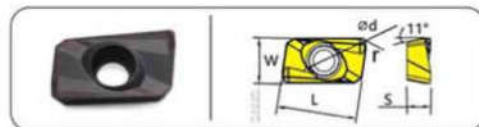
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APKT	160408-PM	16.52	9.5	5.76	4.4	0.8									●	●								



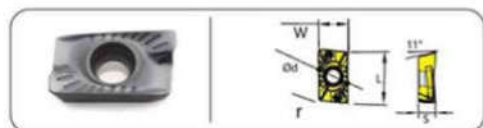
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APKT	160416R	16.44	9.44	5.26	4.5	1.6				●			●	●	●									
	160432R	16.44	9.44	5.26	4.5	3.2				●			●	●	●									



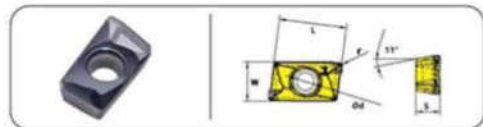
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APMT	1135PDER-W2	10.85	6.25	3.5	2.8	0.8				●			●	●	●									
	1604PDER-W2	16.25	9.3	4.76	4.4	0.8				●			●	●	●									



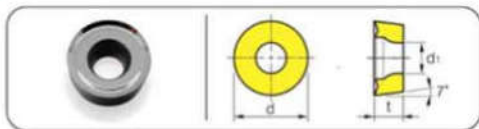
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APMT	1135PDER-H2	10.85	6.25	3.5	2.8	0.8							●	●										
	1604PDER-H2	16.25	9.3	4.76	4.4	0.8							●	●										
	1135PDER-H4	10.85	6.25	3.5	2.78	1.6							●	●										
	1604PDER-H4	16.25	9.3	4.76	4.5	1.6							●	●										



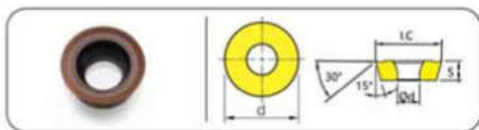
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APMT	1135PDER-DP5420	10.9	6.22	3.48	2.8	0.8							●										●	
	1604PDER-DP5420	16.46	9.3	5.26	4.4	0.8							●										●	



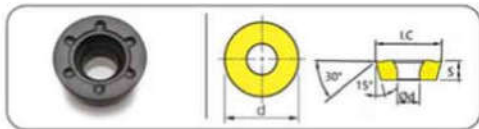
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APMT	1135PDER-W02	10.86	6.2	3.52	2.9	0.8							●											
	1604PDER-W02	16.22	9.28	4.8	4.4	0.8							●											



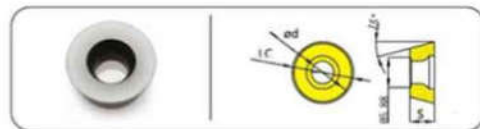
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RCET	1606M0	16	6.4	5.4							●										



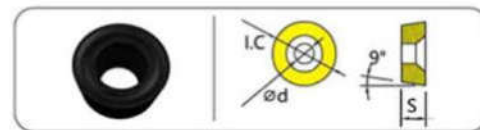
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RDMT	10T3M0	10	3.97	4.24							●	●										
	1204MON-RP	12	4.7	4.8							●	●										
	1604MON-RP	16	4.76	5.5							●	●										



INSERT SHAPE 型号	DIMENSIONS 基本尺寸			CEMENTED CARBIDE 硬质合金													CEMET 金陶				
	ϕ I.C	s	ϕ d	XH7228	XH7226	XH7226	XH9125	XH9225	XH9225	XH7228	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
RDMT	1204M0T	12	4.7	4.4							●	●									
	1605M0	16	5.56	5.5							●	●									



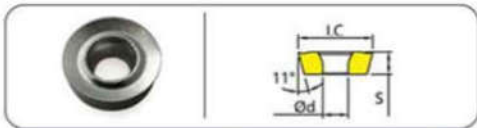
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RDKW	1003	10	3.18	4.4							●	●										
	10T3M0	10	3.97	3.7							●	●										
	1204M0	12	4.76	4.4							●	●										
	1605M0	16	5.56	5.5							●	●										



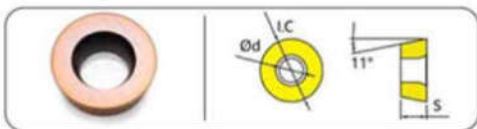
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ROKW	13T4M0	13.18	4.92	4.1							●	●										



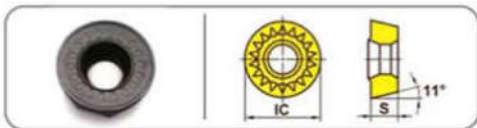
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ROKT	1606M0-DR	16.4	6.35	5.56							●	●										
	2006M0-DR	20.4	6.35	6.55							●	●										



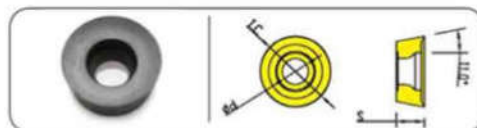
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RPKT	10T3W0	10	3.97	3.87																	●
	1204M0	12	4.76	4.4																	●



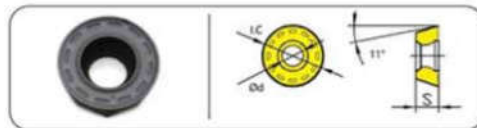
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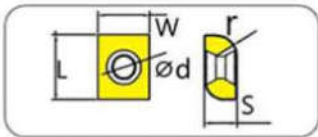
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RPMT	08T2M0E-JS	8	2.8	3.2						●												
	10T3M0E-JS	10	3.97	4.4						●	●	●										
	1204M0E-JS	12	4.76	4						●	●	●										
	1606M0E-JS	16	6.46	5.35					●	●												



INSERT SHAPE 型号	DIMENSIONS 基本尺寸			CEMENTED CARBIDE 硬质合金														CEMET 金陶				
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RPMT	1204M0-U	12	4.76	4.4	●	●				●												
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	1606M0-TW	16	6.35	5.4								●					●					●

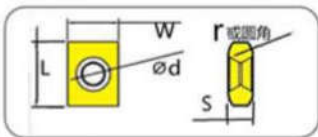


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RPMT	1003M0-DP5420	10	3.18	4.7							●										
	1204M0-DP5420	12	4.76	4.4							●										

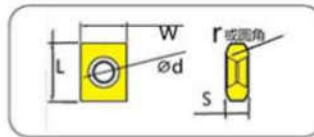


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	GL0L20021R5	15.88	12.7	7.94	5.4	2-R5.0 2-0.2x45		●						●												

	GL0L20023R04	12.7	12.7	6.35	5.4	4-R0.4		●					●												
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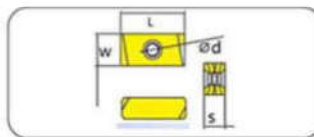


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	LNE424-4R1.0	15.88	12.7	7.94	5.5	4-R1.0			●				●												
	LNE424-2R3.5	15.88	12.7	7.94	5.5	2-R3.5 2-0.4x45			●				●												
	LNE434-405	19.05	14.29	6.35	5.5	4-0.5			●				●												

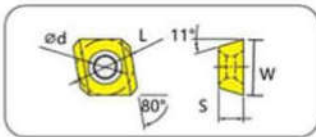


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	SNC55-405	15.88	15.88	7.94	5.5	4-0.5x45			●					●											

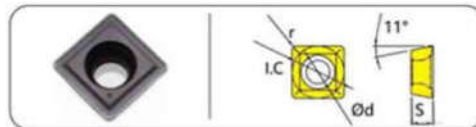
	SNC55-2R5	15.88	15.88	7.94	5.5	2-R5.0 2-0.5x45			●					●											
	SNC22-4R2	15.88	15.88	7.94	5.5	4-R2.0			●					●											



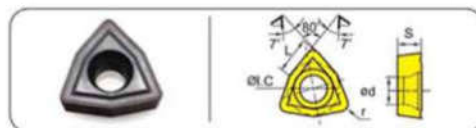
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	LSE446R01	28.58	14.29	6.202	5.5				●					●											



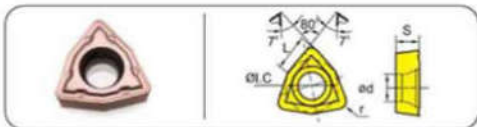
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	SPE55R02	14.27	14.29	6.35	5.4			●						●											



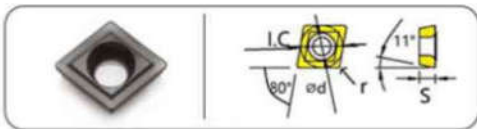
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	L	φ I.C	S	φd	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136		
SPMG	050204-DG	5	5	2.38	2.28	0.4						●												
	060204-DG	6	6	2.38	2.6	0.4						●												
	07T308-DG	7.94	7.94	3.97	2.9	0.8						●												
	09T308-53	9.525	9.525	3.97	4.3	0.8						●												
	090408-DG	9.8	9.8	4.47	4	0.8						●												
	110408-DG	11.5	11.5	4.76	4.4	0.8						●												
	140512-DG	14.3	14.3	5.4	5.8	1.2						●												



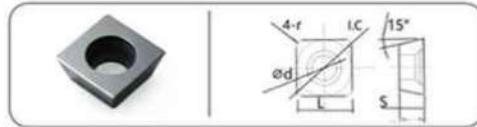
INSERT SHAPE 型号	DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金												CEMENT 金陶						
	L	φ I.C	S	φd	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136		
WCMX	020104	2.7	3.97	1.65	2.38	0.4						●												
	030208-53	3.8	5.56	2.38	2.8	0.8						●												
	040208-53	4.3	6.35	2.38	3.1	0.8						●												
	050308-53	5.4	7.94	3.18	3.2	0.8						●												
	06T308-53	6.5	9.525	3.97	3.7	0.8						●												
	080412-53	8.7	12.7	4.76	4.3	1.2						●												



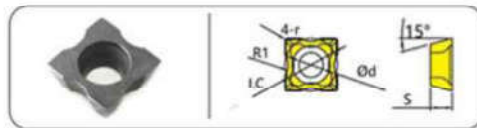
INSERT SHAPE 型号	DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金													陶瓷							
	L	φ I.C.	s	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH7238	XH7335	XH7334	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136					
WCMT	030208-X	3.8	5.56	2.38	2.8	0.8																				
	040208-X	4.3	6.35	2.38	3	0.8																				
	050308-X	5.4	7.94	3.18	3.4	0.8																				
	06T308-X	6.5	9.525	3.97	3.8	0.8																				
	080412-X	8.7	12.7	4.76	4.4	1.2																				



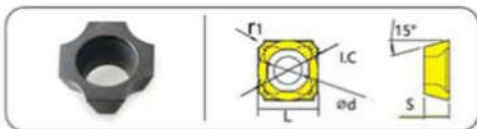
INSERT SHAPE 型号	DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金													陶瓷								
	φ I.C.	s	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136						
CPMT	080204	7.94	2.38	4	0.4																					
	090308	9.525	3.18	4.3	0.8																					
	120408	12.7	4.76	5.4	0.8																					



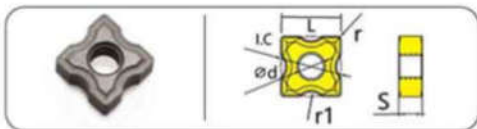
INSERT SHAPE 型号	DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金													陶瓷							
	L	φ I.C.	s	φ d	r	XH7228	XH7226	XH7326	XH9125	XH9225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136					
SDMW	09T304	9.525	9.525	3.97	4.4	0.4																				



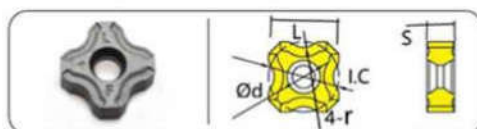
INSERT SHAPE 型号	DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金													陶瓷						
	L	φ I.C.	s	φ d	r	r1	XH7228	XH7226	XH7326	XH9125	XH9225	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136				
SDMW	09T304-R1	9.525	9.525	3.97	4.4	0.4	1.0																			
	09T304-R1.5	9.525	9.525	3.97	4.4	0.4	1.5																			
	09T304-R2	9.525	9.525	3.97	4.4	0.4	2.0																			
	09T304-R2.5	9.525	9.525	3.97	4.4	0.4	2.5																			
	09T304-R3	9.525	9.525	3.97	4.4	0.4	3.0																			



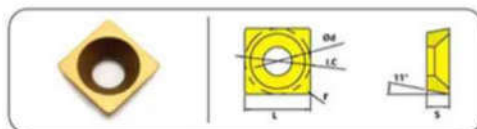
INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金														CEMET 金陶			
		L	φ I.C	S	φ d	r	r1	XH728	XH726	XH726	XH726	XH725	XH925	XH728	XH735	XH736	XH736	X715	X735	X738	X725	X915	XH8135	XH8136	
SDMW	09T3-R2	9.525	9.525	3.97	4.4		2.0	●	●																
	09T3-R3	9.525	9.525	3.97	4.4		3.0	●	●																
	09T3-R3.5	9.525	9.525	3.97	4.4		3.5	●	●																
	09T3-R4	9.525	9.525	3.97	4.4		4.0	●	●																
	09T3-R5	9.525	9.525	3.97	4.4		5.0	●	●																



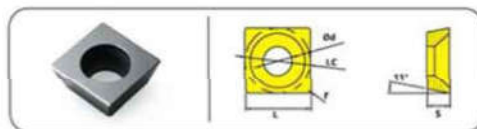
INSERT SHAPE 型号		DIMENSIONS 基本尺寸						CEMENTED CARBIDE 硬质合金														CEMET 金陶			
		L	φ I.C	S	φ d	r	r1	XH728	XH726	XH726	XH726	XH725	XH925	XH728	XH735	XH736	XH736	X715	X735	X738	X725	X915	XH8135	XH8136	
SNMG	12T408-KH	12.7	12.7	4.9	5.16	0.8	3.0	●	●																
	12T408-R5	12.7	12.7	5.2	5.1	0.8	5.0	●	●																
	12T408-X	12.7	12.7	5.2	5.1	0.8	3.0	●	●																



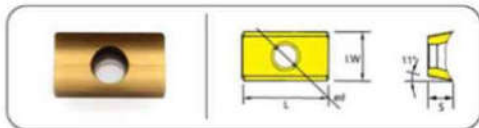
INSERT SHAPE 型号		DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金														CEMET 金陶				
		L	φ I.C	S	φ d	r	XH728	XH726	XH726	XH726	XH725	XH925	XH728	XH735	XH736	XH736	X715	X735	X738	X725	X915	XH8135	XH8136		
SNMG	12T4-LF	12.7	12.7	4.85	4.1	3.0	●	●																	



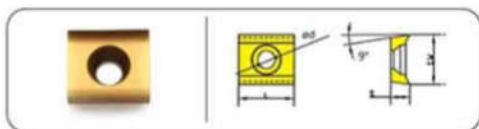
INSERT SHAPE 型号		DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金														CEMET 金陶				
		L	φ I.C	S	φ d	r	XH728	XH726	XH726	XH726	XH725	XH925	XH728	XH735	XH736	XH736	X715	X735	X738	X725	X915	XH8135	XH8136		
SPEB	322	9.525	9.525	3.18	4.2	0.4	●																		



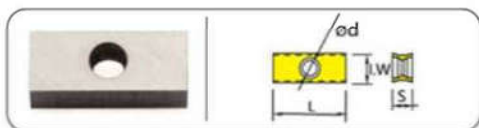
INSERT SHAPE 型号		DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金														CEMET 金陶				
		L	φ I.C	S	φ d	r	XH728	XH726	XH726	XH726	XH725	XH925	XH728	XH735	XH736	XH736	X715	X735	X738	X725	X915	XH8135	XH8136		
SPMW	090304	9.525	9.525	3.18	4.54	0.4	●																		



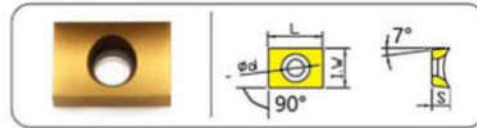
INSERT SHAPE 型号	DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶					
	L	I.W	S	φd	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
AXHN 1604-X	16.5	9.5	4.76	4.5			●															●



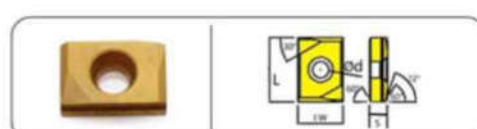
INSERT SHAPE 型号	DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶					
	L	I.W	S	φd	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
LNKT 100803-X	10	7.79	3.5	3.2																		●



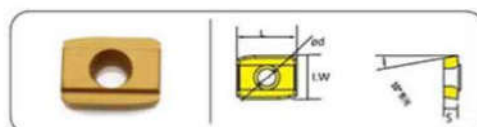
INSERT SHAPE 型号	DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶					
	L	I.W	S	φd	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
SHYW	128805	12.05	8.82	5.6	4.2				●		●	●	●						●			
	200805	20.2	8.4	5.8	4.3						●											
	218506	21	8.5	6	4.1				●		●	●										



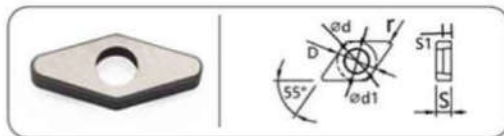
INSERT SHAPE 型号	DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶					
	L	I.W	S	φd	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
XCHT 110302	11	7.6	3.5	3.4							●											●



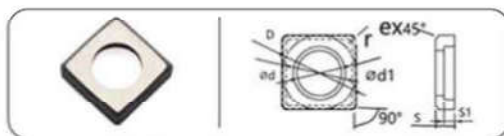
INSERT SHAPE 型号	DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶					
	L	I.W	S	φd	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
R420.37	11T3H	17	12	4.76	4.3		●	●			●											
	07T3H	12	8	3.97	3.81		●	●			●											



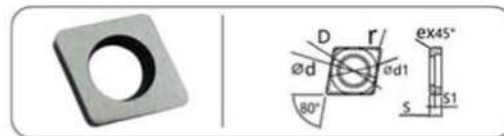
INSERT SHAPE 型号	DIMENSIONS 基本尺寸				CEMENTED CARBIDE 硬质合金												CEMENT 金陶					
	L	I.W	S	φd	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	X915	XH8135	XH8136	
R420.37	06T3H	10	7.5	2.85	3.15		●	●			●											



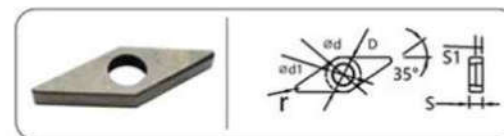
型号 Type	基本尺寸 Dimension (mm)						
	D	S	r	φd	φd1	S1	e
IDSN434	12.5	4.76	1	7.2	8.1	2.87	0.5
IDSN436	12.5	4.76	2.4	7.3	8.1	3.08	0.5



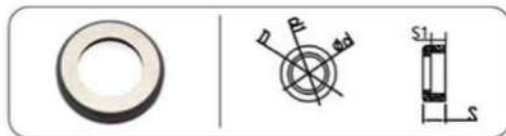
型号 Type	基本尺寸 Dimension (mm)						
	D	S	r	φd	φd1	S1	e
ISSN322	9.14	3.18	0.8	5.94	6.63	1.85	0.5
ISSN332	9.14	4.76	0.8	5.94	6.63	3.43	0.5
ISSN432	12.32	4.76	0.79	7.52	8.2	2.59	0.5
ISSN433	12.32	4.76	1.27	7.52	8.2	2.59	0.5
ISSN533	15.49	4.76	1.27	9.86	10.72	2.59	0.5
ISSN633	18.67	4.76	1.27	11.43	12.29	2.59	0.5
ISSN846	25.02	6.35	2.4	14.66	15.88	2.72	0.5



型号 Type	基本尺寸 Dimension (mm)						
	D	S	r	φd	φd1	S1	e
ICSN322	9.14	4.76	0.8	5.94	6.63	3.43	0.5
ICSN433	12.32	4.76	1.27	7.52	8.2	2.59	0.5
ICSN443	12.32	5.3	1.27	7.52	8.2	3.05	0.5
ICSN533	15.49	4.76	1.27	9.86	10.97	2.59	0.5



型号 Type	基本尺寸 Dimension (mm)						
	D	S	r	φd	φd1	S1	e
IVSN-322	9.14	3.18	0.79	5.94	6.63	1.85	0.5
IVSM-310	9.14	3.18	0.79	5.41	7.11	1.78	0.5
IVSN-433	12.32	4.76	1.57	7.52	8.2	2.59	0.5



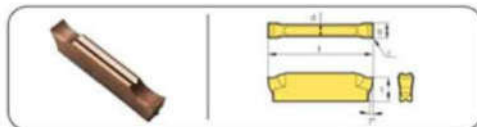
型号 Type	基本尺寸 Dimension (mm)				
	D	S	φd	φd1	S1
IRSN42	12.36	3.2	7.3	7.9	2.2
IRSN44	12.36	6.38	7.3	7.9	4.06
IRSN53B	15.6	4.8	9.8	11.3	2.71
IRSN54B	15.6	6.35	9.8	11.6	4.08
IRSN62	19.05	3.175	11.3	13.16	1.3
IRSN63	19.05	4.76	11.38	13.96	2.521
IRSN63P	17.05	4.76	11.17	12.74	2.62

切槽切断刀片命名规则 Grooving Insert Name Rule

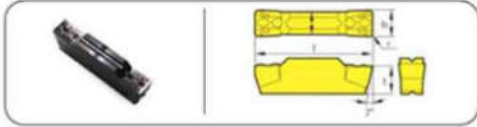
- 经济性更佳的多功能2个切削刃刀片
- 多功能加工—一种刀具可进行切槽、车削、端面或仿形加工，缩短刀具更换时间&提高生产效率
- MGT刀具系统允许使用一种刀具进行多种应用，减少刀具使用数量
- 平面切削刃—MGT多功能工具具有扁平切削刃设计，在高进给加工中，采用修光功能，也可获得理想的表面粗糙度

- More economical and versatile 2 cutting edge inserts
- Multifunctional machining—a tool can be used for grooving, turning, end face or profiling machining, shortening the tool change time and increasing production efficiency
- MGT tool system allows one tool to be used for multiple applications, reducing the number of tools usage
- Flat cutting edge—MGT multi-function tool has a flat cutting edge design. In high-feed processing, the smoothing function can also be used to obtain the ideal surface roughness

刀片编码系统 Blade Coding System



INSERT SHAPE 型号	DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金											CERMET 金陶						
	b	r	l	d	t	XH7228	XH7226	XH7226	XH9125	XH9225	XH9325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X738	X915	XH8135	XH8136	
MGN	150-C	1.5	0.15	16	1.2	3.5							●									●	●
	200-C	2	0.2	18.5	2	3.75							●									●	●
	300-C	3	0.4	21	2.35	5							●									●	●
	400-C	4	0.4	21	3.3	5							●									●	●
	500-C	5	0.8	26	4.1	5.8							●									●	●



INSERT SHAPE 型号	DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金												CERMET 金陶					
	b	r	l	d	t	XH7228	XH7226	XH7226	XHP125	XHP225	XHP325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	XP15	XHR135	XHR136	
MGMN	200-M	2	0.2	16	1.2	3.5						●										●	●
	250-M	2.5	0.2	18.5	2	3.85						●										●	●
	300-M	3	0.4	21	2.35	4.8						●										●	●
	400-M	4	0.2	21	3.3	4.8						●										●	●
	500-M	5	0.8	26	4.1	5.8						●										●	●
	600-M	6	0.8	26	5	5.8						●										●	●



INSERT SHAPE 型号	DIMENSIONS 基本尺寸					CEMENTED CARBIDE 硬质合金												CERMET 金陶					
	b	r	l	d	t	XH7228	XH7226	XH7226	XHP125	XHP225	XHP325	XH7238	XH7335	XH7336	XH7136	X715	X735	X738	X725	XP15	XHR135	XHR136	
MGMN	150-G	1.5	0.15	16	1.2	3.5						●										●	●
	200-T	2	0.2	16	1.6	3.5						●										●	●
	250-T	2.5	0.2	18.5	2	3.85						●										●	●
	300-T	3	0.4	21	2.35	4.8						●										●	●
	400-T	4	0.4	21	3.3	4.8						●										●	●
	500-T	5	0.8	26	4.1	5.8						●										●	●

常见黑色金属硬度对照表 (强度近似换算) General Metal Hardness Comparison Table (Approximate)				
硬度分类 Hardness Categories				抗拉强度 BENDING Strength N/mm ²
洛氏		维氏	布氏	
HRC	HRA	HV	HB	
17	—	211	211	710
17.5	—	214	214	715
18	—	216	216	725
18.5	—	218	218	730
19	—	221	220	735
19.5	—	223	222	745
20	—	226	225	750
20.5	—	229	227	760
21	—	231	229	765
21.5	—	234	232	775
22	—	237	234	785
22.5	—	240	237	790
23	—	243	240	800
23.5	—	246	242	810
24	—	249	245	820
24.5	—	252	248	830
25	—	255	251	835
25.5	—	258	254	850
26	—	261	257	860
26.5	—	264	260	870
27	—	268	263	880
27.5	—	271	266	890
28	—	274	269	900
28.5	—	278	273	910
29	—	281	276	920
29.5	—	285	280	935
30	—	289	283	950

常见黑色金属硬度对照表 (强度近似换算) General Metal Hardness Comparison Table (Approximate)				
硬度分类 Hardness Categories				抗拉强度 BENDING Strength N/mm ²
洛氏		维氏	布氏	
HRC	HRA	HV	HB	
30.5	—	292	287	960
31	—	296	291	970
31.5	—	300	294	980
32	—	304	298	995
32.5	—	308	302	1010
33	—	312	306	1020
33.5	—	316	310	1035
34	—	320	314	1050
34.5	—	324	318	1065
35	—	329	323	1080
35.5	—	333	327	1095
36	—	338	332	1110
36.5	—	342	336	1125
37	—	347	341	1140
37.5	—	352	345	1160
38	—	357	350	1175
38.5	—	362	355	1190
39	70	367	360	1210
39.5	70.3	372	365	1225
40	70.8	382	375	1260
40.5	70.5	377	370	1245
41	71.1	388	380	1280
41.5	71.3	393	385	1300
42	71.6	399	391	1320
42.5	71.8	405	396	1340
43	72.1	411	401	1360
43.5	72.4	417	407	1385

常见黑色金属硬度对照表 (强度近似换算) General Metal Hardness Comparison Table (Approximate)				
硬度分类 Hardness Categories				抗拉强度 BENDING Strength N/mm ²
洛氏		维氏	布氏	
HRC	HRA	HV	HB	
44	72.6	423	413	1405
44.5	72.9	429	418	1430
45	73.2	436	424	1450
45.5	73.4	443	430	1475
46	73.7	449	436	1500
46.5	73.9	456	442	1525
47	74.2	463	449	1550
47.5	74.5	470	455	1575
48	74.7	478	461	1605
48.5	75	485	468	1630
49	75.3	493	474	1660
49.5	75.5	501	481	1690
50	75.8	509	488	1720
50.5	76.1	517	494	1750
51	76.3	525	501	1780
51.5	76.6	534	—	1815
52	76.9	543	—	1850
52.5	77.1	551	—	1885
53	77.4	561	—	1920
53.5	77.7	570	—	1955
54	77.9	579	—	1995
54.5	78.2	589	—	2035
55	78.5	599	—	2075
55.5	78.7	609	—	2115
56	79	620	—	2160
56.5	79.3	631	—	2205
57	79.5	642	—	2250

常见黑色金属硬度对照表 (强度近似换算) General Metal Hardness Comparison Table (Approximate)				
硬度分类 Hardness Categories				抗拉强度 BENDING Strength N/mm ²
洛氏		维氏	布氏	
HRC	HRA	HV	HB	
57.5	79.8	653	—	2295
58	80.1	664	—	2345
58.5	80.3	676	—	2395
59	80.6	688	—	2450
59.5	80.9	700	—	2500
60	81.2	713	—	2555
60.5	81.4	726	—	—
61	81.7	739	—	—
61.5	82	752	—	—
62	82.2	766	—	—
62.5	82.5	780	—	—
63	82.8	795	—	—
63.5	83.1	810	—	—
64	83.3	825	—	—
64.5	83.6	840	—	—
65	83.9	856	—	—
65.5	84.1	872	—	—
66	84.4	889	—	—
66.5	84.7	906	—	—
67	85	923	—	—
67.5	85.2	941	—	—
68	85.5	959	—	—
68.5	85.8	978	—	—
69	86.1	997	—	—
69.5	86.3	1017	—	—
70	86.6	1037	—	—

CVD涂层材料 CVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIIFA 黎华	ZCC DT 株菱	SANDVIK 山特维英	KOBELO 可洛伊	Taegutec 特固克	WALTER 瓦尔特	WYTSUBISHI 三菱	SUMITOMO 住友	TUNGSHAY 泰珂洛	KYOCERA 京瓷	DJL ET 皇杰	MITACHI 日立	KENNAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡
车削 TURNING	P01			G04005 G04205			MAP01	UE6005	AC7005 AC810P	T9005	CA5505	JC110V	MC5000 HB8010	KCP05 KCP105	TP1000 TK1000	IC425
	P10	XH7228	YBC152 YBC151	G04205 G04215	NC3010 NC3015	TT1300	MAP10	UE6010 UE6020 UE6020 UC6010	AC7005 AC820P AC2000 AC810P	T9005 T9015	CA5505 CA5515	JC110V JC215V	HB8010 GB8015 GB10	KCP10 KCP110 TN7005 TN7010	TP1000 TK1000 TP2000 TK2000	IC9150 IC9015 IC8150
	P20	XH7228	YBC251 YBC252	G04015 G04225 G04025 G04215 LC25	NC320	TT1500	MAP20	UC6010 UE6110 UE6020 UE6010	AC2000 AC3000 AC830P	T9015 T9025	CA5515 CA5025 CR9025	JC110V JC215V	HB8025 GB8020	KCP25 KCP125 TN7015	TP2000 TK2000 TP200	IC9250 IC9025 IC9054 IC8350
	P30	XH7226 XH7336	YBC252 YBC351 YBC352	G04225 G04235 G04025 G04035 G02135	NC330	TT3500 TT5100	MAP30	UE6035 UH6400 US735	AC830P AC630M AC3000	T9025 T9035	CA5525 CA5535 CR9025	JC215V JC325V	GB25	KCP30 KCP40 KCP60 KCP80 TN7025	TP3000 TP300	IC8350 IC9350 IC655
	P40	XH7226 XH7336	YBC351 YBC352	G04235 G04035 G0235		TT450		UE6400 US735	AC630M	T9035	CA5535	JC325V JC450V	GB3035 GC30	KCP140 KCP240 TN7035 KCP040 KX9245 TPC35	TP2000 TP400 TP40	IC9350 IC635

CVD涂层材料 CVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC CT 株研	SANDVIK 山特维克	KOBLO 可洛伊	TaegoTec 特固克	MALTER 瓦尔特	MITSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	D.I.JET 深杰	HITACHI 日立	KENNAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
车削 TURNING	M	M10		GC2015			WAM10	US7020	AC610M		CA6515 CA6015	JC110V	GM10	KCM15 TN7010	TP200	IC9250	
		M20	YBM151 YBM153	GC2025	NO9020	TT2500	WAM20	US7020	AC610M AC630M	T6020 T9025	CA6525 CA6015	JC110V JC215V	GM8020	KC9225 TN7015	TP200	IC9250 IC9025 IC9054	
	K	M30	XR7228 XR7326 XR7336	YBM151 YBM251 GC235	GC2135 GC235	NC330	TT1500	WAM30	US735	AC630M	T6030		JC215V JC325V	HM8025 GM25	KCM25 KC8650 TN8050	TP300 TP400 TP40	IC9350 IC9025
		M40	XR7336	YBM253	GC2025		TT1500		US735	AC630M			JC325V JC450V	GL30	KCM35 KC9240 KC9245 TPC35	TP400 TP40	IC656 IC635 IC9350
		K01		YB0052	GC3205 GC3210			UC5105 UC5015	AX3005 AC410K	T5010	CA4010 CA4505	JC105V	GM0065	KCK05	TK1000	IC9150	
		K10	XR7125	YB0102 YB0151	GC3205 GC3210 GC3215	NC305K NC3215	TT1300	WAK10	UC5115 UE6010	T5010	CA4515 CA4010 CA4115	JC110V	HM8010 GM8015	KCK15 KC9315 KCK30 KC9110 TN5015	TK1000 TK2000	IC9150 IC9015 IC4010 IC418 IC428	
		K20	XR7225	YB0152 YB0252	GC3215	NC315K	TT1500	WAK20	UE5115	T5020	CA4120	JC110V JC215V	HM8025 GM8020	KCK20 KC9320 TN5020	TK2000 TP200	IC9015	
		K30	XR7325														

CVD涂层材料 CVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC CT 株研	SANDVIK 山特维克	KOBLO 可洛伊	TaegoTec 特固克	MALTER 瓦尔特	MITSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	D.I.JET 深杰	HITACHI 日立	KENNAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
铣削 MILLING	P	P01							ADP100			JC7300		TN2510 TN25M		IC9080 IC4100	
		P10							ADP100			JC7300		TN7525 TN250M		IC520M	
	M	P20	YB0201 YB0251	GC4020 GC4220	GC4020 GC4220			WAP25	PH7020 F7030	ADP100			JC7300		TN7525 TN250M	T200M T250M	IC4050
		P30	XR7326	YBM351	GC4020 GC4220	NKM335	TT7300	WAP35	F7030	AC230	T3030				KCP30M	T250M T350M T25M	IC4050
	K	P40	XR7326	YB0302	GC4240 GC4040					AC230				GF30 GC030 GL30	KCP30M TN7535	T350M	
		M01															
		M10												TN25M			IC9080
		M20	YBM351 YBM253						F7030			JC7300		TN7525	T350M T58M		IC4100
		M30	XR7326	YB0302	GC2040	NKM335		WTP35	F7030		T3030			KCP30M TN7535	T250M T260M	IC520M	
		M40	XR7326	YB0152									GF30 GL30			IC4050	
	K01										JC600						
	K10	XR7125	YB0152		NKM310		WAK15	F5010	ADK200 AC211	T1015	JC600		TN5505 TN5515			IC4100	
	K20		YB0252	GC3220 K200 K20M	NKM320		WAK25	F5020	ADK300	T1015	JC610		KCP15M TN5520	T150M	CS20M DT7150		
	K30		YB0252	GC3040							JC610		KCP30M KCP35M	T200M	IC4050		

PVD涂层材料 PVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC, CT 株诚	SANDVIK 山特维克	KOBLO 可洛伊	TaeguTec 特固克	MALTER 瓦尔特	三菱 MITSUBISHI	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	日立 HITACHI	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡
车削 TURNING	P01										PR915 PR1005				
	P10		Y8G102	G01525 G01025				VP10MF		AN710	PR915 PR930 PR1025 RR1115		K05010 K05510 K010T	CP200 TS2000	IC250 IC507 IC570
	P20		Y8G202	G01525 G01020 G01025 G01125	PC230			VP15TF VP20MF		AN710 AN330	PR630 PR915 PR930 PR660 PR1025 RR1225		K05025 K025T	CP250	IC908 IC978 IC1008 IC1028 IC3028
	P30	XH7336	Y8G202	G01025 G01125				VP15TF VP20MF		G0330 GH730 AH120 AN330 AN740	PR630 PR660		K07015 K07020 K07235	CP500	IC928 IC1008 IC1028 IC3028
P40	XH7336		G01020 G02145	PC240			VP15TF VP20MF		AH120	PR660		K07040	CP500	IC978 IC1008 IC3028	

PVD涂层材料 PVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC, CT 株诚	SANDVIK 山特维克	KOBLO 可洛伊	TaeguTec 特固克	MALTER 瓦尔特	三菱 MITSUBISHI	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	日立 HITACHI	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡
车削 TURNING	M01										PR915 PR1025				
	M10	XH7136	Y8G202 Y8G205 Y8G205	G01005 G01025 G01125				VP10MF	ACS10N		PR915 PR930 PR1125 PR1225		K05010 K05510	CP200 TS2000	IC330 IC354 IC507 IC907 IC3028
	M20		Y8G202 Y8G205 Y8G202 Y8G205	G01020 G125 G04125	PO9030			VP15TF VP20MF	ACS20U	GH330 GH730	PR630 PR915 PR930		K05025 K0730 K05525	CP2000 CP500 TS2500	IC228 IC250 IC354 IC3028
	M30	XH7326 XH7336		G01020 G02035	PO9030			VP15TF VP20MF	ACS20U ACS30U	AH120	PR630 PR660		K05025 K05525	CP500	IC908 IC928 IC1008 IC1028
M40	XH7326 XH7336		G02035 G02145					ACS30U		PR660					IC228 IC328
K01								EH10Z	AH110		JCS003				
K10	XH7135				PC205K			EH10Z	GH110 AH110		JCS003 JCS015		K05010 K05510	CP200 TS2000	IC350
K20				G01020	PC215K			EH20Z	AH120		JCS015		K07015 K07020	CP200 CP250	IC928 IC1008 IC908 IC908 IC908
K30				G04125	PC215K			VP15TF					K07225	CP500	IC925 IC1008 IC908 IC22

PVD涂层材料 PVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC CT 株诚	SANDVIK 山特维克	KORLO 可洛伊	TequlTec 特固克	WALTER 瓦尔特	MIITSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	D.I.JET 迪杰	HITACHI 日立	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
铣削 MILLING	P01								ADP10			JCS003	PT08M PC060M PC508M TB6005 JK1005				
	P10	XH7136 XH7238	Y80252	GC1010 GC1025			WM15 WM15		ACZ310 ADP100 ADP200		PR730 PR830 PR1025 PR1225	JCS003 JCS030 JK1020 PC20M	KC715M			IC250 IC903 IC950	
	P20	XH7136 XH7238	Y8G205 Y8G202 Y8G9220 Y8G252	GC1025 GC1015 GC2030	PC230			VP151F	ACZ310 ACZ330 ADP200		PR630 PR730 PR830 PR660 PR1025 PR1225	JCS015 JCS030 JCS040	TB6020 CY1550 JK1015	KC522M KC525M	F25M MP2000		IC950 IC900 IC908 IC910
	P30	XH7238 XH7335	YPG302	GC1010 GC1030 GC2030	PC3530 PC130	VP151F VP30RT	WM35	VP151F VP20RT	ACZ300 ACZ350 ACZ200	GH330 AH330 AH120 AH740	PR630 PR660 PR730 PR830 PR1230	JCS015 JCS040	TB6045 CY250 CY25 HC844 JH1045 PTH30E	KC725M	F25M F30M MP2000		IC900 IC928 IC300 IC328 IC1008
	P40	XH7335	Y8G302	GC1030		TT8020 TT8030	WMP45	VP30RT	ACZ350 ADP300	AH120	PR660 PR1230	JCS040	PTH30E TB6060 PTH30H	KC735M	F40M T60M		IC900 IC928 IC300 IC328

PVD涂层材料 PVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC CT 株诚	SANDVIK 山特维克	KORLO 可洛伊	TequlTec 特固克	WALTER 瓦尔特	MIITSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	D.I.JET 迪杰	HITACHI 日立	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
铣削 MILLING	M01												PCS08M				
	M10	XH7136	Y80252	GC1025 GC1030			WM15		ACP200		PR630 PR730 PR830	JCS003 JK1020	PC508M SYP020 JK1020	KC715M			IC903
	M20	XH7238	Y8G205 Y8G202 Y8G9220 Y8G252	GC1025 GC2030 GC1040	TB6000 CY250 JK1015	TT8020 TT9030		VP151F VP20RT	ACZ210 EH202 ACP300	GH330	PR630 PR730 PR830 PR660	JCS015 JCS030 JCS040	TB6020 CY1550 JK1015	KC720 KC522M KC525M	F25M MP2000		IC900 IC903 IC908 IC928
	M30		Y8G302	GC1040 GC2030	PP9530	TT8030	WM35	VP151F VP20RT VP30RT	ACZ330 EH202 ACZ350		PR630 PR660 PR730 PR830 PR1225	JCS015 JCS030 JCS040	TB6045 CY250 HC844	KC725M KC735M	F30M F40M		IC928 IC328 IC1008
	M40		Y8G302					VP30RT	ACZ350 ADP300	AH140	PR660	JCS015	TB6060 PTH30H JK1060				IC928 IC328
K	K01									AH110	PR510 PR905	JCS003	PTH30M PC060M PC508M				
	K10	XH7136 XH9135	Y86102 Y8G252	GC1010	PC205K		WM15 WM15		ACZ310 MCK300	AH120 GH110	PR510 PR905	JCS003 JCS030	CY9020 TB6005 CY100H	KCS10M			IC900 IC910
	K20	XH7238 XH9135	Y8G202	GC101 GC1020	PC215K	TT6030		VP151F VP20RT	ACZ310 MCK300	AH120	PR510 PR905	JCS015 JCS030 PTH135	TB6020 CY1550 PTH135	KCS20M KCS25M	MK2000		IC910 IC950
K30	XH7238		GC1020				CP151F VP20RT	ACZ330 MCK300			JCS015	TB6045 CY250 PTH30H	KC725M KC735M			IC908 IC950 IC928	

PVD涂层材料 PVD COATED MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC-CT 株诚	SANDVIK 山特维克	KOBLO 可洛伊	Targemac 特固克	MALTER 瓦尔特	MI TSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	DIJET 戴杰	HITACHI 日立	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡
S	S01		Y8G102	GC1025		T16030		EH520Z	EH520Z	AH120		JCS503		KD510M		IC908
	S10							EH520Z	EH520Z		PR660	JCS515	PS508M			
	S20			GC1025		T18020	WM35	EH20Z	EH20Z		PR660		CY100H CY10H	KD527M KD525M		IC908
H	S30	XH725		GC2030 S301		T18030 T19030		ADK300	ADK300		PR660			KC725M	F40M	IC328 IC928
	H01	XH7136										JCS503				IC903
H	H10	XH7136	GC1010 GC1030				WM15					JCS515	PTH08M PDA08M JK1005	KCA35M	MH1000 F15M	IC960
	H20	XH728	GC1010				WXP45							KG63M	F15M	IC1008 IC268
	H30	XH738	GC1030											KCS50M	F30M MP3000	IC1008 IC908

金属陶瓷 CERMET INSERT MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC-CT 株诚	SANDVIK 山特维克	KOBLO 可洛伊	Targemac 特固克	MALTER 瓦尔特	MI TSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	DIJET 戴杰	HITACHI 日立	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
P	P01				CC105 CN100			AP25N	T110A T2000Z	NS520 GT520	A1520 GT720	LN10 CX50				IC20N IC520N	
	P10	XH7135	YNG151 YNG151C	CT5015 GC1525	GC15 CN200 CT10	PV3010		AP25N NK2525	T1200A T2000Z	NS520 A1530 GT730 GT720	TN60 TN6020 PV60 PV7020	CX50 CX75	CZ25	KT125 KT315	CM CMP	IC20N IC520N IC530N	
	P20	XH7135		GC1525		CT3000		AP25N UP35N NK2525 NK3035	T1200A T2000Z T3000Z	NS530 GT530 GT730 NS730	TN10 TN6020 PV90 PV7020	CX75	CH650	KT5020 KT325 KT1120		IC20N IC75T IC30N IC520N IC530N	
M	P30							VP45N	T3000Z	NS530 NS730						IC75T IC30N	
	M10	XH7135	YNG151 YNG151C	GC1525		PC3010		NK2525 AP25N	T110A T2000Z	NS520 A1530 GT530 GT520	TN60 TN6020 PV60 PV7020	LN10 CX50		KT125	CM CMP		
	M20	XH7135				CT3000		NK2525 AP25N NK3035	T1200A T2000Z	NS530 GT730 NS730	TN90 TN6020 PV60 PV7020	CX50 CX75	CH650				
K	M30								T3000Z								
	K01				CC105 CN100			AP25 NK2525	T110A T2000Z	NS520 A1520 GT520 GT720	TN30 TN30 PV30	LN10					
	K10		YNG151 YNG151C	CT5015	GC115	CT3000		AP25N NK2525	T1200A T2000Z	NS50 GT530 NS730	TN60 TN6020 PV60 PV7020	LN10		KT325 KT125			
K20							AP25 NK2525	T3000Z			CX75						

金属陶瓷 CERMET INSERT MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 利华	ZCC OT 株成	SANDVIK 山特维克	KOBLO 可洛伊	TaeguTec 特固克	WALTER 瓦尔特	MITSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	DJ-ET 深杰	HITACHI 日立	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡
P	P10	XH8136	YNG151 YNG151C		DN100	CT3000		NK2525			TN60	CK75			C15M	IC30N
	P20	XH8136		CT30	DN20	CT520		NK2525		NSS30	TN100M	CK75 CK90	CH650 CH7000 MZ1000 MZ2000	KT530M HT7 MZ2000	C15M	IC30N
	P30				DN30			NK4545	T250A	NSS30 NSS40 NS740		CK90 CK99	MZ3000 CH7035			IC30N
M	M10		YNG151 YNG151C			CT3000		NK2525			TN60					IC30N
	M20			CT530		CT520		NK2525		NSS30	TN100M	CK75	CH650 CH7000 MZ1000 MZ2000	KT530M HT7 KT605M	C15M	IC30N
	M30							NK4545	T250A	NSS40 NS740		CK90 CK99	MZ3000 CH7035			
K	K10		YNG151 YNG151C			CT520		NK2525		NSS30	TN60	CK75		KT530M HT7		
	K20							NK2525								

硬质合金材料 TUNGSTEN CARBIDE MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC OT 株成	SANDVIK 山特维克	KOBLO 可洛伊	TaeguTec 特固克	WALTER 瓦尔特	MITSUBISHI 三菱	SUMITOMO 住友	TUNGALOY 泰珂洛	KYOCERA 京瓷	DJ-ET 深杰	HITACHI 日立	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
P	P01				ST05				ST10P	TK10S							
	P10	X738	YC10	S1P	ST10	P10			ST20E	TX20 TX25	PK30	SRT DX30	RS10 EX35	P10 K125M TTM		IC70 IC70 IC50M	
	P20	X738		SMA	ST20	P20		UT120T									
	P30	X738 X735		SM30	ST30A	P30		UT120T	A30 A30M	TK30 UC30		SR30 DX35	EX35 EX40	GM600 TTR		IC54 IC50M	
	P40	X735	YC40	S6					ST40E U10E	T140		SR30 DX35	EX45	G13		IC54	
	M10		YB0351 YB0352	H10A	U10	M10			EH510 U10E	TU10		UMN	MA108	K313			
	M20	X738		H13A	U20	M20		UT120T	EH510 U2	TU20 UC30		DX25 UMS	EX35	K68 KMF K125M TTM	HX 883	IC08	
	M30	X738	YB0351 YB0352	H10F SM30	ST30A				A30 A30M	UC30			DX25 UMS	EX40 EX45	K600 TTR		IC08 IC28 IC128
	M40			S6	U40	M40				TU40			UM40	EX45	G13		
	K01		YD051	H1P	H02			UT105T	H1 H2	TH03 KS05F			K003	WH05	K605		IC20
K	K10	X738	YD101	H1P H10 HM	H01	K10		HT110	EH510	G1F TH10	KR10	KG10 K19	WH10	K313 K110M TIM THM-U		IC20 IC10	
	K20	X738	YD201	H13A	G10	K20		UT120T	G10E EK20 EH620 KS20	GZF KS15F GZ KS20	GR10	GR1 KG20	WH20	K715 KMF K600	HX 883	IC20 IC10	
	K30		YD201		G3			UT120T	G10E	G3		K030		THR		IC10 IC28	

硬质合金材料 TUNGSTEN CARBIDE MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC CT 株诚	SANDVIK 山特维克	KOBLO 可洛伊	TaeguTec 特固克	MALTER 瓦尔特	三菱 MITSUBISHI	住友 SUMITOMO	TUNGALOY 泰珂洛	KYOCERA 京瓷	日立 HITACHI	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
车削 TURNING	N	N01		H10 H13A				H1 H2	KS05F		K603		K605			
		M10	X738	YD101	H01	K10	WK10	HT110	EH10 EH510	TH10 HT10			K313 K110M THM THM-U	890 H15		
		N20				K20			G10E EH20 EH520	KS15F		CR1 K020		K715 KMF K600	HK KK H15 H25	
		N30										K630		G13 THR	H25	
		S01						RT9005				K603				
	S	S10		YD101	H10 H10A H16F H13A	H01	K10		RT9005 RT9010	KS05F TH10		F205 K610		K10 K313 THM	890	
		S20							RT9010 TF15	KS15F KS20		F215 K020		K715 KMF	890 883 HK H25	
		S30						TF15				K630		G13 K600 THR		

硬质合金材料 TUNGSTEN CARBIDE MATERIAL

类别 CATEGORIES	分类代号 ISO CODE	LIFA 新华	ZCC CT 株诚	SANDVIK 山特维克	KOBLO 可洛伊	TaeguTec 特固克	MALTER 瓦尔特	三菱 MITSUBISHI	住友 SUMITOMO	TUNGALOY 泰珂洛	KYOCERA 京瓷	日立 HITACHI	KENAMETAL 肯纳	SECO 山高	ISCAR 伊斯卡	
铣削 MILLING	P	P10	X738	YC10	S1P	P10		UT120T	A30N	TX25			K125		IC50M IC28	
		P20	X738			S120	P10					EX35				
		P30	X738 X735			S130	P20		UT120T	A30N	UX30	PH30	EX35 EX40	GX K6		IC50M IC28
		P40	X735	YC30S		S140	P30					PH30	EX45			IC28
		M10		YC10		U10	M10						UMN	K313		
	M	M20	X738			U20	M20		UT120T	A30N			EX35	K313		
		M30	X738	YC30S					UT120T	A30N	UX30		EX40 EX45	KFM K60		IC28
		M40				U40	M40				TU40		EX45			IC28
		K01		YD051		H01			UT105T							
		K10	X738	YD051	H1P	H05 H10	K10	WK10	UT110	G10E	TH10	KB10	WH10	K110M K313		IC20
K	K20	X738	YD201		G10	K20		UT120T	G10E			WH20	KFM	HK	IC20 IC10	
	K30		YD201		G3			UT120T							IC10 IC28	

材料横向对比表

Transverse Comparison Table Of Materials

ISO	国家和标准										
	中国	美国	德国	英国	瑞典	法国	意大利	西班牙	日本		
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
结构钢											
	15	1015	1.0401	C15	080M15	-	1350	CC12	C15C16	F.111	-
	20	1020	1.0402	C22	050A20	2C	1450	CC20	C20C21	F.112	-
	35	1035	1.0501	C35	060A35	-	1550	CC35	C35	F.113	-
	45	1045	1.0503	C45	080M40	-	1650	CC45	C45	F.114	-
	55	1055	1.0535	C55	070M55	-	1655	-	C55	-	-
	60	1060	1.0601	C60	080A62	43D	-	CC55	C60	-	-
	Y15	1213	1.7015	9SMn28	230M07	-	1912	S250	CF9SMn28	11SMn28	SUM22
	-	12L13	1.0718	9SMnPb28	-	-	1914	S250Pb	CF9MnPb28	11SMnPb28	SUM22L
	-	-	1.0722	10SPb20	-	-	-	10PbF2	CF10Pb20	10SPb20	-
	-	1140	1.0726	35S20	212M36	8M	1957	35MF4	-	F210G	-
	Y13	1215	1.0736	9SMn36	240M07	1B	-	S300	CF9SMn36	12SMn35	-
	-	12L14	1.0737	9SMnPb36	-	-	1926	S300Pb	CF9SMnPb36	12SMnPb35	-
	55Si2Mn	9255	1.0904	55Si9	250A53	45	2085	55S7	55Si8	56Si7	-
	-	9262	1.0961	60SiCr7	-	-	-	60SiCr7	60SiCr8	60SiCr8	-
P	15	1015	1.1141	Ck15	080M15	32C	1370	XC12	C16	C15K	S15C
	40Mn	1039	1.1157	40Mn4	150M36	15	-	35M5	-	-	-
	25	1025	1.1158	Ck25	-	-	-	-	-	-	S25C
	35Mn2	1335	1.1167	36Mn5	-	-	2120	40Mn5	-	36Mn5	SMn438(H)
	30Mn	1330	1.1170	28Mn6	150M28	14A	-	20M5	C28Mn	-	SCMn1
	35Mn	1035	1.1163	Cf35	060A35	-	1572	XS38TS	C36	-	S35C
	Ck45	1045	1.1191	45	080M46	-	1672	XC42	C45	C45K	S45C
	55	1055	1.1203	Ck55	070M55	-	-	XC45	C50	C55K	S55C
	50	1050	1.1213	Cf53	060A52	-	1674	XC48TS	C53	-	S50C
	60Mn	1060	1.1221	Ck60	080A62	43D	1678	XC60	C60	-	S58C
	-	1095	1.1274	Ck101	060A96	-	1870	-	-	-	SUP4
	-	-	1.3401	X120Mn12	Z120M12	-	-	X120M12	XG120Mn12	X120Mn12	SCMnH1
	Gr15:45Gr	52100	1.3505	100Cr6	53A499	31	2258	100C6	100Cr6	F.131	SUJ2
	-	ASTM A204Gr.A	1.5415	15Mo3	1501-240	-	2912	15D3	16Mo3KW	16Mo3	-
	-	4520	1.5426	16Mo5	1503-245-420	-	-	-	16Mo5	16Mo5	-
	-	ASTM A350LF5	1.5622	14Ni6	-	-	-	16Ni6	14Ni6	15Ni6	-
	-	ASTM A353	1.5662	X8Ni9	1501-509.510	-	-	-	X10Ni9	X8Ni9	-

材料横向对比表

Transverse Comparison Table Of Materials

ISO	国家和标准										
	中国	美国	德国	英国	瑞典	法国	意大利	西班牙	日本		
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
结构钢											
	-	2515	1.5680	12Ni19	-	-	-	Z18N5	-	-	-
	-	3135	1.5710	36NiCr6	640A35	111A	-	35NC6	-	-	SNC236
	-	3415	1.5732	14NiCr10	-	-	-	14NC11	16NiCr11	15NiCr11	SNC415(H)
	-	3415	1.5752	14NiCr14	655M13	655A12	36A	-	12NC15	-	SNC815(H)
	-	9840	1.6511	36CrNiMo4	816M40	110	-	40NC03	38CrNiMo4(KB)	35CrNiMo4	-
	-	8620	1.6523	21NiCrMo2	850M20	362	2503	20NC02	20NiCrMo2	20NiCrMo2	SNCCM220(H)
	-	8740	1.6546	40NiCrMo2	311-Type7	-	-	-	40NiCrMo2(KB)	40NiCrMo2	SNC240
	40CrNiMoA	4340	1.6582	34CrNiMo6	817M40	24	2541	35NC06	35CrNiMo6(KB)	-	-
	-	-	1.6587	17CrNiMo6	820A16	-	-	18NC06	-	14CrNiMo13	-
	15Cr	5015	1.7015	15Cr3	523M15	-	-	12C3	-	-	SCr415(H)
	35Cr	5132	1.7033	34Cr4	530A32	18B	-	32C4	34Cr4(KB)	35Cr4	SCr430(H)
	40Cr	5140	1.7035	41Cr4	530M40	18	-	42C4	41Cr4	42Cr4	SCr440(H)
	40Cr	5140	1.7045	42Cr4	-	-	2245	-	-	42Cr4	SCr440
	18CrMn	5115	1.7131	16MnCr15	(527M20)	-	2511	16MC5	16MnCr15	16MnCr15	-
P	20CrMn	5155	1.7176	55Cr3	527A60	48	-	55C3	-	-	SUP9(A)
	30CrMn	4130	1.7218	25CrMo4	1717CDS110	-	2225	25CD4	25CrMo4(KB)	55C3	SCM420; SCM430
	35CrMo	4137:4135	1.7220	34CrMo4	708A37	19B	2234	35CD4	35CrMo4	34CrMo4	SCM432; SCRRM3
	40CrMoA	4140:4142	1.7223	41CrMo4	708M40	19A	2244	42CD4TS	41CrMo4	41CrMo4	SCM440
	42CrMo	42CrMnMo	4140	1.7225	42CrMo4	708M40	19A	2244	42CD4	42CrMo4	SCM440(H)
	-	-	1.7262	15CrMo5	-	-	2216	12CD4	-	12CrMo4	SCM415(H)
	-	ASTM A182 F11,F12	1.7335	13CrMo44	1501-820Gr.27	-	-	15CD3.5; 15CD4.5	14CrMo44	14CrMo45	-
	-	-	1.7361	32CrMo12	722M24	40B	2240	30CD12	32CrMo12	F.124.A	-
	-	ASTM A182 F.22	1.7380	10CrMo910	1501-622Gr.31:45	-	2218	12CD9:10	12CrMo9.10	TU.H	-
	-	-	1.7715	14MoV63	1503-660-440	-	-	-	-	13MoCrV6	-
	50CrVA	6150	1.8159	50CrV4	735A50	47	2230	50CV4	50CrV4	51CrV4	SUP10
	-	-	1.8509	41CrAlMo7	905M39	41B	2940	40CAD6.12	41CrAlMo7	41CrAlMo7	-
	-	-	1.8523	39CrMoV139	897M39	40C	-	-	36CrMoV12	-	-

材料横向对比表

Transverse Comparison Table Of Materials

ISO	国家和标准										
	中国	美国	德国		英国	瑞典	法国	意大利	西班牙	日本	
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
P	工具钢										
	T10	W.110	1.1545	C105W1	-	-	1880	Y1105	C98KU C100KU	F.515 F.516	-
	T12A	W.112	1.1663	C125W	-	-	-	Y120	C120KU	(C120)	SK2
	CrV9SiCr	L3	1.2067	100Cr6	BL3	-	-	Y100C6	-	100Cr6	-
	Cr12	D3	1.2080	X210Cr12	BD3	-	-	Z200Cr12	X210Cr13KU X250Cr12KU	X210Cr12	SKD1
	4Cr5MoVSi	H13	1.2344	X40CrMoV5.1	BH13	-	2242	Z40CDV5	X35CrMoV05KU X40CrMoV51KU	X40CrMoV5	SKD61
	Cr6WV	A2	1.2363	X100CrMoV5.1	BA2	-	2260	Z100CDV5	X100CrMoV51KU	X100CrMoV5	SKD12
	CrWMo	-	1.2419	105WCr6	-	-	2140	105WC13	10WCr6 107WC-5KU	105WCr5	SK531 SK52 SK53
	Cr12W	-	1.2436	X210CrW12	-	-	2312	-	X215CrW12.1KU	X210CrW12	SKD2
	5CrNiMo	S1	1.2542	45WCrV7	BS1	-	2710	-	45WCrV8KU	45WCrSi8	-
	3Cr2W8V	H21	1.2581	X30WCrV9.3 X30WCrV93KU	BH21	-	-	Z30WCV9	X28W09KU X30WCrV9.3KU	X30WCrV9	SKD5
	Cr12MoV	-	1.2601	X165CrMoV.12	-	-	2310	-	X165CrMoW12KU	X160CrMoV12	SKD11
	5CrNiMo	L6	1.2713	55NiCrMoV6	-	-	-	55NCDV7	-	F.250.S	SKT4
	V	W210	1.2833	100V1	BW2	-	-	Y.165V	-	-	SKS43
	W6Mo5Cr4V2Co5	-	1.3243	S6-5-2-5	-	-	2723	Z85WDCV	HS6-5-2-5	HS6-5-2-5	SKH55
	W18Cr4VCo5	T4	1.3255	S18-1-2-5	BT4	-	-	Z80WKC 10-05-04-01	X78WCo1805KU	HS18-1-1-5	SKH3
	W6Mo5Cr4V2	M2	1.3343	S6-5-2	BM2	-	2722	Z85WDCV 06-05-04-02	X82WMo0605KU	HS6-5-2	SKH9
	-	M7	1.3348	S2-9-2	-	-	2782	Z100WCWV 09-02-04-02	HS2-9-2	HS2-9-2	-
	W18Cr4V	T1	1.3355	S18-0-1	BT1	-	-	Z80WCV 18-04-01	X75W18KU	HS18-0-1	SKH2
	W6Mo5Cr4V3	M3	-	S6-5-3	-	-	-	-	-	-	SKH52
	-	M42	-	-	BM42	-	-	-	-	-	SKH59

材料横向对比表

Transverse Comparison Table Of Materials

ISO	国家和标准					主要用途
	中国	美国	德国	日本	大同 (日本)	
	GB	AISI/SAE	DIN	JIS	DAIDO	
P	塑料模具钢					
	-	P20 mod.	-	-	PX5N	量产用大型镜面模具。汽车尾灯、仪表壳、挡块、握像机、家用电器等
	-	-	-	-	NAK55	高精度镜面模具。握像机、音乐、化妆品容器、透明罩类、透明胶片等
	-	-	-	-	NAK80	高精度高精密模具。握像机、化妆品容器、透明罩类、透明胶片等
	3Cr13	420 mod.	-	SUS420J2 mod.	S-STAR	超镜面耐蚀精密模具。照相机部件、激光镜片、透镜、表壳
	冷作模具钢					
	-	O2	-	SKS93	YK30	冲压模、量规、截断刀、辅助工具
	9CrWMn	O1 mod.	-	SKS3 mod.	GOA	冲裁模、量规、拉模、丝锥、穿孔冲头
	Cr12MoV	D2	X165CrMoV12	SKD11	DC11	冲裁模、冷作成形模、冷拉模、成形轧辊、冲头
	-	D2 mod.	-	SKD11 mod.	DC53	冲裁模、冷作成形模、冷拉模、成形轧辊、冲头
	热作模具钢					
	4Cr5MoSiV1	H13	X40CrMoV5.1	SKD61	DHA1	铝压铸模、压铸模关键部件、热冲压模、热挤压模、热剪切片
-	-	-	-	DH21	长寿命铝压铸模	
-	-	-	-	DH31-S	大型压铸模	
-	-	-	-	DH2F	压铸模、塑料模	

通用
技术
信息

通用技术信息 General Technical Information

材料横向对比表

Transverse Comparison Table Of Materials

ISO	国家和标准										
	中国	美国	德国	英国	瑞典	法国	意大利	西班牙	日本		
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
M	不锈钢										
	0Cr13; 1Cr12	403	1.4000	X6Cr13	403S17	-	2301	Z6C13	X6Cr13	F.3110	SUS403
	-	-	1.4001	X7Cr14	-	-	-	-	-	F.8401	-
	1Cr13	410	1.4006	X10Cr13	410S21	56A	2302	Z10C14	X12Cr13	F.3401	SUS410
	1Cr17	430	1.4016	X6Cr17	430S15	60	220	Z8C17	X8Cr17	F.3113	SUS430
	2Cr13	410	1.4021	X20Cr13	S62	56B; 56C	-	Z20C13	X20C13	F.3401	SUS410
	-	-	1.4027	G-X20Cr14	420C29	56B	-	Z20C13M	-	-	SCS2
	4Cr13	-	1.4034	X46Cr13	420S45	56D	2304	Z40CM Z38C13M	X40Cr14	F.3405	SUS420J2
	1Cr17Ni2	431	1.4057	X20CrNi172	431S29	57	2321	Z15CrNi6.02	X16CrNi16	F.3427	SUS431
	Y1Cr17	430F	1.4104	X12CrMoS17	-	-	2383	Z10CF17	X10CrS17	F.3117	SUS430F
	1Cr17Mo	434	1.4113	X6CrMo171	434S17	-	2325	Z8CD17.01	X8CrMo17	-	SUS434
	-	-	1.4313	X5CrNi134	425C11	-	-	Z4CND13.4M	-	-	SCS5
	-	-	1.4408	G-X6CrNiMo1810	316C16	-	-	-	-	F.8414	SCS14
	4Cr9Si2	HW3	1.4718	X45CrSi93	401S45	52	-	Z45CS9	X45CrSi8	F.322	SUH1
	0Cr13Al	405	1.4724	X10CrAl13	403S17	-	-	Z10C13	X10CrAl12	F.311	SUS405
	Cr17	430	1.4742	X10CrAl18	430S15	60	-	Z10CAS18	X8Cr17	F.3113	SUS430
	8Cr20Si2Ni	HNV6	1.4757	X80CrNiSi20	443S85	59	-	Z80CSN20.02	X80CrSiNi20	F.320V	SUH4
	2Cr25Ni	446	1.4762	X10CrNi24	-	-	2322	Z10CAS24	X16Cr26	-	SUH446
	奥氏体不锈钢										
	0Cr18Ni9	304	1.4301	X5CrNi1810	304S15	58E	2332	Z6CN18.09	X5CrNi1810	F.3551; F.3541; F.3504	SUS304
	1Cr18Ni9Mo2r	303	1.4305	X10CrNiS189	303S21	58M	2346	Z10CNF18.09	X10CrNiS18.09	F.3508	SUS303
	0Cr19Ni10	304L	1.4306	X2CrNi1911	304S12	-	2352	Z2CN18.10	X2CrNi18.11	F.3503	SCS19
	-	-	1.4308	G-X9CrNi189	304C15	-	-	Z6CN18.10M	-	-	SCS13
	Cr17Ni7	301	1.4310	X12CrNi177	-	-	2331	Z12CN17.07	X12CrNi1707	F.3517	SUS301
	-	304LN	1.4311	X2CrNiN1810	304S62	-	2371	Z2CN18.10	-	-	SUS304LN
0Cr19Ni9	304	1.4350	X5CrNi189	304S31	58E	-	Z6CN18.09	X5CrNi1810	-	SUS304	
0Cr17Ni11Mo2	316	1.4401	X5CrNiMo1712	316S16	Z6CND17.11	2347	1.4401	X5CrNiMo1712	F.3543	SUS316	
00Cr17Ni13Mo2	316LN	1.4429	X2CrNiMoN17133	-	-	2375	Z2CND17.13	-	-	SUS316LN	
0Cr27Ni12Mo3	316L	1.4435	X2CrNiMo18143	316S12	-	2353	Z2CDN17.13	X2CrNiMo1713	-	SCS16	
00Cr19Ni13Mo3	317L	1.4438	X2CrNiMo17133	317S12	-	2367	Z2CND19.15	X2CrNiMo18.16	-	SUS317L	
-	329L	1.4460	X8CrNiMo275	-	-	2324	-	-	-	SUS329L; SCH11; SCS11	
1Cr18Ni9Ti	321	1.4541	X6CrNiTi1810	2337	321S12	58B	Z6CNT18.10	X6CrNiTi1811	F.3553	SUS321	
1Cr18Ni11Nb	347	1.4550	X6CrNiNb1810	347S17	58F	2338	Z6CNb18.1	X6CrNiTi1811	F.3552	SUS347	
Cr18Ni12Mo2Ti	316Ti	1.4571	X6CrNiMoTi17122	320S17	58J	2350	Z6NDT17.12	X6CrNiMoTi17	F.3535	-	

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材料横向对比表

Transverse Comparison Table Of Materials

ISO	国家和标准										
	中国	美国	德国	英国	瑞典	法国	意大利	西班牙	日本		
	GB	AISI/SAE	W.-nr	DIN	BS	EN	SS	AFNOR	UNI	UNE	JIS
M	奥氏体不锈钢										
	-	-	1.4581	G-X5CrNiMoNb1810	318C7	-	-	Z4CNDNb1812M	XG8CrNiMo18	-	SCS22
	Cr17Ni2Mo3Nb	318	1.4583	X10CrNiMoNb1812	-	-	-	Z6CNDNb1713B	X6CrNiMoTiNb17	-	-
	1Cr23Ni13	309	1.4828	X15CrNiSi2012	309S24	-	-	Z15CNS20.1	-	-	SUH309
	0Cr25Ni20	310S	1.4845	X12CrNi2521	310S24	-	2361	Z12CN2520	X6CrNi2520	F.331	SUH310
	Cr15Ni36W3Ti	330	1.4864	X12NiCrSi3616	-	-	-	Z12CNS35.1	-	-	SUH330
	-	-	1.4865	G-X40NiCrSi3818	330C11	-	-	-	XG50NiCr3919	-	SCH15
	5Cr2Mn9Ni4N	EV8	1.4871	X53CrMnNiN219	349554; 321512	-	58B	Z52CMN21.0	X53CrMnNiN219	-	SUH35
	1Cr18Ni9Ti	321	1.4878	X12CrNiTi189	321S320	58C	-	Z6CNT18.12	X6CrNiTi1811	F.3523	SUS321

ISO	国家和标准									
	中国	美国	德国	英国	瑞典	法国	意大利	西班牙	日本	
K	球墨铸铁									
	QT400-18	60-40-18	GGG40	400/17	0717-02	FGS370-17	GS370-17	FGE38-17	FCD400	
	QT450-10	65-45-12	--	420/12	--	FGS400-12	GS400-12	FGE42-12	FCD450	
	QT500-7	70-50-05	GGG50	500/7	0727-02	FGS500-7	GS500-7	FGE50-7	FCD500	
	QT600-3	80-60-03	GGG60	600/7	0732-03	FGS600-2	GS600-2	FGE60-2	FCD600	
	QT700-2	100-70-03	GGG70	700/2	0737-01	FGS700-2	GS700-2	FGE70-2	FCD700	
	QT800-2	120-90-02	GGG80	800/2	0864-03	FGS800-2	GS800-2	FGE80-2	FCD800	
	QT900-2	--	--	900/2	--	--	--	--	--	--
	灰口铸铁									
	-	NO.60	GG40	--	0140	FGL400	--	--	--	--
HT350	NO.50	GG35	350	0135	FGL350	G35	FG35	FC350		
HT300	NO.45	GG30	300	0130	FGL300	G30	FG30	FC300		
HT250	NO.35	GG25	250	0125	FGL250	G25	FG25	FC250		
HT200	NO.30	GG20	200	0120	FGL200	G20	FG20	FC200		
HT150	NO.20	GG15	150	0115	FGL150	G15	FG15	FC150		
HT100	--	--	100	0110	--	G10	--	FC100		

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