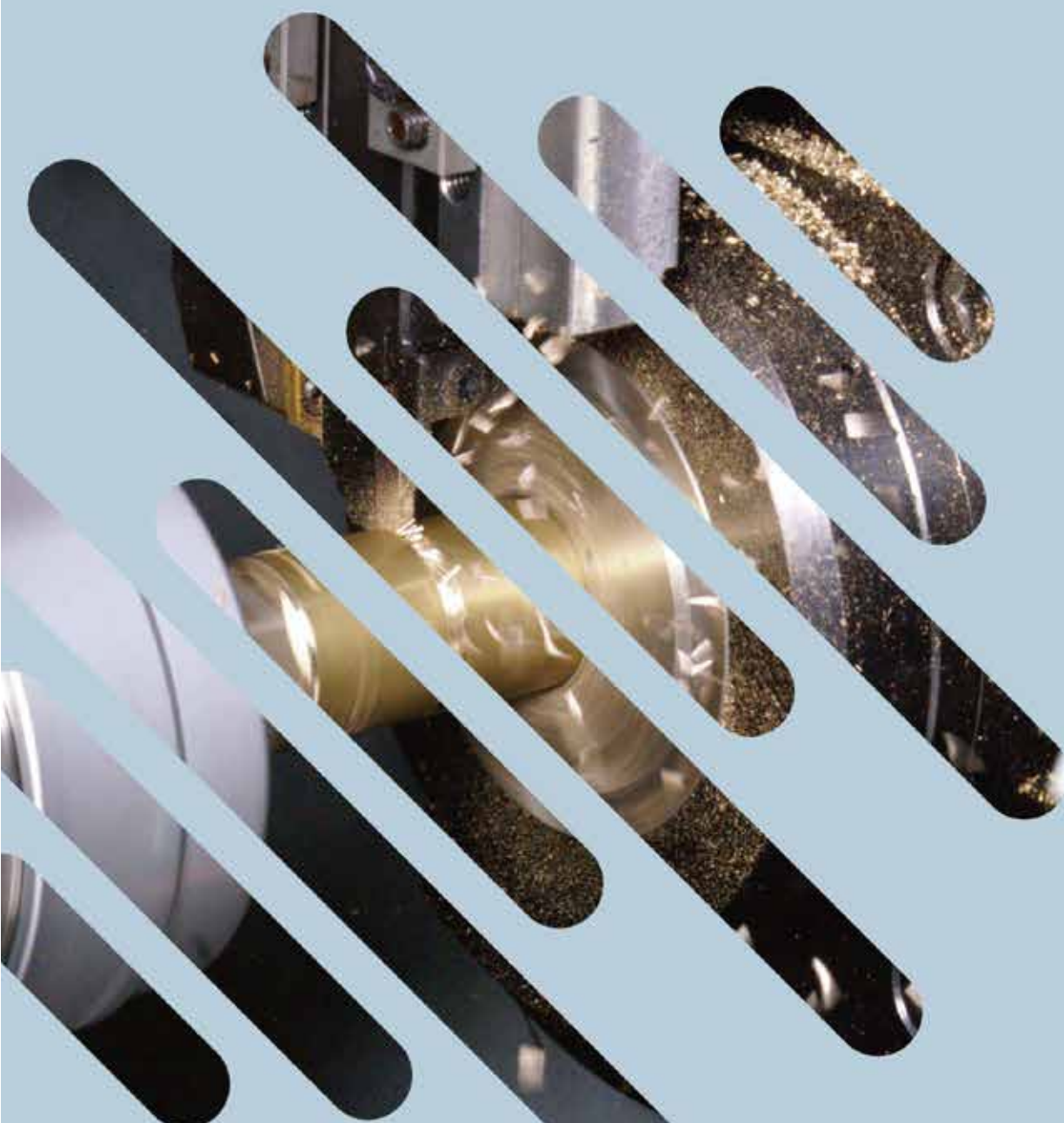


IKEN

上海井研精密工具有限公司

Shanghai IKEN Precision Tools Co.Ltd.





专注切削 用心服务

上海井研精密工具有限公司
Shanghai IKEN Precision Tools CO.Ltd.



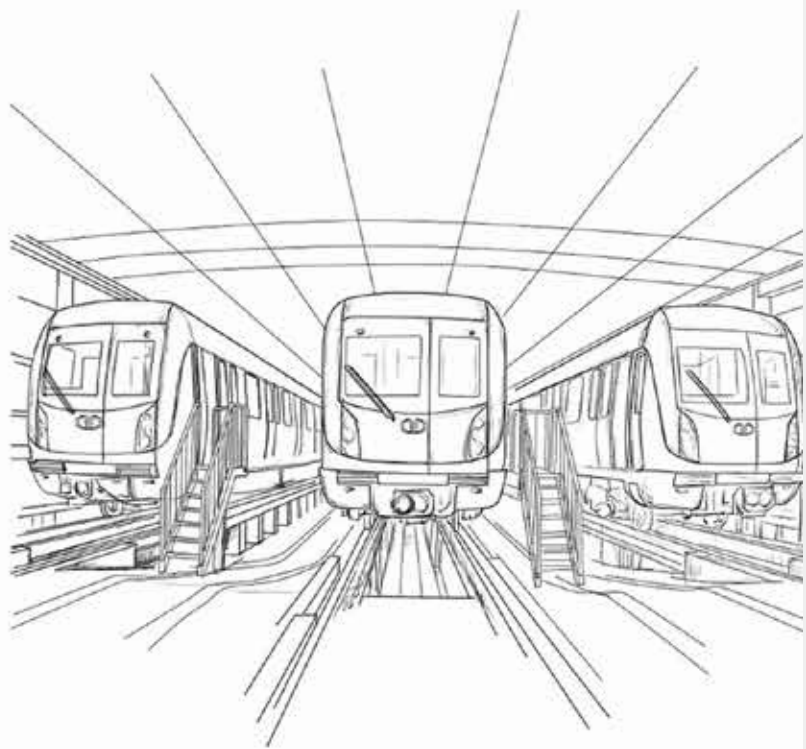
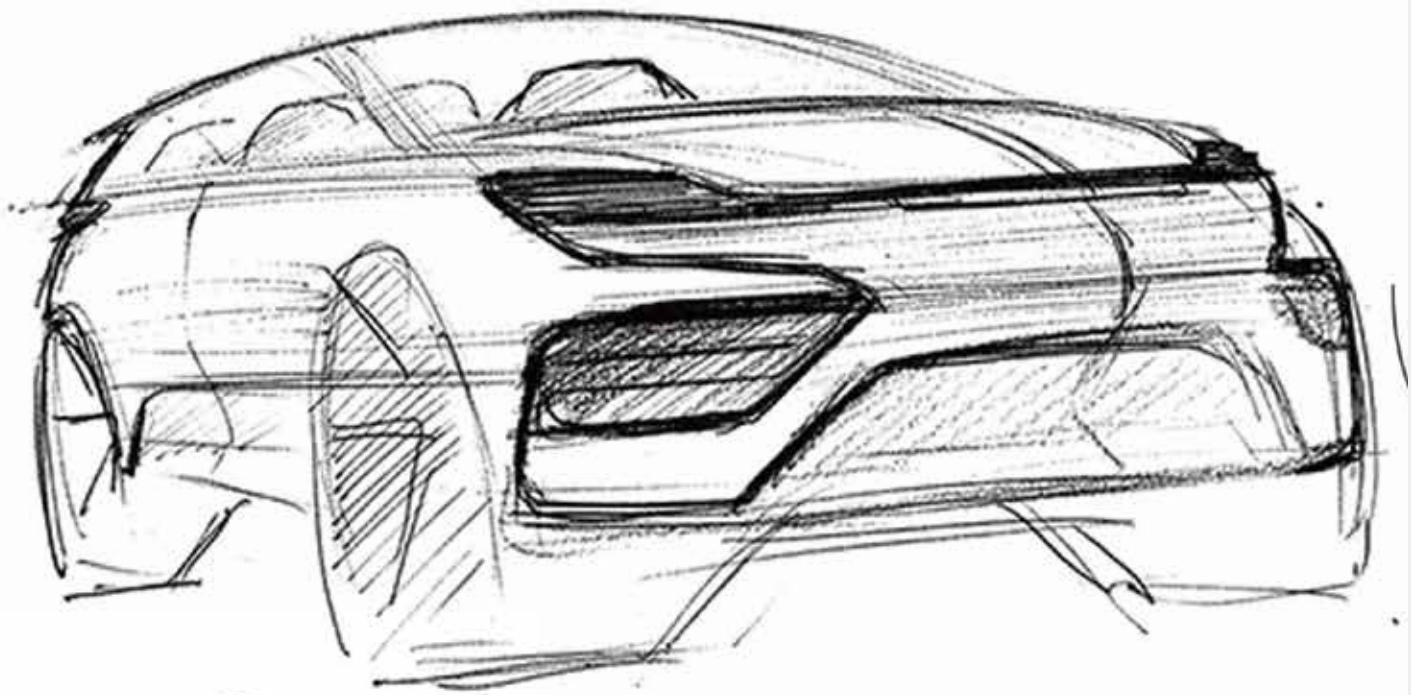
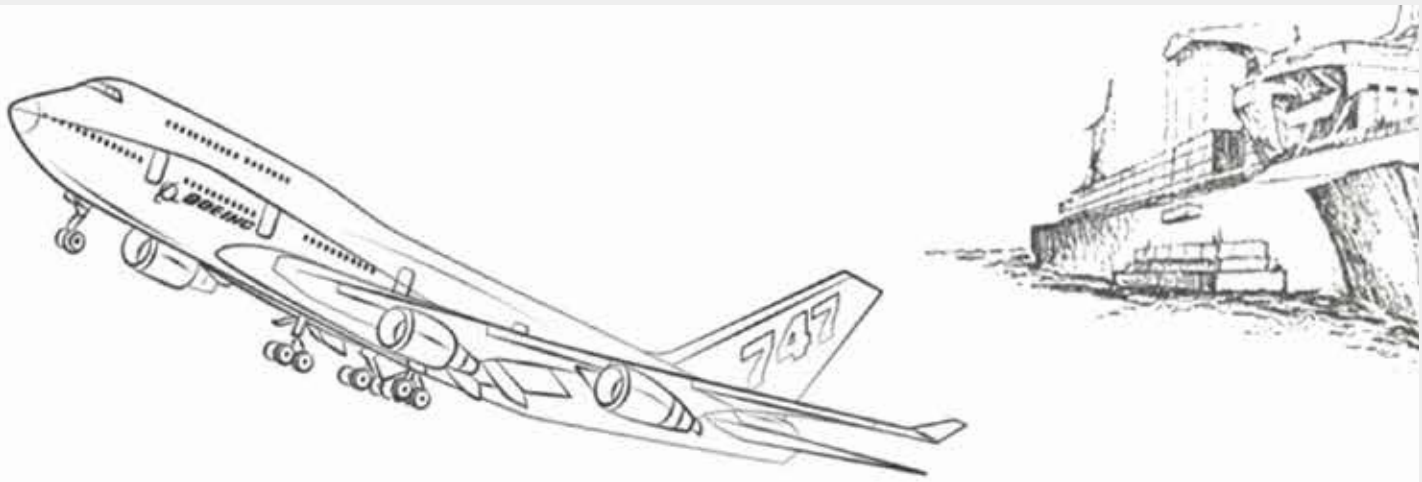
公司简介

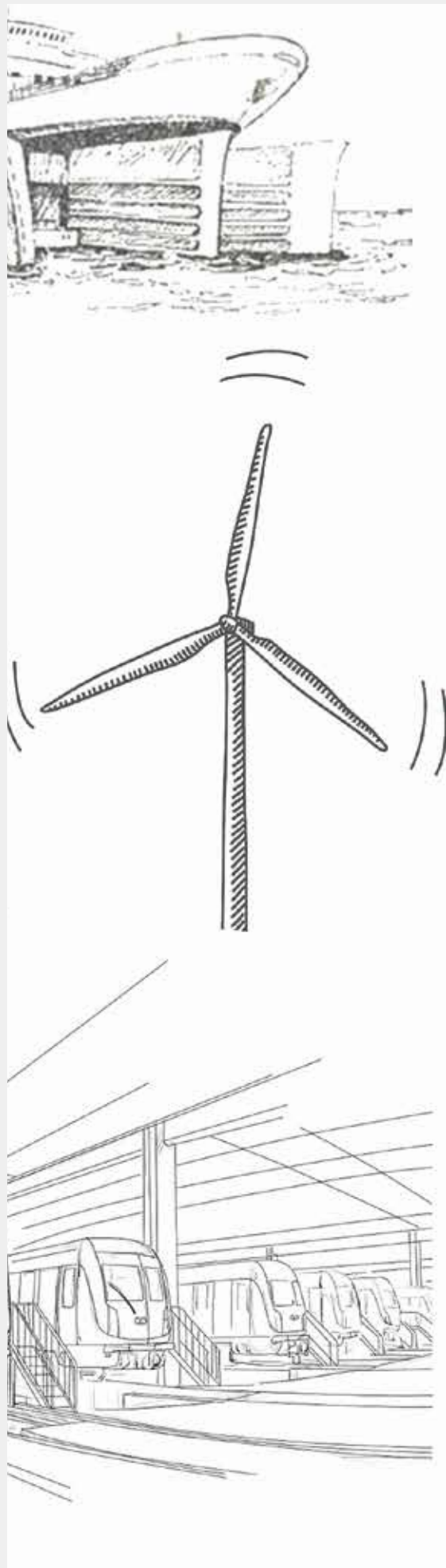
Company Introduction

上海井研精密工具有限公司（IKEN）成立于2011年，位于上海，开展 CBN、PCD 精密超硬刀具的研发、生产与销售。

产品面向汽车、轨道交通、船舶、航空、医疗、能源等领域的零部件加工需求。井研结合工件材料、图纸要求和加工条件，提供刀具选型、非标定制及加工应用沟通支持。具体产品适用范围和技术要求，以双方确认的产品文件为准。

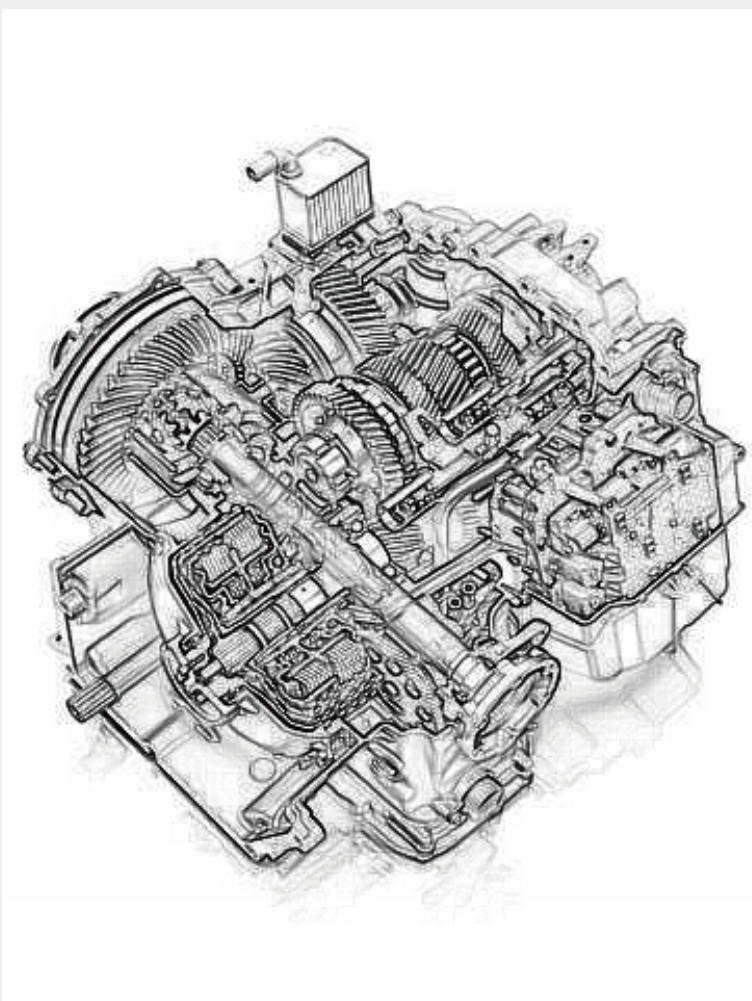
井研秉持“公平公正、合作开放、学习创新、创造价值”的企业价值观，与客户共同讨论切削加工中的实际需求。产品方案与加工参数需结合机床、夹持、冷却及现场工况进行验证。





上海井研精密工具有限公司
Shanghai IKEN Precision Tools CO.Ltd.

现在社会中机械产品充斥于每个人生活的方方面面，涉及到交通、能源、医疗、生产等。用途各异的功能机械则是由各种各样及不同材质的部件协作而实现的。正是功能强大的精密刀具才能赋予机械以能力和灵魂，使其更好的服务人类。



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负前角S型	12
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CBN刀片命名规则

多刀尖类型

3 HP - TNGA160404 - STF

1

2

3

1 切削刃数目代号	
2	单面多刀尖
3	
4	双面多刀尖
6	

2 类型	
HP	普通焊接
TH	贯穿焊接

3 标识刃口代号	
无	标准钝化
SFD	适合于精加工
STM	适合于精加工-半精加工
STF	基本选择-通用型
STH	适合于断续加工
STR	适合于强断续加工
STQ	适合于强断续下的重载加工
W	有修光刃

-GV - IKN6290C2

4

5

4 断屑槽代号	
GP	小切深连续加工槽型
FV	精加工槽型
GV	半精加工槽型
MV	强壮的槽型

5 井研CBN材质代号

铣刀类型

APGW160404 - PDER - STM

1

2

3

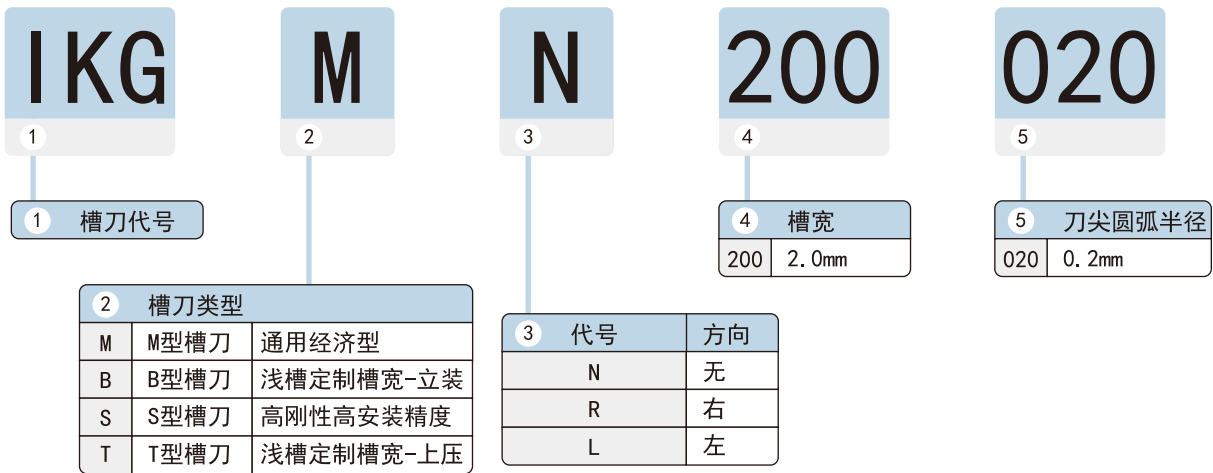
1 ISO标准铣刀代号

2 PDER代表有刃带

3 标识刃口代号

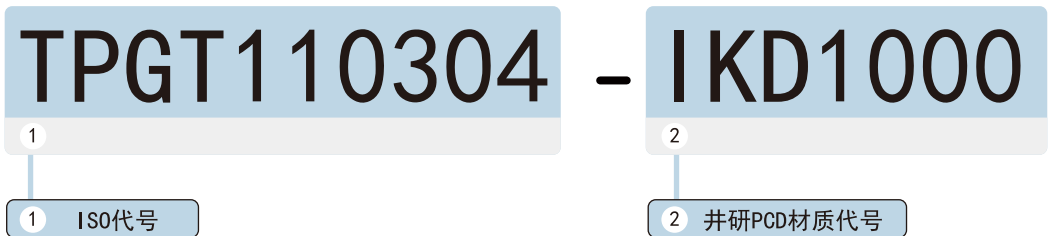
- IKN6000C2

IKN槽刀类型



- IKN4500

PCD刀片命名规则



补充说明:

※ 刀片名称后一般会写具体材质牌号及涂层牌号, 例如2HP-DNGA150404-SFD IKN4500C2, 材质为IKN4500, 涂层为C2

※ IKN****代号为IKEN的CBN材质牌号, IKD****代号为IKEN的PCD材质牌号

为什么需要使用CBN



- CBN
- ※ CBN(立方晶体氮化硼) 刀具是由硬度仅次于金刚石的立方晶体氮化硼粒子在高温高压下烧结成多结晶的刀具。
- 特征
- ※ 高硬度且耐磨损性能优秀，实现长寿命加工；
 - ※ 由于不易与铁发生反应，适合淬火钢(高硬度钢材)、铁系烧结金属、铸铁的高速加工；
 - ※ 热传导率高，能够实现快速散热、稳定加工。

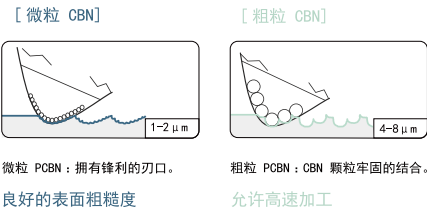
正常的切削加工

- ※ 刀具的硬度≥被加工材质硬度×3倍

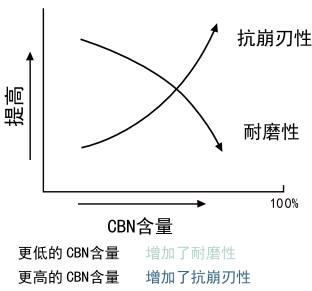
切削工件所需的条件

- ※ 淬火钢(>50HRC) → >520Hv
- ※ 硬质合金 → 1600Hv
- ※ PCBN (IKN6000) → 3300Hv

CBN晶粒大小对表面粗糙度和切削速度的影响



- ※ 用于加工淬火钢和其他高硬度材料的 CBN 材质的特性



IKEN的CBN(立方晶体氮化硼)

材质	应用	工况	特性
IKN1000	H	高速连续	淬火钢高速连续加工
IKN4500	H	连续-弱断续	淬火钢中高速连续加工，更注重被加工产品的表面质量，也可用于铸铁的高速连续加工
	K	连续	
IKN5290	H	连续-中断续	淬火钢的高速轻断续加工，高速状态下有一定的抗崩刃性和耐磨性优异
IKN6590	H. K	连续-弱断续	淬火钢的高速弱断续加工，在球墨铸铁牌号QT400~QT600连续加工性能上效果优异
IKN6290	H	弱断续-强断续	淬火钢的高速通用加工，抗崩刃和耐磨性兼顾的通用性材质，更优异的耐磨性
IKN6000	H	弱断续-强断续	淬火钢的中速通用加工，抗崩刃和耐磨性兼顾的通用性材质，更优异的稳定性
IKN7510	H	断续	淬火钢的断续加工，优异的切削性能和抗崩性
IKN8290	H	断续	淬火钢的高速断续加工，在球墨铸铁牌号QT400-QT600的加工性能上效果优异
	K	中断续-强断续	
IKN9000	H	中断续-强断续	高抗崩刃性适用与淬火钢的强断续加工及铸件的通用加工
	K	通用	
IKN9500	H. S. K	强断续-重强断续	淬火钢、烧结金属、铸铁强断续的首选材质
IKN7500	S. K	连续-断续	铸铁、烧结金属的专用牌号，有较好的耐磨性选材质
IKN8700	S. K	弱断续-强断续	铸铁、烧结金属的断续加工
IKN8800	S. K	连续-强断续	铸铁、烧结金属的精加工注重零件表面质量
IKN1690	K. S	弱断续-强断续	铸铁、烧结金属的通用材质
IKN3195	K. S	连续-弱断续	铸铁、烧结金属连续加工
IKN60	H	连续-断续	整体CBN及贯穿焊牌号，淬火钢、模具钢等韧性材料加工的首选
IKN96	H	通用	整体CBN及贯穿焊牌号，淬火钢通用加工
IKN80	K	断续	整体CBN及贯穿焊牌号，灰口铸铁高速断续切削加工
IKN90	K	强断续	整体CBN及贯穿焊牌号，灰口铸铁耐热合金强断续切削的

IKEN的CBN涂层

涂层选用参考

涂层选择需结合工件材料、加工方式及切削条件评估。不同工况的刀具磨损与寿命可能不同，建议通过试切确认。

涂层的特点

涂层用于调整刀具表面的耐磨、耐热等性能。加工表面质量与刀具状态、材料及切削条件有关。具体效果需在实际工况中验证。

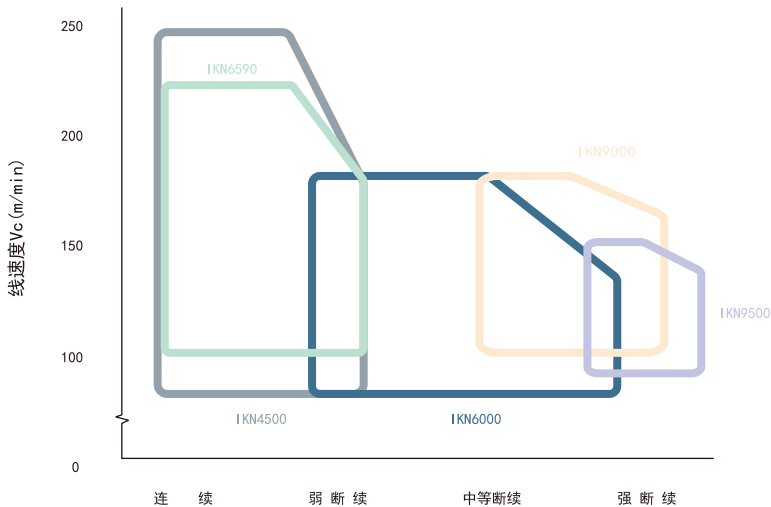
- ※ C2: 注重表面加工质量连续加工涂层
- ※ C3: 注重稳定性的通用加工涂层
- ※ CC: 注重抗冲击性能的断续加工涂层

涂层	连续 ○ 弱断续 ⌚ 中等断续 ⌚ 强断续 ⌚			
	C2	C3	CC	
工况	○ ⌚	○ ⌚ ⌚	⌚ ⌚	

适用于淬火钢加工的CBN材料

H淬火钢

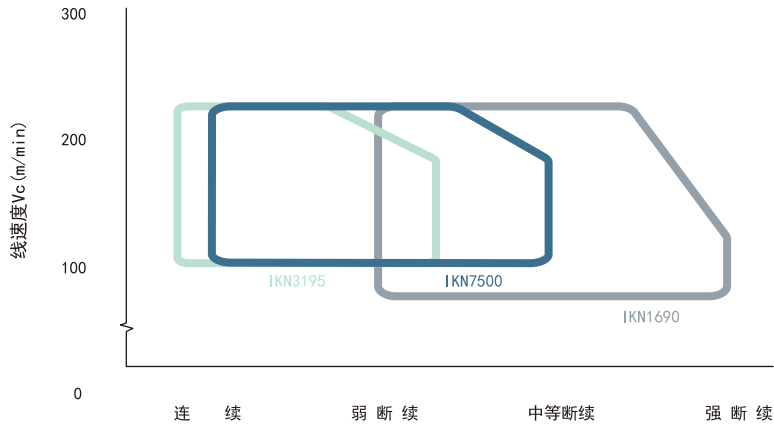
材质	线速度	适用工况
IKN4500	80-250	连续、弱断续
IKN6000	80-180	弱断续、强断续
IKN6590	100-220	连续、弱断续
IKN9000	100-180	中断续、强断续
IKN9500	90-150	强断续、重强断续



用于加工烧结金属的CBN系列

S烧结金属

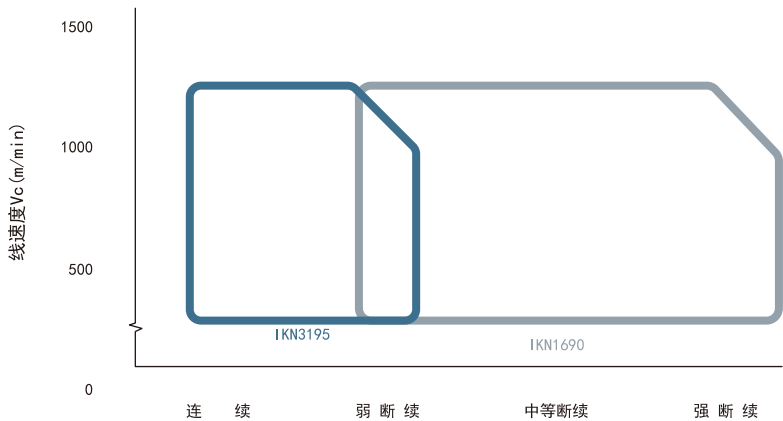
材质	线速度	适用工况
IKN1690	60-220	弱断续、强断续
IKN3195	100-220	连续、弱断续
IKN7500	100-220	连续、断续



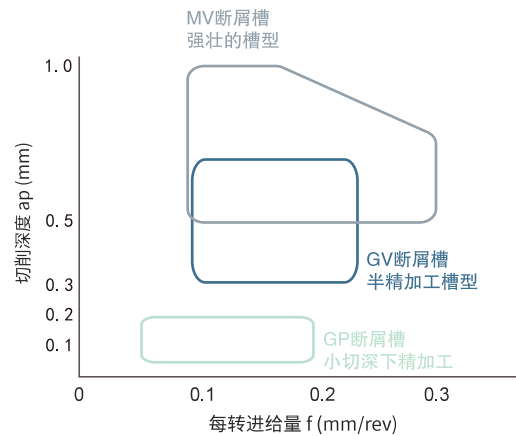
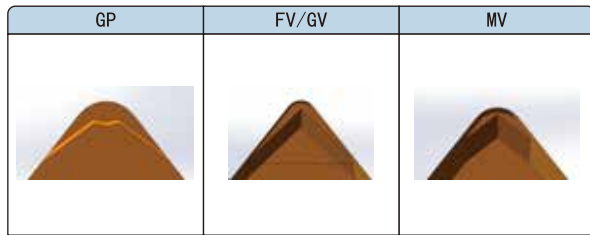
用于加工灰口铸铁和球墨铸铁的CBN系列

K铸铁

材质	线速度	适用工况
IKN1690	200-1200	弱断续、强断续
IKN3195	200-1200	连续、弱断续



断屑槽式样



修光刃刀片

加工面粗糙度改善

※ 使用以往的加工条件或提高每转进给量进行加工时，加工零部件的表面粗糙度都有所提高。

效率改善

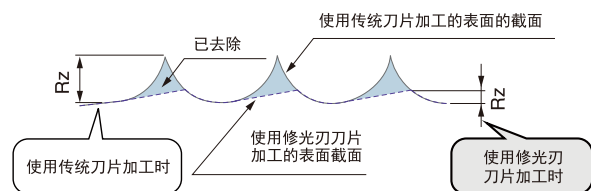
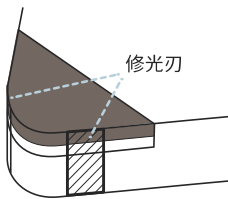
※ 采用大进给可缩短加工时间，而且将半精加工与精加工集约为1个工序，从而实现高效加工。

刀具磨损与验证

刀具磨损与寿命受工件材料、刀型及加工条件影响。
请结合加工要求调整进给量，并通过实际工况试切验证。

切屑处理性改善

※ 变更为大进给条件后，切屑厚度增大，切屑易于折断，因此切屑处理性能提高。



补充说明：

※ ISO型号末尾补充代号W为带修光刃刀型，例：2HP-CNGA120408W-STM

※ 推荐刀型及主偏角：

刀型	C型	T型	D型
主偏角	95°	91°	93°

失效形式

切削刀具的失效形式是由工件的材料、CBN的材质、加工参数以及环境决定的。以下根据几种不同的失效形式给出一些建议，帮助客户合理使用CBN刀具，提高刀具寿命。

过度磨损 	※ 提高切削速度 ※ 提高进给速度 ※ 检查刀具中心高 ※ 检查工件铁素体含量
过度月牙洼磨损 	※ 降低切削速度 ※ 降低进给速度 ※ 减少倒棱角度 ※ 采用涂层刀片 ※ 使用冷却液（限于连续切削）
槽磨损 	※ 增加切削速度 ※ 降低进给速度 ※ 增加切削角度（最好是圆形刀片） ※ 修改切削深度 ※ 使用负倒棱刀片
崩刃 	※ 使用带负倒棱以及钝化的刀片 ※ 增强系统刚性 ※ 在断续切削中，在工件上刀具进入和离开的槽或孔上做倒角处理，防止距离冲击 ※ 修正切削速度，消除振动

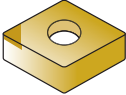
前刀面剥落（连续切削） 	※ 提高切削速度 ※ 降低进给率 ※ 采用负倒棱和钝化刀刃 ※ 检查刀具中心高 ※ 减小刀片的接近角
前刀面剥落（断续切削） 	※ 不要使用冷却 ※ 采用负倒棱和钝化刀刃 ※ 降低进给率 ※ 提高切削速度 ※ 检查刀具中心高 ※ 减小刀片的接近角
破坏性崩刃 	※ 减小切深（降低切削负载） ※ 降低切削速度 ※ 增大刀尖圆弧（如果允许，可使用圆刀片） ※ 提高切削速度 ※ 检查刀具中心高
刀片破损（整体CBN刀片） 	※ 检查刀座是否清洁 ※ 检查刀片垫片是否牢固 ※ 不要使用破损的垫片 ※ 不要使用破损的压板 ※ 检查刀具中心高

注意：以上是基于采用正常的切削参数下的建议

负前角C型

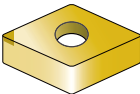
连续 ○ 弱断续 ○ 中等断续 ○ 强断续

规格	内切圆 Φd	厚度s	孔径 Φd_i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1204	12.7	4.76	5.16	0.2-1.2	K	○	○	○					
1207	12.7	7.94	5.16	0.2-1.2	S	○	○				○	○	○
					H			○	○	○	○	○	○

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	CNGA120402		0.2	●	●		●	●	●	●	●
		CNGA120404		0.4	●	●		●	●	●	●	●
	精加工	CNGA120402	-SFD	0.2	●	●	●	●	●			
		CNGA120404	-SFD	0.4	●	●	●	●	●	●	●	●
		CNGA120408	-SFD	0.8	●	●	●	●	●	●	●	●
		CNGA120412	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	CNGA120402	-STM	0.2	●	●	●	●	●			
		CNGA120404	-STM	0.4	●	●	●	●	●	●	●	●
		CNGA120408	-STM	0.8	●	●	●	●	●	●	●	●
		CNGA120412	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	CNGA120404	-STF	0.4	●	●	●	●	●	●	●	●
		CNGA120408	-STF	0.8	●	●	●	●	●	●	●	●
		CNGA120412	-STF	1.2	●	●	●	●	●	●	●	●
		CNGA120704	-STF	0.4	●	●	●	●	●	●	●	●
		CNGA120708	-STF	0.8	●	●	●	●	●	●	●	●
		CNGA120712	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	CNGA120404	-STH	0.4	●	●	●	●	●	●	●	●
		CNGA120408	-STH	0.8	●	●	●	●	●	●	●	●
		CNGA120412	-STH	1.2	●	●	●	●	●	●	●	●
		CNGA120704	-STH	0.4	●	●	●	●	●	●	●	●
		CNGA120708	-STH	0.8	●	●	●	●	●	●	●	●
		CNGA120712	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	CNGA120408	-STR	0.8	●	●		●		●	●	●
		CNGA120412	-STR	1.2	●	●		●		●	●	●
		CNGA120708	-STR	0.8	●	●		●		●	●	●
		CNGA120712	-STR	1.2	●	●		●		●	●	●
	强断续重载加工	CNGA120408	-STQ	0.8	●	●		●		●	●	●
		CNGA120412	-STQ	1.2	●	●		●		●	●	●
		CNGA120708	-STQ	0.8	●	●		●		●	●	●
		CNGA120712	-STQ	1.2	●	●		●		●	●	●

负前角D型

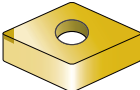
连续 ○ 弱断续 ⌚ 中等断续 ⌚ 强断续 ⌚

规格	内切圆 Φd	厚度s	孔径 Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1104	9.525	4.76	3.81	0.2-1.2	K								
1504	12.7	4.76	5.16	0.2-1.2	S								
1506	12.7	6.35	5.16	0.2-1.2	H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	DNGA110402		0.2	●	●		●	●	●	●	●	
		DNGA110404		0.4	●	●		●	●	●	●	●	
		DNGA150402		0.2	●	●		●	●	●	●	●	
		DNGA150404		0.4	●	●		●	●	●	●	●	
		DNGA150602		0.2	●	●		●	●	●	●	●	
		DNGA150604		0.4	●	●		●	●	●	●	●	
	精加工	DNGA110402	-SFD	0.2	●	●	●	●	●				
		DNGA110404	-SFD	0.4	●	●	●	●	●	●	●	●	●
		DNGA110408	-SFD	0.8	●	●	●	●	●	●	●	●	●
		DNGA110412	-SFD	1.2	●	●	●	●	●	●	●	●	●
		DNGA150402	-SFD	0.2	●	●	●	●	●				
		DNGA150404	-SFD	0.4	●	●	●	●	●	●	●	●	●
		DNGA150408	-SFD	0.8	●	●	●	●	●	●	●	●	●
		DNGA150412	-SFD	1.2	●	●	●	●	●	●	●	●	●
		DNGA150602	-SFD	0.2	●	●	●	●	●				
		DNGA150604	-SFD	0.4	●	●	●	●	●	●	●	●	●
		DNGA150608	-SFD	0.8	●	●	●	●	●	●	●	●	●
		DNGA150612	-SFD	1.2	●	●	●	●	●	●	●	●	●
	精加工-半精加工	DNGA110404	-STM	0.4	●	●	●	●	●	●	●	●	●
		DNGA110408	-STM	0.8	●	●	●	●	●	●	●	●	●
		DNGA110412	-STM	1.2	●	●	●	●	●	●	●	●	●
		DNGA150404	-STM	0.4	●	●	●	●	●	●	●	●	●
		DNGA150408	-STM	0.8	●	●	●	●	●	●	●	●	●
		DNGA150412	-STM	1.2	●	●	●	●	●	●	●	●	●
		DNGA150604	-STM	0.4	●	●	●	●	●	●	●	●	●
		DNGA150608	-STM	0.8	●	●	●	●	●	●	●	●	●
	DNGA150612	-STM	1.2	●	●	●	●	●	●	●	●	●	

DNGA

09

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆 Φ d	厚度 s	孔径 Φ d ₁	刀尖半径 r	材质	加工难易度 (连续、弱断续、中等断续、强断续)							
1104	9.525	4.76	3.81	0.2-1.2	K	🔄🔄🔄	🔄🔄	🔄					
1504	12.7	4.76	5.16	0.2-1.2	S	🔄🔄🔄	🔄🔄				🔄🔄		🔄
1506	12.7	6.35	5.16	0.2-1.2	H			🔄🔄	🔄🔄	🔄🔄		🔄🔄	🔄
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	通用加工	DNGA110404	-STF	0.4	●	●	●	●	●	●	●	●	
		DNGA110408	-STF	0.8	●	●	●	●	●	●	●	●	
		DNGA110412	-STF	1.2	●	●	●	●	●	●	●	●	
		DNGA150404	-STF	0.4	●	●	●	●	●	●	●	●	
		DNGA150408	-STF	0.8	●	●	●	●	●	●	●	●	
		DNGA150412	-STF	1.2	●	●	●	●	●	●	●	●	
		DNGA150604	-STF	0.4	●	●	●	●	●	●	●	●	
		DNGA150608	-STF	0.8	●	●	●	●	●	●	●	●	
		DNGA150612	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	DNGA110404	-STH	0.4	●	●	●	●	●	●	●	●	●
		DNGA110408	-STH	0.8	●	●	●	●	●	●	●	●	●
		DNGA110412	-STH	1.2	●	●	●	●	●	●	●	●	●
		DNGA150404	-STH	0.4	●	●	●	●	●	●	●	●	●
		DNGA150408	-STH	0.8	●	●	●	●	●	●	●	●	●
		DNGA150412	-STH	1.2	●	●	●	●	●	●	●	●	●
		DNGA150604	-STH	0.4	●	●	●	●	●	●	●	●	●
		DNGA150608	-STH	0.8	●	●	●	●	●	●	●	●	●
		DNGA150612	-STH	1.2	●	●	●	●	●	●	●	●	●
	强断续加工	DNGA110408	-STR	0.8	●	●		●		●	●	●	●
		DNGA110412	-STR	1.2	●	●		●		●	●	●	●
		DNGA150408	-STR	0.8	●	●		●		●	●	●	●
		DNGA150412	-STR	1.2	●	●		●		●	●	●	●
		DNGA150608	-STR	0.8	●	●		●		●	●	●	●
		DNGA150612	-STR	1.2	●	●		●		●	●	●	●

负前角V型

连续 ○ 弱断续 ⦶ 中等断续 ⦶ 强断续 ⦶

规格	内切圆φd	厚度s	孔径φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1604	9.525	4.76	3.81	0.2-1.2	K								
					S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	VNGA160402		0.2	●	●		●	●	●	●	●	
		VNGA160404		0.4	●	●		●	●	●	●	●	
		VNGA160408		0.8	●	●		●	●	●	●	●	
		VNGA160412		1.2	●	●		●	●	●	●	●	
	精加工	VNGA160402	-SFD	0.2	●	●	●	●	●				
		VNGA160404	-SFD	0.4	●	●	●	●	●	●	●	●	
		VNGA160408	-SFD	0.8	●	●	●	●	●	●	●	●	
		VNGA160412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	VNGA160404	-STM	0.4	●	●	●	●	●	●	●	●	
		VNGA160408	-STM	0.8	●	●	●	●	●	●	●	●	
		VNGA160412	-STM	1.2	●	●	●	●	●	●	●	●	
	通用加工	VNGA160404	-STF	0.4	●	●	●	●	●	●	●	●	
		VNGA160408	-STF	0.8	●	●	●	●	●	●	●	●	
		VNGA160412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	VNGA160404	-STH	0.4	●	●	●	●	●	●	●	●	
		VNGA160408	-STH	0.8	●	●	●	●	●	●	●	●	
VNGA160412		-STH	1.2	●	●	●	●	●	●	●	●		

负前角S型

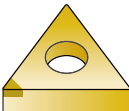
连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1204	12.7	4.76	5.16	0.2-1.2	K	◐	◐	○					
					S	◑	◑				◐		◑
					H			◐	◐	◐	◐	◑	◑

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	SNGA120402		0.2	●	●		●	●	●	●	●
		SNGA120404		0.4	●	●		●	●	●	●	●
	精加工	SNGA120402	-SFD	0.2	●	●	●	●	●			
		SNGA120404	-SFD	0.4	●	●	●	●	●	●	●	●
		SNGA120408	-SFD	0.8	●	●	●	●	●	●	●	●
		SNGA120412	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	SNGA120402	-STM	0.2	●	●	●	●	●			
		SNGA120404	-STM	0.4	●	●	●	●	●	●	●	●
		SNGA120408	-STM	0.8	●	●	●	●	●	●	●	●
		SNGA120412	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	SNGA120404	-STF	0.4	●	●	●	●	●	●	●	●
		SNGA120408	-STF	0.8	●	●	●	●	●	●	●	●
		SNGA120412	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	SNGA120404	-STH	0.4	●	●	●	●	●	●	●	●
		SNGA120408	-STH	0.8	●	●	●	●	●	●	●	●
		SNGA120412	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	SNGA120408	-STR	0.8	●	●		●		●	●	●
		SNGA120412	-STR	1.2	●	●		●		●	●	●
	强断续重载加工	SNGA120408	-STQ	0.8	●	●		●		●	●	●
		SNGA120412	-STQ	1.2	●	●		●		●	●	●

负前角T型

连续 ○ 弱断续 ⦿ 中等断续 ⦿ 强断续 ⦿

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1604	9.525	4.76	3.81	0.2-1.6	K								
					S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	TNGA160402		0.2	●	●		●	●	●	●	●	
		TNGA160404		0.4	●	●		●	●	●	●	●	
	精加工	TNGA160402	-SFD	0.2	●	●	●	●	●				
		TNGA160404	-SFD	0.4	●	●	●	●	●	●	●	●	
		TNGA160408	-SFD	0.8	●	●	●	●	●	●	●	●	
		TNGA160412	-SFD	1.2	●	●	●	●	●	●	●	●	
		TNGA160416	-SFD	1.6	●	●	●	●	●	●	●	●	
	精加工-半精加工	TNGA160402	-STM	0.2	●	●	●	●	●				
		TNGA160404	-STM	0.4	●	●	●	●	●	●	●	●	
		TNGA160408	-STM	0.8	●	●	●	●	●	●	●	●	
		TNGA160412	-STM	1.2	●	●	●	●	●	●	●	●	
		TNGA160416	-STM	1.6	●	●	●	●	●	●	●	●	
	通用加工	TNGA160404	-STF	0.4	●	●	●	●	●	●	●	●	
		TNGA160408	-STF	0.8	●	●	●	●	●	●	●	●	
		TNGA160412	-STF	1.2	●	●	●	●	●	●	●	●	
		TNGA160416	-STF	1.6	●	●	●	●	●	●	●	●	
	断续加工	TNGA160404	-STH	0.4	●	●	●	●	●	●	●	●	
		TNGA160408	-STH	0.8	●	●	●	●	●	●	●	●	
		TNGA160412	-STH	1.2	●	●	●	●	●	●	●	●	
		TNGA160416	-STH	1.6	●	●	●	●	●	●	●	●	
	强断续加工	TNGA160408	-STR	0.8	●	●		●		●	●	●	
		TNGA160412	-STR	1.2	●	●		●		●	●	●	
		TNGA160416	-STR	1.6	●	●		●		●	●	●	

负前角W型

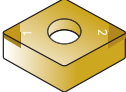
连续 ○ 弱断续 ⦿ 中等断续 ⦿ 强断续 ⦿

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0804	12.7	4.76	5.16	0.2-1.2	K								
					S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	WNGA080402		0.2	●	●		●	●	●	●	●	
		WNGA080404		0.4	●	●		●	●	●	●	●	
	精加工	WNGA080402	-SFD	0.2	●	●	●	●	●				
		WNGA080404	-SFD	0.4	●	●	●	●	●	●	●	●	
		WNGA080408	-SFD	0.8	●	●	●	●	●	●	●	●	
		WNGA080412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	WNGA080402	-STM	0.2	●	●	●	●	●				
		WNGA080404	-STM	0.4	●	●	●	●	●	●	●	●	
		WNGA080408	-STM	0.8	●	●	●	●	●	●	●	●	
		WNGA080412	-STM	1.2	●	●	●	●	●	●	●	●	
	通用加工	WNGA080404	-STF	0.4	●	●	●	●	●	●	●	●	
		WNGA080408	-STF	0.8	●	●	●	●	●	●	●	●	
		WNGA080412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	WNGA080404	-STH	0.4	●	●	●	●	●	●	●	●	
		WNGA080408	-STH	0.8	●	●	●	●	●	●	●	●	
		WNGA080412	-STH	1.2	●	●	●	●	●	●	●	●	
	强断续加工	WNGA080404	-STR	0.4	●	●	●	●	●	●	●	●	
		WNGA080408	-STR	0.8	●	●	●	●	●	●	●	●	
		WNGA080412	-STR	1.2	●	●	●	●	●	●	●	●	
	强断续重载加工	WNGA080408	-STQ	0.8	●	●		●		●	●	●	
WNGA080412		-STQ	1.2	●	●		●		●	●	●		

负前角C型 · 多刀尖型

连续 ○ 弱断续 ○ 中等断续 ○ 强断续

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1204	12.7	4.76	5.16	0.2-1.2	K	○	○	○					
1207	12.7	7.94	5.16	0.2-1.2	S	○	○				○	○	○
					H			○	○	○	○	○	○

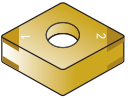
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	2HP-CNGA120402		0.2	●	●		●	●	●	●	●
		2HP-CNGA120404		0.4	●	●		●	●	●	●	●
	精加工	2HP-CNGA120402	-SFD	0.2	●	●	●	●	●			
		2HP-CNGA120404	-SFD	0.4	●	●	●	●	●	●	●	●
		2HP-CNGA120408	-SFD	0.8	●	●	●	●	●	●	●	●
		2HP-CNGA120412	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	2HP-CNGA120402	-STM	0.2	●	●	●	●	●			
		2HP-CNGA120404	-STM	0.4	●	●	●	●	●	●	●	●
		2HP-CNGA120408	-STM	0.8	●	●	●	●	●	●	●	●
		2HP-CNGA120412	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	2HP-CNGA120404	-STF	0.4	●	●	●	●	●	●	●	●
		2HP-CNGA120408	-STF	0.8	●	●	●	●	●	●	●	●
		2HP-CNGA120412	-STF	1.2	●	●	●	●	●	●	●	●
		2HP-CNGA120704	-STF	0.4	●	●	●	●	●	●	●	●
		2HP-CNGA120708	-STF	0.8	●	●	●	●	●	●	●	●
		2HP-CNGA120712	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	2HP-CNGA120404	-STH	0.4	●	●	●	●	●	●	●	●
		2HP-CNGA120408	-STH	0.8	●	●	●	●	●	●	●	●
		2HP-CNGA120412	-STH	1.2	●	●	●	●	●	●	●	●
		2HP-CNGA120704	-STH	0.4	●	●	●	●	●	●	●	●
		2HP-CNGA120708	-STH	0.8	●	●	●	●	●	●	●	●
		2HP-CNGA120712	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	2HP-CNGA120408	-STR	0.8	●	●		●		●	●	●
		2HP-CNGA120412	-STR	1.2	●	●		●		●	●	●
		2HP-CNGA120708	-STR	0.8	●	●		●		●	●	●
		2HP-CNGA120712	-STR	1.2	●	●		●		●	●	●
	强断续重载加工	2HP-CNGA120408	-STQ	0.8	●	●		●		●	●	●
		2HP-CNGA120412	-STQ	1.2	●	●		●		●	●	●
		2HP-CNGA120708	-STQ	0.8	●	●		●		●	●	●
		2HP-CNGA120712	-STQ	1.2	●	●		●		●	●	●

2HP-CNGA

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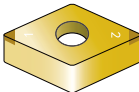
连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆 Φd	厚度 s	孔径 Φd_1	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）						
1204	12.7	4.76	5.16	0.2-1.2	K	○	○	○				
					S	○	○			○	○	○
					H			○	○	○	○	○

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	4HP-CNGA120402		0.2	●	●		●	●	●	●	●
		4HP-CNGA120404		0.4	●	●		●	●	●	●	●
	精加工	4HP-CNGA120402	-SFD	0.2	●	●	●	●	●			
		4HP-CNGA120404	-SFD	0.4	●	●	●	●	●	●	●	●
		4HP-CNGA120408	-SFD	0.8	●	●	●	●	●	●	●	●
		4HP-CNGA120412	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	4HP-CNGA120402	-STM	0.2	●	●	●	●	●			
		4HP-CNGA120404	-STM	0.4	●	●	●	●	●	●	●	●
		4HP-CNGA120408	-STM	0.8	●	●	●	●	●	●	●	●
		4HP-CNGA120412	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	4HP-CNGA120404	-STF	0.4	●	●	●	●	●	●	●	●
		4HP-CNGA120408	-STF	0.8	●	●	●	●	●	●	●	●
		4HP-CNGA120412	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	4HP-CNGA120404	-STH	0.4	●	●	●	●	●	●	●	●
		4HP-CNGA120408	-STH	0.8	●	●	●	●	●	●	●	●
		4HP-CNGA120412	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	4HP-CNGA120408	-STR	0.8	●	●		●		●	●	●
		4HP-CNGA120412	-STR	1.2	●	●		●		●	●	●
	强断续重载加工	4HP-CNGA120408	-STQ	0.8	●	●		●		●	●	●
		4HP-CNGA120412	-STQ	1.2	●	●		●		●	●	●

负前角D型 · 多刀尖型

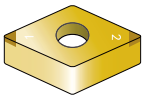
连续 ○ 弱断续 ⦿ 中等断续 ⦿ 强断续 ⦿

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1104	9.525	4.76	3.81	0.2-1.2	K	☺☺☺	☺☺☺	☺					
1504	12.7	4.76	5.16	0.2-1.2	S	☺☺☺	☺☺☺				☺☺☺	☺☺☺	☺☺☺
1506	12.7	6.35	5.16	0.2-1.2	H			☺☺☺	☺☺☺	☺☺☺		☺☺☺	☺☺☺
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	2HP-DNGA110402		0.2	●	●		●	●	●	●	●	
		2HP-DNGA110404		0.4	●	●		●	●	●	●	●	
		2HP-DNGA150402		0.2	●	●		●	●	●	●	●	
		2HP-DNGA150404		0.4	●	●		●	●	●	●	●	
		2HP-DNGA150602		0.2	●	●		●	●	●	●	●	
		2HP-DNGA150604		0.4	●	●		●	●	●	●	●	
	精加工	2HP-DNGA110402	-SFD	0.2	●	●		●	●				
		2HP-DNGA110404	-SFD	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA110408	-SFD	0.8	●	●	●	●	●	●	●	●	●
		2HP-DNGA110412	-SFD	1.2	●	●	●	●	●	●	●	●	●
		2HP-DNGA150402	-SFD	0.2	●	●	●	●	●				
		2HP-DNGA150404	-SFD	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA150408	-SFD	0.8	●	●	●	●	●		●	●	●
		2HP-DNGA150412	-SFD	1.2	●	●	●	●	●	●	●	●	●
		2HP-DNGA150602	-SFD	0.2	●	●	●	●	●				
		2HP-DNGA150604	-SFD	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA150608	-SFD	0.8	●	●	●	●	●	●	●	●	●
		2HP-DNGA150612	-SFD	1.2	●	●	●	●	●	●	●	●	●
	精加工-半精加工	2HP-DNGA110404	-STM	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA110408	-STM	0.8	●	●	●	●	●	●	●	●	●
		2HP-DNGA110412	-STM	1.2	●	●	●	●	●	●	●	●	●
		2HP-DNGA150404	-STM	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA150408	-STM	0.8	●	●	●	●	●	●	●	●	●
		2HP-DNGA150412	-STM	1.2	●	●	●	●	●	●	●	●	●
		2HP-DNGA150604	-STM	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA150608	-STM	0.8	●	●	●	●	●	●	●	●	●
	2HP-DNGA150612	-STM	1.2	●	●	●	●	●	●	●	●	●	

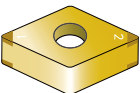
2HP-DNGA

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连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆 Φ d	厚度 s	孔径 Φ d ₁	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1104	9.525	4.76	3.81	0.2-1.2	K	🔄🔄🔄	🔄🔄	🔄					
1504	12.7	4.76	5.16	0.2-1.2	S	🔄🔄🔄	🔄🔄				🔄🔄		🔄
1506	12.7	6.35	5.16	0.2-1.2	H			🔄🔄🔄	🔄🔄🔄	🔄🔄		🔄🔄🔄	🔄
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	通用加工	2HP-DNGA110404	-STF	0.4	●	●	●	●	●	●	●	●	
		2HP-DNGA110408	-STF	0.8	●	●	●	●	●	●	●	●	
		2HP-DNGA110412	-STF	1.2	●	●	●	●	●	●	●	●	
		2HP-DNGA150404	-STF	0.4	●	●	●	●	●	●	●	●	
		2HP-DNGA150408	-STF	0.8	●	●	●	●	●	●	●	●	
		2HP-DNGA150412	-STF	1.2	●	●	●	●	●	●	●	●	
		2HP-DNGA150604	-STF	0.4	●	●	●	●	●	●	●	●	
		2HP-DNGA150608	-STF	0.8	●	●	●	●	●	●	●	●	
		2HP-DNGA150612	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	2HP-DNGA110404	-STH	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA110408	-STH	0.8	●	●	●	●	●	●	●	●	●
		2HP-DNGA110412	-STH	1.2	●	●	●	●	●	●	●	●	●
		2HP-DNGA150404	-STH	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA150408	-STH	0.8	●	●	●	●	●	●	●	●	●
		2HP-DNGA150412	-STH	1.2	●	●	●	●	●	●	●	●	●
		2HP-DNGA150604	-STH	0.4	●	●	●	●	●	●	●	●	●
		2HP-DNGA150608	-STH	0.8	●	●	●	●	●	●	●	●	●
		2HP-DNGA150612	-STH	1.2	●	●	●	●	●	●	●	●	●
	强断续加工	2HP-DNGA110408	-STR	0.8	●	●		●		●	●	●	●
		2HP-DNGA110412	-STR	1.2	●	●		●		●	●	●	●
		2HP-DNGA150408	-STR	0.8	●	●		●		●	●	●	●
		2HP-DNGA150412	-STR	1.2	●	●		●		●	●	●	●
		2HP-DNGA150608	-STR	0.8	●	●		●		●	●	●	●
		2HP-DNGA150612	-STR	1.2	●	●		●		●	●	●	●

连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1504	12.7	4.76	5.16	0.2-1.2	K								
					S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	4HP-DNGA150402		0.2	●	●		●	●	●	●	●	
		4HP-DNGA150404		0.4	●	●		●	●	●	●	●	
	精加工	4HP-DNGA150402	-SFD	0.2	●	●	●	●	●				
		4HP-DNGA150404	-SFD	0.4	●	●	●	●	●	●	●	●	
		4HP-DNGA150408	-SFD	0.8	●	●	●	●	●	●	●	●	
		4HP-DNGA150412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	4HP-DNGA150404	-STM	0.4	●	●	●	●	●	●	●	●	
		4HP-DNGA150408	-STM	0.8	●	●	●	●	●	●	●	●	
		4HP-DNGA150412	-STM	1.2	●	●	●	●	●	●	●	●	
	通用加工	4HP-DNGA150404	-STF	0.4	●	●	●	●	●	●	●	●	
		4HP-DNGA150408	-STF	0.8	●	●	●	●	●	●	●	●	
		4HP-DNGA150412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	4HP-DNGA150404	-STH	0.4	●	●	●	●	●	●	●	●	
		4HP-DNGA150408	-STH	0.8	●	●	●	●	●	●	●	●	
		4HP-DNGA150412	-STH	1.2	●	●	●	●	●	●	●	●	
	强断续加工	4HP-DNGA150408	-STR	0.8	●	●		●		●	●	●	
		4HP-DNGA150412	-STR	1.2	●	●		●		●	●	●	

普通焊接



负前角V型 · 多刀尖型

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1604	9.525	4.76	3.81	0.2-1.2	K								
					S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	2HP-VNGA160402		0.2	●	●		●	●	●	●	●	
		2HP-VNGA160404		0.4	●	●		●	●	●	●	●	
		2HP-VNGA160408		0.8	●	●		●	●	●	●	●	
		2HP-VNGA160412		1.2	●	●		●	●	●	●	●	
	精加工	2HP-VNGA160402	-SFD	0.2	●	●	●	●	●				
		2HP-VNGA160404	-SFD	0.4	●	●	●	●	●	●	●	●	
		2HP-VNGA160408	-SFD	0.8	●	●	●	●	●	●	●	●	
		2HP-VNGA160412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	2HP-VNGA160404	-STM	0.4	●	●	●	●	●	●	●	●	
		2HP-VNGA160408	-STM	0.8	●	●	●	●	●	●	●	●	
		2HP-VNGA160412	-STM	1.2	●	●	●	●	●	●	●	●	
	通用加工	2HP-VNGA160404	-STF	0.4	●	●	●	●	●	●	●	●	
		2HP-VNGA160408	-STF	0.8	●	●	●	●	●	●	●	●	
		2HP-VNGA160412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	2HP-VNGA160404	-STH	0.4	●	●	●	●	●	●	●	●	
		2HP-VNGA160408	-STH	0.8	●	●	●	●	●	●	●	●	
2HP-VNGA160412		-STH	1.2	●	●	●	●	●	●	●	●		

连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆 Φd	厚度 s	孔径 Φd_1	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1604	9.525	4.76	3.81	0.2-1.2	K	○	○	○					
					S	○	○				○	○	○
					H			○	○	○	○	○	○

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	4HP-VNGA160402		0.2	●	●		●	●	●	●	●
		4HP-VNGA160404		0.4	●	●		●	●	●	●	●
		4HP-VNGA160408		0.8	●	●		●	●	●	●	●
		4HP-VNGA160412		1.2	●	●		●	●	●	●	●
	精加工	4HP-VNGA160402	-SFD	0.2	●	●	●	●	●			
		4HP-VNGA160404	-SFD	0.4	●	●	●	●	●	●	●	●
		4HP-VNGA160408	-SFD	0.8	●	●	●	●	●	●	●	●
		4HP-VNGA160412	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	4HP-VNGA160404	-SFM	0.4	●	●	●	●	●	●	●	●
		4HP-VNGA160408	-SFM	0.8	●	●	●	●	●	●	●	●
		4HP-VNGA160412	-SFM	1.2	●	●	●	●	●	●	●	●
	通用加工	4HP-VNGA160404	-STF	0.4	●	●	●	●	●	●	●	●
		4HP-VNGA160408	-STF	0.8	●	●	●	●	●	●	●	●
		4HP-VNGA160412	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	4HP-VNGA160404	-STH	0.4	●	●	●	●	●	●	●	●
		4HP-VNGA160408	-STH	0.8	●	●	●	●	●	●	●	●
		4HP-VNGA160412	-STH	1.2	●	●	●	●	●	●	●	●

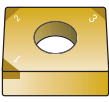
负前角S型 · 多刀尖型

连续 ○ 弱断续 ⌚ 中等断续 ⌚ 强断续 ⌚

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续、中断续）							
1204	12.7	4.76	5.16	0.2-1.2	K								
					S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	2HP-SNGA120402		0.2	●	●		●	●	●	●	●	
		2HP-SNGA120404		0.4	●	●		●	●	●	●	●	
	精加工	2HP-SNGA120402	-SFD	0.2	●	●	●	●	●				
		2HP-SNGA120404	-SFD	0.4	●	●	●	●	●	●	●	●	
		2HP-SNGA120408	-SFD	0.8	●	●	●	●	●	●	●	●	
		2HP-SNGA120412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	2HP-SNGA120402	-STM	0.2	●	●	●	●	●				
		2HP-SNGA120404	-STM	0.4	●	●	●	●	●	●	●	●	
		2HP-SNGA120408	-STM	0.8	●	●	●	●	●	●	●	●	
		2HP-SNGA120412	-STM	1.2	●	●	●	●	●	●	●	●	
	通用加工	2HP-SNGA120404	-STF	0.4	●	●	●	●	●	●	●	●	
		2HP-SNGA120408	-STF	0.8	●	●	●	●	●	●	●	●	
		2HP-SNGA120412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	2HP-SNGA120404	-STH	0.4	●	●	●	●	●	●	●	●	
		2HP-SNGA120408	-STH	0.8	●	●	●	●	●	●	●	●	
		2HP-SNGA120412	-STH	1.2	●	●	●	●	●	●	●	●	
	强断续加工	2HP-SNGA120408	-STR	0.8	●	●		●		●	●	●	
		2HP-SNGA120412	-STR	1.2	●	●		●		●	●	●	
	强断续重载加工	2HP-SNGA120408	-STQ	0.8	●	●		●		●	●	●	
		2HP-SNGA120412	-STQ	1.2	●	●		●		●	●	●	

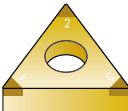
连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1204	12.7	4.76	5.16	0.2-1.2	K	○	○	○					
					S	○	○				○	○	○
					H			○	○	○	○	○	○

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	3HP-SNGA120402		0.2	●	●		●	●	●	●	●
		3HP-SNGA120404		0.4	●	●		●	●	●	●	●
	精加工	3HP-SNGA120402	-SFD	0.2	●	●	●	●	●			
		3HP-SNGA120404	-SFD	0.4	●	●	●	●	●	●	●	●
		3HP-SNGA120408	-SFD	0.8	●	●	●	●	●	●	●	●
		3HP-SNGA120412	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	3HP-SNGA120402	-STM	0.2	●	●	●	●	●			
		3HP-SNGA120404	-STM	0.4	●	●	●	●	●	●	●	●
		3HP-SNGA120408	-STM	0.8	●	●	●	●	●	●	●	●
		3HP-SNGA120412	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	3HP-SNGA120404	-STF	0.4	●	●	●	●	●	●	●	●
		3HP-SNGA120408	-STF	0.8	●	●	●	●	●	●	●	●
		3HP-SNGA120412	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	3HP-SNGA120404	-STH	0.4	●	●	●	●	●	●	●	●
		3HP-SNGA120408	-STH	0.8	●	●	●	●	●	●	●	●
		3HP-SNGA120412	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	3HP-SNGA120408	-STR	0.8	●	●		●		●	●	●
		3HP-SNGA120412	-STR	1.2	●	●		●		●	●	●
	强断续重载加工	3HP-SNGA120408	-STQ	0.8	●	●		●		●	●	●
		3HP-SNGA120412	-STQ	1.2	●	●		●		●	●	●

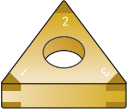
负前角T型 · 多刀尖型

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1604	9.525	4.76	3.81	0.2-1.6	K	☺☺	☺☺	☺					
					S	☺☺	☺☺				☺☺		☺☺
					H			☺☺	☺☺	☺☺		☺☺	☺☺
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	3HP-TNGA160402		0.2	●	●		●	●	●	●	●	
		3HP-TNGA160404		0.4	●	●		●	●	●	●	●	
	精加工	3HP-TNGA160402	-SFD	0.2	●	●	●	●	●				
		3HP-TNGA160404	-SFD	0.4	●	●	●	●	●	●	●	●	●
		3HP-TNGA160408	-SFD	0.8	●	●	●	●	●	●	●	●	●
		3HP-TNGA160412	-SFD	1.2	●	●	●	●	●	●	●	●	●
		3HP-TNGA160416	-SFD	1.6	●	●	●	●	●	●	●	●	●
	精加工-半精加工	3HP-TNGA160402	-STM	0.2	●	●	●	●	●				
		3HP-TNGA160404	-STM	0.4	●	●	●	●	●	●	●	●	●
		3HP-TNGA160408	-STM	0.8	●	●	●	●	●	●	●	●	●
		3HP-TNGA160412	-STM	1.2	●	●	●	●	●	●	●	●	●
		3HP-TNGA160416	-STM	1.6	●	●	●	●	●	●	●	●	●
	通用加工	3HP-TNGA160404	-STF	0.4	●	●	●	●	●	●	●	●	●
		3HP-TNGA160408	-STF	0.8	●	●	●	●	●	●	●	●	●
		3HP-TNGA160412	-STF	1.2	●	●	●	●	●	●	●	●	●
		3HP-TNGA160416	-STF	1.6	●	●	●	●	●	●	●	●	●
	断续加工	3HP-TNGA160404	-STH	0.4	●	●	●	●	●	●	●	●	●
		3HP-TNGA160408	-STH	0.8	●	●	●	●	●	●	●	●	●
		3HP-TNGA160412	-STH	1.2	●	●	●	●	●	●	●	●	●
		3HP-TNGA160416	-STH	1.6	●	●	●	●	●	●	●	●	●
	强断续加工	3HP-TNGA160408	-STR	0.8	●	●		●		●	●	●	●
		3HP-TNGA160412	-STR	1.2	●	●		●		●	●	●	●
		3HP-TNGA160416	-STR	1.6	●	●		●		●	●	●	●

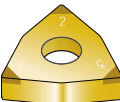
连续 ○ 弱断续 ○ 中等断续 ○ 强断续

规格	内切圆 Φd	厚度s	孔径 Φd_i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1604	9.525	4.76	3.81	0.2-1.6	K	○	○	○					
					S	○	○			○	○		○
					H			○	○	○	○	○	○

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	6HP-TNGA160402		0.2	●	●		●	●	●	●	●
		6HP-TNGA160404		0.4	●	●		●	●	●	●	●
	精加工	6HP-TNGA160402	-SFD	0.2	●	●	●	●	●			
		6HP-TNGA160404	-SFD	0.4	●	●	●	●	●	●	●	●
		6HP-TNGA160408	-SFD	0.8	●	●	●	●	●	●	●	●
		6HP-TNGA160412	-SFD	1.2	●	●	●	●	●	●	●	●
		6HP-TNGA160416	-SFD	1.6	●	●	●	●	●	●	●	●
		6HP-TNGA160402	-STM	0.2	●	●	●	●	●			
	精加工-半精加工	6HP-TNGA160404	-STM	0.4	●	●	●	●	●	●	●	●
		6HP-TNGA160408	-STM	0.8	●	●	●	●	●	●	●	●
		6HP-TNGA160412	-STM	1.2	●	●	●	●	●	●	●	●
		6HP-TNGA160416	-STM	1.6	●	●	●	●	●	●	●	●
		6HP-TNGA160404	-STF	0.4	●	●	●	●	●	●	●	●
	通用加工	6HP-TNGA160408	-STF	0.8	●	●	●	●	●	●	●	●
		6HP-TNGA160412	-STF	1.2	●	●	●	●	●	●	●	●
		6HP-TNGA160416	-STF	1.6	●	●	●	●	●	●	●	●
		6HP-TNGA160404	-STH	0.4	●	●	●	●	●	●	●	●
	断续加工	6HP-TNGA160408	-STH	0.8	●	●	●	●	●	●	●	●
		6HP-TNGA160412	-STH	1.2	●	●	●	●	●	●	●	●
		6HP-TNGA160416	-STH	1.6	●	●	●	●	●	●	●	●
		6HP-TNGA160408	-STR	0.8	●	●		●		●	●	●
	强断续加工	6HP-TNGA160412	-STR	1.2	●	●		●		●	●	●
		6HP-TNGA160416	-STR	1.6	●	●		●		●	●	●

负前角W型 · 多刀尖型

连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

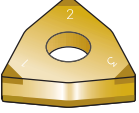
规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0804	12.7	4.76	5.16	0.2-1.2	K								
					S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	3HP-WNGA080402		0.2	●	●		●	●	●	●	●	
		3HP-WNGA080404		0.4	●	●		●	●	●	●	●	
	精加工	3HP-WNGA080402	-SFD	0.2	●	●	●	●	●				
		3HP-WNGA080404	-SFD	0.4	●	●	●	●	●	●	●	●	
		3HP-WNGA080408	-SFD	0.8	●	●	●	●	●	●	●	●	
		3HP-WNGA080412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	3HP-WNGA080402	-STM	0.2	●	●	●	●	●				
		3HP-WNGA080404	-STM	0.4	●	●	●	●	●	●	●	●	
		3HP-WNGA080408	-STM	0.8	●	●	●	●	●	●	●	●	
		3HP-WNGA080412	-STM	1.2	●	●	●	●	●	●	●	●	
	通用加工	3HP-WNGA080404	-STF	0.4	●	●	●	●	●	●	●	●	
		3HP-WNGA080408	-STF	0.8	●	●	●	●	●	●	●	●	
		3HP-WNGA080412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	3HP-WNGA080404	-STH	0.4	●	●	●	●	●	●	●	●	
		3HP-WNGA080408	-STH	0.8	●	●	●	●	●	●	●	●	
		3HP-WNGA080412	-STH	1.2	●	●	●	●	●	●	●	●	
	强断续加工	3HP-WNGA080404	-STR	0.4	●	●	●	●	●	●	●	●	
		3HP-WNGA080408	-STR	0.8	●	●	●	●	●	●	●	●	
		3HP-WNGA080412	-STR	1.2	●	●	●	●	●	●	●	●	
	强断续重载加工	3HP-WNGA080408	-STQ	0.8	●	●		●		●	●	●	
		3HP-WNGA080412	-STQ	1.2	●	●		●		●	●	●	

3HP-WNGA

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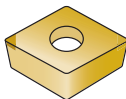
连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆 Φd	厚度 s	孔径 Φd_i	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0804	12.7	4.76	5.16	0.2-1.2	K	○	○	○					
					S	○	○			○	○		○
					H			○	○	○	○	○	○

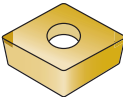
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	6HP-WNGA080402		0.2	●	●		●	●	●	●	●
		6HP-WNGA080404		0.4	●	●		●	●	●	●	●
	精加工	6HP-WNGA080402	-SFD	0.2	●	●	●	●	●			
		6HP-WNGA080404	-SFD	0.4	●	●	●	●	●	●	●	●
		6HP-WNGA080408	-SFD	0.8	●	●	●	●	●	●	●	●
		6HP-WNGA080412	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	6HP-WNGA080402	-STM	0.2	●	●	●	●	●			
		6HP-WNGA080404	-STM	0.4	●	●	●	●	●	●	●	●
		6HP-WNGA080408	-STM	0.8	●	●	●	●	●	●	●	●
		6HP-WNGA080412	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	6HP-WNGA080404	-STF	0.4	●	●	●	●	●	●	●	●
		6HP-WNGA080408	-STF	0.8	●	●	●	●	●	●	●	●
		6HP-WNGA080412	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	6HP-WNGA080404	-STH	0.4	●	●	●	●	●	●	●	●
		6HP-WNGA080408	-STH	0.8	●	●	●	●	●	●	●	●
		6HP-WNGA080412	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	6HP-WNGA080404	-STR	0.4	●	●	●	●	●	●	●	●
		6HP-WNGA080408	-STR	0.8	●	●	●	●	●	●	●	●
		6HP-WNGA080412	-STR	1.2	●	●	●	●	●	●	●	●
	强断续重载加工	6HP-WNGA080408	-STQ	0.8	●	●		●		●	●	●
		6HP-WNGA080412	-STQ	1.2	●	●		●		●	●	●

正前角C型

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ⊞

规格	内切圆 Φ d	厚度 s	孔径 Φ d _i	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0602	6.35	2.38	2.80	0.2-1.2	K								
09T3	9.525	3.97	4.40	0.2-1.2	S								
1204	12.7	4.76	5.50	0.2-1.2	H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	CCGW060202		0.2	●	●		●	●	●	●	●	
		CCGW060204		0.4	●	●		●	●	●	●	●	
		CCGW09T302		0.2	●	●		●	●	●	●	●	
		CCGW09T304		0.4	●	●		●	●	●	●	●	
	精加工	CCGW060202	-SFD	0.2	●	●	●	●	●				
		CCGW060204	-SFD	0.4	●	●	●	●	●	●	●	●	
		CCGW060208	-SFD	0.8	●	●	●	●	●	●	●	●	
		CCGW060212	-SFD	1.2	●	●	●	●	●	●	●	●	
		CCGW09T302	-SFD	0.2	●	●	●	●	●				
		CCGW09T304	-SFD	0.4	●	●	●	●	●	●	●	●	
		CCGW09T308	-SFD	0.8	●	●	●	●	●	●	●	●	
		CCGW09T312	-SFD	1.2	●	●	●	●	●	●	●	●	
		CCGW120402	-SFD	0.2	●	●	●	●	●				
		CCGW120404	-SFD	0.4	●	●	●	●	●	●	●	●	
		CCGW120408	-SFD	0.8	●	●	●	●	●	●	●	●	
		CCGW120412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	CCGW060202	-STM	0.2	●	●	●	●	●				
		CCGW060204	-STM	0.4	●	●	●	●	●	●	●	●	
		CCGW060208	-STM	0.8	●	●	●	●	●	●	●	●	
		CCGW060212	-STM	1.2	●	●	●	●	●	●	●	●	
		CCGW09T302	-STM	0.2	●	●	●	●	●				
		CCGW09T304	-STM	0.4	●	●	●	●	●	●	●	●	
		CCGW09T308	-STM	0.8	●	●	●	●	●	●	●	●	
		CCGW09T312	-STM	1.2	●	●	●	●	●	●	●	●	
		CCGW120402	-STM	0.2	●	●	●	●	●				
		CCGW120404	-STM	0.4	●	●	●	●	●	●	●	●	
		CCGW120408	-STM	0.8	●	●	●	●	●	●	●	●	
		CCGW120412	-STM	1.2	●	●	●	●	●	●	●	●	

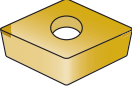
连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆 Φ d	厚度 s	孔径 Φ d _i	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0602	6.35	2.38	2.80	0.2-1.2	K	连续	连续	连续					
09T3	9.525	3.97	4.40	0.2-1.2	S	连续	连续				连续	连续	连续
1204	12.7	4.76	5.50	0.2-1.2	H			连续	连续	连续		连续	连续
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	通用加工	CCGW060204	-STF	0.4	●	●	●	●	●	●	●	●	
		CCGW060208	-STF	0.8	●	●	●	●	●	●	●	●	
		CCGW060212	-STF	1.2	●	●	●	●	●	●	●	●	
		CCGW09T304	-STF	0.4	●	●	●	●	●	●	●	●	
		CCGW09T308	-STF	0.8	●	●	●	●	●	●	●	●	
		CCGW09T312	-STF	1.2	●	●	●	●	●	●	●	●	
		CCGW120404	-STF	0.4	●	●	●	●	●	●	●	●	
		CCGW120408	-STF	0.8	●	●	●	●	●	●	●	●	
		CCGW120412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	CCGW060204	-STH	0.4	●	●	●	●	●	●	●	●	●
		CCGW060208	-STH	0.8	●	●	●	●	●	●	●	●	●
		CCGW060212	-STH	1.2	●	●	●	●	●	●	●	●	●
		CCGW09T304	-STH	0.4	●	●	●	●	●	●	●	●	●
		CCGW09T308	-STH	0.8	●	●	●	●	●	●	●	●	●
		CCGW09T312	-STH	1.2	●	●	●	●	●	●	●	●	●
		CCGW120404	-STH	0.4	●	●	●	●	●	●	●	●	●
		CCGW120408	-STH	0.8	●	●	●	●	●	●	●	●	●
		CCGW120412	-STH	1.2	●	●	●	●	●	●	●	●	●
	强断续加工	CCGW09T308	-STR	0.8	●	●		●		●	●	●	●
		CCGW09T312	-STR	1.2	●	●		●		●	●	●	●
		CCGW120408	-STR	0.8	●	●		●		●	●	●	●
		CCGW120412	-STR	1.2	●	●		●		●	●	●	●

正前角D型

连续 ○ 弱断续 ⦿ 中等断续 ⦿ 强断续 ⦿

规格	内切圆 Φd	厚度s	孔径 Φd_i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0702	6.35	2.38	2.80	0.2-1.2	K	○	○	○					
11T3	9.525	3.97	4.40	0.2-1.2	S	⦿	⦿				○	○	⦿
					H			○	○	○	○	⦿	⦿

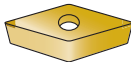
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	DCGW070202		0.2	●	●		●	●	●	●	●
		DCGW070204		0.4	●	●		●	●	●	●	●
		DCGW11T302		0.2	●	●		●	●	●	●	●
		DCGW11T304		0.4	●	●		●	●	●	●	●
	精加工	DCGW070202	-SFD	0.2	●	●	●	●	●			
		DCGW070204	-SFD	0.4	●	●	●	●	●	●	●	●
		DCGW070208	-SFD	0.8	●	●	●	●	●	●	●	●
		DCGW070212	-SFD	1.2	●	●	●	●	●	●	●	●
		DCGW11T302	-SFD	0.2	●	●	●	●	●			
		DCGW11T304	-SFD	0.4	●	●	●	●	●	●	●	●
		DCGW11T308	-SFD	0.8	●	●	●	●	●	●	●	●
		DCGW11T312	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	DCGW070204	-STM	0.4	●	●	●	●	●	●	●	●
		DCGW070208	-STM	0.8	●	●	●	●	●	●	●	●
		DCGW070212	-STM	1.2	●	●	●	●	●	●	●	●
		DCGW11T304	-STM	0.4	●	●	●	●	●	●	●	●
		DCGW11T308	-STM	0.8	●	●	●	●	●	●	●	●
		DCGW11T312	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	DCGW070204	-STF	0.4	●	●	●	●	●	●	●	●
		DCGW070208	-STF	0.8	●	●	●	●	●	●	●	●
		DCGW070212	-STF	1.2	●	●	●	●	●	●	●	●
		DCGW11T304	-STF	0.4	●	●	●	●	●	●	●	●
		DCGW11T308	-STF	0.8	●	●	●	●	●	●	●	●
		DCGW11T312	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	DCGW070204	-STH	0.4	●	●	●	●	●	●	●	●
		DCGW070208	-STH	0.8	●	●	●	●	●	●	●	●
		DCGW070212	-STH	1.2	●	●	●	●	●	●	●	●
		DCGW11T304	-STH	0.4	●	●	●	●	●	●	●	●
		DCGW11T308	-STH	0.8	●	●	●	●	●	●	●	●
		DCGW11T312	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	DCGW11T308	-STR	0.8	●	●		●		●	●	●
		DCGW11T312	-STR	1.2	●	●		●		●	●	●

正前角V型

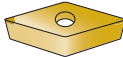
连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆 Φd	厚度s	孔径 Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0802	4.76	2.38	2.30	0.2-1.2	K								
1103	6.35	3.18	2.80	0.2-1.2	S								
1604	9.525	4.76	4.40	0.2-1.2	H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	VCGW080202		0.2	●	●	●	●	●	●	●	●	
		VCGW080204		0.4	●	●	●	●	●	●	●	●	
		VCGW110302		0.2	●	●	●	●	●	●	●	●	
		VCGW110304		0.4	●	●	●	●	●	●	●	●	
		VCGW160402		0.2	●	●	●	●	●	●	●	●	
		VCGW160404		0.4	●	●	●	●	●	●	●	●	
	精加工	VCGW080202	-SFD	0.2	●	●	●	●	●				
		VCGW080204	-SFD	0.4	●	●	●	●	●	●	●	●	●
		VCGW080208	-SFD	0.8	●	●	●	●	●	●	●	●	●
		VCGW080212	-SFD	1.2	●	●	●	●	●	●	●	●	●
		VCGW110302	-SFD	0.2	●	●	●	●	●				
		VCGW110304	-SFD	0.4	●	●	●	●	●	●	●	●	●
		VCGW110308	-SFD	0.8	●	●	●	●	●	●	●	●	●
		VCGW110312	-SFD	1.2	●	●	●	●	●	●	●	●	●
		VCGW160402	-SFD	0.2	●	●	●	●	●				
		VCGW160404	-SFD	0.4	●	●	●	●	●	●	●	●	●
		VCGW160408	-SFD	0.8	●	●	●	●	●	●	●	●	●
		VCGW160412	-SFD	1.2	●	●	●	●	●	●	●	●	●
	精加工-半精加工	VCGW080204	-STM	0.4	●	●	●	●	●	●	●	●	●
		VCGW080208	-STM	0.8	●	●	●	●	●	●	●	●	●
		VCGW080212	-STM	1.2	●	●	●	●	●	●	●	●	●
		VCGW110304	-STM	0.4	●	●	●	●	●	●	●	●	●
		VCGW110308	-STM	0.8	●	●	●	●	●	●	●	●	●
		VCGW110312	-STM	1.2	●	●	●	●	●	●	●	●	●
		VCGW160404	-STM	0.4	●	●	●	●	●	●	●	●	●
		VCGW160408	-STM	0.8	●	●	●	●	●	●	●	●	●
		VCGW160412	-STM	1.2	●	●	●	●	●	●	●	●	●

连续 ○ 弱断续 ○ 中等断续 ○ 强断续

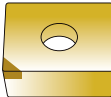
规格	内切圆 Φ d	厚度 s	孔径 Φ d _i	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0802	4. 76	2. 38	2. 30	0. 2-1. 2	K								
1103	6. 35	3. 18	2. 80	0. 2-1. 2	S								
1604	9. 525	4. 76	4. 40	0. 2-1. 2	H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	通用加工	VCGW080204	-STF	0. 4	●	●	●	●	●	●	●	●	
		VCGW080208	-STF	0. 8	●	●	●	●	●	●	●	●	
		VCGW080212	-STF	1. 2	●	●	●	●	●	●	●	●	
		VCGW110304	-STF	0. 4	●	●	●	●	●	●	●	●	
		VCGW110308	-STF	0. 8	●	●	●	●	●	●	●	●	
		VCGW110312	-STF	1. 2	●	●	●	●	●	●	●	●	
		VCGW160404	-STF	0. 4	●	●	●	●	●	●	●	●	
		VCGW160408	-STF	0. 8	●	●	●	●	●	●	●	●	
		VCGW160412	-STF	1. 2	●	●	●	●	●	●	●	●	
	断续加工	VCGW080204	-STH	0. 4	●	●	●	●	●	●	●	●	●
		VCGW080208	-STH	0. 8	●	●	●	●	●	●	●	●	●
		VCGW080212	-STH	1. 2	●	●	●	●	●	●	●	●	●
		VCGW110304	-STH	0. 4	●	●	●	●	●	●	●	●	●
		VCGW110308	-STH	0. 8	●	●	●	●	●	●	●	●	●
		VCGW110312	-STH	1. 2	●	●	●	●	●	●	●	●	●
		VCGW160404	-STH	0. 4	●	●	●	●	●	●	●	●	●
		VCGW160408	-STH	0. 8	●	●	●	●	●	●	●	●	●
		VCGW160412	-STH	1. 2	●	●	●	●	●	●	●	●	●

连续 ○ 弱断续 ○ 中等断续 ○ 强断续

规格	内切圆Φd	厚度s	孔径Φd1	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
1103	6.35	3.18	2.80	0.2-1.2	K								
1604	9.525	4.76	4.40	0.2-1.2	S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	VBGW110302		0.2	●	●		●	●	●	●	●	
		VBGW110304		0.4	●	●		●	●	●	●	●	
		VBGW160402		0.2	●	●		●	●	●	●	●	
		VBGW160404		0.4	●	●		●	●	●	●	●	
	精加工	VBGW110302	-SFD	0.2	●	●	●	●	●				
		VBGW110304	-SFD	0.4	●	●	●	●	●	●	●	●	●
		VBGW110308	-SFD	0.8	●	●	●	●	●	●	●	●	●
		VBGW110312	-SFD	1.2	●	●	●	●	●	●	●	●	●
		VBGW160402	-SFD	0.2	●	●	●	●	●				
		VBGW160404	-SFD	0.4	●	●	●	●	●	●	●	●	●
		VBGW160408	SFD	0.8	●	●	●	●	●	●	●	●	●
		VBGW160412	SFD	1.2	●	●	●	●	●	●	●	●	●
	精加工-半精加工	VBGW110304	-STM	0.4	●	●	●	●	●	●	●	●	●
		VBGW110308	-STM	0.8	●	●	●	●	●	●	●	●	●
		VBGW110312	-STM	1.2	●	●	●	●	●	●	●	●	●
		VBGW160404	-STM	0.4	●	●	●	●	●	●	●	●	●
		VBGW160408	-STM	0.8	●	●	●	●	●	●	●	●	●
		VBGW160412	-STM	1.2	●	●	●	●	●	●	●	●	●
	通用加工	VBGW110304	-STF	0.4	●	●	●	●	●	●	●	●	●
		VBGW110308	-STF	0.8	●	●	●	●	●	●	●	●	●
		VBGW110312	-STF	1.2	●	●	●	●	●	●	●	●	●
		VBGW160404	-STF	0.4	●	●	●	●	●	●	●	●	●
		VBGW160408	-STF	0.8	●	●	●	●	●	●	●	●	●
		VBGW160412	-STF	1.2	●	●	●	●	●	●	●	●	●
	断续加工	VBGW110304	-STH	0.4	●	●	●	●	●	●	●	●	●
		VBGW110308	-STH	0.8	●	●	●	●	●	●	●	●	●
		VBGW110312	-STH	1.2	●	●	●	●	●	●	●	●	●
		VBGW160404	-STH	0.4	●	●	●	●	●	●	●	●	●
		VBGW160408	-STH	0.8	●	●	●	●	●	●	●	●	●
		VBGW160412	-STH	1.2	●	●	●	●	●	●	●	●	●

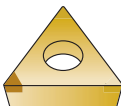
正前角S型

连续 ○ 弱断续 ⦿ 中等断续 ⦿ 强断续 ⦿

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
09T3	9.525	3.97	4.40	0.2-1.2	K								
1204	12.7	4.76	5.50	0.2-1.2	S								
					H								
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	SCGW09T302		0.2	●	●		●	●	●	●	●	
		SCGW09T304		0.4	●	●		●	●	●	●	●	
		SCGW120402		0.2	●	●		●	●	●	●	●	
		SCGW120404		0.4	●	●		●	●	●	●	●	
	精加工	SCGW09T302	-SFD	0.2	●	●	●	●	●				
		SCGW09T304	-SFD	0.4	●	●	●	●	●	●	●	●	
		SCGW09T308	-SFD	0.8	●	●	●	●	●	●	●	●	
		SCGW09T312	-SFD	1.2	●	●	●	●	●	●	●	●	
		SCGW120402	-SFD	0.2	●	●	●	●	●				
		SCGW120404	-SFD	0.4	●	●	●	●	●	●	●	●	
		SCGW120408	-SFD	0.8	●	●	●	●	●	●	●	●	
		SCGW120412	-SFD	1.2	●	●	●	●	●	●	●	●	
	精加工-半精加工	SCGW09T302	-STM	0.2	●	●	●	●	●				
		SCGW09T304	-STM	0.4	●	●	●	●	●	●	●	●	
		SCGW09T308	-STM	0.8	●	●	●	●	●	●	●	●	
		SCGW09T312	-STM	1.2	●	●	●	●	●	●	●	●	
		SCGW120402	-STM	0.2	●	●	●	●	●	●	●	●	
		SCGW120404	-STM	0.4	●	●	●	●	●	●	●	●	
		SCGW120408	-STM	0.8	●	●	●	●	●	●	●	●	
		SCGW120412	-STM	1.2	●	●	●	●	●	●	●	●	
	通用加工	SCGW09T304	-STF	0.4	●	●	●	●	●	●	●	●	
		SCGW09T308	-STF	0.8	●	●	●	●	●	●	●	●	
		SCGW09T312	-STF	1.2	●	●	●	●	●	●	●	●	
		SCGW120404	-STF	0.4	●	●	●	●	●	●	●	●	
		SCGW120408	-STF	0.8	●	●	●	●	●	●	●	●	
		SCGW120412	-STF	1.2	●	●	●	●	●	●	●	●	
	断续加工	SCGW09T304	-STH	0.4	●	●	●	●	●	●	●	●	
		SCGW09T308	-STH	0.8	●	●	●	●	●	●	●	●	
		SCGW09T312	-STH	1.2	●	●	●	●	●	●	●	●	
		SCGW120404	-STH	0.4	●	●	●	●	●	●	●	●	
		SCGW120408	-STH	0.8	●	●	●	●	●	●	●	●	
		SCGW120412	-STH	1.2	●	●	●	●	●	●	●	●	
	强断续加工	SCGW09T308	-STR	0.8	●	●		●		●	●	●	
		SCGW09T312	-STR	1.2	●	●		●		●	●	●	
		SCGW120408	-STR	0.8	●	●		●		●	●	●	
		SCGW120412	-STR	1.2	●	●		●		●	●	●	

正前角T型

连续 ○ 弱断续 ○ 中等断续 ○ 强断续

规格	内切圆 Φd	厚度s	孔径 Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0902	5.56	2.38	2.50	0.2-1.2	K								
1102	6.35	2.38	2.80	0.2-1.2	S								
1103	6.35	3.18	2.80	0.2-1.2	H								
16T3	9.525	3.97	4.40	0.2-1.2									
形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500	
	标准钝化	TCGW090202		0.2	●	●		●	●	●	●	●	
		TCGW090204		0.4	●	●		●	●	●	●	●	
		TCGW110202		0.2	●	●		●	●	●	●	●	
		TCGW110204		0.4	●	●		●	●	●	●	●	
		TCGW110302		0.2	●	●		●	●	●	●	●	
		TCGW110304		0.4	●	●		●	●	●	●	●	
		TCGW16T302		0.2	●	●		●	●	●	●	●	
		TCGW16T304		0.4	●	●		●	●	●	●	●	
	精加工	TCGW090202	-SFD	0.2	●	●	●	●	●				
		TCGW090204	-SFD	0.4	●	●	●	●	●	●	●	●	●
		TCGW090208	-SFD	0.8	●	●	●	●	●	●	●	●	●
		TCGW090212	-SFD	1.2	●	●	●	●	●	●	●	●	●
		TCGW110202	-SFD	0.2	●	●	●	●	●				
		TCGW110204	-SFD	0.4	●	●	●	●	●	●	●	●	●
		TCGW110208	-SFD	0.8	●	●	●	●	●	●	●	●	●
		TCGW110212	-SFD	1.2	●	●	●	●	●	●	●	●	●
		TCGW110302	-SFD	0.2	●	●	●	●	●				
		TCGW110304	-SFD	0.4	●	●	●	●	●	●	●	●	●
		TCGW110308	-SFD	0.8	●	●	●	●	●	●	●	●	●
		TCGW110312	-SFD	1.2	●	●	●	●	●	●	●	●	●
		TCGW16T302	-SFD	0.2	●	●	●	●	●				
		TCGW16T304	-SFD	0.4	●	●	●	●	●	●	●	●	●
		TCGW16T308	-SFD	0.8	●	●	●	●	●	●	●	●	●
		TCGW16T312	-SFD	1.2	●	●	●	●	●	●	●	●	●
	精加工-半精加工	TCGW090202	-STM	0.2	●	●	●	●	●				
		TCGW090204	-STM	0.4	●	●	●	●	●	●	●	●	●
		TCGW090208	-STM	0.8	●	●	●	●	●	●	●	●	●
		TCGW090212	-STM	1.2	●	●	●	●	●	●	●	●	●
		TCGW110202	-STM	0.2	●	●	●	●	●				
		TCGW110204	-STM	0.4	●	●	●	●	●	●	●	●	●
		TCGW110208	-STM	0.8	●	●	●	●	●	●	●	●	●
		TCGW110212	-STM	1.2	●	●	●	●	●	●	●	●	●
		TCGW110302	-STM	0.2	●	●	●	●	●				
		TCGW110304	-STM	0.4	●	●	●	●	●	●	●	●	●
		TCGW110308	-STM	0.8	●	●	●	●	●	●	●	●	●
		TCGW110312	-STM	1.2	●	●	●	●	●	●	●	●	●

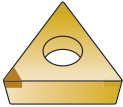
连续 ○ 弱断续 ⦿ 中等断续 ⦿ 强断续 ⦿

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）						
0902	5.56	2.38	2.50	0.2-1.2	K	⦿	⦿	○				
1102	6.35	2.38	2.80	0.2-1.2	S	⦿	⦿				⦿	⦿
1103	6.35	3.18	2.80	0.2-1.2	H			○	⦿	⦿	⦿	⦿
16T3	9.525	3.97	4.40	0.2-1.2								

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	精加工-半精加工	TCGW16T302	-STM	0.2	●	●	●	●	●			
		TCGW16T304	-STM	0.4	●	●	●	●	●	●	●	●
		TCGW16T308	-STM	0.8	●	●	●	●	●	●	●	●
		TCGW16T312	-STM	1.2	●	●	●	●	●	●	●	●
	通用加工	TCGW090204	-STF	0.4	●	●	●	●	●	●	●	●
		TCGW090208	-STF	0.8	●	●	●	●	●	●	●	●
		TCGW090212	-STF	1.2	●	●	●	●	●	●	●	●
		TCGW110204	-STF	0.4	●	●	●	●	●	●	●	●
		TCGW110208	-STF	0.8	●	●	●	●	●	●	●	●
		TCGW110212	-STF	1.2	●	●	●	●	●	●	●	●
		TCGW110304	-STF	0.8	●	●	●	●	●	●	●	●
		TCGW110308	-STF	1.2	●	●	●	●	●	●	●	●
		TCGW110312	-STF	0.8	●	●	●	●	●	●	●	●
		TCGW16T304	-STF	1.2	●	●	●	●	●	●	●	●
		TCGW16T308	-STF	0.2	●	●	●	●	●	●	●	●
		TCGW16T312	-STF	0.4	●	●	●	●	●	●	●	●
	断续加工	TCGW090204	-STH	0.4	●	●	●	●	●	●	●	●
		TCGW090208	-STH	0.8	●	●	●	●	●	●	●	●
		TCGW090212	-STH	1.2	●	●	●	●	●	●	●	●
		TCGW110204	-STH	0.4	●	●	●	●	●	●	●	●
		TCGW110208	-STH	0.8	●	●	●	●	●	●	●	●
		TCGW110212	-STH	1.2	●	●	●	●	●	●	●	●
		TCGW110304	-STH	0.4	●	●	●	●	●	●	●	●
		TCGW110308	-STH	0.8	●	●	●	●	●	●	●	●
		TCGW110312	-STH	1.2	●	●	●	●	●	●	●	●
		TCGW16T304	-STH	0.4	●	●	●	●	●	●	●	●
		TCGW16T308	-STH	0.8	●	●	●	●	●	●	●	●
		TCGW16T312	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	TCGW090208	-STR	0.8	●	●		●		●	●	●
		TCGW090212	-STR	1.2	●	●		●		●	●	●
		TCGW110208	-STR	0.8	●	●		●		●	●	●
		TCGW110212	-STR	1.2	●	●		●		●	●	●
		TCGW110308	-STR	0.8	●	●		●		●	●	●
		TCGW110312	-STR	1.2	●	●		●		●	●	●
		TCGW16T308	-STR	0.8	●	●		●		●	●	●
		TCGW16T312	-STR	1.2	●	●		●		●	●	●

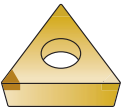
连续 ○ 弱断续 ○ 中等断续 ○ 强断续 ○

规格	内切圆 Φd	厚度 s	孔径 Φd_1	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0802	4.76	2.38	2.30	0.2-1.2	K	○	○	○					
0902	5.56	2.38	2.50	0.2-1.2	S	○	○				○		○
1102	6.35	2.38	2.80	0.2-1.2	H			○	○	○		○	○
1103	6.35	3.18	3.30	0.2-1.2									

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	TPGW110202		0.2	●	●		●	●	●	●	●
		TPGW110204		0.4	●	●		●	●	●	●	●
		TPGW110302		0.2	●	●		●	●	●	●	●
		TPGW110304		0.4	●	●		●	●	●	●	●
	精加工	TPGW110202	-SFD	0.2	●	●	●	●	●			
		TPGW110204	-SFD	0.4	●	●	●	●	●	●	●	●
		TPGW110208	-SFD	0.8	●	●	●	●	●	●	●	●
		TPGW110212	-SFD	1.2	●	●	●	●	●	●	●	●
		TPGW110302	-SFD	0.2	●	●	●	●	●			
		TPGW110304	-SFD	0.4	●	●	●	●	●	●	●	●
		TPGW110308	-SFD	0.8	●	●	●	●	●	●	●	●
		TPGW110312	-SFD	1.2	●	●	●	●	●	●	●	●
	精加工-半精加工	TPGW080202	-STM	0.2	●	●	●	●	●			
		TPGW080204	-STM	0.4	●	●	●	●	●	●	●	●
		TPGW080208	-STM	0.8	●	●	●	●	●	●	●	●
		TPGW080212	-STM	1.2	●	●	●	●	●	●	●	●
		TPGW090202	-STM	0.2	●	●	●	●	●			
		TPGW090204	-STM	0.4	●	●	●	●	●	●	●	●
		TPGW090208	-STM	0.8	●	●	●	●	●	●	●	●
		TPGW090212	-STM	1.2	●	●	●	●	●	●	●	●
		TPGW110202	-STM	0.2	●	●	●	●	●			
		TPGW110204	-STM	0.4	●	●	●	●	●	●	●	●
		TPGW110208	-STM	0.8	●	●	●	●	●	●	●	●
		TPGW110212	-STM	1.2	●	●	●	●	●	●	●	●
		TPGW110302	-STM	0.2	●	●	●	●	●			
		TPGW110304	-STM	0.4	●	●	●	●	●	●	●	●
		TPGW110308	-STM	0.8	●	●	●	●	●	●	●	●
		TPGW110312	-STM	1.2	●	●	●	●	●	●	●	●

连续 ○ 弱断续 ⦿ 中等断续 ⦿ 强断续 ⦿

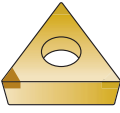
规格	内切圆Φd	厚度s	孔径Φd1	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
0802	4.76	2.38	2.30	0.2-1.2	K	⦿	⦿	○					
0902	5.56	2.38	2.50	0.2-1.2	S	⦿	⦿				⦿		⦿
1102	6.35	2.38	2.80	0.2-1.2	H			○	⦿	⦿	⦿		⦿
1103	6.35	3.18	3.30	0.2-1.2									

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	通用加工	TPGW110202	-STF	0.2	●	●	●	●	●	●	●	●
		TPGW110204	-STF	0.4	●	●	●	●	●	●	●	●
		TPGW110208	-STF	0.8	●	●	●	●	●	●	●	●
		TPGW110212	-STF	1.2	●	●	●	●	●	●	●	●
		TPGW110302	-STF	0.2	●	●	●	●	●	●	●	●
		TPGW110304	-STF	0.4	●	●	●	●	●	●	●	●
		TPGW110308	-STF	0.8	●	●	●	●	●	●	●	●
		TPGW110312	-STF	1.2	●	●	●	●	●	●	●	●
	断续加工	TPGW080204	-STH	0.4	●	●	●	●	●	●	●	●
		TPGW080208	-STH	0.8	●	●	●	●	●	●	●	●
		TPGW080212	-STH	1.2	●	●	●	●	●	●	●	●
		TPGW090202	-STH	0.2	●	●	●	●	●	●	●	●
		TPGW090204	-STH	0.4	●	●	●	●	●	●	●	●
		TPGW090208	-STH	0.8	●	●	●	●	●	●	●	●
		TPGW090212	-STH	1.2	●	●	●	●	●	●	●	●
		TPGW110202	-STH	0.2	●	●	●	●	●	●	●	●
		TPGW110204	-STH	0.4	●	●	●	●	●	●	●	●
		TPGW110208	-STH	0.8	●	●	●	●	●	●	●	●
		TPGW110212	-STH	1.2	●	●	●	●	●	●	●	●
		TPGW110302	-STH	0.2	●	●	●	●	●	●	●	●
		TPGW110304	-STH	0.4	●	●	●	●	●	●	●	●
		TPGW110308	-STH	0.8	●	●	●	●	●	●	●	●
		TPGW110312	-STH	1.2	●	●	●	●	●	●	●	●
	强断续加工	TPGW080208	-STR	0.8	●	●		●		●	●	●
		TPGW080212	-STR	1.2	●	●		●		●	●	●
		TPGW090208	-STR	0.8	●	●		●		●	●	●
		TPGW090212	-STR	1.2	●	●		●		●	●	●
		TPGW110208	-STR	0.8	●	●		●		●	●	●
		TPGW110212	-STR	1.2	●	●		●		●	●	●
		TPGW110308	-STR	0.8	●	●		●		●	●	●
		TPGW110312	-STR	1.2	●	●		●		●	●	●

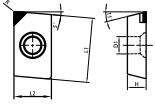
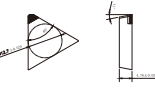
小零件刀片

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）							
TPGW0802	4.76	2.38	2.30	0.2-0.4	K	◐◑	◐◐	○					
TPGW0902	5.56	2.38	2.50	0.2-0.4	S	◑◒	◑◒				◐◐		◒
CCGW0301	3.5	1.40	1.90	0.2-0.4	H			○◐	◐◑	◐◑		◑◒	◒
CCGW0401	4.3	1.80	2.30	0.2-0.4									

形状	规格	型号	倒棱	刀尖圆弧半径	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	标准钝化	TPGW080202		0.2	●	●		●	●	●	●	●
		TPGW080204		0.4	●	●		●	●	●	●	●
		TPGW090202		0.2	●	●		●	●	●	●	●
		TPGW090204		0.4	●	●		●	●	●	●	●
	标准钝化	CCGW030102		0.2	●	●		●	●	●	●	●
		CCGW030104		0.4	●	●		●	●	●	●	●
		CCGW040102		0.2	●	●		●	●	●	●	●
		CCGW040104		0.4	●	●		●	●	●	●	●

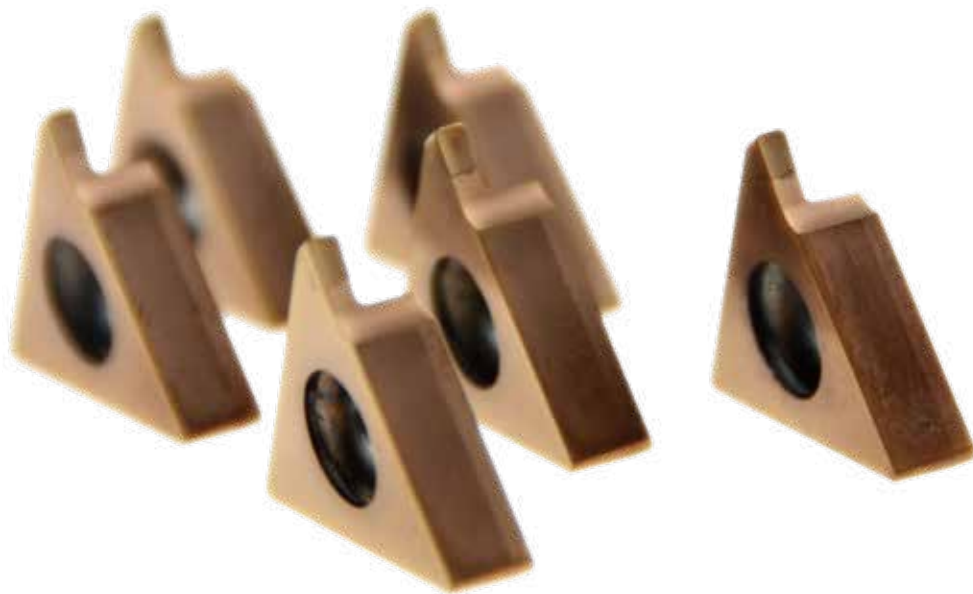
镶片式铣刀片

形状	型号	切深	进给	应用场景	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	APGW160402-PDER	需按实际工况推荐		方肩铣-光面	●	●	●	●	●	●	●	●
	APGW160404-PDER			方肩铣-光面	●	●	●	●	●	●	●	●
	APGW160408-PDER			方肩铣-光面	●	●	●	●	●	●	●	●
	APGW160412-PDER			方肩铣-光面	●	●	●	●	●	●	●	●
	APGW113502-PDER			方肩铣-光面	●	●	●	●	●	●	●	●
	APGW113504-PDER			方肩铣-光面	●	●	●	●	●	●	●	●
	APGW113508-PDER			方肩铣-光面	●	●	●	●	●	●	●	●
	APGW113512-PDER			方肩铣-光面	●	●	●	●	●	●	●	●
	TPGN2204PDER			光面	●	●	●	●	●	●	●	●

注：PDER为带修光刃款
● 主推牌号备库存

补充说明：
※ 各品牌规格铣刀评估后可根据实际情况提供CBN/PCD镶片方案

I KGBR

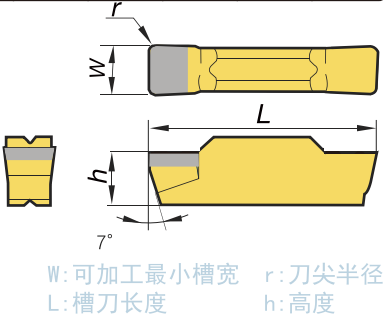


- ※ 出色的夹紧刚性，可完成精密的浅槽加工。
- ※ 丰富的刀具系列可满足不同槽宽的浅槽加工。

切槽加工用 (IKGMN)

形状	型号	W	r	L	h	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	IKGMN150 015	1.5	0.15	16.0	3.5	●	●	●	●	●	●	●	●
	IKGMN200 020	2.0	0.2	16.0	3.5	●	●	●	●	●	●	●	●
	IKGMN250 020	2.5	0.2	18.5	3.85	●	●	●	●	●	●	●	●
	IKGMN300 040	3.0	0.4	21.0	4.8	●	●	●	●	●	●	●	●
	IKGMN400 040	4.0	0.4	21.0	4.8	●	●	●	●	●	●	●	●
	IKGMN500 080	5.0	0.8	26.0	5.8	●	●	●	●	●	●	●	●
	IKGMN600 080	6.0	0.8	26.0	5.8	●	●	●	●	●	●	●	●

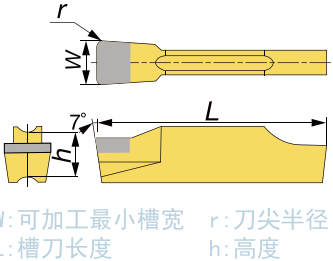
注: 槽刀的倒棱钝化形式有标准钝化(无倒棱)、-SFD(精加工)、-STM(半精加工)、-STF(通用加工)、-STH(断续加工)。



切槽加工用 (IKGSN)

形状	型号	W	r	L	h	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	IKGSN200 020	2.0	0.2	20.0	5.0	●	●	●	●	●	●	●	●
	IKGSN300 020	3.0	0.2	20.0	5.0	●	●	●	●	●	●	●	●
	IKGSN400 030	4.0	0.3	20.0	5.0	●	●	●	●	●	●	●	●
	IKGSN500 030	5.0	0.3	25.0	5.5	●	●	●	●	●	●	●	●
	IKGSN600 030	6.0	0.3	25.0	5.5	●	●	●	●	●	●	●	●

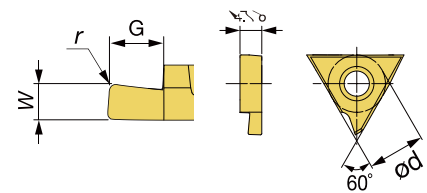
注: 槽刀的倒棱钝化形式有标准钝化(无倒棱)、-SFD(精加工)、-STM(半精加工)、-STF(通用加工)、-STH(断续加工)。



切槽加工用 (IKGBR/L)

形状	型号	W	r	G	ød	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	IKGBR/L43150 020	1.5	0.2	3.5	12.7	●	●	●	●	●	●	●	●
	IKGBR/L43200 020	2.0	0.2	3.5	12.7	●	●	●	●	●	●	●	●
	IKGBR/L43250 030	2.5	0.3	3.5	12.7	●	●	●	●	●	●	●	●
	IKGBR/L43300 030	3.0	0.3	5.0	12.7	●	●	●	●	●	●	●	●
	IKGBR/L43350 030	3.5	0.3	5.0	12.7	●	●	●	●	●	●	●	●
	IKGBR/L43400 040	4.0	0.4	5.0	12.7	●	●	●	●	●	●	●	●
	IKGBR/L43450 040	4.5	0.4	5.0	12.7	●	●	●	●	●	●	●	●

注: 槽刀的倒棱钝化形式有标准钝化(无倒棱)、-SFD(精加工)、-STM(半精加工)、-STF(通用加工)、-STH(断续加工)。

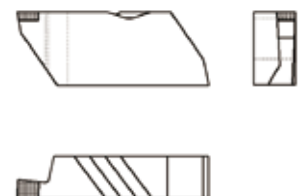


W: 可加工最小槽宽 r: 刀尖半径
G: 可加工最大槽深 Ød: 内切圆直径

槽刀加工用 (IKGTR/L)

形状	型号	W	r	G	ød	IKN1690	IKN3195	IKN4500	IKN6000	IKN6590	IKN7500	IKN9000	IKN9500
	IKGTR/L150-020	1.5	0.2	3.5	12.7	●	●	●	●	●	●	●	●
	IKGTR/L200-020	2.0	0.2	3.5	12.7	●	●	●	●	●	●	●	●
	IKGTR/L250-020	2.5	0.2	3.5	12.7	●	●	●	●	●	●	●	●
	IKGTR/L300-040	3.0	0.4	5.0	12.7	●	●	●	●	●	●	●	●
	IKGTR/L350-040	3.5	0.4	5.0	12.7	●	●	●	●	●	●	●	●
	IKGTR/L400-040	4.0	0.4	5.0	12.7	●	●	●	●	●	●	●	●

注: 槽刀的倒棱钝化形式有标准钝化(无倒棱)、-SFD(精加工)、-STM(半精加工)、-STF(通用加工)、-STH(断续加工)。

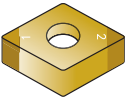


IKGBR/L及IKGTR/L系列可以根据图纸要求定制槽型槽宽圆弧及切深

负前角C型 · 贯穿焊接式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ⊕

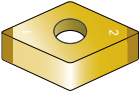
规格	内切圆 Φd	厚度s	孔径 Φd ₁	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
0804	12.7	4.76	5.16	0.4-1.6	K			◑ ⊕
					S			
					H	◐ ◑	◑ ⊕	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN96	IKN60	IKN80
	通用加工	4TH-CNGA120404	-STF	0.4	●	●	●
		4TH-CNGA120408	-STF	0.8	●	●	●
		4TH-CNGA120412	-STF	1.2	●	●	●
		4TH-CNGA120416	-STF	1.6	●	●	●
	断续加工	4TH-CNGA120404	-STH	0.4	●	●	●
		4TH-CNGA120408	-STH	0.8	●	●	●
		4TH-CNGA120412	-STH	1.2	●	●	●
		4TH-CNGA120416	-STH	1.6	●	●	●
	强断续加工	4TH-CNGA120404	-STR	0.4	●	●	●
		4TH-CNGA120408	-STR	0.8	●	●	●
		4TH-CNGA120412	-STR	1.2	●	●	●
		4TH-CNGA120416	-STR	1.6	●	●	●

负前角D型 · 贯穿焊接式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ⊕

规格	内切圆 Φd	厚度s	孔径 Φd ₁	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1504	12.7	4.76	5.16	0.4-1.6	K			◑ ⊕
					S			
					H	◐ ◑	◑ ⊕	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN96	IKN60	IKN80
	通用加工	4TH-DNGA150404	-STF	0.4	●	●	●
		4TH-DNGA150408	-STF	0.8	●	●	●
		4TH-DNGA150412	-STF	1.2	●	●	●
		4TH-DNGA150416	-STF	1.6	●	●	●
	断续加工	4TH-DNGA150404	-STH	0.4	●	●	●
		4TH-DNGA150408	-STH	0.8	●	●	●
		4TH-DNGA150412	-STH	1.2	●	●	●
		4TH-DNGA150416	-STH	1.6	●	●	●
	强断续加工	4TH-DNGA150404	-STR	0.4	●	●	●
		4TH-DNGA150408	-STR	0.8	●	●	●
		4TH-DNGA150412	-STR	1.2	●	●	●
		4TH-DNGA150416	-STR	1.6	●	●	●

负前角V型・贯穿焊接式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

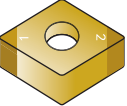
规格	内切圆 Φd	厚度 s	孔径 Φd_1	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1604	9.525	4.76	3.81	0.4-1.6	K			◑ ◒
					S			
					H	◐ ◑	◑ ◒	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN96	IKN60	IKN80
	通用加工	4TH-VNGA160404	-STF	0.4	●	●	●
		4TH-VNGA160408	-STF	0.8	●	●	●
		4TH-VNGA160412	-STF	1.2	●	●	●
		4TH-VNGA160416	-STF	1.6	●	●	●
	断续加工	4TH-VNGA160404	-STH	0.4	●	●	●
		4TH-VNGA160408	-STH	0.8	●	●	●
		4TH-VNGA160412	-STH	1.2	●	●	●
		4TH-VNGA160416	-STH	1.6	●	●	●
	强断续加工	4TH-VNGA160404	-STR	0.4	●	●	●
		4TH-VNGA160408	-STR	0.8	●	●	●
		4TH-VNGA160412	-STR	1.2	●	●	●
		4TH-VNGA160416	-STR	1.6	●	●	●

负前角S型・贯穿焊接式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

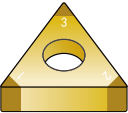
规格	内切圆 Φd	厚度 s	孔径 Φd_1	刀尖半径 r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1204	12.7	4.76	5.16	0.4-1.6	K			◑ ◒
					S			
					H	◐ ◑	◑ ◒	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN96	IKN60	IKN80
	通用加工	4TH-SNGA120404	-STF	0.4	●	●	●
		4TH-SNGA120408	-STF	0.8	●	●	●
		4TH-SNGA120412	-STF	1.2	●	●	●
		4TH-SNGA120416	-STF	1.6	●	●	●
	断续加工	4TH-SNGA120404	-STH	0.4	●	●	●
		4TH-SNGA120408	-STH	0.8	●	●	●
		4TH-SNGA120412	-STH	1.2	●	●	●
		4TH-SNGA120416	-STH	1.6	●	●	●
	强断续加工	4TH-SNGA120404	-STR	0.4	●	●	●
		4TH-SNGA120408	-STR	0.8	●	●	●
		4TH-SNGA120412	-STR	1.2	●	●	●
		4TH-SNGA120416	-STR	1.6	●	●	●

负前角T型 · 贯穿焊接式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ⊕

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1604	9.525	4.76	3.81	0.4-1.6	K			◑ ⊕
					S			
					H	◐ ◑	◑ ⊕	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN96	IKN60	IKN80
	通用加工	6TH-TNGA160404	-STF	0.4	●	●	●
		6TH-TNGA160408	-STF	0.8	●	●	●
		6TH-TNGA160412	-STF	1.2	●	●	●
		6TH-TNGA160416	-STF	1.6	●	●	●
	断续加工	6TH-TNGA160404	-STH	0.4	●	●	●
		6TH-TNGA160408	-STH	0.8	●	●	●
		6TH-TNGA160412	-STH	1.2	●	●	●
		6TH-TNGA160416	-STH	1.6	●	●	●
	强断续加工	6TH-TNGA160404	-STR	0.4	●	●	●
		6TH-TNGA160408	-STR	0.8	●	●	●
		6TH-TNGA160412	-STR	1.2	●	●	●
		6TH-TNGA160416	-STR	1.6	●	●	●

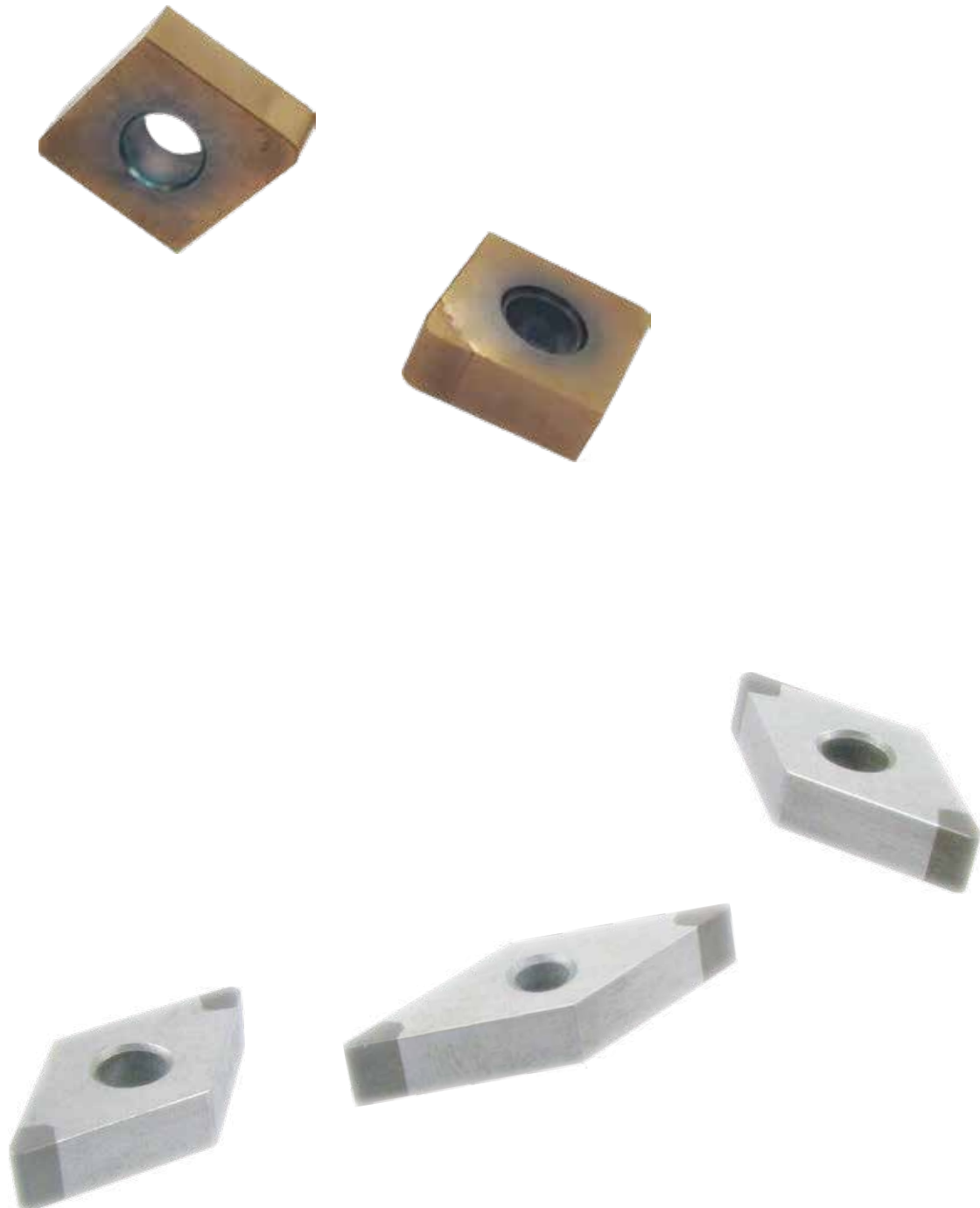
负前角W型 · 贯穿焊接式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ⊕

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
0804	12.7	4.76	5.16	0.4-1.6	K			◑ ⊕
					S			
					H	◐ ◑	◑ ⊕	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN96	IKN60	IKN80
	通用加工	6TH-WNGA080404	-STF	0.4	●	●	●
		6TH-WNGA080408	-STF	0.8	●	●	●
		6TH-WNGA080412	-STF	1.2	●	●	●
		6TH-WNGA080416	-STF	1.6	●	●	●
	断续加工	6TH-WNGA080404	-STH	0.4	●	●	●
		6TH-WNGA080408	-STH	0.8	●	●	●
		6TH-WNGA080412	-STH	1.2	●	●	●
		6TH-WNGA080416	-STH	1.6	●	●	●
	强断续加工	6TH-WNGA080404	-STR	0.4	●	●	●
		6TH-WNGA080408	-STR	0.8	●	●	●
		6TH-WNGA080412	-STR	1.2	●	●	●
		6TH-WNGA080416	-STR	1.6	●	●	●

贯穿焊



负前角C型 · 整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1204	12.7	4.76	-	0.4-1.6	K		◐	◒
1207	12.7	7.94	-	0.4-1.6	S			
					H	◐	◑	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	CNGN120404	-STF	0.4	●	●	●
		CNGN120408	-STF	0.8	●	●	●
		CNGN120412	-STF	1.2	●	●	●
		CNGN120416	-STF	1.6	●	●	●
		CNGN120704	-STF	0.4	●	●	●
		CNGN120708	-STF	0.8	●	●	●
		CNGN120712	-STF	1.2	●	●	●
		CNGN120716	-STF	1.6	●	●	●
	断续加工	CNGN120404	-STH	0.4	●	●	●
		CNGN120408	-STH	0.8	●	●	●
		CNGN120412	-STH	1.2	●	●	●
		CNGN120416	-STH	1.6	●	●	●
		CNGN120704	-STH	0.4	●	●	●
		CNGN120708	-STH	0.8	●	●	●
		CNGN120712	-STH	1.2	●	●	●
		CNGN120716	-STH	1.6	●	●	●
	强断续加工	CNGN120404	-STR	0.4	●	●	●
		CNGN120408	-STR	0.8	●	●	●
		CNGN120412	-STR	1.2	●	●	●
		CNGN120416	-STR	1.6	●	●	●
		CNGN120704	-STR	0.4	●	●	●
		CNGN120708	-STR	0.8	●	●	●
		CNGN120712	-STR	1.2	●	●	●
		CNGN120716	-STR	1.6	●	●	●

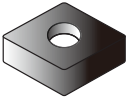
整体式

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负前角C型・整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1204	12.7	4.76	5.16	0.4-1.6	K		◐ ◒	◒
					S			
					H	◐ ◑		

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	CNGA120404	-STF	0.4	●	●	●
		CNGA120408	-STF	0.8	●	●	●
		CNGA120412	-STF	1.2	●	●	●
		CNGA120416	-STF	1.6	●	●	●
	断续加工	CNGA120404	-STH	0.4	●	●	●
		CNGA120408	-STH	0.8	●	●	●
		CNGA120412	-STH	1.2	●	●	●
		CNGA120416	-STH	1.6	●	●	●
	强断续加工	CNGA120404	-STR	0.4	●	●	●
		CNGA120408	-STR	0.8	●	●	●
		CNGA120412	-STR	1.2	●	●	●
		CNGA120416	-STR	1.6	●	●	●

负前角D型 · 整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

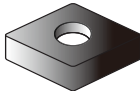
规格	内切圆 Φd	厚度s	孔径 Φd_1	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1504	12.7	4.76	-	0.4-1.6	K		◐ ◑	◒
1506	12.7	6.35	-	0.4-1.6	S			
					H	◐ ◑		

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	DNGN150404	-STF	0.4	●	●	●
		DNGN150408	-STF	0.8	●	●	●
		DNGN150412	-STF	1.2	●	●	●
		DNGN150416	-STF	1.6	●	●	●
		DNGN150604	-STF	0.4	●	●	●
		DNGN150608	-STF	0.8	●	●	●
		DNGN150612	-STF	1.2	●	●	●
		DNGN150616	-STF	1.6	●	●	●
	断续加工	DNGN150404	-STH	0.4	●	●	●
		DNGN150408	-STH	0.8	●	●	●
		DNGN150412	-STH	1.2	●	●	●
		DNGN150416	-STH	1.6	●	●	●
		DNGN150604	-STH	0.4	●	●	●
		DNGN150608	-STH	0.8	●	●	●
		DNGN150612	-STH	1.2	●	●	●
		DNGN150616	-STH	1.6	●	●	●
	强断续加工	DNGN150404	-STR	0.4	●	●	●
		DNGN150408	-STR	0.8	●	●	●
		DNGN150412	-STR	1.2	●	●	●
		DNGN150416	-STR	1.6	●	●	●
		DNGN150604	-STR	0.4	●	●	●
		DNGN150608	-STR	0.8	●	●	●
		DNGN150612	-STR	1.2	●	●	●
		DNGN150616	-STR	1.6	●	●	●

负前角D型・整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1504	12.7	4.76	5.16	0.4-1.6	K		◐	◒
					S			
					H	◐	◑	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	DNGA150404	-STF	0.4	●	●	●
		DNGA150408	-STF	0.8	●	●	●
		DNGA150412	-STF	1.2	●	●	●
		DNGA150416	-STF	1.6	●	●	●
	断续加工	DNGA150404	-STH	0.4	●	●	●
		DNGA150408	-STH	0.8	●	●	●
		DNGA150412	-STH	1.2	●	●	●
		DNGA150416	-STH	1.6	●	●	●
	强断续加工	DNGA150404	-STR	0.4	●	●	●
		DNGA150408	-STR	0.8	●	●	●
		DNGA150412	-STR	1.2	●	●	●
		DNGA150416	-STR	1.6	●	●	●

负前角V型 · 整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

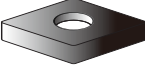
规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1604	9.525	4.76	-	0.4-1.6	K		◐	◒
1606	9.525	6.35	-	0.4-1.6	S			
					H	◐	◑	

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	VNGN160404	-STF	0.4	●	●	●
		VNGN160408	-STF	0.8	●	●	●
		VNGN160412	-STF	1.2	●	●	●
		VNGN160416	-STF	1.6	●	●	●
		VNGN160604	-STF	0.4	●	●	●
		VNGN160608	-STF	0.8	●	●	●
		VNGN160612	-STF	1.2	●	●	●
		VNGN160616	-STF	1.6	●	●	●
	断续加工	VNGN160404	-STH	0.4	●	●	●
		VNGN160408	-STH	0.8	●	●	●
		VNGN160412	-STH	1.2	●	●	●
		VNGN160416	-STH	1.6	●	●	●
		VNGN160604	-STH	0.4	●	●	●
		VNGN160608	-STH	0.8	●	●	●
		VNGN160612	-STH	1.2	●	●	●
		VNGN160616	-STH	1.6	●	●	●
	强断续加工	VNGN160404	-STR	0.4	●	●	●
		VNGN160408	-STR	0.8	●	●	●
		VNGN160412	-STR	1.2	●	●	●
		VNGN160416	-STR	1.6	●	●	●
		VNGN160604	-STR	0.4	●	●	●
		VNGN160608	-STR	0.8	●	●	●
		VNGN160612	-STR	1.2	●	●	●
		VNGN160616	-STR	1.6	●	●	●

负前角V型・整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1604	9.525	4.76	3.81	0.4-1.6	K		◑ ◒	◒
					S			
					H	◐ ◑		

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	VNGA160404	-STF	0.4	●	●	●
		VNGA160408	-STF	0.8	●	●	●
		VNGA160412	-STF	1.2	●	●	●
		VNGA160416	-STF	1.6	●	●	●
	断续加工	VNGA160404	-STH	0.4	●	●	●
		VNGA160408	-STH	0.8	●	●	●
		VNGA160412	-STH	1.2	●	●	●
		VNGA160416	-STH	1.6	●	●	●
	强断续加工	VNGA160404	-STR	0.4	●	●	●
		VNGA160408	-STR	0.8	●	●	●
		VNGA160412	-STR	1.2	●	●	●
		VNGA160416	-STR	1.6	●	●	●

负前角S型 · 整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1204	12.7	4.76	-	0.4-1.6	K		◑ ◒	◒
1207	12.7	7.94	-	0.4-1.6	S			
					H	◐ ◑		

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	SNGN120404	-STF	0.4	●	●	●
		SNGN120408	-STF	0.8	●	●	●
		SNGN120412	-STF	1.2	●	●	●
		SNGN120416	-STF	1.6	●	●	●
		SNGN120704	-STF	0.4	●	●	●
		SNGN120708	-STF	0.8	●	●	●
		SNGN120712	-STF	1.2	●	●	●
		SNGN120716	-STF	1.6	●	●	●
	断续加工	SNGN120404	-STH	0.4	●	●	●
		SNGN120408	-STH	0.8	●	●	●
		SNGN120412	-STH	1.2	●	●	●
		SNGN120416	-STH	1.6	●	●	●
		SNGN120704	-STH	0.4	●	●	●
		SNGN120708	-STH	0.8	●	●	●
		SNGN120712	-STH	1.2	●	●	●
		SNGN120716	-STH	1.6	●	●	●
	强断续加工	SNGN120404	-STR	0.4	●	●	●
		SNGN120408	-STR	0.8	●	●	●
		SNGN120412	-STR	1.2	●	●	●
		SNGN120416	-STR	1.6	●	●	●
		SNGN120704	-STR	0.4	●	●	●
		SNGN120708	-STR	0.8	●	●	●
		SNGN120712	-STR	1.2	●	●	●
		SNGN120716	-STR	1.6	●	●	●

负前角S型・整体式

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆Φd	厚度s	孔径Φd _i	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
1204	12.7	4.76	5.16	0.4-1.6	K		◑ ◒	◒
					S			
					H	◐ ◑		

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	SNGA120404	-STF	0.4	●	●	●
		SNGA120408	-STF	0.8	●	●	●
		SNGA120412	-STF	1.2	●	●	●
		SNGA120416	-STF	1.6	●	●	●
	断续加工	SNGA120404	-STH	0.4	●	●	●
		SNGA120408	-STH	0.8	●	●	●
		SNGA120412	-STH	1.2	●	●	●
		SNGA120416	-STH	1.6	●	●	●
	强断续加工	SNGA120404	-STR	0.4	●	●	●
		SNGA120408	-STR	0.8	●	●	●
		SNGA120412	-STR	1.2	●	●	●
		SNGA120416	-STR	1.6	●	●	●

负前角W型 · 整体刀片

连续

弱断续

中等断续

强断续

规格	内切圆Φd	厚度s	孔径Φdi	刀尖半径r	材质	加工难易度（连续、弱断续、中等断续、强断续）		
0804	12.7	4.76	-	0.4-1.6	K			
					S			
					H			

形状	规格	型号	倒棱	刀尖圆弧半径	IKN60	IKN80	IKN90
	通用加工	WNGN080404	-STF	0.4	●	●	●
		WNGN080408	-STF	0.8	●	●	●
		WNGN080412	-STF	1.2	●	●	●
		WNGN080416	-STF	1.6	●	●	●
	断续加工	WNGN080404	-STH	0.4	●	●	●
		WNGN080408	-STH	0.8	●	●	●
		WNGN080412	-STH	1.2	●	●	●
		WNGN080416	-STH	1.6	●	●	●
	强断续加工	WNGN080404	-STR	0.4	●	●	●
		WNGN080408	-STR	0.8	●	●	●
		WNGN080412	-STR	1.2	●	●	●
		WNGN080416	-STR	1.6	●	●	●

整体式

负前角R型・整体刀片

连续 ○ 弱断续 ◐ 中等断续 ◑ 强断续 ◒

规格	内切圆 Φd	厚度s	孔径 Φd_1	-	材质	加工难易度（连续、弱断续、中等断续、强断续）		
0603	6.35	3.18	-	-	-			
0903	9.525	3.18	-	-	K		◑ ◒	◒
1204	12.7	4.76	-	-	S			
1207	12.7	7.94	-	-	H	◐ ◑		
形状	规格	型号	倒棱	-	IKN60	IKN80	IKN90	
	精加工	RNGN0603	-STM	-	●	●	●	
		RNGN0903	-STM	-	●	●	●	
		RNGN1204	-STM	-	●	●	●	
	通用加工	RNGN0603	-STF	-	●	●	●	
		RNGN0903	-STF	-	●	●	●	
		RNGN1204	-STF	-	●	●	●	
		RNGN1207	-STF	-	●	●	●	
	断续加工	RNGN0903	-STH	-	●	●	●	
		RNGN1204	-STH	-	●	●	●	
		RNGN1207	-STH	-	●	●	●	
	强断续加工	RNGN0903	-STR	-	●	●	●	
		RNGN1204	-STR	-	●	●	●	
		RNGN1207	-STR	-	●	●	●	

材质特性

PCD(多晶体人造金刚石烧结体)

为什么需要使用PCD

PCD
PCD（多晶体人造金刚石烧结体）刀具由金刚石微粒与结合剂等经高温高压烧结制成。

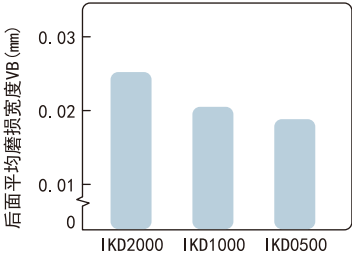
- 特征**
- ※ PCD刀具具有硬度高、抗压强度高、导热性及耐磨性好；
 - ※ 主要加工有色非铁金属，锋利的刃口可以得到优秀的加工表面。

IKEN的PCD（多晶体人造金刚石烧结体）

※ 特征和用途（物理特性・机械特性）

	IKD0500	IKD1000	IKD2000
材质			
特性	重视加工面用微粒材质	通用材质	重视耐磨性，双模态晶粒结构
人造金刚石主粒度 (μm)	<2	10	4/25
硬度 (Hv)	低		高
耐磨损性			好
被研磨性 (刀尖锐利性)	好		

※ 切削性能・耐磨损性



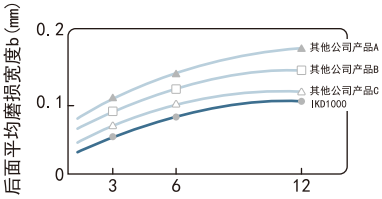
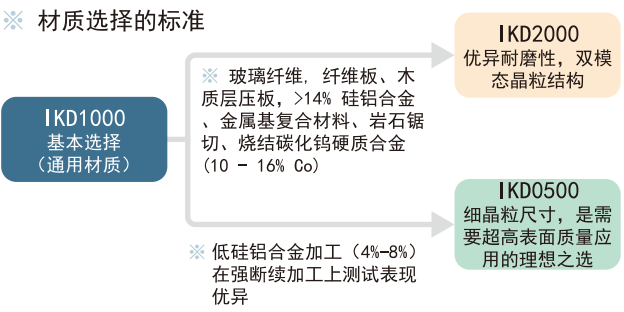
- 外圆纵向连续车削
- ※ 被加工材料：10%Si-Ai合金
 - ※ 使用刀具：SPGN120308-IKD1000
 - ※ 使用刀体：CSBPR2525M4
 - ※ 切削速度：Vc=500m/min
 - ※ 进给量：f=0.1mm/rev
 - ※ 切深：ap=0.5mm
 - ※ 切削液：干式切削
 - ※ 切削时间：30min

※ 标准切削条件

被加工材料	切削速度 Vc (m/min)	切深 ap (mm)	进给量 f (mm/rev)	被加工材料		
				IKD0500	IKD1000	IKD2000
Al 合金 (Si12%以下)	1500 (1000-2500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)	◎	◎	
Al 合金 (Si12%以上)	600 (400-800)	0.5 (0.05-2.0)	0.1 (0.05-0.2)		○	◎
铜・黄铜	800 (500-1500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)	○	◎	
磷青铜	400 (300-500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)	○	◎	
碳石墨	400 (300-500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)		○	○
纤维强化塑料	700 (500-1000)	0.2 (0.05-0.5)	0.05 (0.03-0.1)		○	○
塑料	700 (500-1000)	0.2 (0.05-0.5)	0.03 (0.01-0.05)	○	○	
硬质合金 (D40~D60)	15 (10-20)	0.1 (0.05-0.2)	0.03 (0.01-0.05)			◎
陶瓷 (预烧结)	130 (100-150)	0.5 (0.05-2.0)	0.05 (0.03-0.1)			◎

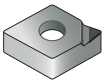
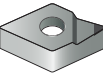
◎:首要推荐 ○:次要推荐

※ 材质选择的标准

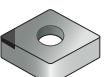
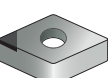


- 平面切削
- ※ 被加工材料：玻璃纤维 (FRP)
 - ※ 使用刀具：SPCN422ZR-IKD1000
 - ※ 使用刀体：TPG4208R-A
 - ※ 切削速度：Vc=942m/min
 - ※ 进给量：f=0.1mm/rev
 - ※ 切深：ap=1.5mm
 - ※ 切削液：干式切削

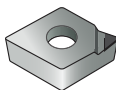
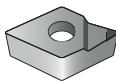
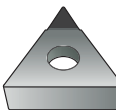
负前角刀片(带前角)

形状	规格	型号	刀尖半径 r	IKD0500	IKD1000	IKD2000
	精切削 低切削抗力	CNGT120402	0.2	●	●	●
		CNGT120404	0.4	●	●	●
		CNGT120408	0.8	●	●	●
		DNGT150402	0.2	●	●	●
		DNGT150404	0.4	●	●	●
		DNGT150408	0.8	●	●	●
		TNGT160402	0.2	●	●	●
		TNGT160404	0.4	●	●	●
		TNGT160408	0.8	●	●	●
		VNGT160402	0.2	●	●	●
		VNGT160404	0.4	●	●	●
		VNGT160408	0.8	●	●	●

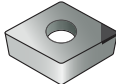
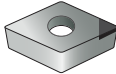
负前角刀片

形状	规格	型号	刀尖半径 r	IKD0500	IKD1000	IKD2000
	精切削 低切削抗力	CNGA120402	0.2	●	●	●
		CNGA120404	0.4	●	●	●
		CNGA120408	0.8	●	●	●
		DNGA150402	0.2	●	●	●
		DNGA150404	0.4	●	●	●
		DNGA150408	0.8	●	●	●
		TNGA160402	0.2	●	●	●
		TNGA160404	0.4	●	●	●
		TNGA160408	0.8	●	●	●
		SNGA120402	0.2	●	●	●
		SNGA120404	0.4	●	●	●
		SNGA120408	0.8	●	●	●
		SNGN090302	0.2	●	●	●
		SNGN090304	0.4	●	●	●
		SNGN090308	0.8	●	●	●
		SNGN120402	0.2	●	●	●
		SNGN120404	0.4	●	●	●
		SNGN120408	0.8	●	●	●

正前角刀片(带前角)

形状	规格	型号	刀尖半径r	IKD0500	IKD1000	IKD2000
	精-半精切削	CCGT09T302	0.2	●	●	●
		CCGT09T304	0.4	●	●	●
		CCGT09T308	0.8	●	●	●
		CCGT120402	0.2	●	●	●
		CCGT120404	0.4	●	●	●
		CCGT120408	0.8	●	●	●
		DCGT070202	0.2	●	●	●
		DCGT070204	0.4	●	●	●
		DCGT070208	0.8	●	●	●
		DCGT11T302	0.2	●	●	●
		DCGT11T304	0.4	●	●	●
		DCGT11T308	0.8	●	●	●
		VCGT160402	0.2	●	●	●
		VCGT160404	0.4	●	●	●
		VCGT160408	0.8	●	●	●
		TCGT090202	0.2	●	●	●
		TCGT090204	0.4	●	●	●
		TCGT090208	0.8	●	●	●
		TCGT110202	0.2	●	●	●
		TCGT110204	0.4	●	●	●
		TCGT110208	0.8	●	●	●
		TCGT110302	0.2	●	●	●
		TCGT110304	0.4	●	●	●
		TCGT110308	0.8	●	●	●

正前角刀片

形状	规格	型号	刀尖半径 r	IKD0500	IKD1000	IKD2000
	精-半精切削	CCGW060202	0.2	●	●	●
		CCGW060204	0.4	●	●	●
		CCGW09T302	0.2	●	●	●
		CCGW09T304	0.4	●	●	●
		CCGW09T308	0.8	●	●	●
		DCGW070202	0.2	●	●	●
		DCGW070204	0.4	●	●	●
		DCGW070208	0.8	●	●	●
		DCGW11T302	0.2	●	●	●
		DCGW11T304	0.4	●	●	●
		DCGW11T308	0.8	●	●	●
		TPGW080202	0.2	●	●	●
		TPGW080204	0.4	●	●	●
		TPGW080208	0.8	●	●	●
		TPGW090202	0.2	●	●	●
		TPGW090204	0.4	●	●	●
		TPGW090208	0.8	●	●	●
		TPGW110202	0.2	●	●	●
		TPGW110204	0.4	●	●	●
TPGW110208		0.8	●	●	●	

案例03 · 机械泵体端面铣削

刀具来源	刀具信息	寿命（件/刃）	判定方式
对比刀具 （品牌及型号不公开）	型号不公开	20	磨损
井研刀具	APGT160404-STF-L1 IKN1690	50	磨损

数值按“对比刀具 / 井研刀具”顺序列示



工件示意图

工件 / 材料	机械泵体 / HT250
硬度 / 切削形态	HB200 / 断续
加工方式 / 位置	铣削 / 端面
冷却 / 粗糙度	干式 / Ra1.6
装夹 / 工件强度	一般 / 一般
切深ap (mm)	0.3 / 0.3
切速Vc (m/min)	400 / 400
每转进给fn (mm/rev)	0.12 / 0.12
齿数	Z=8 / Z=8

案例04 · 外星轮内球面车削

刀具来源	刀具信息	寿命（件/刃）	判定方式
对比刀具 （品牌及型号不公开）	型号不公开	500	崩刃
井研刀具	3HP-TNGA160416-STH IKN9000C3	600	崩刃

数值按“对比刀具 / 井研刀具”顺序列示



工件示意图

工件 / 材料	外星轮 / 20CrMnTiH
硬度 / 切削形态	HRC58-63 / 断续
加工方式 / 位置	车削 / 内球面
冷却 / 粗糙度	干式 / Ra0.8
装夹 / 工件强度	一般 / 一般
切深ap (mm)	0.2 / 0.2
切速Vc (m/min)	150 / 150
每转进给fn (mm/rev)	0.12 / 0.12

以上为所列工况下的个案记录，不代表所有应用结果。选型、加工参数与安全使用条件，应结合实际工件、机床和质量要求通过试切确认。

案例06 · 传动齿轮轴外径车削

刀具来源	刀具信息	寿命（件/刃）	判定方式
对比刀具 （品牌及型号不公开）	型号不公开	150	光洁度
井研刀具	3HP-TNGA160408-STF IKN4500C2	200	光洁度



工件示意图

工件材料	42CrMo
硬度	HRC58-62
装夹刚性	良
冷却方式	湿切
切速Vc (m/min)	220
进给f (mm/rev)	0.11
切深ap (mm)	0.12
加工方式 / 位置	车削 / 外径

以上为所列工况下的个案记录，不代表所有应用结果。选型、加工参数与安全使用条件，应结合实际工件、机床和质量要求通过试切确认。



专注切削 用心服务

上海井研精密工具有限公司
Shanghai IKEN Precision Tools CO.Ltd.



公司简介

Company Introduction

上海井研精密工具有限公司 (IKEN) 成立于2011年，位于上海，开展 CBN、PCD 精密超硬刀具的研发、生产与销售。

产品面向汽车、轨道交通、船舶、航空、医疗、能源等领域的零部件加工需求。井研结合工件材料、图纸要求和加工条件，提供刀具选型、非标定制及加工应用沟通支持。具体产品适用范围和技术要求，以双方确认的产品文件为准。

井研秉持“公平公正、合作开放、学习创新、创造价值”的企业价值观，与客户共同讨论切削加工中的实际需求。产品方案与加工参数需结合机床、夹持、冷却及现场工况进行验证。



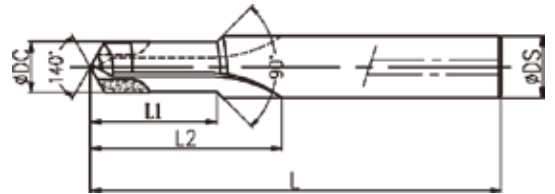
PRODUCT INTRODUCTION

PCBN（多晶立方氮化硼）与PCD（多晶金刚石）是用于精密切削的超硬刀具材料。两类材料的组成、颗粒、结合相及制造工艺不同，适用工件与加工方式也不同。

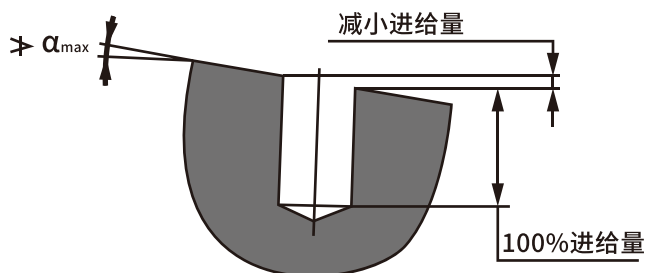
PCBN常用于淬硬钢、铸铁等材料的加工；PCD常用于铝合金及部分有色金属、非金属材料的加工。具体适用性取决于工件材质、硬度、结构及机床、夹持和冷却条件。

选型与参数应结合产品技术文件及实际试切确认。材料性质和应用说明不构成对加工精度、效率、刀具寿命或成本的统一保证。

PCD直槽钻(通用) PCD with straight flute (General)

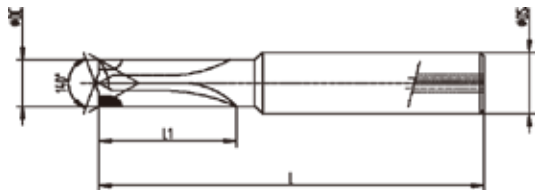


型号 Model	尺寸 Size (mm)			
	加工直径 ϕD_c (mm)	全长 L (mm)	最大铣深 L_1 (mm)	柄部直径 ϕD_s (mm)
DOP0500	$\phi 5$	80	35	$\phi 5$
DOP0600	$\phi 6$	80	35	$\phi 6$
DOP0700	$\phi 7$	80	40	$\phi 7$
DOP0800	$\phi 8$	90	50	$\phi 8$
DOP0900	$\phi 9$	100	50	$\phi 9$
DOP0100	$\phi 10$	100	55	$\phi 10$
DOP0110	$\phi 11$	110	60	$\phi 11$
DOP0120	$\phi 12$	120	65	$\phi 12$
DOP0130	$\phi 13$	130	70	$\phi 13$
DOP0140	$\phi 14$	130	70	$\phi 14$
DOP0150	$\phi 15$	140	80	$\phi 15$
DOP0160	$\phi 16$	140	80	$\phi 16$

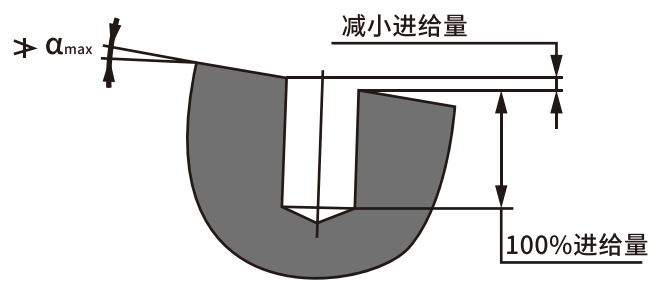


α	进给量
1°	80%
2°	50%
3°	30%

PCD定心钻绞刀(通用) PCD centering straight flute (General)

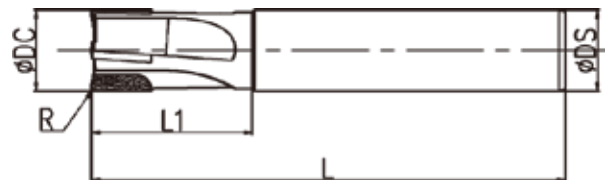


型号 Model	尺寸 Size (mm)			
	加工直径 $\varnothing D_c$ (mm)	全长L (mm)	最大铣深L1 (mm)	柄部直径 $\varnothing D_s$ (mm)
DCP0500	$\varnothing 5$	80	35	$\varnothing 5$
DCP0600	$\varnothing 6$	80	35	$\varnothing 6$
DCP0700	$\varnothing 7$	80	40	$\varnothing 7$
DCP0800	$\varnothing 8$	90	50	$\varnothing 8$
DCP0900	$\varnothing 9$	100	50	$\varnothing 9$
DCP0100	$\varnothing 10$	100	55	$\varnothing 10$
DCP0110	$\varnothing 11$	110	60	$\varnothing 11$
DCP0120	$\varnothing 12$	120	65	$\varnothing 12$
DCP0130	$\varnothing 13$	130	70	$\varnothing 13$
DCP0140	$\varnothing 14$	130	70	$\varnothing 14$
DCP0150	$\varnothing 15$	140	80	$\varnothing 15$
DCP0160	$\varnothing 16$	140	80	$\varnothing 16$



α	进给量
1°	80%
2°	50%
3°	30%

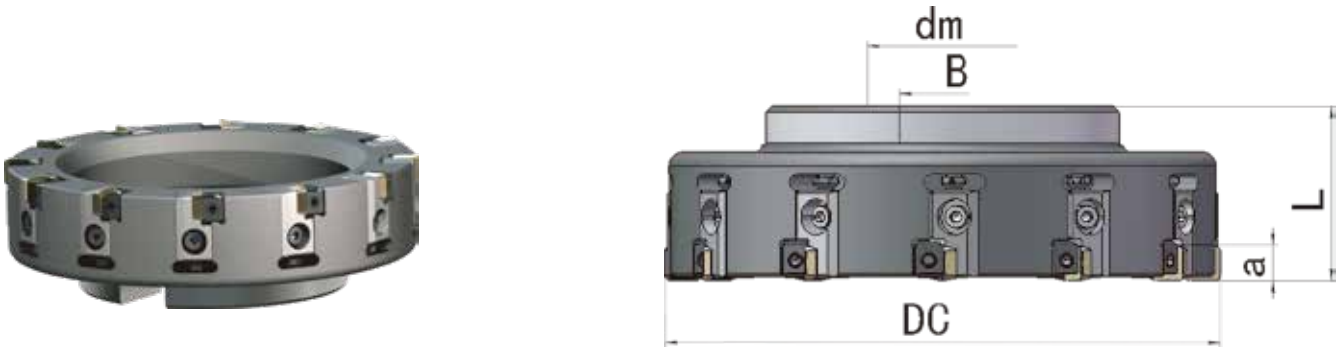
PCD R 角铣刀(通用) PCD end mills with R radius chamfer (General)



型号 Model	尺寸 Size (mm)				
	R角	加工直径 ØDc (mm)	全长 L (mm)	最大铣深 L1 (mm)	柄部直径 ØDs (mm)
EX4300R1-15	1	Ø15	100	35	Ø16
EX4300R1-16	1	Ø16	100	35	Ø18
EX4300R1-18	1	Ø18	100	35	Ø18
EX4300R1.5-20	1.5	Ø20	120	50	Ø20
EX4300R1.5-22	1.5	Ø22	120	50	Ø24
EX4300R2-24	2	Ø24	120	50	Ø25
EX4300R2-25	2	Ø25	120	50	Ø25

*直径及槽长可根据被加工工件非标定制

可转位铝合金面铣刀 Indexable aluminum alloy face milling cutter



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- 大前角结构设计,切削轻快,最适合有色金属精加工。
- 刀片采用螺钉式压紧结构,容削空间大,排屑流畅。
- 有动平衡调节结构。
- 刀体采用轻合金材料,在满足刀体强度时,刀具重量较轻,适合准高速铣削加工。
- 45°主偏角和90°主偏角铝合金面铣刀的基体相同,通过更换刀夹满足不同主偏角加工的需要己。
- 也适用于灰铸铁精加工。

型号 Model	dc	dm	a	B	L	齿数 No.of teeth	刀夹 cartides	刀片 Insert	最高转速 The max rev
FMM-200AL	200	60	12	25.7	63	12	SC12CA-12AL	SCMT120408-PM	2400

*可根据被加工材料选取刀片



■ 球头铣刀
型腔铣, 发动机孔加工

直柄双内冷铰刀 ■
精加工缸盖孔



■ 火花塞孔铰刀



■ 三刃复合倒角铰刀
高精度复合孔口倒角节省工艺



多段式复合铰刀

用于复合孔加工及工序整合。零件一致性、加工效率与成本等实际效果，应结合工件要求及现场试切结果评估。

气门导管系列PCD刀具

气门导管系列PCD刀具			
主要加工汽车发动机导管孔			
切削参数 (参考)	转速(n)	切削速度(vc)	进给量(f)
	14000r/min	220m/min	0.1mm/rev

(主要加工汽车发动机导管孔)



局部放大图

刃口放大图





■ 机夹式导管刀



■ 机夹头部放大图



■ HFS刀柄



切削参数 (参考)	转速(n)	切削速度(vc)	进给量(f)
	10000r/min	980m/min	0.6mm/rev

发动机喉管孔铰刀



PCD波刃玉米铣刀
高效快速切削



PCD波刃玉米铣刀
高效快速切削

PCD玉米铣刀



HSK连接系列PCD刀具

随着现代机械制造业的高速发展，高速高效的金属切削技术越来越得到广泛的推广和应用，而高可靠性的HSK刀柄夹持连接得到用户的肯定认可，特别是现代汽车零部件制造业领域里，汽车发动机缸盖、气门导管、座圈底孔及导管孔、挺柱孔、油泵、变速箱壳体等的加工。

HSK夹持连接系列在加工使用过程中，以锥面和端面与机床主轴的紧密拉紧连接，因其高可靠性和高稳定性，适用于高速切削，实现高精高效的加工模式。



PCD内冷式复合套刀			
-			
切削参数 (参考)	转速(n)	切削速度(vc)	进给量(f)
	4000r/min	380m/min	0.15mm/rev

■ PCD复合精铰刀



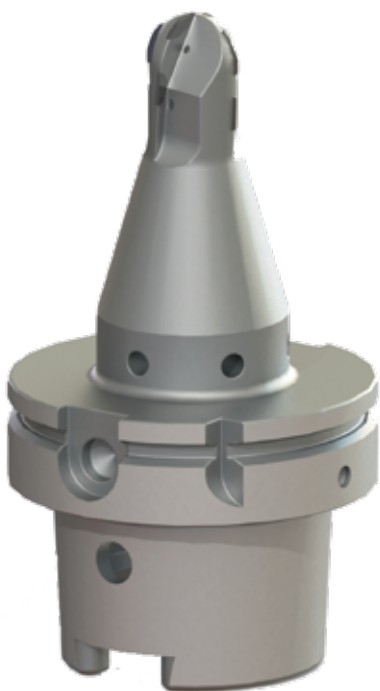
导条机夹镗刀
主要加工发动机缸体曲轴孔





■ 6阶梯PCD精铰刀
主要加工缸盖火花塞孔

切削参数 (参考)	转速(n)	切削速度(vc)	进给量(f)
	10000r/min	980m/min	0.6mm/rev



■ 球头铣刀
主要加工汽车发动机缸盖双凸轮轴孔

可调节法兰连接系列PCD刀具

气门座圈导管PCD铰刀			
主要加工汽车发动机缸盖			
切削参数 (参考)	转速(n)	切削速度(vc)	进给量(f)
	4000r/min	200m/min	0.28mm/rev



■ 气门座圈导管PCD铰刀
因其使用灵活性强而被
广泛应用于汽车多样性
零部件的加工制造

■ 复合轴承孔镗刀
1.复合加工,同时倒角
2.机夹刀夹,反镗倒角



■ 轴承孔可调精镗刀



■ 复合导条反镗刀
精加工孔反镗复合增效降本





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上海井研精密工具有限公司

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电话：18001698576

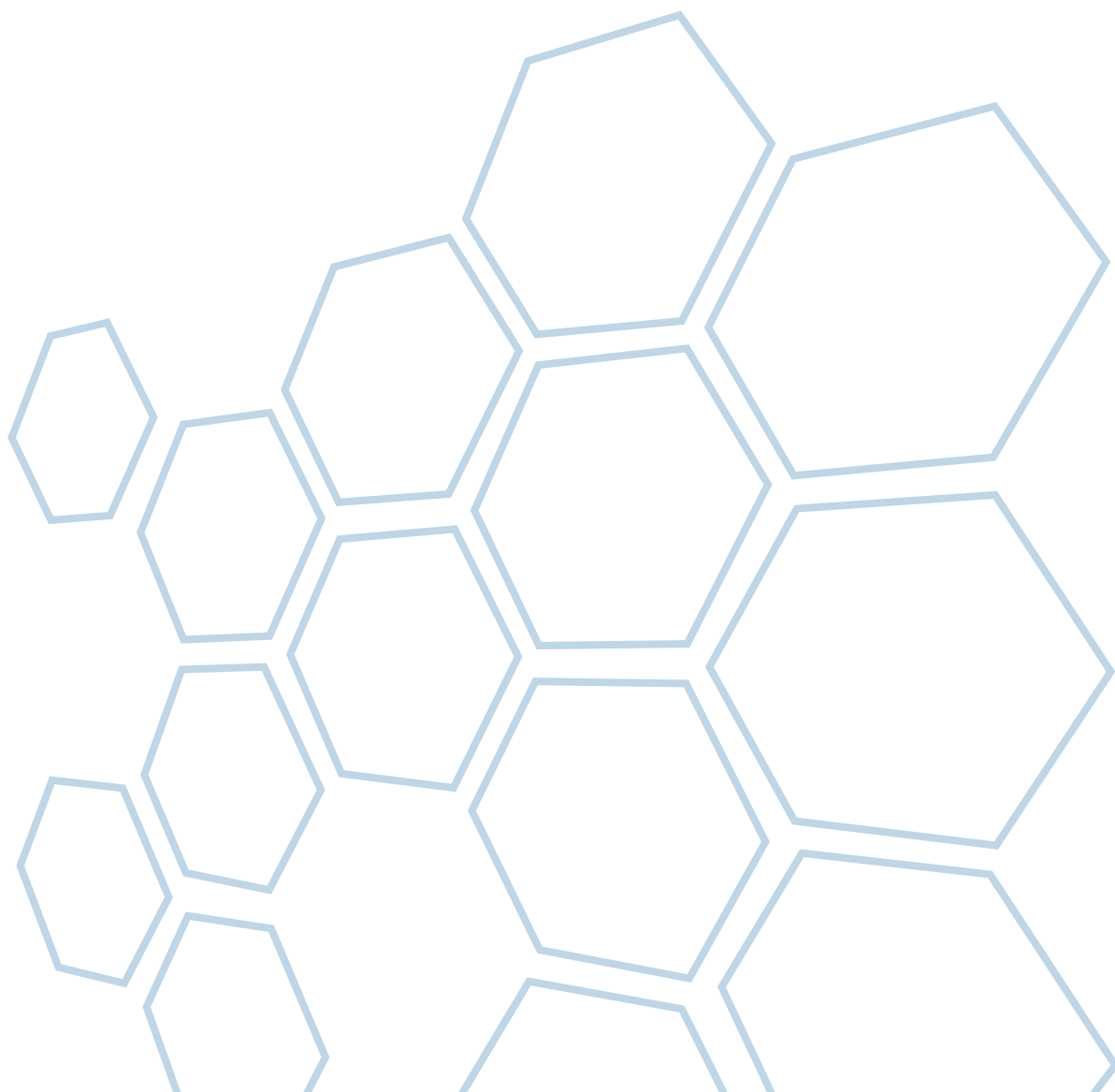
邮箱：info@iken-tools.com

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本版本保留原样本的型号、规格和主要技术表格，并调整公司介绍及部分宣传表述。

样本中的选型、切削参数、加工示例与材料性能说明供技术沟通参考。实际效果受工件材料、硬度、机床、夹持、冷却及工况影响，应通过试切验证。

安全上限、安装与使用要求以最终产品技术文件及机床要求为准；请勿仅凭本样本设定设备参数。采购规格、交付及服务内容以双方确认的文件为准。

上海井研精密工具有限公司

Shanghai IKEN Precision Tools Co., Ltd.

地址：上海市青浦区新科路333号

电话：18001698576

传真：021-69220726

网址：www.iken-tools.com

邮箱：info@iken-tools.com