

产品介绍 Products

聚晶立方氮化硼 (PCBN)

聚晶立方氮化硼 (PCBN) 具有高硬度、高耐磨性和高热稳定性, 对铁族元素呈惰性, 因此主要用于高硬度及难加工的黑色金属材料类切削加工, 如淬硬钢、珠光体灰口铸铁、高温合金、高速钢、表面淬硬合金、镍铬合金、粉末冶金金属等。

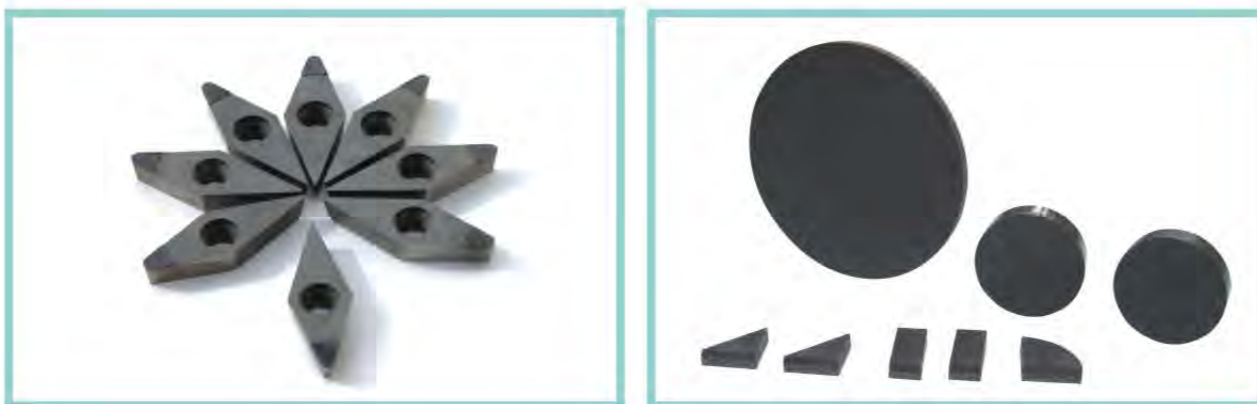
四方达切削刀具用聚晶立方氮化硼刀片由带硬质合金基底的复合片 (CB) 和整体片 (BN) 两大系列产品组成, 客户可根据加工对象材料选择不同CBN含量、粒度及规格的PCBN产品。

四方达PCBN系列产品具有以下优点: 高的金属切除率、单位消耗量小; 加工工件表面光洁度高、寿命长; 加工时, 可以不用冷却液, 实际加工成本低等。最终可实现以车代磨, 大大提高劳动效率, 有效降低生产成本。

PCBN is characteristic of high hardness, high wear resistance and high thermal stability. It's inert to iron family element, hence PCBN is mainly used for the machining of high hardness and hard processed ferros materials, such as harden steel, pearlitic gray cast iron, high temperature alloy, high-speed steel, hard facing alloys, Ni-Cr alloy, powder metallurgy metals.

SFD PCBN blanks for cutting tools have two series of CB and BN. CB series is composed of CBN layer and tungsten carbide base. BN series is solid CBN. Customers can choose suitable PCBN grade with different CBN contents, grain sizes and designation according to turned object material.

SFD PCBN series products have the following advantages: higher material removal rate, decrease of cycle time, consistent surface finish, longer tool life; doing without refrigerant, lower machining cost etc. It actually realized replacing the grinding by the turning, which greatly enhanced work efficiency and reduced effectively production cost.



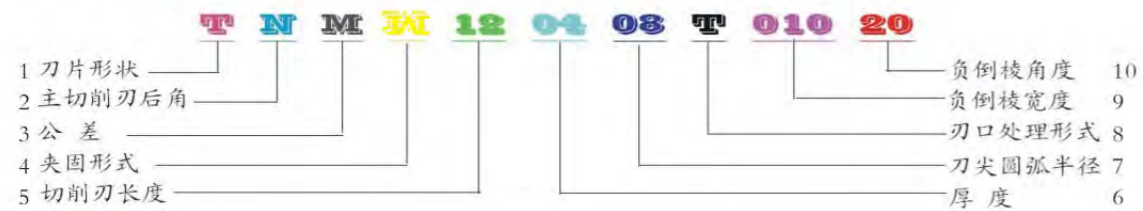
CB系列产品特性: 由聚晶立方氮化硼层与硬质合金层复合而成, 可焊性好; 耐磨性、抗冲击性好; 抗断裂强度高; 化学稳定性好; 加工工件尺寸精度高、表面光洁度高; 加工一致性好。
CB series characteristics: composite of CBN layer and tungsten carbide base, easy to be welded; high wear resistance, good impact resistance; good transversal rupture strength resistance, good chemical stability, uniform dimension precision; consistent quality.

牌号 Grade	CB90	CB85	CB70	CB60	CB50
CBN含量 CBN content (Vol%)	90	85	70	60	50
粒度 Grain size (μm)	3	3	3	3	2
粘结剂 Binder	铝-钴 Al-Co	Al系陶瓷 Ceramic of Al system	Al、Ti陶瓷相 Ceramic of Al,Ti system	Ti(C,N)相 TiC and TiN	TiN相 TiN
硬度 Hardness (Hv)	3500~3700	3300~3500	2700~2900	2600~2800	2500~2700
特点 Characteristics	高耐磨性、热稳定性, 较好的抗冲击强度, 工件表面光洁度高 High wear resistance, thermal stability, better impact resistance, high quality surface finish	高耐磨性, 较好的抗冲击强度, 高切削率, 刀具寿命长 High wear resistance, better impact resistance, high cutting efficiency and long life	高耐磨性、热稳定性 High wear resistance, good thermal stability	高耐磨性、化学稳定性, 抗断裂韧性强, 加工工件尺寸精度高, 工件表面光洁度高 High wear resistance, strong chemical stability, good transversal rupture strength resistance.	高耐磨性、传热性, 抗化学反应力强, 工件表面光洁度高, 寿命长 High wear resistance, high thermal conductivity, chemical stability, fine finish and long life
应用 Application	珠光体灰铸铁、工具模具钢、表面硬化高温合金、粉末冶金金属、精车镍基及钴基超合金等 Pearlitic gray cast iron, tool steel, die steel, hard facing alloy, powder metallurgy metals, fine turned nickel and cobalt base alloys etc.	硬铸铁、淬硬钢、珠光体灰铸铁、表面硬化合金、粉末冶金金属等 Hard cast iron, hardened steel, Pearlitic gray cast iron, hard facing alloy, powder metallurgy metals etc.	可连续或间断切削高速钢等 Cut high speed steel continuously and interruptedly etc.	可连续或间断切削淬硬钢、工具钢及模具钢等 Cut hardened steel, tool steel and die steel continuously and interruptedly etc.	淬硬钢、模具钢 Hardened Steel, die steel

BN系列产品特性: 整体CBN聚晶烧结体, 耐磨性好, 两面均可作切削刃, 性价比高; 化学稳定性好、耐高温性好、极好的抗断裂韧性、高切削率、寿命长。
BN series characteristics: Solid sintered CBN, good wear resistance, both sides can be used as edges, cost performance, high chemical stability, high thermal stability, excellent fracture resistance, high cutting efficiency, long life.

牌号 Grade	BN90	BN85
CBN含量 CBN content (Vol%)	90	85
粒度 Grain size (μm)	3	3
粘结剂 Binder	铝-钴 Al-Co	氮化钛和铝 Titanium Nitride and Aluminum
硬度 Hardness (Hv)	3500~3700	3300~3500
特点 Characteristics	抗断裂韧性强, 耐磨性高、化学稳定性好、有多个刃口、寿命长 excellent fracture resistance, better wear resistance, good chemical stability, multi edges, long life	抗断裂韧性强, 耐磨性高、化学稳定性好、加工工件表面光洁度高、寿命长 excellent fracture resistance, better wear resistance, good chemical stability, fine finish, long life
应用 Application	硬铸铁、淬硬钢、珠光体灰铸铁、表面硬化合金、粉末冶金金属、精车镍基及钴基超合金等 Hard cast iron, hardened steel, Pearlitic gray cast iron, hard facing alloy, powder metallurgy metals, fine turned nickel and cobalt base alloys etc.	硬铸铁、淬硬钢、珠光体灰铸铁、表面硬化合金、粉末冶金金属等 Hard cast iron, hardened steel, Pearlitic gray cast iron, hard facing alloy, powder metallurgy metals etc.

车削刀片型号表示规则 ISO-INDEXABLE INSERTS CODE KEY



1 刀片形状 Insert shape

代号 Code name	S	R	L	C	D	V	T	W
形状 Shape	正方形 Square	圆形 Circularity	长方形 Rectangular	菱形 Diamond Shape			正三角形 Positive Triangle	六边形 Hexagon
刀尖角 Nose of tool	90°	-	90°	80°	55°	35°	60°	80°
圆形 Circularity								

2 主切削刃后角 Major cutting edge clearance angle

B	C	P	E	N	O
					特殊种类 Special Type
5°	7°	11°	20°	0°	

3 公差 Tolerances(mm)

级别符号 Letter Symbol	公差 Tolerances(mm)		
	M(刀尖高) Height of tool tip	S(厚度) Thickness	d(内切圆) Inscribed circle
A	±0.005	±0.025	±0.025
F	±0.005	±0.025	±0.013
C	±0.013	±0.025	±0.025
H	±0.013	±0.025	±0.013
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025
J	±0.005	±0.025	±0.05 ±0.13
K	±0.013	±0.025	±0.05 ±0.13
L	±0.025	±0.025	±0.05 ±0.13
M	±0.08 ±0.18	±0.13	±0.05 ±0.13
N	±0.08 ±0.18	±0.025	±0.05 ±0.13
U	±0.13 ±0.38	±0.13	±0.08 ±0.25

*1 刀尖高允许差 (以M级公差为例) Height of tool tip (Refer to grade M Tolerance according to the detail of shape and dimension)

内切圆 Inscribed Circle	三角形 Triangle	正方 Square	80° 菱形 Diamond shape	55° 菱形 Diamond shape	35° 菱形 Diamond shape	圆形 Circularity
6.35	±0.08	±0.08	±0.08	±0.11		
9.525	±0.08	±0.08	±0.08	±0.11	±0.13	
12.70	±0.13	±0.13	±0.13	±0.15		
15.875	±0.15	±0.15	±0.15	±0.18		
19.05	±0.15	±0.15	±0.15	±0.18		
25.40	±0.18	±0.18	±0.18			
31.75		±0.25				

*2 内切圆允许公差 (以M级公差为例) Inscribed circle (Refer to grade M Tolerance according to the detail of shape and dimension)

内切圆 Inscribed Circle	三角形 Triangle	正方 Square	80° 菱形 Diamond shape	55° 菱形 Diamond shape	35° 菱形 Diamond shape	圆形 Circularity
6.35	±0.05	±0.05	±0.05	±0.05		
9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08		±0.08
15.875	±0.10	±0.10	±0.10	±0.10		±0.10
19.05	±0.10	±0.10	±0.10	±0.10		±0.10
25.40	±0.13	±0.13	±0.13			±0.10
31.75		±0.20				±0.12

4 断屑槽及夹固形式 Chip breaker and Strengthening

N	A	W	X
			定制 Custom made

5 切削刃长度 Cutting edge length

l _c mm	C	D	R	S	T	V	W	L
9.525	09	11	09	09	16	16	06	
12.7	12	15	12	12	22	22	08	
14				14				
15.875	16		15	15				
16.58					27			16.58
18.75								18.75
19.05	19		19	19	33			
20.0			20	20				
25.0			25					

6 厚度 Insert thickness (mm)

	03 = 3.18 T3 = 3.97 04 = 4.76	06 = 6.35 T6 = 6.80 07 = 7.94	08 = 8.0 10 = 10.0
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7 刀尖圆弧半径 Nose radius

	00 圆刀片 20 : r = 2.0 04 : r = 0.4 24 : r = 2.4 08 : r = 0.8 12 : r = 1.2 16 : r = 1.6
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8 刃口处理形式 Drawing cut condition

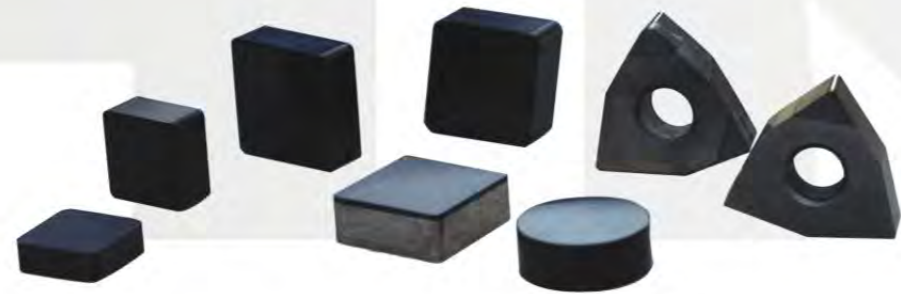
	F 锋利切削刃 F shape cutting edge		S 负前角和ER处理切削刃 S negative front angle and ER cutting edge		T 负前角刃带 T negative front angle margin width
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9 负倒棱宽度 Negative chamfering width

	010 : brn = 0.10 020 : brn = 0.20 050 : brn = 0.50 080 : brn = 0.80 200 : brn = 2.00
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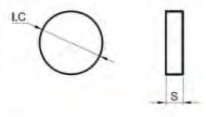
10 负倒棱角度 Negative chamfering Angle

	15 r n = 15° 20 r n = 20° 30 r n = 30°
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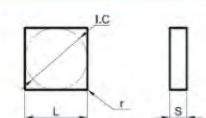


整体PCBN刀片 SOLID PCBN INSERTS

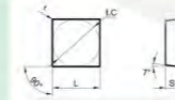
整体PCBN刀片 SOLID PCBN INSERTS



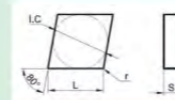
型号 Type	基本尺寸 Dimensions(mm)		
	L	I.C	S
RNMN0904		9.525	4.76
RNMN1204		12.7	4.76
RNMN1507		15.875	7.94
RNMN2007		20	7.94



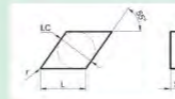
型号 Type	基本尺寸 Dimensions(mm)			
	L	I.C	S	r
SNMN090404	9.525	9.525	4.76	0.4
SNMN120404	12.7	12.7	4.76	0.4
SNMN120408	12.7	12.7	4.76	0.8
SNMN120412	12.7	12.7	4.76	1.2
SNMN120708	12.7	12.7	7.94	0.8
SNMN200708	20	20	7.94	0.8
SNMN150712	15.875	15.875	7.94	1.2



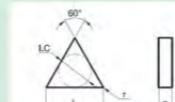
型号 Type	基本尺寸 Dimensions(mm)			
	L	I. C	S	r
SCMN120408	12.7	12.7	4.76	0.8
SCMN120710	12.7	12.7	7.94	1.0
SCMN150704	15.875	15.875	7.94	0.4



型号 Type	基本尺寸 Dimensions(mm)			
	L	I. C	S	r
CNMN120408	12.9	12.7	4.76	0.8
CNMN090404	9.7	9.525	4.76	0.4
CNMN160708	16.1	15.875	7.96	0.8



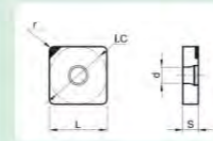
型号 Type	基本尺寸 Dimensions(mm)			
	L	I. C	S	r
DNMN11T304	11.6	9.525	3.97	0.4
DNMN110404	11.6	9.525	4.76	0.4
DNMN110708	11.6	9.525	7.94	0.8



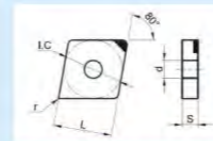
型号 Type	基本尺寸 Dimensions(mm)			
	L	I. C	S	r
TNMN110308	11.0	6.35	3.18	0.8
TNMN160408	16.5	9.525	4.76	0.8

PCBN&PCD焊接刀片 PCBN&PCD INSERTS

PCBN&PCD焊接刀片



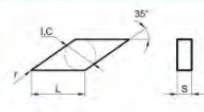
型号 Type	基本尺寸 Dimensions(mm)				
	L	l.c	s	d	r
SNMW120408	12.7	12.7	4.76	5.5	0.8
SNMW090408	9.525	9.525	4.76	4.4	0.8
SNMW090404	9.525	9.525	4.76	4.4	0.4



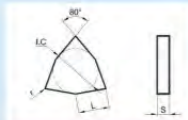
型号 Type	基本尺寸 Dimensions(mm)				
	L	l.c	s	d	r
CNMA120408	12.9	12.7	4.76	5.16	0.8
CNMA120404	12.9	12.7	4.76	5.16	0.4



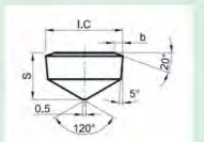
型号 Type	基本尺寸 Dimensions(mm)				
	L	l.c	s	d	r
RNMN0904		9.525	4.76		
RNMN1204		12.7	4.76		
RNMN1304		13.3	4.76		



型号 Type	基本尺寸 Dimensions(mm)			
	L	l.c	s	r
VNMN110404	11	6.35	4.76	0.4
VNMN110608	11	6.35	6.35	0.8
VNMN110408	11	6.35	4.76	0.8



型号 Type	基本尺寸 Dimensions(mm)			
	L	l.c	s	r
WNMN080408	8.7	12.7	4.76	0.8
WNMN080412	8.7	12.7	4.76	1.2
WNMN060304	6.5	9.525	3.18	0.4



型号 Type	基本尺寸 Dimensions(mm)			
	L	l.c	s	r
RBMX1207	12.7	12.7	7.94	
RBMX0907	9.525	9.525	7.94	