



让世界不再有难加工材料

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# CBN切削刀具样本

## CBN CUTTING TOOLS CATALOGUE

专业硬材料加工工具的开拓者  
Professional Leader on cutng tools for hard materials

郑州华菱超硬材料有限公司  
ZHENGZHOU HALNN SUPERHARD MATERIALS CO.LTD

## 企业介绍

华菱超硬，作为我国超硬刀具国产化的先驱，以国家超硬材料重点实验室和河南科技大学为技术依托，自备超硬刀具研发中心，专注于脆硬材料和难切削材料加工用立方氮化硼刀具和高品级金刚石的研究方向，在以车代磨、超高硬度重载切削、高速加工，难加工材料切削等细分领域独具优势。同时，依据河南超硬材料研究所的先天资源，在 3C 行业、航空航天、核能军工领域不断推陈出新 CBN/PCD 刀具和其他新材料工具，用户覆盖了中国大陆、中国台湾、德国、意大利、美国、韩国、日本等多个国家和地区。

## Enterprise Introduction

Halnn Superhard, as the pioneer of superhard cutting tools in China, make national Superhard Materials Key Laboratory and Henan University of Science and technology as technical support, have our own research center, focus on cbn cutting tools and high grade diamond tools for machining brittle and hard materials, have obvious advantages on most industries, such as turning instead of grinding, high hardness materials machining, heavy turning, high speed machining, ect. At the same time, we have launched a series of new cbn/pcd cutting tools and other material tools in 3C, aerospace and Nuclear energy military field, depending on the research center of Henan Superhard Materials Institute. Our customers have covered many countries and areas, including China Mainland, German, Italy, USA, Korea and other areas.

## 发展历程

2002

2002 年，河南超硬材料研究所创立，主要以立方氮化硼刀具、高品级金刚石为研究方向。有博导 2 人、教授 3 人、副教授 5 人、研发博士、硕士 12 人；拥有六面顶高压设备及激光热导率仪等多台大型设备，总价值 1800 余万元。

2003

2003 年，承担国家重点“产学研”工程，针对高铬白口铸铁、冷硬铸铁材质研发出立方氮化硼刀具 BN-K1 牌号，其硬度和抗冲击韧性均远远高于陶瓷刀具，在高硬度铸铁等耐磨铸件领域掀起了一场切削技术革命。

2004

2004 年，推出淬硬钢精加工专用立方氮化硼刀具 BN-H10 牌号，在国内焊接复合立方氮化硼刀具领域一直处于领先地位，并以立方氮化硼刀具的技术转让和企研合作相结合的模式，对我国超硬材料行业做出了巨大贡献。

2005

2005 年，承担国家新材料规划“CBN 制品科技攻关”项目，针对硬钢材料的粗加工和断续加工，研制出适用的刀具牌号 BN-S20，打破了立方氮化硼刀具不能用于强断续大余量车削淬硬钢的神话，是立方氮化硼刀具行业的世界性突破。

2006

2006 年，在郑州高新技术产业开发区设立了营销中心和非标工具事业部，同年，BN-K1 牌号在粗加工高铬白口耐磨铸铁领域取得国内外业界一致认可，远销欧美地区工业发达国家。

2009

2009 年，推出了更广泛的适用于数控车刀装夹的立方氮化硼刀片牌号 BN-K20 和 BN-H20。广泛应用于铸铁和硬钢的断续切削。

2010

2010 年，研制出国内首颗 1.7 克拉重量蓝色宝石级金刚石，并向下游工具拓展，自主研发生产高端聚晶金刚石 (PCD) 刀具和其他金刚石工具。至此，共获国家专利 25 项。

2011

2011 年，被评为郑州市出口创汇十佳企业。

2013

2013 年，推出立方氮化硼刀具 BN-H21 牌号，至此，已形成一整套“以车代磨”硬加工领域刀具方案。

2015

2015 年，推出高速切削领域更新换代材质 BNK30，凭借优异的耐磨性和稳定性远销欧美日韩发达国家。

## History

2002

In 2002, Henan Superhard Materials Research Institute was established, made CBN cutting tools and high grade diamond as the main research direction. There are 2 Ph.D, 3 Professors, 5 Associate Professors, 12 R&D Doctor and Masters, and we also have cubic pressing machine and laser thermal conductivity meter and other large-scale equipment, with a total value more than 18 million RMB.

2003

In 2003, we undertook the national key project of "Production-Study-Research", and researched BN-K1 solid cbn grade specific for Hi-Cr white cast iron, chilled cast iron, which hardness and toughness is higher than ceramic cutters, and set off a technology revolution in high hardness cast iron and other abrasive casting industry.

2004

In 2004, we launched BN-H10 PCBN Grade, specific for finish turning hardened steel, and always in the leading position in Chinese brazing pcbn industry, and began to Cooperate with the enterprise with the form of transfer technology, and make great contribution for our superhard materials industries.

2005

In 2005, we Undertook national new materials project of "Tackling key problems of CBN Product", researched BN-S20 Solid CBN Grade, specific for rough machining and interrupt cutting hard steel, and make it possible that cbn inserts can be used for interrupt turning hardened steel with large allowance, which is one of the world breakthrough in cbn insert industry.

2006

In 2006, we created superhard tool marketing center and non-standard tool Division. Same year, we researched BN-K1 solid cbn insert for rough machining high chromium abrasive wear resistant cast iron, which got customers' approval from all over the world, and our products have been sold Europe, America, East Asia, ect.

2009

In 2009, we researched BN-K20 and BN-H20 Brazing PCBN indexable CNC Insert, which were widely used in interrupt cutting cast iron and hard steel.

2010

In 2010, we researched the first GEM diamond with 1.7 gram in China, and also began to research other tools, and researched high grade pcd cutting tools and other diamond tools. So far, we total have 25 national patents.

In 2010, we were voted as the top-ten enterprise in Zhengzhou foreign exchange earning export.

2013

In 2013, we launched BN-H21 PCBN Insert, and at that time, we have made the whole solutions on "turning instead of grinding".

2015

In 2015, we launched new cbn materials BNK30 for high speed cutting field, and have been exported to Europe, Japan, South Korea and other developed countries depending on the excellent abrasive resistance and stability.

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## 切削公式 Conventional Cutting parameters Formula

### 车削加工的计算公式 (Turning condition)

切削速度 (Vc) Cutting Speed(Vc)

$$Vc = \pi d n / 1000 \text{ ( m/min )}$$

Vc: 切削速度 Cutting Speed

$\pi$ : 3.14 (圆周率)

d: 工件直径 Workpiece Diameter

n: 主轴转速 Spindle speed

进给量 (Fr) Feed Rate

$$Fr = l / n \text{ ( mm/r )}$$

Fr: 进给量 Feed Rate

l: 每分钟切削长度 Cutting Length/min

n: 主轴转速 Spindle speed

切削时间 (Te) Cutting Time

$$Te = l_m / l \text{ ( min )}$$

Te: 切削时间 Cutting Time

l<sub>m</sub>: 工件长度 Component Length

l: 每分钟的切削长度 Cutting Length/min

理论表面粗糙度 (h) Roughness

$$h = f^2 / 8Re * 1000 \text{ ( } \mu\text{m )}$$

h: 表面粗糙度 Roughness

f: 每转进给量 Feed rate

Re: 刀尖圆弧半径 Insert Nose Radius

### 铣削加工的计算公式 Milling Condition

切削速度 (Vc) Cutting Speed

$$Vc = \pi D n / 1000 \text{ ( m/min )}$$

Vc: 切削速度 Cutting Speed

$\pi$ : 3.14 (圆周率)

D1: 铣刀直径 Insert Diameter

n: 主轴转速 Spindle speed

$$V_c = f_z * z * n \text{ ( mm/min )}$$

f<sub>z</sub>: 每刃进给量 (mm/min) Feed Rate

z: 铣刀刃数 Milling Blades No.

n: 主轴转速 Spindle speed

加工时间 (Tc) Process Time

$$Tc = L / v_f \text{ ( min )}$$

v<sub>f</sub>: 每分钟工作台进给速度 Feed Speed/min

L: 工作台总进给长度 (工件长度 l\* 铣刀直径: D1)

Workbench feed length(Component diameter\*insert diameter)

每刃进给量 (Fz) Feed Rate

$$Fz = v_f / z * n$$

f<sub>z</sub>: 每刃进给量 Feed Rate

v<sub>f</sub>: 每分钟工作台进给速度 Feed Speed/min

z: 铣刀刃数 Milling Blades No.

n: 主轴转速 (每转进给量 fr=z\*fz) Spindle speed

工作台进给速度 (v<sub>f</sub>) Feed Speed

## CBN 刀具牌号及适用范围

刀具牌号	适合加工材质	加工方式	典型应用行业	刀片样式
BN-K1	冷硬铸铁, 高镍铬、高硬度合金铸铁;	粗加工	合金铸铁轧辊, 渣浆泵, 耐磨铸件等	整体式 
BN-S10	高速钢	粗加工	高速钢轧辊	
BN-S20	淬硬钢、耐热耐磨钢、高锰钢	粗加工, 半精加工	高速钢轧辊, 丝杠, 风电轴承	
BN-S200	淬硬钢, 高温合金	精加工	风电轴承	
BN-S300	灰铸铁	粗加工, 精加工	制动盘, 制动鼓; 铸铁发动机、变速箱; 气缸套等	
BDN80	镍基合金, 司太立合金, 高温合金;	粗加工, 精加工	飞机涡轮盘, Ni 基合金零件	镶嵌式 
BN-H11	淬硬钢	半精加工, 精加工	轴承, 齿轮, 齿轮轴, 淬硬模具等	
BN-H20	淬硬钢, 难切削材料	半精加工, 精加工	淬硬钢齿轮, 模具等	
BN-K20	灰铸铁	半精加工, 精加工	制动盘、制动鼓, 铸铁发动机、变速箱	
BNK30	灰铸铁, 铁系烧结合金	半精加工, 精加工	制动盘、制动鼓, 铸铁发动机、变速箱	
BN-H05	淬硬钢	精加工	齿轮、齿轮轴、轴承等	复合式 
BN-H10	淬硬钢, 高强度合金	精加工	轴承, 齿轮, 齿轮轴, 高硬度零件	
BN-K50	粉末冶金	精加工	粉末冶金齿轮、气门座圈等	
BN-H21	淬硬钢	精加工	轴承、齿轮、齿轮轴、模具等	
BN-K10	灰铸铁, 粉末冶金	精加工	气门座圈; 发动机缸孔; 粉末冶金零件	
BN-H05 C25	淬硬钢	精加工	齿轮、齿轮轴、轴承等	涂层 CBN 刀具 
BN-H10 C25	淬硬钢	精加工	轴承, 齿轮, 齿轮轴, 高硬度零件	
BN-H21 C25	淬硬钢	精加工	轴承、齿轮、齿轮轴、模具等	

## CBN 刀具推荐切削参数 CBN Cutting Parameters for Reference

加工材料 Machining Materials	加工工序 Process	切削参数			推荐刀具牌号 Recommend CBN Grade
		切削速度 Cutting Condition VC (m/min)	吃刀深度 Cutting Depth ap (mm)	进给量 Feed Rate Fr (mm/r)	
高硬度铸铁 (硬度 Hardness: HRC35-68) High Hardness Cast Iron	粗加工 Roughing	35-120	1-10	0.15-1.0	BN-K1
	精加工 Finishing	60-200	≤1	0.05-0.35	BN-K10, BN-H10
硬钢 (硬度 hardness≥HRC45) Hardened Steel	粗加工 Roughing	50-150	1-10	0.1-0.5	BN-S10, BN-S20
	精加工 Finishing	90-250	≤1	0.05-0.35	BN-H05, BN-H10 BN-H21, BN-H20 BN-H11, BN-S200
灰铸铁 Gray Cast Iron	粗加工 Roughing	400-1200	1-10	0.2-1.0	BN-S30, BN-S300
	精加工 Finishing	600-2000	≤1	0.05-0.3	BNK30, BN-K10, BN-K20







## CBN Grade and Application

Insert Grade	Suited Materials	Machining Type	Typical Application	Insert Image	
BN-K1	Chilled Cast Iron, Hi-Ni-Cr Cast Iron and High harness alloy cast iron	Roughing	Alloy Cast Iron, Slurry Pump, Wear resistant castings	 <p>Solid PCBN</p>	
BN-S10	High Speed Steel	Roughing	HSS Rolls		
BN-S20	Hardened Steel, Heat and abrasive resistant steel, High manganese steel	Roughing, Semi-Finishing	HSS Rolls, Ball Screw, Wind Power Bearings		
BN-S200	Hardened Steel, Superalloy	Finishing	Wind Power Bearings		
BN-S300	Gray Cast Iron	Roughing, Finishing	Brake Disc, Cast Iron Engine, Gearbox, Cylinder Liner		
BDN80	Ni-based alloy, Stellite Alloy, Superalloy	Roughing, Finishing	Aircraft turbine disk, Ni based alloy parts		
BN-H11	Hardened Steel	Semi-Finishing, Finishing	Bearings, Gears, Gear Shaft, Hardened Mold		 <p>Brazing PCBN</p>
BN-H20	Hardened steel, other materials of difficult to machine	Semi-Finishing, Finishing	Hardened Steel Gears, Mold, ect		
BN-K20	Gray Cast Iron	Semi-Finishing, Finishing	Brake Disc, Cast Iron Engine, Gearbox		
BNK30	Gray cast iron, Iron based alloy	Semi-Finishing, Finishing	Brake Disc, Brake Drum, Cast Iron Engine, Gearbox		
BN-H05	Hardened Steel	Finishing	Gears, Gear Shaft, Bearings		
BN-H10	Hardened Steel, high strength cast iron	Finishing	Bearings, Gears, Gear Shaft, High hardness component	 <p>PCBN</p>	
BN-K50	Powder Metallurgy	Finishing	Powder Metallurgy Valve seat		
BN-H21	Hardened Steel	Finishing	Bearings, Gears, Gear Shaft, Mold, ect.		
BN-K10	Gray Cast Iron, Powder Metallurgy	Finishing	Valve seat ring; Engine cylinder bore; Powder Metallurgy parts		
BN-H05 C25	Hardened Steel	Finishing	Bearings, Gears, Gear Shaft, Mold, ect	 <p>Coating PCBN</p>	
BN-H10 C25	Hardened Steel	Finishing	Bearings, Gears, Gear Shaft, High hardness components		
BN-H21 C25	Hardened Steel	Finishing	Bearings, Gears, Gear Shaft, Mold, ect		

## CBN 刀具材质性能 CBN Characteristics

刀具牌号 CBN Grade	结合剂 Binder	CBN 含量 CBN Content (%)	粒度 Granularity (μm)	硬度 Hardness (HV)
BN-K1	TIC	90	8-12	3000-3250
BN-S10	AL, TiN	80	4-10	3100-3300
BN-S20	TiN	76	4-6	2900-3100
BN-S200	TiN	60	2-4	2800-3000
BN-S30	TIC	85	8-12	3100-3300
BN-S300	AL, TIC	97	4-6	3400-3600
BN-H11	TiN	70	2-4	2800-3000
BN-H20	TIC	80	2-4	3100-3300
BN-H05	TiN	45	≤ 1	2700-2800
BN-H10	TiN	50	≤ 1	2700-2800
BN-H21	AL, TiNC	60	1-2	2600-2800
BN-K10	Ti, Co	95	≤ 2	3300-3500
BN-K50	Co	85	≤ 2	3300-3500
BN-K20	TIC	95	2-4	3400-3600
BNK30	Si, TIC	97	2-4	3400-3600

## CBN 刀具可承受切削状态 CBN Cutting Conditions

CBN 含量等级 CBN Content	特性方向 Characteristics	刀具牌号 Halnn CBN	承受吃刀深度 Cutting Depth	推荐切削状态 Condition
高含量 High Content	韧性 Toughness (粗加工)(Roughing)  硬度 Hardness (精加工)(Finishing)	BN-K1	1-10mm	断续 - 连续 Interrupt-Continuous
		BN-S30	1-10mm	中等断续 Semi-Interrupt
		BN-S300	≤ 2mm	连续切削 Continuous
		BNK30	≤ 1.5mm	连续切削 Continuous
		BN-K50	≤ 0.5mm	连续切削 Continuous
		BN-K10	≤ 0.5mm	连续切削 Continuous
低含量 Low Content	韧性 Toughness (粗加工)(Roughing)  硬度 Hardness (精加工)(Finishing)	BN-S20	1-10mm	断续 - 连续 Continuous-Interrupt
		BN-H20	≤ 1mm	中等断续 Semi-Interrupt
		BN-S200	≤ 1mm	连续切削 Continuous
	硬度 Hardness  韧性 Toughness	BN-H11	≤ 1mm	连续切削 Continuous
		BN-H05	≤ 0.2mm	连续切削 Continuous
		BN-H10	≤ 0.5mm	连续 - 中断续 Continuous-Semi- Interrupt
	韧性 Toughness  硬度 Hardness	BN-H21	≤ 0.5mm	中断续 - 强断续 Semi-Interrupt - Heavy Interrupt
		BN-H05 C25	≤ 0.2mm	连续切削 Continuous
		BN-H10 C25	≤ 0.5mm	连续 - 中断续 Continuous-Semi- Interrupt
BN-H21 C25	≤ 0.5mm	中断续 - 强断续 Semi-Interrupt - Heavy Interrupt		

# CBN刀片型号表示规则 Naming Standard

形状代号 Shape code	刀片 Inserts	刀片形状 Shape	角度 Angle
S		正方形 square	90°
T		正三角形 regular triangle	60°
C		菱形 (宝石形) rhombus	80°
D			55°
E			75°
M			86°
V			35°
W		凸三角形 chimb triangle	80°
H		正六边形 regular hexagon	120°
O		正八边形 regular octagon	135°
P		正五边形 regular pentagon	108°
L		正方形 rectangle	90°
A		平行四边形 parallelogram	85°
B			82°
N/K			55°
R		圆形 round	-

刀片形状 Insert shape

变数为偶数 Foreven edge		变数为奇数 Forodd edge		带修光刃刀片 For cutting tools with wiper			
代号 code	刀尖高度m 公差(mm)	内接圆φLC 公差(mm)	厚度S 公差(mm)	代号 code	刀尖高度m 公差(mm)	内接圆φLC 公差(mm)	厚度S 公差(mm)
A	±0.005	±0.025	±0.025	J	±0.005	±0.05-±0.13	±0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05-±0.13	±0.025
C	±0.013	±0.025	±0.025	L	±0.025	±0.05-±0.13	±0.025
H	±0.013	±0.013	±0.025	M	±0.08-±0.18	±0.05-±0.13	±0.13
E	±0.025	±0.025	±0.025	N	±0.08-±0.18	±0.05-±0.13	±0.025
G	±0.025	±0.025	±0.013	U	±0.08-±0.18	±0.05-±0.13	±0.13

精度等级 Tolerance

整体聚晶CBN刀片

R C M X

焊接复合CBN刀片

C N G A

刀片法后角 Insert side clearance angle	
代号 Code	法后角 Clearance angle
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°

断屑槽及夹固形式 Chip breaker and fixing form							
代号 Code	有无孔及孔形 With or without hole	断屑槽 Chip breaker	示意图 Sketch	代号 Code	有无孔及孔形 With or without hole	断屑槽 Chip breaker	示意图 Sketch
N	无 without	无断屑槽 without		B	单面有70°-90°沉孔 70°-90° couter bore on single side	无断屑槽 without	
R		单面有断屑槽 single side with chip breaker		H		单面有断屑槽 single side with chip breaker	
F		双面有断屑槽 both side with chip breaker		J	双面有70°-90°沉孔 70°-90° couter bore on both side	无断屑槽 without	
A	无断屑槽 without		O	双面有断屑槽 both side with chip breaker			
M	圆形直孔 round straight hole	单面有断屑槽 single side with chip breaker		O	凹坑 concave	圆形 round	
G		双面有断屑槽 both side with chip breaker		S		方形 square	
W	单面有40°-60°沉孔 on single side	无断屑槽 without		L		长条形 long strip	
T	40°-60°沉孔 on single side	单面有断屑槽 single side with chip breaker					
Q	双面有40°-60°沉孔 on both side	无断屑槽 without					
U		双面有断屑槽 both side with chip breaker					
				X	其他固定方式和断屑槽形式,需附图或加以说明 Other fixing ou chip bresker types,the drawing and more information to be provided.		

内接圆 (mm) Inscribed circle	切削刃长度 Cutting edge length					
	C	D	S	T	V	W
3.97				06		
5.0						
5.56				09		
6.0						
6.35	06	07		11	11	
8.0						
9.525	09	11	09	16	16	06
10.0						
12.0						
12.7	12	15	12	22	22	08
15.875	16		15	27		
16.0		19				
19.05	19		19	33		
20.0						
25	25	25				
25.4			25			
31.75						
32						

刀片尺寸 Insert size

代号 code	刀尖圆弧半径(mm) corner radius Arc(mm)
00	无圆角或圆形刀片 sharp or round insert
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
X	other

刀尖圆弧代号  
Corner radius

V: 棱锥底面 V:pyramid bottom	Y: 圆锥底面 Y:Cone bottom
<p>V表示棱锥底面,135三位数字表示棱锥底135° 若棱锥角是120°,则可以空白。 例:120°棱锥底刀片型号为RCMN120700V, 也可以是RCMX120700V120 非120°棱锥角必须标出。 例:135°棱锥底刀片型号为RCMX120700V135</p> <p>V means pyramid bottom,the figures 135 means the pyramid angle is 135° It can be blank if pyramid angle is 120° For example,the model of the insert with pyramid angle is RCMX120700V It can also be written as RCMX120700V120 But it must be written out clearly if the pyramid angle is not 120° For example,the model of the insert with 135 pyramid angle is RCMX120700V135</p>	<p>Y表示圆锥底面,135三位数字表示圆锥底135° 若圆锥角是120°,则可以空白。 例:120°圆锥底刀片型号为RCMN120700Y, 也可以是RCMX120700Y120 非120°圆锥角必须标出。 例:135°圆锥底刀片型号为RCMX120700Y135</p> <p>Y means cone bottom,the figures 135 means the cone angle is 135° It can be blank if cone angle is 120° For example,the model of the insert with cone angle is RCMX120700Y It can also be written as RCMX120700Y120 But it must be written out clearly if the cone angle is not 120° For example,the model of the insert with 135 cone angle is RCMX120700Y135</p>

棱锥或圆锥底面 Pyramid cone bottom

09 07 00 T02020 Y135  
12 04 08 T 020 20 -2S

刀片厚度(mm) Thickness(mm)			
代号 Code	刀片厚度 Thickness (mm)	代号 Code	刀片厚度 Thickness (mm)
01	1.59	06	6.35
T1	1.98	07	7.94
02	2.38	08	8.0
T2	2.58	09	9.525
03	3.18	10	10.0
T3	3.97	11	11.11
04	4.76	12	12.0
05	5.56	12	12.7

刃口形式 Cutting Edge Form		
代号 Code	刃口形式 Cutting edge form	图形 Drawing
F	锋利刃口 Sharp cutting edge	
E	钝化 Honing by er cutting edge condition	
T	倒棱 The negative land cutting edge condition	
S	倒棱+钝化 The negative land and honing cutting edge condition	

倒棱宽度 (mm) chamfer width(mm)	
代号 Code	尺寸 Dimension
010	0.10
015	0.15
020	0.20
025	0.25
030	0.30
050	0.50
100	1.00
200	2.00

倒棱角度 chamfer angle(mm)	
代号 Code	角度 Angle
05	5°
10	10°
15	15°
20	20°
25	25°
30	30°

刃口数量 Cutting edge qty	
代号 Code	数量 Qty
1S	1
2S	2
3S	3
4S	4
6S	6
8S	8

刃部处理 Cutting Edge Treatment

1、断屑槽刀片 CBN Inserts with Chipbreaker

优异的断屑性能，避免切屑缠绕工件或刀具，保证良好的工件表面质量。

Excellent chip breaking performance, avoid chip winding the workpiece or the tool, ensuring good surface quality .



(不带断屑槽)  
Chipbreaker

(带断屑槽)  
With Chipbreaker

2、修光刃刀片 CBN Insert with Wiper

同等进给量，获得更高的表面质量；

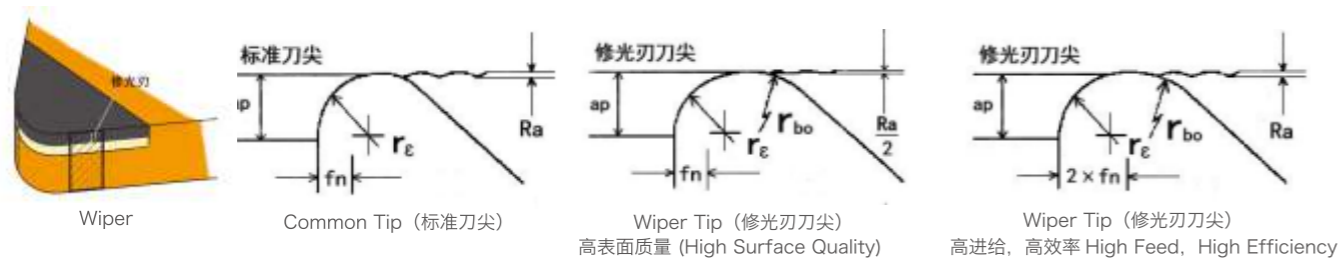
With same feed, obtain higher surface quality.

同等表面粗糙度，可采用大的进给量，提高加工效率；

With same roughness, can be used for large feed, improve the process efficiency.

注：仿形加工中不宜选用；适于高刚性的机床和加工件

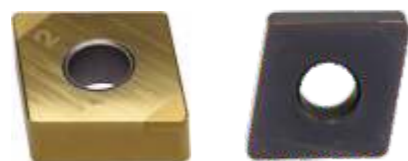
Note: It can be used for Profile machining, suit for the CNC Lathe with high rigidity.



3、涂层刀片 Coating CBN

平滑涂层与 CBN 母材完美结合，可获得更优异的切削性能，提高加工精度和寿命。


The perfect combination of smooth coating and CBN base can achieve better cutting performance and improve machining accuracy and life.




型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S10	BN-S20	BNK30	BN-S300	
SNMN090304	9.525	9.525	3.18	0.4	S01020 S01025 S02020 S02030 S05020 S10020		○	●	●	●	CSDNN CSSNR/L CSKNR/L CSRNR/L CSXNR/L
SNMN090308	9.525	9.525	3.18	0.8			○	●	●	●	
SNMN090312	9.525	9.525	3.18	1.2			○	●	●	●	
SNMN090404	9.525	9.525	4.76	0.4			○	●	●	●	
SNMN090408	9.525	9.525	4.76	0.8			○	●	●	●	
SNMN090412	9.525	9.525	4.76	1.2			○	●	●	●	
SNMN120404	12.7	12.7	4.76	0.4		●	●	●	●	●	
SNMN120408	12.7	12.7	4.76	0.8		●	●	●	●	●	
SNMN120412	12.7	12.7	4.76	1.2		●	●	●	●	●	
SNMN120712	12.7	12.7	7.94	1.2		●	●	●	●	●	
SNMN120716	12.7	12.7	7.94	1.6		●	●	●	●	●	
SNMN150716	15.875	15.875	7.94	1.6		●	●	●			
SNMN201020	20	20	10	2.0		●	●				

型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300	BNK30	
CNMN090404	9.7	9.525	4.76	0.4	S01020 S01025 S02020 S02030 S02530 S03020		○	○	○	○	CCLNR/L
CNMN090408	9.7	9.525	4.76	0.8			○	○	○	○	
CNMN090412	9.7	9.525	4.76	1.2			○	○	○	○	
CNMN120404	12.9	12.7	4.76	0.4		●	●	●	●	●	
CNMN120408	12.9	12.7	4.76	0.8		●	●	●	●	●	
CNMN120412	12.9	12.7	4.76	1.2		●	●	●	●	●	
CNMN120416	12.9	12.7	4.76	1.6		●	●	●	●	●	
CNMN120704	12.9	12.7	7.94	0.4		●	●	●	●	●	
CNMN120708	12.9	12.7	7.94	0.8		●	●	●	●	●	
CNMN120712	12.9	12.7	7.94	1.2		●	●	●	●	●	
CNMN120716	12.9	12.7	7.94	1.6		●	●	●	●	●	






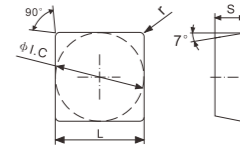
型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S10	BN-S20	BN-S200	BN-S300	
RNMN060400		6.35	4.76		S01020 S01025 S02020 S02030 S05020 S10020		○	○	○	○	CRG NR/L CRDNN
RNMN090300		9.525	3.18			○	○	●	●	●	
RNMN090400		9.525	4.76			●	●	●	●	●	
RNMN090700		9.525	7.94			●	●	●	●	●	
RNMN120400		12.7	4.76			●	●	●	●	●	
RNMN120600		12.7	6.35			●	●	●	●	●	
RNMN120700		12.7	7.94			●	●	●	●	●	
RNMN150700		15.875	7.94			●	●	●			
RNMN200800		20	8			●	●	●			
RNMN201000		20	10			●	●	●			
RNMN251000		25.4	10			●	●	●			
RNMN251200		25.4	12			●	●	●			




型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-S10	BN-S20	BN-S200	BN-S300	BNK30	
WNMN080404	8.7	12.7	4.76	0.4	S01015 S01020 S02020 S02025	●	●	●	●	●	CWLNR/L
WNMN080408	8.7	12.7	4.76	0.8		●	●	●	●	●	
WNMN080412	8.7	12.7	4.76	1.2		●	●	●	●	●	
WNMN080604	8.7	12.7	6.35	0.4		●	●	●	●	●	
WNMN080608	8.7	12.7	6.35	0.8		●	●	●	●	●	
WNMN080612	8.7	12.7	6.35	1.2		●	●	●	●	●	




型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S10	BN-S20	BNK30	BN-S300	
TNMN110304	11	6.35	3.18	0.4	S01020 S02020	○	○	○	○	○	
TNMN110308	11	6.35	3.18	0.8		○	○	○	○	○	
TNMN110312	11	6.35	3.18	1.2		○	○	○	○	○	
TNMN160404	16.5	9.525	4.76	0.4		○	○	○	○	○	
TNMN160408	16.5	9.525	4.76	0.8		○	○	○	○	○	
TNMN160412	16.5	9.525	4.76	1.2		○	○	○	○	○	




型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S10	BN-S20	BNK30	BN-S300	
SCGN090304	9.525	9.525	3.18	0.4	S01020 S02020	○	●	○	●	●	
SCGN090308	9.525	9.525	3.18	0.8		○	●	○	●	●	
SCGN090312	9.525	9.525	3.18	1.2		○	●	○	●	●	
SCGN090404	9.525	9.525	4.76	0.4		○	●	○	●	●	
SCGN090408	9.525	9.525	4.76	0.8		○	●	○	●	●	
SCGN090412	9.525	9.525	4.76	1.2		○	●	○	●	●	




型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300	BNK30	
DNMN110404	11.6	9.525	4.76	0.4	S01015 S01020 S02020 S02025	●	●	●	●	●	CDLNR/L
DNMN110408	11.6	9.525	4.76	0.8		●	●	●	●	●	
DNMN110412	11.6	9.525	4.76	1.2		●	●	●	●	●	




型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S10	BN-S20	BN-S200	BN-S300	
RCMN060400		6.35	4.76		S01020 S02020 S05020 S10020	●	●	●	○	●	CRDCN
RCMN090400		9.525	4.76			●	●	●	○	●	
RCMN090700		9.525	7.94			●	●	●	○	●	
RCMN120700		12.7	7.94			●	●	●	○	●	
RCMN150700		15.875	7.94			●	●	●	○	●	
RCMN190700		19.05	7.94			●	●	●	○	●	




型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300	BN-S10	
RCMX060400Y		6.35	4.76		S01020 S02020 S03020 S05020 S10020 S20020	●	●	○	●	●	CRDCN
RCMX060500Y		6.35	5.56			●	●	○	●	●	
RCMX060600Y		6.35	6.35			●	●	○	●	●	
RCMX060700Y		6.35	7.94			●	●	○	●	●	
RCMX090700Y		9.525	7.94			●	●	○	●	●	
RCMX120700Y		12.7	7.94			●	●	○	●	●	
RCMX151000Y		15.875	10			○	○	○	○	○	
RCMX191000Y		19.05	10			○	○	○	○	○	
RCMX201200Y		20	12			○	○	○	○	○	
RCMX251200Y		25.4	12			○	○	○	○	○	




型号 Type	尺寸参数 Dimension ( mm )					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	φ d	S	r		BNK30	BN-S300	BN-S20	BN-S200
CNGA120404	12.9	12.7	5.16	4.76	0.4	S01020 S01025 S02020 S02030 S02530 S03020	●	●	●	●
CNGA120408	12.9	12.7	5.16	4.76	0.8		●	●	●	●
CNGA120412	12.9	12.7	5.16	4.76	1.2		●	●	●	●
CNGA120416	12.9	12.7	5.16	4.76	1.6		●	●	●	●
							●	●	●	●




型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades					配套刀杆 Corresponding tool holder
	L	φ I.C	S	b		BN-K1	BN-S20	BN-S200	BN-S300	BN-S10	
RCMX060400V		6.35	4.76	0.8	S01020 S02020 S03020 S05020 S10020 S20020	●	●	○	●	●	CRDCN
RCMX060500V		6.35	5.56	0.8		●	●	○	●	●	
RCMX060600V		6.35	6.35	0.8		●	●	○	●	●	
RCMX090700V		9.525	7.94	1		●	●	○	●	●	
RCMX120700V		12.7	7.94	2		●	●	○	●	●	
RCMX151000V		15.875	10	2		●	●	○	○	●	
RCMX191000V		19.05	10	2		●	●	○	○	●	
RCMX201200V		20	12	2		●	●	○	○	●	
RCMX251200V		25.4	12	2		●	●	○	○	●	




型号 Type	尺寸参数 Dimension ( mm )					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	φ d	S	r		BNK30	BN-S300	BN-S20	BN-S200
TNGA110304	11	6.35	2.3	3.18	0.4	S01020 S02020	●	●	●	●
TNGA110308	11	6.35	2.3	3.18	0.8		●	●	●	●
TNGA160404	16.5	9.525	3.8	4.76	0.4		●	●	●	●
TNGA160408	16.5	9.525	3.8	4.76	0.8		●	●	●	●




型号 Type	尺寸参数 Dimension ( mm )					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	φ d	S	r		BNK30	BN-S300	BN-S20	BN-S200
WNGA080404	8.7	12.7	5.16	4.76	0.4	S01015 S01020 S02020 S02025	●	●	●	●
WNGA080408	8.7	12.7	5.16	4.76	0.8		●	●	●	●
WNGA080412	8.7	12.7	5.16	4.76	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension ( mm )					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	φ d	S	r		BNK30	BN-S300	BN-S20	BN-S200
SNGA120404	12.7	12.7	5.16	4.76	0.4	S01020 S02020 S03020 S05020 S10020 S20020	●	●	○	●
SNGA120408	12.7	12.7	5.16	4.76	0.8		●	●	○	●
SNGA120412	12.7	12.7	5.16	4.76	1.2		●	●	○	●




型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	r		BNK30	BN-S300	BN-S20	BN-S200
CNMO120704	12.9	12.7	7.94	0.4	S02020		●		
CNMO120708	12.9	12.7	7.94	0.8			●		
CNMO120712	12.9	12.7	7.94	1.2			●		



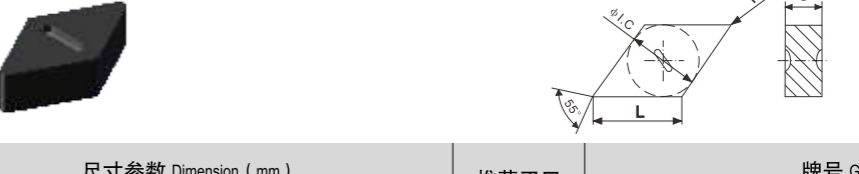
型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300
CNML120708	12.9	12.7	7.94	0.8	S01020 S02020	●	●	●	●
CNML120712	12.9	12.7	7.94	1.2		●	●	●	●
CNML120716	12.9	12.7	7.94	1.6		●	●	●	●




型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300
TNMO160604	16.5	9.525	6.35	0.4	S01020 S02020	●	●	●	●
TNMO160608	16.5	9.525	6.35	0.8		●	●	●	●
TNMO160612	16.5	9.525	6.35	1.2		●	●	●	●



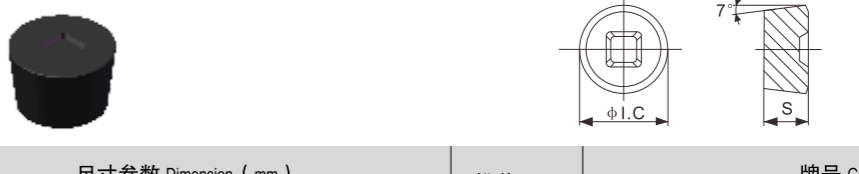
型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300
RNMS090600		9.525	6.35		S02020	●			
RNMS120700		12.7	7.94			●			
RNMS150700		15.875	7.94			●			
RNMS201000		20	10			●			



型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300
DNML110604	11.6	9.525	6.35	0.4	S01020 S02020	●	●	●	●
DNML110608	11.6	9.525	6.35	0.8		●	●	●	●
DNML110612	11.6	9.525	6.35	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300
RCMO090600		9.525	6.35		S02020	●	●	●	●
RCMO120700		12.7	7.94			●	●	●	●
RCMO150700		15.875	7.94			●	●	●	●
RCMO201000		20	10			●	●	●	●




型号 Type	尺寸参数 Dimension ( mm )				推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	r		BN-K1	BN-S20	BN-S200	BN-S300
RCMS090600		9.525	6.35		S02020	●	●	●	●
RCMS120700		12.7	7.94			●	●	●	●
RCMS150700		15.875	7.94			●	●	●	●
RCMS201000		20	10			●	●	●	●

●表示推荐选择 Priority choice  
○表示可选 Optional  
备注：刃口形式可根据客户需求定制  
Note: Chamfer can be customized.







型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
CNGA120404-4S	12.9	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020	●	●	●	●
CNGA120408-4S	12.9	12.7	4.76	5.16	0.8		●	●	●	●
CNGA120412-4S	12.9	12.7	4.76	5.16	1.2		●	●	●	●
CNGA120416-4S	12.9	12.7	4.76	5.16	1.6		●	●	●	●
CNGA160404-4S	16.1	15.875	4.76	6.35	0.4		○	○	○	○
CNGA160408-4S	16.1	15.875	4.76	6.35	0.8		○	○	○	○
CNGA160412-4S	16.1	15.875	4.76	6.35	1.2		○	○	○	○




型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
TNGA160404-6S	16.5	9.525	4.76	3.81	0.4	S01015 S01020 S01025 S02020	●	●	●	●
TNGA160408-6S	16.5	9.525	4.76	3.81	0.8		●	●	●	●
TNGA160412-6S	16.5	9.525	4.76	3.81	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
DNGA150404-4S	15.5	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020	●	●	●	●
DNGA150408-4S	15.5	12.7	4.76	5.16	0.8		●	●	●	●
DNGA150412-4S	15.5	12.7	4.76	5.16	1.2		●	●	●	●
DNGA150604-4S	15.5	12.7	6.35	5.16	0.4		●	●	●	●
DNGA150608-4S	15.5	12.7	6.35	5.16	0.8		●	●	●	●
DNGA150612-4S	15.5	12.7	6.35	5.16	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
WNGA080404-6S	8.7	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020	●	●	●	●
WNGA080408-6S	8.7	12.7	4.76	5.16	0.8		●	●	●	●
WNGA080412-6S	8.7	12.7	4.76	5.16	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
VNGA160404-4S	16.6	9.525	4.76	3.81	0.4	S01015 S01020 S01025 S02020	●	●	●	●
VNGA160408-4S	16.6	9.525	4.76	3.81	0.8		●	●	●	●
VNGA160412-4S	16.6	9.525	4.76	3.81	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
CCGW09T304-2S	9.7	9.525	3.97	4.4	0.4	S01015 S01020 S01025 S02020	●	●	●	●
CCGW09T308-2S	9.7	9.525	3.97	4.4	0.8		●	●	●	●
CCGW09T312-2S	9.7	9.525	3.97	4.4	1.2		●	●	●	●
CCGW120404-2S	12.9	12.7	4.76	5.5	0.4		●	●	●	●
CCGW120408-2S	12.9	12.7	4.76	5.5	0.8		●	●	●	●
CCGW120412-2S	12.9	12.7	4.76	5.5	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
SNGA120404-8S	12.7	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020	●	●	●	●
SNGA120408-8S	12.7	12.7	4.76	5.16	0.8		●	●	●	●
SNGA120412-8S	12.7	12.7	4.76	5.16	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
VCGW160404-2S	16.6	9.525	4.76	4.4	0.4	S01015 S01020 S01025 S02020	●	●	●	●
VCGW160408-2S	16.6	9.525	4.76	4.4	0.8		●	●	●	●
VCGW160412-2S	16.6	9.525	4.76	4.4	1.2		●	●	●	●



型号 Type	尺寸参数 Dimension ( mm )					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
CNGA120404-2S	12.9	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
CNGA120408-2S	12.9	12.7	4.76	5.16	0.8		●	●	●	●	○	●	○
CNGA120412-2S	12.9	12.7	4.76	5.16	1.2		●	●	●	●	○	●	○
CNGA120416-2S	12.9	12.7	4.76	5.16	1.6		●	●	●	●	○	●	○



型号 Type	尺寸参数 Dimension(mm)					推荐刃口 Standard Chamfer	牌号 Grades			
	L	φ I.C	S	φ d	r		BN-H11	BN-H20	BN-K20	BNK30
TCGW110304-3S	11	6.35	3.18	2.8	0.4	S01015 S01020 S01025 S02020	●	●	●	●
TCGW110308-3S	11	6.35	3.18	2.8	0.8		●	●	●	●
TCGW110312-3S	11	6.35	3.18	2.8	1.2		●	●	●	●




型号 Type	尺寸参数 Dimension ( mm )					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
CNGA120404-4S	12.9	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	○	○	○	○	●	●	●
CNGA120408-4S	12.9	12.7	4.76	5.16	0.8		○	○	○	○	●	●	●
CNGA120412-4S	12.9	12.7	4.76	5.16	1.2		○	○	○	○	●	●	●
CNGA120416-4S	12.9	12.7	4.76	5.16	1.6		○	○	○	○	●	●	●

●表示推荐选择 Priority choice


○表示可选 Optional

备注：刃口形式可根据客户需求定制


Note: Chamfer can be customized.




型号 Type	尺寸参数 Dimension ( mm )					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
TNGA160402-3S	16.5	9.525	4.76	3.81	0.2	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
TNGA160404-3S	16.5	9.525	4.76	3.81	0.4		●	●	●	●	○	●	○
TNGA160408-3S	16.5	9.525	4.76	3.81	0.8		●	●	●	●	○	●	○
TNGA160412-3S	16.5	9.525	4.76	3.81	1.2		●	●	●	●	○	●	○




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	ϕ I.C	S	ϕ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
TNGA160402-6S	16.5	9.525	4.76	3.81	0.2	S01015 S01020 S01025 S02020 S02025	○	○	○	○	●	●	●
TNGA160404-6S	16.5	9.525	4.76	3.81	0.4		○	○	○	○	●	●	●
TNGA160408-6S	16.5	9.525	4.76	3.81	0.8		○	○	○	○	●	●	●
TNGA160412-6S	16.5	9.525	4.76	3.81	1.2		○	○	○	○	●	●	●




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	ϕ I.C	S	ϕ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
DNGA150404-2S	15.5	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
DNGA150408-2S	15.5	12.7	4.76	5.16	0.8		●	●	●	●	○	●	○
DNGA150412-2S	15.5	12.7	4.76	5.16	1.2		●	●	●	●	○	●	○
DNGA150604-2S	15.5	12.7	6.35	5.16	0.4		●	●	●	●	○	●	○
DNGA150608-2S	15.5	12.7	6.35	5.16	0.8		●	●	●	●	○	●	○
DNGA150612-2S	15.5	12.7	6.35	5.16	1.2		●	●	●	●	○	●	○




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	ϕ I.C	S	ϕ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
SNGA120404-2S	12.7	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
SNGA120408-2S	12.7	12.7	4.76	5.16	0.8		●	●	●	●	○	●	○
SNGA120412-2S	12.7	12.7	4.76	5.16	1.2		●	●	●	●	○	●	○



型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	ϕ I.C	S	ϕ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
DNGA150404-4S	15.5	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	○	○	○	○	●	●	●
DNGA150408-4S	15.5	12.7	4.76	5.16	0.8		○	○	○	○	●	●	●
DNGA150412-4S	15.5	12.7	4.76	5.16	1.2		○	○	○	○	●	●	●
DNGA150604-4S	15.5	12.7	6.35	5.16	0.4		○	○	○	○	●	●	●
DNGA150608-4S	15.5	12.7	6.35	5.16	0.8		○	○	○	○	●	●	●
DNGA150612-4S	15.5	12.7	6.35	5.16	1.2		○	○	○	○	●	●	●




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	ϕ I.C	S	ϕ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
SNGA120404-4S	12.7	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	○	○	○	○	●	●	●
SNGA120408-4S	12.7	12.7	4.76	5.16	0.8		○	○	○	○	●	●	●
SNGA120412-4S	12.7	12.7	4.76	5.16	1.2		○	○	○	○	●	●	●




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	ϕ I.C	S	ϕ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
WNGA080404-3S	8.7	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	○	○	○	○	●	●	●
WNGA080408-3S	8.7	12.7	4.76	5.16	0.8		○	○	○	○	●	●	●
WNGA080412-3S	8.7	12.7	4.76	5.16	1.2		○	○	○	○	●	●	●






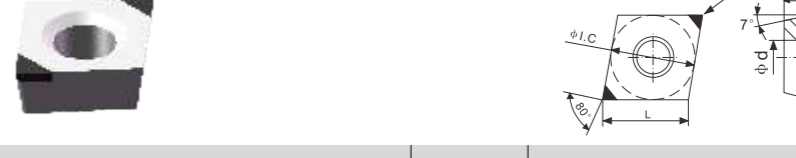
型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
WNGA080404-6S	8.7	12.7	4.76	5.16	0.4	S01015 S01020 S01025 S02020 S02025	○	○	○	○	●	●	●
WNGA080408-6S	8.7	12.7	4.76	5.16	0.8		○	○	○	○	●	●	●
WNGA080412-6S	8.7	12.7	4.76	5.16	1.2		○	○	○	○	●	●	●




型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades		
	L	φ I.C	S	r		BN-H05	BN-H10	BN-H21
TPGN110302-1S	11	6.35	3.18	0.2	S01015 S01020 S01025 S02020 S02025	○	○	●
TPGN110304-1S	11	6.35	3.18	0.4		○	○	●
TPGN110308-1S	11	6.35	3.18	0.8		○	○	●
TPGN160302-1S	16.5	9.525	3.18	0.2		○	○	●
TPGN160304-1S	16.5	9.525	3.18	0.4		○	○	●
TPGN160308-1S	16.5	9.525	3.18	0.8		○	○	●
TPGN160312-1S	16.5	9.525	3.18	1.2		○	○	●



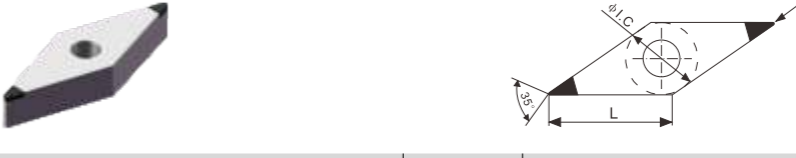
型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades				
	L	φ I.C	S	φ d	r		H05	H10	H21	K50	K10
DCGW070202-1S	7.7	6.35	2.38	2.8	0.2	S01015 S01020 S01025 S02020 S02025	●	●	●	●	●
DCGW070204-1S	7.7	6.35	2.38	2.8	0.4		●	●	●	●	●
DCGW070208-1S	7.7	6.35	2.38	2.8	0.8		●	●	●	●	●
DCGW11T302-1S	11.6	9.525	3.97	4.4	0.2		●	●	●	●	●
DCGW11T304-1S	11.6	9.525	3.97	4.4	0.4		●	●	●	●	●
DCGW11T308-1S	11.6	9.525	3.97	4.4	0.8		●	●	●	●	●




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
CCGW060202-2S	6.4	6.35	2.38	2.8	0.2	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
CCGW060204-2S	6.4	6.35	2.38	2.8	0.4		●	●	●	●	○	●	○
CCGW060208-2S	6.4	6.35	2.38	2.8	0.8		●	●	●	●	○	●	○
CCGW09T302-2S	9.7	9.525	3.97	4.4	0.2		●	●	●	●	○	●	○
CCGW09T304-2S	9.7	9.525	3.97	4.4	0.4		●	●	●	●	○	●	○
CCGW09T308-2S	9.7	9.525	3.97	4.4	0.8		●	●	●	●	○	●	○
CCGW120404-2S	12.9	12.7	4.76	5.5	0.4		○	○	○	○	○	○	○
CCGW120408-2S	12.9	12.7	4.76	5.5	0.8		○	○	○	○	○	○	○
CCGW120412-2S	12.9	12.7	4.76	5.5	1.2		○	○	○	○	○	○	○




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades							
	L	φ I.C	S	φ d	r		H05	H10	H21	K50	K10	H05 C25	H10 C25	H21 C25
DCGW070202-2S	7.7	6.35	2.38	2.8	0.2	S01015 S01020 S01025 S02020 S02025	●	●	●	●	●	○	●	○
DCGW070204-2S	7.7	6.35	2.38	2.8	0.4		●	●	●	●	●	○	●	○
DCGW070208-2S	7.7	6.35	2.38	2.8	0.8		●	●	●	●	●	○	●	○
DCGW11T302-2S	11.6	9.525	3.97	4.4	0.2		●	●	●	●	●	○	●	○
DCGW11T304-2S	11.6	9.525	3.97	4.4	0.4		●	●	●	●	●	○	●	○
DCGW11T308-2S	11.6	9.525	3.97	4.4	0.8		●	●	●	●	●	○	●	○




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
VNGA160402-2S	16.6	9.525	4.76	3.81	0.2	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
VNGA160404-2S	16.6	9.525	4.76	3.81	0.4		●	●	●	●	○	●	○
VNGA160408-2S	16.6	9.525	4.76	3.81	0.8		●	●	●	●	○	●	○
VNGA160412-2S	16.6	9.525	4.76	3.81	1.2		●	●	●	●	○	●	○




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
VNGA160402-4S	16.6	9.525	4.76	3.81	0.2	S01015 S01020 S01025 S02020 S02025	○	○	○	○	●	●	●
VNGA160404-4S	16.6	9.525	4.76	3.81	0.4		○	○	○	○	●	●	●
VNGA160408-4S	16.6	9.525	4.76	3.81	0.8		○	○	○	○	●	●	●
VNGA160412-4S	16.6	9.525	4.76	3.81	1.2		○	○	○	○	●	●	●




型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
TCGW090204-3S	9.6	5.56	2.38	2.5	0.4	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
TCGW090208-3S	9.6	5.56	2.38	2.5	0.8		●	●	●	●	○	●	○
TCGW110202-3S	11	6.35	2.38	2.8	0.2		●	●	●	●	○	●	○
TCGW110204-3S	11	6.35	2.38	2.8	0.4		●	●	●	●	○	●	○
TCGW110208-3S	11	6.35	2.38	2.8	0.8		●	●	●	●	○	●	○
TCGW16T304-3S	16.5	9.525	3.97	4.4	0.4		●	●	●	●	○	●	○
TCGW16T308-3S	16.5	9.525	3.97	4.4	0.8		●	●	●	●	○	●	○



型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
VBGW110302-2S	11.1	6.35	3.18	2.8	0.2	S01015 S01020 S01025 S02020 S02025	●	●	●	●	○	●	○
VBGW110304-2S	11.1	6.35	3.18	2.8	0.4		●	●	●	●	○	●	○
VBGW110308-2S	11.1	6.35	3.18	2.8	0.8		●	●	●	●	○	●	○
VBGW160402-2S	16.6	9.525	4.76	4.4	0.2		●	●	●	●	○	●	○
VBGW160404-2S	16.6	9.525	4.76	4.4	0.4		●	●	●	●	○	●	○
VBGW160408-2S	16.6	9.525	4.76	4.4	0.8		●	●	●	●	○	●	○



型号 Type	尺寸参数 Dimension (mm)				推荐刃口 Standard Chamfer	牌号 Grades		
	L	φ I.C	S	r		BN-H05	BN-H10	BN-H21
SPGN090304-1S	9.525	9.525	3.18	0.4	S01015 S01020 S01025 S02020 S02025	○	○	●
SPGN090308-1S	9.525	9.525	3.18	0.8		○	○	●
SPGN090312-1S	9.525	9.525	3.18	1.2		○	○	●
SPGN120304-1S	12.7	12.7	3.18	0.4		○	○	●
SPGN120308-1S	12.7	12.7	3.18	0.8		○	○	●
SPGN120312-1S	12.7	12.7	3.18	1.2		○	○	●



型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
VCGW080202-2S	8.3	4.76	2.38	2.3	0.2	S01015 S01020 S01025 S02020 S02025	○	○	○	○	○	○	○
VCGW080204-2S	8.3	4.76	2.38	2.3	0.4		○	○	○	○	○	○	○
VCGW080208-2S	8.3	4.76	2.38	2.3	0.8		○	○	○	○	○	○	○
VCGW110302-2S	11.1	6.35	3.18	2.8	0.2		●	●	●	●	○	●	○
VCGW110304-2S	11.1	6.35	3.18	2.8	0.4		●	●	●	●	○	●	○
VCGW110308-2S	11.1	6.35	3.18	2.8	0.8		●	●	●	●	○	●	○
VCGW160404-2S	16.6	9.525	4.76	4.4	0.4		●	●	●	●	○	●	○
VCGW160408-2S	16.6	9.525	4.76	4.4	0.8		●	●	●	●	○	●	○
VCGW160412-2S	16.6	9.525	4.76	4.4	1.2	●	●	●	●	○	●	○	

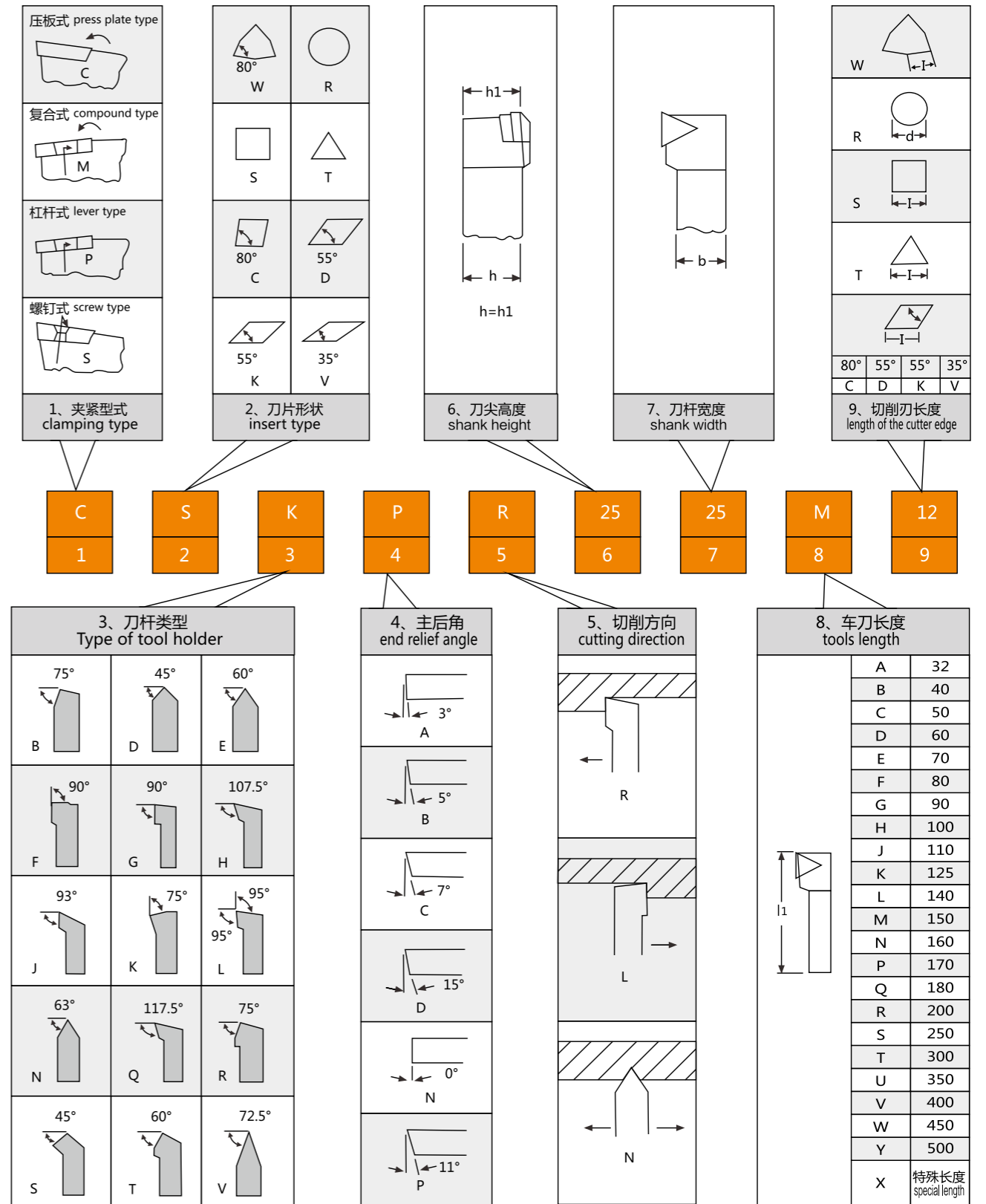
型号 Type	尺寸参数 Dimension (mm)					推荐刃口 Standard Chamfer	牌号 Grades						
	L	φ I.C	S	φ d	r		H05	H10	H21	K10	H05 C25	H10 C25	H21 C25
TPGW080202-3S	8.2	4.76	2.38	2.4	0.2	●	○	●	●	○	●	○	
TPGW080204-3S	8.2	4.76	2.38	2.4	0.4	●	○	●	●	○	●	○	
TPGW080208-3S	8.2	4.76	2.38	2.4	0.8	●	○	●	●	○	●	○	
TPGW090202-3S	9.6	5.56	2.38	2.5/2.8	0.2	●	○	●	●	○	●	○	
TPGW090204-3S	9.6	5.56	2.38	2.5/2.8	0.4	●	○	●	●	○	●	○	
TPGW090208-3S	9.6	5.56	2.38	2.5/2.8	0.8	●	○	●	●	○	●	○	
TPGW110202-3S	11	6.35	2.38	2.8	0.2	●	●	●	●	○	●	○	
TPGW110204-3S	11	6.35	2.38	2.8	0.4	●	●	●	●	○	●	○	
TPGW110208-3S	11	6.35	2.38	2.8	0.8	●	●	●	●	○	●	○	
TPGW110302-3S	11	6.35	3.18	3.4	0.2	●	●	●	●	○	●	○	
TPGW110304-3S	11	6.35	3.18	3.4	0.4	●	●	●	●	○	●	○	
TPGW110308-3S	11	6.35	3.18	3.4	0.8	●	●	●	●	○	●	○	
TPGW160302-3S	16.5	9.525	3.18	4.4	0.2	●	○	●	●	○	●	○	
TPGW160304-3S	16.5	9.525	3.18	4.4	0.4	●	○	●	●	○	●	○	
TPGW160308-3S	16.5	9.525	3.18	4.4	0.8	●	○	●	●	○	●	○	
TPGW160402-3S	16.5	9.525	4.76	4.4	0.2	●	○	●	●	○	●	○	
TPGW160404-3S	16.5	9.525	4.76	4.4	0.4	●	○	●	●	○	●	○	
TPGW160408-3S	16.5	9.525	4.76	4.4	0.8	●	○	●	●	○	●	○	


●表示推荐选择 Priority choice

○表示可选 Optional


备注：刃口形式可根据客户需求定制

Note: Chamfer can be customized.







型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CCLNR/L2020M09	20	30	20	150	CNMN09
CCLNR/L2525M12	25	30	25	150	CNMN12
CCLNR/L3232P12	32	35	32	170	CNMN12
CCLNR/L4040S12	40	38	40	250	CNMN12
CCLNR/L5050T12	50	38	50	300	CNMN12




型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CRDCN2020M06	20	30	20	150	RCMX06
CRDCN2525M09	25	30	25	150	RCMX09
CRDCN3232P12	32	35	32	170	RCMX12
CRDCN4040S15	40	38	40	250	RCMX15
CRDCN5050T19	50	38	50	300	RCMX19




型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CDLNR/L2020M11	20	30	20	150	DNMN11
CDLNR/L2525M11	25	30	25	150	DNMN11
CDLNR/L3232P11	32	35	32	170	DNMN11



型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CRDCN2020M09	20	30	20	150	RCMN09
CRDCN2525M12	25	30	25	150	RCMN12
CRDCN3232P12	32	35	32	170	RCMN12
CRDCN4040S15	40	38	40	250	RCMN15
CRDCN5050T15	50	38	50	300	RCMN15




型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CRDCN2020M06	20	30	20	150	RCMX06
CRDCN2525M09	25	30	25	150	RCMX09
CRDCN3232P12	32	35	32	170	RCMX12
CRDCN4040S15	40	38	40	250	RCMX15
CRDCN5050T20	50	38	50	300	RCMX20




型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CRDNN2020M09	20	30	20	150	RNMN09
CRDNN2525M12	25	30	25	150	RNMN12
CRDNN3232P15	32	35	32	170	RNMN15
CRDNN4040S20	40	38	40	250	RNMN20
CRDNN5050T25	50	38	50	300	RNMN25







型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CRGNR/L2020M09	20	30	20	150	RNMN09
CRGNR/L2525M12	25	30	25	150	RNMN12
CRGNR/L3232P15	32	35	32	170	RNMN15
CRGNR/L4040S20	40	38	40	250	RNMN20
CRGNR/L5050T25	50	38	50	300	RNMN25




型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CSRNR/L2020M09	20	30	20	150	SNMN09
CSRNR/L2525M12	25	30	25	150	SNMN12
CSRNR/L3232P12	32	35	32	170	SNMN12
CSRNR/L4040S15	40	38	40	250	SNMN15
CSRNR/L5050T20	50	38	50	300	SNMN20




型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CSDNN2020M09	20	30	20	150	SNMN09
CSDNN2525M12	25	30	25	150	SNMN12
CSDNN3232P12	32	35	32	170	SNMN12
CSDNN4040S15	40	38	40	250	SNMN15
CSDNN5050T20	50	38	50	300	SNMN20




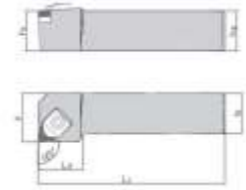
型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CSXNR/L2020M09	20	30	20	150	SNMN09
CSXNR/L2525M12	25	30	25	150	SNMN12
CSXNR/L3232P12	32	35	32	170	SNMN12
CSXNR/L4040S15	40	38	40	250	SNMN15
CSXNR/L5050T20	50	38	50	300	SNMN20




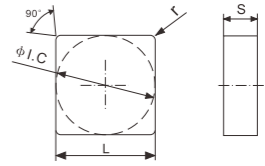
型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CSKNR/L2020M09	20	30	20	150	SNMN09
CSKNR/L2525M12	25	30	25	150	SNMN12
CSKNR/L3232P12	32	35	32	170	SNMN12
CSKNR/L4040S15	40	38	40	250	SNMN15
CSKNR/L5050T20	50	38	50	300	SNMN20



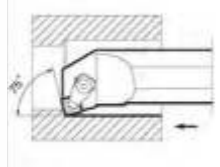
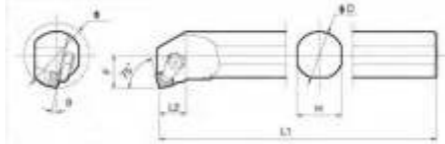
型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CSSNR/L2020M09	20	30	20	150	SNMN09
CSSNR/L2525M12	25	30	25	150	SNMN12
CSSNR/L3232P12	32	35	32	170	SNMN12
CSSNR/L4040S15	40	38	40	250	SNMN15
CSSNR/L5050T20	50	38	50	300	SNMN20


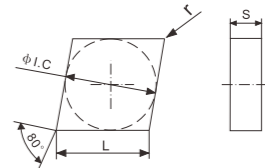
型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	h1=h2	L2	b	L1	
CWLNRL2525M08	25	33	25	150	WNMN08
CWLNRL3232P08	32	35	32	170	WNMN08

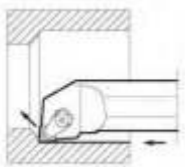
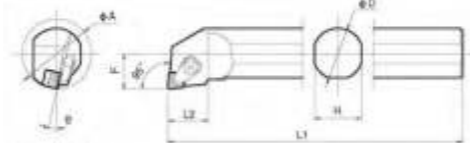
型号 Type	尺寸参数 Dimension (mm)				牌号 Grades			配套铣刀盘 Matched Milling Cutters
	L	ϕ I.C	S	r	BN-K1	BN-S20	BN-S300	
SNFN120708	12.7	12.7	7.94	0.8	○	○	○	TSM 系列铣刀盘 TSM Series Milling Cutters
SNFN120712	12.7	12.7	7.94	1.2	●	●	●	
SNFN120716	12.7	12.7	7.94	1.6	●	●	●	
SNFN120720	12.7	12.7	7.94	2.0	○	○	○	

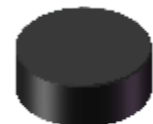
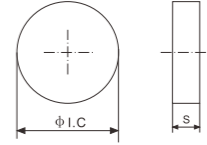
型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	H	L2	L1	ϕ D	
S25T-CSKNR/L-09	23	42	300	25	SNMN09
S32T-CSKNR/L-12	30	45	300	32	SNMN12
S40T-CSKNR/L-12	37	50	300	40	SNMN12
S32U-CSKNR/L-15	30	45	350	32	SNMN15
S40U-CSKNR/L-20	37	50	350	40	SNMN20


型号 Type	尺寸参数 Dimension (mm)				牌号 Grades			配套铣刀盘 Matched Milling Cutters
	L	ϕ I.C	S	r	BN-K1	BN-S20	BN-S200	
CNFN120708	12.9	12.7	7.94	0.8	○	○	○	TZM 系列铣刀盘 TZM Series Milling Cutters
CNFN120712	12.9	12.7	7.94	1.2	●	●	●	
CNFN120716	12.9	12.7	7.94	1.6	●	●	●	
CNFN120720	12.9	12.7	7.94	2.0	○	○	○	


型号 (含左右手) Type	尺寸参数 Dimension				配套刀片 Matched insert
	H	L2	L1	ϕ D	
S25T-CCLNR/L-12	23	42	300	25	CNMN12
S32T-CCLNR/L-12	30	45	300	32	CNMN12
S40T-CCLNR/L-12	37	50	300	40	CNMN12
S32U-CCLNR/L-12	30	45	350	32	CNMN12
S40U-CCLNR/L-12	37	50	350	40	CNMN12


型号 Type	尺寸参数 Dimension (mm)		牌号 Grades			配套铣刀盘 Matched Milling Cutters
	ϕ I.C	S	BN-K1	BN-S20	BN-S200	
RNFN120600	12.7	6.35	●	●	●	TRM 系列面铣刀 TRM Series Face Milling Cutters




型号 Type	尺寸参数 Dimension ( mm )				牌号 Grades			配套铣刀盘 Matched Milling Cutters
	L	φ I.C	S	r	BN-S200	BN-S30	BNK30	
SNEN0903ENS	9.525	9.525	3.18	0.8	●	●	○	FME01 系列高效面铣刀 FME Series High Efficiency Milling Cutters FME02 系列精密面铣刀 FEM02 Precision face milling cutters FME03 系列超精面铣刀 FEM03 Precision face milling cutters
SNEN0904ENS	9.525	9.525	4.76	0.8	●	●	○	
SNEN1204ENS	12.7	12.7	4.76	1.2	●	●	○	
SNEN1207ENS	12.7	12.7	7.94	1.2	●	●	○	
SNEN120712	12.7	12.7	7.94	1.2	●	●	○	
SNEN19T6ENS	19.05	19.05	6.8	1.6	●	●	○	




型号 Type	尺寸参数 Dimension ( mm )		牌号 Grades			配套铣刀盘 Matched Milling Cutters
	φ I.C	S	BN-S200	BN-S30	BNK30	
OPHN0504ZZH-A57	12.7	4.76	●	●	○	
OPHX0504ZZH-A57	12.7	4.76	●	●	○	




型号 Type	尺寸参数 Dimension ( mm )				牌号 Grades			配套铣刀盘 Matched Milling Cutters
	L	φ I.C	S	r	BN-S200	BN-S30	BNK30	
SNEX1203ZZ	12.7	12.7	3.18	1.2	●	●	○	FME02 系列精密面铣刀 FEM02 Precision face milling cutters FME03 系列超精面铣刀 FEM03 Precision face milling cutters
SNEX1204ZZ	12.7	12.7	4.76	1.2	●	●	○	




型号 Type	尺寸参数 Dimension ( mm )		牌号 Grades			配套铣刀盘 Matched Milling Cutters
	I.C	S	BN-H10	BN-H21	BN-K10	
RDMW120400	12	4.76	●	●	●	
RDMW160400	16	4.76	●	●	●	
RPMW080200	08	2.38	●	●	●	
RPMW100300	10	3.18	●	●	●	
RPMW10T300	10	3.97	●	●	●	
RPMW120400	12	4.76	●	●	●	



型号 Type	尺寸参数 Dimension ( mm )				牌号 Grades			配刀铣刀盘 Matched Milling Cutters
	L	φ I.C	S	r	BN-S200	BN-S30	BNK30	
RNEN090300		9.525	3.18		●	●	○	
RNEN090400		9.525	4.76		●	●	○	
RNEN120700		12.7	7.94		●	●	○	



型号 Type	尺寸参数 Dimension ( mm )		牌号 Grades			配套铣刀盘 Matched Milling Cutters
	S	r	BN-H10	BN-H21	BN-K10	
APMT160404	4.76	0.4	●	●	●	
APMT160408	4.76	0.8	●	●	●	



型号 Type	尺寸参数 Dimension (mm)		牌号 Grades			配套铣刀盘 Matched Milling Cutters
	I.C	S	BN-H10	BN-H21	BN-K10	
SEET12T3PF	12.7	3.97	●	●	●	
SEHT1204AFFN	12.7	4.76	●	●	●	

●表示优先选择 Priority choice  
备注：刃口形式可根据客户需求定制  
Note: Chamfer can be customized.

装圆形刀片的铣刀 Milling cutters for round cbn insert



型号规格 Type	齿数 Z Teeth No.	尺寸 Dimension				刀片 Insert	配件 Accessories				
		D	D1	H	d		刀垫 Shim	压板 Clamp	紧固螺钉 Fastening screw	紧固螺钉 Fastening screw	扳手 Spanner
TRM63R/L	3	63	60	63	莫氏 4# 锥柄	RNFN120600	TRMR/L02	A-10	TRM04	TRM05	S4.0
TRM80R/L	4	80	77								
TRM100R/L	5	100	97								
TRM125R/L	7	125	135								
TRM160R/L	9	160	170								
TRM200R/L	12	200	210								
TRM250R/L	15	250	260								
TRM315R/L	18	315	325	80	60						

装方形刀片的75度面铣刀 75° surface milling cutter for square cbn insert



型号规格 Type	齿数 Z Teeth No.	基本尺寸 Size				刀片型号 Insert Model	配件 Accessories			
		D	D1	H	d		压块 Clamp	刀垫 Shim	双头螺钉 Dowel screw	扳手 Spanner
TSM63R/L	3	63	60	63	莫氏 4# 锥柄	SNFN120708 SNFN120712 SNFN120716 SNFN120720	TSMR/L03	TSMR/L-02	GMC125 -05 M10*1*22	□ 5.0
TSM80R/L	4	80	77							
TSM100R/L	5	100	97							
TSM125R/L	7	125	141							
TSM160R/L	9	160	177							
TSM200R/L	12	200	218							
TSM250R/L	15	250	268							
TSM315R/L	18	315	333	80	60					



装菱形刀片的90度铣刀 90° milling cutters for rhombic cbn insert



型号规格 Type	齿数 Z Teeth No.	基本尺寸 Size				刀片型号 Insert Model	配件 Accessories			
		D	D1	H	d		压块 Clamp	刀垫 Shim	双头螺钉 Dowel screw	扳手 Spanner
TZM63R/L	3	63	60	63	莫氏 4# 锥柄	CNFN120708 CNFN120712 CNFN120716 CNFN120720	TZMR/L-03	TZMR/L-02	GMC125 -05 M10*1*22	□ 5.0
TZM80R/L	4	80	77							
TZM100R/L	5	100	97							
TZM125R/L	6	125	122							
TZM160R/L	9	160	157							
TZM200R/L	12	200	197							
TZM250R/L	15	250	247							
TZM315R/L	18	315	312	80	60					

精密面铣刀盘 Precision Surface Milling Cutter Series



型号规格 Type	齿数 Z Teeth No.		基本尺寸 Size			刀片型号 Insert Model		配件 Accessories			
	铣刀片 Milling inserts	修光刀片 Wiper inserts	D	D1	H	铣削刀片 Milling inserts	修光刀片 Wiper inserts	楔块 Wedge	调整块 Adjusting block	双头螺钉 Dowel screw	扳手 Spanner
FME02-063-A22-SN09-07	6	1	63	22	40	SNEN0904ENS	SNEX1204 ZZ	FME03-1	FME03-2	FME03-3	FME03-4
FME02-080-A27-SN09-09	8	1	80	27	50						
FME02-100-B32-SN09-12	10	2	100	32	50						
FME02-125-B40-SN09-14	12	2	125	40	63						
FME02-160-B40-SN09-18	15	3	160	40	63						
FME02-200-C60-SN09-24	20	4	200	60	63						
FME02-250-C60-SN09-30	25	5	250	60	63						
FME02-315-D60-SN09-36	30	6	315	60	70						

高效面铣刀盘 Efficient Surface Milling Cutters Series



型号规格 Type	齿数 Z Teeth No.	基本尺寸 Size			刀片型号 Insert Model	配件 Accessories		
		D	D1	H		楔块 Wedge	双头螺钉 Dowel screw	扳手 Spanner
FME01-063-A22-SN09-07	7	63	22	40	SNEN0904ENS	FME01-1	FME01-2	FME01-3
FME01-080-A27-SN09-09	9	80	27	50				
FME01-100-B32-SN09-12	12	100	32	50				
FME01-125-B40-SN09-14	14	125	40	63				
FME01-160-B40-SN09-18	18	160	40	63				
FME01-200-C60-SN09-24	24	200	60	63				
FME01-250-C60-SN09-30	30	250	60	63				
FME01-315-D60-SN09-36	36	315	60	70				

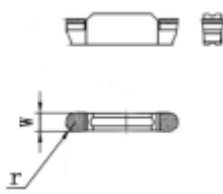
超精面铣刀盘 Super Finishing Surface Milling Cutter Series

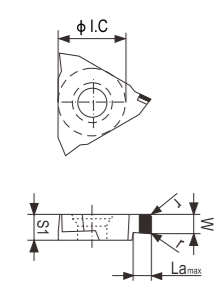


型号规格 Type	齿数 (Z) Teeth No.		基本尺寸 Size			刀片型号 Insert Model		配件 Accessories			
	铣刀片 Milling inserts	修光刀 Wiper inserts	D	D1	H	铣削刀片 Milling inserts	修光刀片 Wiper inserts	楔块 Wedge	调整块 Adjusting block	双头螺钉 Dowel screw	扳手 Spanner
FME03-063-A22-SN09-07	6	1	63	22	40	SNEN0904 ENS	SNEX1204 ZZ	FME03-1	FME03-2	FME03-3	FME03-4
FME03-080-A27-SN09-09	8	1	80	27	50						
FME03-100-B32-SN09-12	10	2	100	32	50						
FME03-125-B40-SN09-14	12	2	125	40	63						
FME03-160-B40-SN09-18	15	3	160	40	63						
FME03-200-C60-SN09-24	20	4	200	60	63						
FME03-250-C60-SN09-30	25	5	250	60	63						
FME03-315-D60-SN09-36	30	6	315	60	70						

切槽刀片 CBN Grooving Inserts

	订货编码 Order Code	刃口数量 Cutting Edges	尺寸参数 (mm) Dimension	
			W	r
	MGGN200-02	1, 2	2	0.2
	MGGN300-02	1, 2	3	0.2
	MGGN300-04	1, 2	3	0.4
	MGGN300-08	1, 2	3	0.8
	MGGN400-02	1, 2	4	0.2
	MGGN400-04	1, 2	4	0.4
	MGGN400-08	1, 2	4	0.8
	MGGN500-02	1, 2	5	0.2
	MGGN500-04	1, 2	5	0.4
	MGGN500-08	1, 2	5	0.8
	MGGN600-02	1, 2	6	0.2
	MGGN600-04	1, 2	6	0.4
MGGN600-08	1, 2	6	0.8	

	订货编码 Order Code	刃口数量 Cutting Edges	尺寸参数 (mm) Dimension	
			W	r
	MRGN200-R1.0	1, 2	2	1.0
	MRGN300-R1.5	1, 2	3	1.5
	MRGN400-R2.0	1, 2	4	2.0
	MRGN500-R2.5	1, 2	5	2.5
	MRGN600-R3.0	1, 2	6	3.0


	订货编码 Order Code	刃口数量 Cutting Edges	尺寸参数 (mm) Dimension				
			φ I.C	S1	W	La <sub>max</sub>	r
	TGR/L-1.25	1, 2, 3	12.7	4.76	1.25	2.5	0.2
	TGR/L-1.50	1, 2, 3			1.50	3.9	
	TGR/L-2.00	1, 2, 3			2.00	3.9	
	TGR/L-2.50	1, 2, 3			2.50	5.4	0.3
	TGR/L-3.00	1, 2, 3			3.00	5.4	
	TGR/L-3.50	1, 2, 3			3.50	5.4	
	TGR/L-4.00	1, 2, 3			4.00	5.4	


备注：槽刀刀片及配套刀杆可根据加工尺寸要求定制，请填写下表指定内容，可获得对应设计方案及报价；刀片材料选择另咨询刀具销售工程师。

Note: Grooving Inserts and corresponding tool holder can be offered based on the dimension requirements, please fill the following form, then you can obtain the solutions and the quotation. About selected the insert materials, you can consult our engineer.

形状 Shape	项目 Item	内容 Content
	刃宽 W (mm) Blade Width W (mm)	
	刀尖圆弧 Blade Radius R (mm)	
	被加工材质 Machining Materials	
	切槽深度 Groove Depth H (mm)	
	加工部位 Machining Part	<input type="checkbox"/> 外圆槽 Cylindrical Groove <input type="checkbox"/> 内孔槽 Internal Groove <input type="checkbox"/> 端面槽 Endsurface Groove
	配备刀杆长度*横截面大小 (mm) Tool Holder Length*Square (mm)	

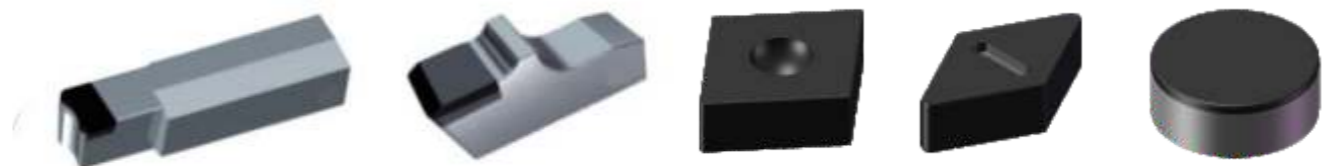
非标切槽刀系列 Non-standard CBN Grooving Tools

图样 Drawing	订货编码 Order Code	尺寸 (mm) Dimension			
		L	W	H	R
	HG01-1.0	70	1.0	12	0.1, 0.2, 0.3
	HG01-1.5	70	1.5	15	0.1, 0.2, 0.3
	HG01-2.0	70	2.0	18	0.1, 0.2, 0.3
	HG01-2.5	70	2.5	20	0.1, 0.2, 0.3

图样 Drawing	订货编码 Order Code	尺寸 (mm) Dimension					
		L	B	W	a1	a2	H
	HG02-4.0	70	1.575	4	7°30'	15°±5'	12, 15, 18, 20
	HG02-5.0	70	2.058	5	7°30'	15°±5'	12, 15, 18, 20

备注：华菱超硬提供来图来样加工。

Note: Customers offer drawing, Halnn offer service.



一般切削用车刀 Turnig tools

图样 Drawing	订货编码 Order Code	尺寸 (mm) Dimension				
		W	H	L	E	R
	HTW10-30°-R/L	10	10	80	0	0.2-0.5
	HTW13-30°-R/L	13	13	100	4	
	HTW16-30°-R/L	16	16	120		

图样 Drawing	订货编码 Order Code	尺寸 (mm) Dimension			
		W	H	L	R
	HTW10-N	10	10	80	0.3-0.5
	HTW13-N	13	13	100	
	HTW16-N	16	16	120	

高精内孔刀 (小孔专用) High Precision Internal Cutter (Special for small hole)


备注: 客户提供图纸尺寸, 华菱超硬进行定制服务。

Customers offer drawing, Halnn offer service.

重型切削案例

	加工零件: 渣浆泵叶轮, 硬度HRC60 加工材料: 高铬合金白口铸铁Cr26, 强断续切削 选用刀片: BN-K1 SNMN120712 切削参数: ap=2.5mm, Fr=0.25mm/r, Vc=45m/min			
	刀具材质	刀具寿命	最终失效形式	
	华菱 BN-K1	11件↑	正常磨损★	
	某品牌CBN	3件	破损碎裂	

	加工零件: 渣浆泵泵体 加工材料: 高铬白口铸铁Cr26, 硬度HRC60 选用刀片: BN-K1 CNMN120712 切削参数: ap=2.5mm, Fr=0.12mm/r, Vc=75m/min		
	刀具材质	单刃寿命	最终失效形式
	华菱 BN-K1	85件/刃↑	正常磨损★
	某品牌CBN	35件/刃	破损碎裂

	加工材料: 高镍铬合金铸铁轧辊, 硬度HSD80 选用刀片: BN-K1 RNMN200800 切削参数: ap=4mm, Fr=0.7mm/r, Vc=45m/min			
	刀具材质	切削速度	刀具寿命	最终失效形式
	华菱 BN-K1	45m/min↑	3件↑	正常磨损★
	某品牌CBN	35m/min	2件	破损碎裂

	加工材料: 高速钢轧辊, 硬度HSD90 选用刀片: BN-S20 RGMX120700 切削参数: Fr=0.2mm/r, Vc=35m/min		
	刀具材质	单刃寿命	最终失效形式
	华菱 BN-S20	25槽/刃↑	正常磨损★
	某品牌CBN	12槽/刃	破损碎裂

	加工材料: 高铬合金铸铁, 硬度HRC60, 强断续切削 选用刀片: BN-K1 RNMN120400 切削参数: ap=1.5mm, F=1.2mm/min, Vc=50m/min		
	刀具材质	切削宽度	最终失效形式
	华菱 BN-K1	500mm↑	正常磨损★
	某品牌CBN	150mm	破损碎裂

	加工零件: 轧臼壁 加工材料: 高锰钢 选用刀片: BN-S20 SNMN150716 切削参数: ap=7.5mm, Fr=0.5mm/r, Vc=65m/min			
	刀具材质	切削速度	吃刀深度	刀具寿命
	华菱 BN-S20	65m/min↑	7.5mm↑	2件/刃↑
	硬质合金刀具	19m/min	3.5mm	0.5件/刃

	加工材料: 高锰钢齿板 选用刀片: BN-S20 SNFN120716 切削参数: ap=2.5mm, Fr=0.2mm/r, Vc=75m/min			
	刀具材质	切削速度	进给量	刀具寿命
	华菱 BN-S20	75m/min↑	0.2mm/r↑	270min
	硬质合金刀具	25m/min	0.15mm/r	25min

	加工材料: 镍基合金, 硬度HRC50 选用刀片: BN-S20 SNGN120412 切削参数: ap=1.5mm, Fr=0.15mm/r, Vc=145m/min		
	刀具材质	刀具寿命	最终失效形式
	华菱 BN-S20	5件/刃↑	正常磨损★
	某欧系品牌CBN	3件/刃	破损碎裂

汽车零部件加工案例

	加工零件: 制动盘 加工材料: HT250, HB170-210 选用刀片: BN-S300 CNMN120712 切削参数: ap=2mm, Fr=0.55mm/r, Vc=500m/min			
	刀具材质	切削速度	单刃寿命	效率
	华菱 BN-S300	500m/min↑	200件/刃↑	提升1.8倍↑
	硬质合金刀具	180m/min	30件/刃	----


	加工零件: 制动盘 加工材料: HT250, HB170-210 选用刀片: BNK30 TNGA160408-6S 切削参数: ap=0.3mm, Fr=0.2mm/r, Vc=1000m/min		
	刀具材质	切削速度	刀具寿命
	华菱 BNK30	1000m/min↑	160件/刃↑
	某品牌CBN	800m/min	100件/刃

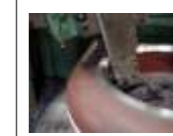
	加工零件: 制动鼓 加工材料: HT250, HB170-210 选用刀片: BN-S300 CNMN120716 切削参数: ap=2.5mm, Fr=0.65mm/r, Vc=380m/min			
	刀具材质	切削速度	单刃寿命	效率
	华菱 BN-S300	380m/min ↑	95件/刃 ↑	提升1.5倍 ↑
涂层硬质合金刀具	150m/min	15件/刃	----	


	加工零件: 铝合金铸铁气缸套 选用刀片: BNK30 SNGA120412-8S 切削参数: ap=0.3mm, Fr=0.2mm/r, Vc=850m/min, 加工方式: 湿切			
	刀具材质	切削速度	单刃寿命	效率
	华菱 BNK30	850m/min ↑	120件/刃 ↑	提升1倍 ↑
涂层硬质合金刀具	400m/min	25件/刃	----	


	加工工序: 精铣发动机缸体, HT250 选用刀片: BN-S300 SNE090308ENS-M08 切削参数: ap=0.3mm, Fz=0.12mm, Vc=1700m/min 加工方式: 干切			
	刀具材质	进给速度	刀具寿命	效率
	华菱 BN-S300	3670mm/min ↑	100件/刃 ↑	提升0.6倍 ↑
某欧系品牌CBN	2200m/min	80件/刃	----	

### Application Case for Heavy Turning

	Component: Slurry pump impeller. Hardness HRC60 Materials: High chromium cast iron Cr26. Heavy Interrupt Turning Selected Insert: BN-K1 SNMN120712 Cutting Condition: ap=2.5mm, Fr=0.25mm/r, Vc=45m/min		
	Insert material	Lifetime	Failure mode
	Halnn BN-K1	11pcs ↑	Normal wear ★
Some Brand CBN	3pcs	damage rupture	

	Component: Slurry pump body Material: High-chromium white cast iron Cr26. Hardness HRC60 Selected Insert: BN-K1 CNMN120712 Cutting Condition: ap=2.5mm, Fr=0.12mm/r, Vc=75m/min		
	Insert material	Life per blade	Failure mode
	Halnn BN-K1	85pcs/blade ↑	Normal wear ★
Some brand CBN	35pcs/blade	damage rupture	


	Material: High nickel chromium alloy cast iron rolls. Hardness HSD80 Selected Insert: BN-K1 RNMN200800 Cutting Condition: ap=4mm, Fr=0.7mm/r, Vc=45m/min			
	Insert material	Cutting Speeds	Lifetime	Failure mode
	Halnn BN-K1	45m/min ↑	3pcs ↑	Normal wear ★
Some Brand CBN	35m/min	2pcs	damage rupture	


	Material: High-speed steel Rolls. Hardness HSD90 Selected Insert: BN-S20 RCMX120700 Cutting Condition: Fr=0.2mm/r, Vc=35m/min		
	Insert material	Tool Life/Tip	Failure mode
	Halnn BN-S20	25 grooves ↑	Normal wear ★
Some brand CBN	12 grooves	damage rupture	

### 以车代磨/硬车削案例


	加工工况: 连续切削 加工材料: 20CrMnTi 齿轮, HRC58-62 选用刀片: BN-H05 CNGA120408 切削参数: ap=0.1mm, Fr=0.1mm/r, Vc=180m/min, 干切		
	刀具材质	表面粗糙度	刀具寿命
	华菱 BN-H05	≤Ra0.8 ↑	800件 ↑
某品牌CBN	Ra1.0	550件	


	加工工况: 中等断续切削内孔 加工材料: 20CrMnTi 齿轮, HRC58-62 选用刀片: BN-H10 CCGW09T304 切削参数: ap=0.25mm, Fr=0.08mm/r, Vc=135m/min			
	刀具材质	切削速度	刀具寿命	效率
	华菱 BN-H10	135m/min ↑	1000件 ↑	提高22% ↑
某欧系品牌CBN	110m/min	600件	----	


	Material: High Chromium alloy cast iron. Hardness HRC60. Heavy Interrupt Turning Selected Insert: BN-K1 RNMN120400 Cutting Condition: ap=1.5mm, F=1.2mm/min, Vc=50m/min		
	Insert material	Cutting Width	Failure mode
	Halnn BN-K1	500mm ↑	Normal wear ★
Some Brand CBN	150mm	damage rupture	

	Component: Crushing Cone Material: High manganese steel Selected Insert: BN-S20 RCMX120716 Cutting Condition: ap=7.5mm, Fr=0.5mm/r, Vc=65m/min			
	Insert material	Cutting Speeds	Depth of Cut	Lifetime
	Halnn BN-S20	65m/min ↑	7.5mm ↑	2pcs/blade ↑
Carbide Insert	19m/min	3.5mm	0.5pcs/blade	

	加工工况: 强断续切削外圆 加工材料: 高耐磨粉末高速钢, HRC65 选用刀片: BN-H21 CNGA120408 切削参数: ap=0.15mm, Fr=0.1mm/r, Vc=35-60m/min		
	刀具材质	刀具寿命	最终失效形式
	华菱 BN-H21	5件 ↑	正常磨损 ★
某日系品牌CBN	<1件	破损碎裂	


	加工零件: 风电轴承42CrMo4, HRC58-62, 中等断续切削 选用刀片: BN-H10 RING090300S02035 切削参数: ap=1mm (粗), ap=0.15mm (精), Fr=0.25mm/r, 干切			
	刀具材质	切削速度	刀具寿命	效率
	华菱 BN-H10	145m/min ↑	3件/刃 ↑	提高20% ↑
某品牌CBN	120m/min	2件/刃	----	


	Material: High manganese steel Plate Selected Insert: BN-S20 SNFN120716 Cutting Condition: ap=2.5mm, Fr=0.2mm/r, Vc=75m/min			
	Insert material	Cutting Speeds	Feeds	Lifetime
	Halnn BN-S20	75m/min ↑	0.2mm/r ↑	270min ↑
Carbide insert	25m/min	0.15mm/r	25min	

	Material: Ni-base alloy. Hardness HRC50 Selected Insert: BN-S20 SNGN120412 Cutting Condition: ap=1.5mm, Fr=0.15mm/r, Vc=145m/min		
	Insert Materials	Lifetime	Failure mode
	Halnn BN-S20	5pcs/blade ↑	Normal wear ★
Some Brand CBN	3pcs/blade	damage rupture	


	加工材料: 滚珠丝杠Gcr15 工件硬度: HRC60-62 选用刀片: BN-S20 CNGN120708 切削参数: ap=4.5mm, Fr=0.10mm/r, Vc=95m/min, 干切			
	刀具材质	切削速度	吃刀深度	最终失效形式
	华菱 BN-S20	95m/min ↑	4.5mm ↑	正常磨损 ★
某品牌陶瓷刀具	65m/min	0.5mm	破损碎裂	

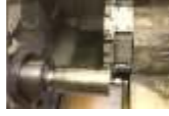
### Applications Case for Automotive Components


	Component: Brake disc Material: FC250, HB170-210 Selected Insert: BN-S300 CNMN120712 Cutting Condition: ap=2mm, Fr=0.55mm/r, Vc=500m/min			
	Insert material	Cutting Speeds	Tool Life/blade	Efficiency
	Halnn BN-S300	500m/min ↑	200pcs/blade ↑	Improve 1.8 times ↑
Carbide insert	180m/min	30pcs/blade	----	

	Component: Brake disc Material: HT250 (FC250), HB170-210 Selected Insert: BNK30 TNGA160408-6S Cutting Condition: ap=0.3mm, Fr=0.2mm/r, Vc=1000m/min		
	Insert material	Cutting Speeds	Lifetime
	Halnn BNK30	1000m/min ↑	160 pcs/blade ↑
Some Europe CBN	800m/min	100 pcs/blade	





	Component: Brake drum Material: FC250, HB170-210 Selected Insert: BN-S300 CNMN120716 Cutting Condition: ap=2.5mm, Fr=0.65mm/r, Vc=380m/min			
	Insert material	Cutting Speeds	Lifetime Per blade	Efficiency
	Halnn BN-S300	380m/min ↑	95 pcs/blade ↑	Improved 1.5 times ↑
Coating Carbide Insert	150m/min	15 pcs/blade	----	


	Component: Boron Alloy Cast Iron Cylinder liner Selected Insert: BNK30 SNGA120412-8S Cutting Condition: ap=0.3mm, Fr=0.2mm/r, Vc=850m/min, Wet cutting			
	Insert material	Cutting Speeds	Lifetime	Efficiency
	Halnn BNK30	850m/min ↑	120pcs/blade ↑	Improve 1 times ↑
Coating Carbide Insert	400m/min	25pcs/blade	----	


	Process: Finish milling the engine cylinder block Selected Insert: BN-S300 SNE090308ENS-M08 Cutting Condition: ap=0.3mm, Fz=0.12mm, Vc=1700m/min, Dry Cutting			
	Insert material	Feed speed	Lifetime	Efficiency
	Halnn BN-S300	3670mm/min ↑	100pcs/blade ↑	Improve 0.6 times ↑
Some Europe CBN	2200mm/min	80pcs/blade	----	


### Turning instead of Grinding/Hard Turning Application Case

	Machining Condition: Continuous Material: 20CrMnTi Gears, HRC58-62 Selected Insert: BN-H05 CNGA120408 Cutting Condition: ap=0.1mm, Fr=0.1mm/r, Vc=180m/min, Dry Cutting		
	Insert material	Roughness	Lifetime
	Halnn BN-H05	≤Ra0.8 ↑	800pcs ↑
Some Brand CBN	Ra1.0	550pcs	

	Machining Condition: Semi-Interrupt turning inner bore Material: 20CrMnTi Gears, HRC58-62 Selected Insert: BN-H10 CCGW09T304 Cutting Condition: ap=0.25mm, Fr=0.08mm/r, Vc=135m/min, Dry Cutting			
	Insert material	Cutting Speeds	Lifetime	Efficiency
	Halnn BN-H10	135m/min ↑	1000 pcs ↑	Improved 22% ↑
Some Brand CBN	110m/min	600 pcs	----	

	Machining Condition: Heavy Interrupt Turning End Surface Material: High wear-resistant powder high-speed steel, HRC65 Selected Insert: BN-H21 CNGA120408 Cutting Condition: ap=0.15mm, Fr=0.1mm/r, Vc=35-60m/min, Wet cutting		
	Insert material	Lifetime	Failure Mode
	Halnn BN-H21	5 pcs ↑	Normal Wear ★
Some Japanese Brand PCBN	<1 pcs	Damage rupture	

	Component: Wind power bearings, 42CrMo4, HRC58-62, Semi-Interrupt Turning Selected Insert: BN-H10 RNGN090300S02035 Cutting Condition: ap=1mm (roughing), ap=0.15mm (finishing), Fr=0.25mm/r, Dry cutting			
	Insert material	Cutting Speeds	Lifetime	Efficiency
	Halnn BN-H10	145m/min ↑	3pcs/blade ↑	Improved 20% ↑
Some Brand CBN	120m/min	2pcs/blade	----	

	Material: Ball screw GCr15 Hardness: HRC60-62 Selected Insert: BN-S20 CNGN120708 Cutting Condition: ap=4.5mm, Fr=0.10mm/r, Vc=95m/min, Dry Cutting			
	Insert material	Cutting Speeds	Depth of Cut	Failure mode
	Halnn BN-S20	95m/min ↑	4.5mm ↑	Normal wear ★
Ceramic insert	65m/min	0.5mm	Damage rupture	

### 硬度对照表 Hardness comparison table

HV	HB 10/3000	HR		Hr 轻载荷		HS	σ b	HV	HB 10/3000	HR			HR 轻载荷		HS	σ b
		HRA	HRC	15-N	30-N					HRA	HRB	HRC	15-N	30-N		
940		85.6	68.0	93.2	84.4	97		410	388	71.4		41.8	81.4	61.1		137
920		85.3	67.5	93.0	84.0	96		400	379	70.8		40.8	81.0	60.2	55	134
900		85.0	67.0	92.9	83.6	95		390	369	70.3		39.8	80.3	59.3		130
880		84.7	66.4	92.7	83.1	93		380	360	69.8	110	38.8	79.8	58.4	52	127
860		84.4	65.9	92.5	82.7	92		370	350	69.2		37.7	79.2	57.4		123
840		84.1	65.3	92.3	82.2	91		360	341	68.7	109	36.6	78.6	56.4	50	120
820		83.8	64.7	92.1	81.7	90		350	331	68.1		35.5	78.0	55.4		117
800		83.4	64.0	91.9	81.1	88		340	322	67.6	108	34.4	77.4	54.4	47	113
780		83.0	63.3	91.5	80.4	87		330	313	67.0		32.3	76.8	53.6		110
760		82.6	62.5	91.2	79.7	86		320	303	66.4	107	32.2	76.2	52.3	45	106
740		82.2	61.8	91.0	79.1	84		310	294	65.8		31.0	75.6	51.3		103
720		81.8	61.0	90.7	78.4	83		300	284	65.2	105.5	29.8	74.9	50.2	42	99
700		81.3	60.1	90.3	77.6	81		295	280	64.8		29.2	74.6	49.7		98
690		81.1	59.7	90.1	77.2			290	275	64.5	104.5	28.5	74.2	49.0	41	96
680		80.8	59.2	89.8	76.8	80	232	285	270	64.2		27.8	73.8	48.4		94
670		80.6	58.8	89.7	76.4		228	280	265	63.8	103.5	27.1	73.4	47.8	40	92
660		80.3	58.3	89.5	75.9	79	224	275	261	63.5		26.4	73.0	47.2		91
650		80.0	57.8	89.2	75.5		221	270	256	63.1	102	25.6	72.6	46.4	38	89
640		79.8	57.3	89.0	75.1	77	217	265	252	62.7		24.8	72.1	45.7		87
630		79.5	56.8	88.8	74.6		214	260	247	62.4	101	24.0	71.6	45.0	37	85
620		79.2	56.3	88.5	74.2	75	210	255	243	62.0		23.1	71.1	44.2		84
610		78.9	55.7	88.2	73.6		207	250	238	61.6	99.5	22.2	70.6	43.4	36	82
600		78.6	55.2	88.0	73.2	74	203	245	233	61.2		21.3	70.1	42.5		80
590		78.4	54.7	87.8	72.7		200	240	228	60.7	98.1	20.3	69.6	41.7	34	78
580		78.0	54.1	87.5	72.1	72	196	230	219		96.7	18.0			33	75
570		77.8	53.6	87.2	71.7		193	220	209		95.0	15.7			32	71
560		77.4	53.0	86.9	71.2	71	189	210	200		93.4	13.4			30	68
550	505	77.0	52.3	86.6	70.5		186	200	190		91.4	11.0			29	65
540	496	76.7	51.7	86.3	70.0	69	183	190	181		89.5	8.5			28	62
530	488	76.4	51.1	86.0	69.5		179	180	171		87.1	6.0			26	59
520	480	76.1	50.5	85.7	69.0	67	176	170	162		85.0	3.0			25	56
510	473	75.7	49.8	85.4	68.3		173	160	152		81.7	0.0			24	53
500	465	75.3	49.1	85.0	67.7	66	169	150	143		78.7				22	50
490	456	74.9	48.4	84.7	67.1		165	140	133		75.0				21	45
480	448	74.5	47.7	84.3	66.4	64	162	130	124		71.2				20	44
470	441	74.1	46.9	83.9	65.7		158	120	114		66.7					40
460	433	73.6	46.1	83.6	64.9	62	155	110	105		62.3					
450	425	73.3	45.3	83.2	64.3		151	100	95		56.2					
440	415	72.8	44.5	82.8	63.5	59	148	95	90		52.0					
430	405	72.3	43.6	82.3	62.7		144	90	86		48.0					
420	397	71.8	42.7	81.8	61.9	57	141	85	81		41.0					

说明: HV- 维氏硬度, HB- 布氏硬度, HR- 洛氏硬度。σ b: 钢的抗拉强度, Kg/mm<sup>2</sup>。此表仅供参考。