

Application for PCBN & PCD

Inserts Materials	Grade	Applications
PCBN	MBN80	Machining normal gray cast iron with high speed, like engine cylinder and cover etc.
	MBN82	Machining alloy cast iron and alloy cast steel, like roller, slurry pump and mine machines etc.
	MBN85	Machining some tough materials, like hardened steel, bearing steel and die steel etc.
	MBN86	Machining wear resistant alloy cast iron with high speed, like brake disc and brake drum etc.
	MBN88	Machining some high temperature alloy, like aero engine.
PCD	MCD90	Suit for aluminum alloy, high Si aluminum alloy, cast aluminum and aluminum composite material, etc.
	MCD92	Suit for Si>14% aluminum alloy, fiberglass, High density fiberboard.
	MCD96	Suit for aluminum, copper, noble metal, wooden, plastic, compound materials.

About PCBN

Poly crystalline cubic boron nitride (PCBN), strict selected from CBN powder, is produced under high temperature and high pressure with a variety of metal, ceramics binder. PCBN has 2 series, carbide supported CBN and solid CBN.

PCBN has the advantage of high strength, hardness in high temperature, thermal stability, and wear resistance. PCBN is widely used in cast iron, hardened steel, roll, wear resistance alloy and various hard process materials, to get efficient production by turning instead of grinding.

PCBN Characteristics:

PCBN is the best tool material in ferrous metal industry because of ultra low affinity with ferrous metals.

Good chemical resistance, good thermal stability and hardness in high temperature, so PCBN can be used in high-speed dry cutting.

Compare with ceramic tools, PCBN tools has better impact resistance and fracture resistance.

Solid CBN tools could be used in high loads of heavy roughing processing, the impact of intermittent process.

PCBN Cutting Tool Guideline:

Good stability of machine tool system.

Negative rake on tools, to avoid chipping in intermittent cutting.

The tool cutting edge must be strictly to be the center height of processed products.

It may be caused blade damaged or chip if the tool has been used an extra long time or shut down in cutting.

Please don't use the coolant during intermittent cutting.

Solid PCBN Inserts



ISO Type	Dimension (mm)			
	L	ΦIC	S	r
CNM(G)N090304	9.7	9.525	3.18	0.4
CNM(G)N090308	9.7	9.525	3.18	0.8
CNM(G)N090312	9.7	9.525	3.18	1.2
CNM(G)N090404	9.7	9.525	4.76	0.4
CNM(G)N090408	9.7	9.525	4.76	0.8
CNM(G)N090412	9.7	9.525	4.76	1.2
CNM(G)N120404	12.9	12.7	4.76	0.4
CNM(G)N120408	12.9	12.7	4.76	0.8
CNM(G)N120412	12.9	12.7	4.76	1.2
CNM(G)N120704	12.9	12.7	7.94	0.4
CNM(G)N120708	12.9	12.7	7.94	0.8
CNM(G)N120712	12.9	12.7	7.94	1.2

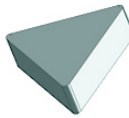


ISO Type	Dimension (mm)			
	L	ΦIC	S	r
DNM(G)N110404	11.0	9.525	4.76	0.4
DNM(G)N110408	11.0	9.525	4.76	0.8
DNM(G)N110412	11.0	9.525	4.76	1.2
DNM(G)N110604	11.0	9.525	6.35	0.4
DNM(G)N110608	11.0	9.525	6.35	0.8
DNM(G)N110612	11.0	9.525	6.35	1.2
DNM(G)N150604	15.5	12.7	6.35	0.4
DNM(G)N150608	15.5	12.7	6.35	0.8
DNM(G)N150612	15.5	12.7	6.35	1.2

Solid PCBN Inserts



ISO Type	Dimension (mm)			
	L	ΦIC	S	r
SNM(G)N090304	9.525	9.525	3.18	0.4
SNM(G)N090308	9.525	9.525	3.18	0.8
SNM(G)N090312	9.525	9.525	3.18	1.2
SNM(G)N090404	9.525	9.525	4.76	0.4
SNM(G)N090408	9.525	9.525	4.76	0.8
SNM(G)N090412	9.525	9.525	4.76	1.2
SNM(G)N120404	12.7	12.7	4.76	0.4
SNM(G)N120408	12.7	12.7	4.76	0.8
SNM(G)N120412	12.7	12.7	4.76	1.2
SNM(G)N150704	15.875	15.875	7.94	0.4
SNM(G)N150708	15.875	15.875	7.94	0.8
SNM(G)N150712	15.875	15.875	7.94	1.2
SNM(G)N150716	15.875	15.875	7.94	1.6
SNM(G)N201012	20	20	10	1.2

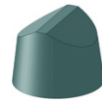


ISO Type	Dimension (mm)			
	L	ΦIC	S	r
TNM(G)N110304	11.0	6.35	3.18	0.4
TNM(G)N090308	11.0	6.35	3.18	0.8
TNM(G)N090312	11.0	6.35	3.18	1.2
TNM(G)N160404	16.5	9.525	4.76	0.4
TNM(G)N160408	16.5	9.525	4.76	0.8
TNM(G)N160412	16.5	9.525	4.76	1.2

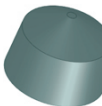
Solid PCBN Inserts



ISO Type	Dimension (mm)	
	ΦIC	S
RNM(G)N090300	9.525	3.18
RNM(G)N090400	9.525	4.76
RNM(G)N120400	12.7	4.76
RNM(G)N120700	12.7	7.94
RNM(G)N150400	15.875	4.76
RNM(G)N150700	15.875	7.94
RNM(G)N200700	20	7.94
RNM(G)N201000	20	10.0
RNM(G)N251200	25	12.0

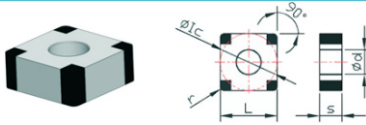


ISO Type	Dimension (mm)	
	ΦIC	S
RCM(G)X060400V	6.35	4.76
RCM(G)X090700V	9.525	7.94
RCM(G)X120700V	12.7	7.94
RCM(G)X150700V	15.875	7.94
RCM(G)X191000V	19.05	10.0
RCM(G)X201200V	20.0	12.0

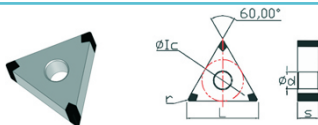


ISO Type	Dimension (mm)	
	ΦIC	S
RCM(G)X060400C	6.35	4.76
RCM(G)X090700C	9.525	7.94
RCM(G)X120700C	12.7	7.94
RCM(G)X150700C	15.875	7.94
RCM(G)X191000C	19.05	10.0
RCM(G)X201200C	20.0	12.0

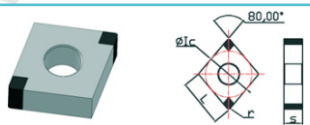
Brazed PCBN Inserts



ISO Type	Dimension (mm)					Blade Number
	L	ΦIC	S	Φd	r	
SNGA120404	12.7	12.7	4.76	5.16	0.4	8
SNGA120408	12.7	12.7	4.76	5.16	0.8	
SNGA120412	12.7	12.7	4.76	5.16	1.2	

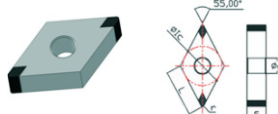


ISO Type	Dimension (mm)					Blade Number
	L	ΦIC	S	Φd	r	
TNGA160404	16.5	9.525	4.76	3.81	0.4	6
TNGA160408	16.5	9.525	4.76	3.81	0.8	
TNGA160412	16.5	9.525	4.76	3.81	1.2	
TNGA220402	22.0	12.7	4.76	5.16	0.4	
TNGA220408	22.0	12.7	4.76	5.16	0.8	
TNGA220412	22.0	12.7	4.76	5.16	1.2	




ISO Type	Dimension (mm)					Blade Number
	L	ΦIC	S	Φd	r	
CNGA120404	12.9	12.7	4.76	5.16	0.4	4
CNGA120408	12.9	12.7	4.76	5.16	0.8	
CNGA120412	12.9	12.7	4.76	5.16	1.2	
CNGA160608	16.1	15.875	6.35	6.35	0.8	
CNGA160612	16.1	15.875	6.35	6.35	1.2	
CNGA160616	16.1	15.875	6.35	6.35	1.6	

Brazed PCBN Inserts

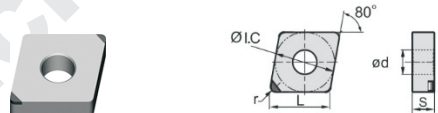


ISO Type	Dimension (mm)					Blade Number
	L	ΦIC	S	Φd	r	
DNGA150404	15.5	12.7	4.76	5.16	0.4	4
DNGA150408	15.5	12.7	4.76	5.16	0.8	
DNGA150412	15.5	12.7	4.76	5.16	1.2	
DNGA150608	15.5	12.7	6.35	5.16	0.4	
DNGA150612	15.5	12.7	6.35	5.16	0.8	
DNGA150616	15.5	12.7	6.35	5.16	1.2	



ISO Type	Dimension (mm)					Blade Number
	L	ΦIC	S	Φd	r	
WNGA150404	8.7	12.7	4.76	5.16	0.4	6
WNGA150408	8.7	12.7	4.76	5.16	0.8	
WNGA150412	8.7	12.7	4.76	5.16	1.2	

Brazed PCD Inserts



ISO Type	Dimension (mm)					Blade Number
	L	ΦIC	S	Φd	r	
CNGA120404	12.9	12.7	4.76	5.16	0.4	1
CNGA120408	12.9	12.7	4.76	5.16	0.8	
CNGA120412	12.9	12.7	4.76	5.16	1.2	
CNGA120404-2	12.9	12.7	4.76	5.16	0.4	2
CNGA120408-2	12.9	12.7	4.76	5.16	0.8	
CNGA120412-2	12.9	12.7	4.76	5.16	1.2	

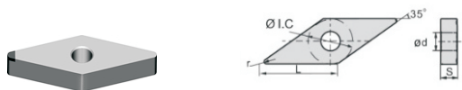
Brazed PCD Inserts

Type	Dimension (mm)					Blade Number
	L	ØIC	S	Ød	r	
DNGA120404	15.5	12.7	4.76	5.16	0.4	1
DNGA150408	15.5	12.7	4.76	5.16	0.8	
DNGA150412	15.5	12.7	4.76	5.16	1.2	
DNGA150602	15.5	12.7	6.35	5.16	0.4	
DNGA150604	15.5	12.7	6.35	5.16	0.8	
DNGA150608	15.5	12.7	6.35	5.16	1.2	
DNGA120404-2	15.5	12.7	4.76	5.16	0.4	2
DNGA150408-2	15.5	12.7	4.76	5.16	0.8	
DNGA150412-2	15.5	12.7	4.76	5.16	1.2	

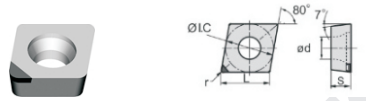
ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Ød	r	
SNGA120402	12.7	12.7	4.76	5.16	0.2	1
SNGA120404	12.7	12.7	4.76	5.16	0.4	
SNGA120408	12.7	12.7	4.76	5.16	0.8	
SNGA120412	12.7	12.7	4.76	5.16	1.2	
SNGA120402-2	12.7	12.7	4.76	5.16	0.2	
SNGA120404-2	12.7	12.7	4.76	5.16	0.4	
SNGA120408-2	12.7	12.7	4.76	5.16	0.8	2
SNGA120412-2	12.7	12.7	4.76	5.16	1.2	

ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Ød	r	
TNGA160402	16.5	9.525	4.76	3.81	0.2	1
TNGA160404	16.5	9.525	4.76	3.81	0.4	
TNGA160408	16.5	9.525	4.76	3.81	0.8	
TNGA160412	16.5	9.525	4.76	3.81	1.2	

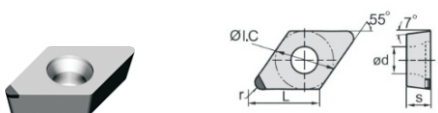
Brazed PCD Inserts



ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Φd	r	
VNGA160404	16.6	9.525	4.76	3.81	0.4	1
VNGA160408	16.5	9.525	4.76	3.81	0.8	
VNGA160404-2	16.6	9.525	4.76	3.81	0.4	2
VNGA160404-2	16.5	9.525	4.76	3.81	0.8	

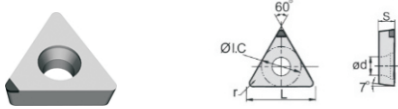


ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Φd	r	
CCGW060204	6.4	6.35	2.38	2.8	0.4	1
CCGW060208	6.4	6.35	2.38	2.8	0.8	
CCGW09T304	9.7	9.525	3.97	4.4	0.4	
CCGW09T308	9.7	9.525	3.97	4.4	0.8	
CCGW120408	12.9	12.7	4.76	5.5	0.8	
CCGW09T304-2	9.7	9.525	3.97	4.4	0.4	2
CCGW09T308-2	9.7	9.525	3.97	4.4	0.8	




ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Φd	r	
DCGW070202	7.8	6.35	2.38	2.8	0.2	1
DCGW070204	7.8	6.35	2.38	2.8	0.4	
DCGW11T304	11.6	9.525	3.97	4.4	0.4	
DCGW11T308	11.6	9.525	3.97	4.4	0.8	
DCGW11T304-2	11.6	9.525	3.97	4.4	0.4	
DCGW11T308-2	11.6	9.525	3.97	4.4	0.8	

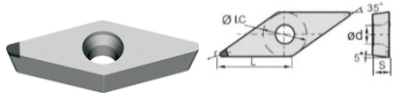
Brazed PCD Inserts



ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Ød	r	
TCGW090204	9.6	5.56	2.38	2.5	0.4	1
TCGW090208	9.6	5.56	2.38	2.5	0.8	
TCGW110202	11	6.35	2.38	2.8	0.2	
TCGW110204	11	6.35	2.38	2.8	0.4	
TCGW110208	11	6.35	2.38	2.8	0.8	
TCGW110304	11	6.35	2.38	2.8	0.4	
TCGW16T304	16.5	9.525	3.97	4.4	0.4	
TCGW16T308	16.5	9.525	3.97	4.4	0.8	
TCGW16T312	16.5	9.525	3.97	4.4	1.2	



ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Ød	r	
VBGW160404	16.6	9.525	4.76	4.4	0.4	1
VBGW160408	16.6	9.525	4.76	4.4	0.8	
VBGW160412	16.6	9.525	4.76	4.4	1.2	
VBGW160404-2	16.6	9.525	4.4	4.4	0.4	2
VBGW160408-2	16.6	9.525	4.4	0.8		
VBGW160412-2	16.6	9.525	4.4	1.2		



ISO Type	Dimension (mm)					Blade Number
	L	ØIC	S	Ød	r	
VCGW160404	16.6	9.525	4.76	4.4	0.4	1
VCGW160408	16.6	9.525	4.76	4.4	0.8	
VCGW160412	16.6	9.525	4.76	4.4	1.2	
VCGW160404-2	16.6	9.525	4.76	4.4	0.4	2
VCGW160408-2	16.6	9.525	4.76	4.4	0.8	
VCGW160412-2	16.6	9.525	4.76	4.4	1.2	

Problems & Solutions

Problem Type	Method
Excessively Wear Of Flank	<p>Improve the cutting speed(gray cast iron) Reduce the cutting speed(hardened steel, cast iron increase the feed).</p> <p>Increase of the depth of cutting(DOC).</p> <p>Check the tool center height.</p> <p>Check the ferrite content.</p>
The Front Cutter Surface Spalling(continuous cutting)	<p>Improve the cutting speed.</p> <p>Reduce the feed.</p> <p>Choose the cutting tools with negative rake and edge grinding.</p> <p>Check the tool height.</p> <p>Reduce the tool angle.</p>
Edge Chipping	<p>Choose the cutting tools with negative rake and edge grinding.</p> <p>Improve the rigidity of the system.</p> <p>For interrupted cutting , please do negative rake on the edge of entrance/exit and the hole of the work piece.</p> <p>Change the cutting speed to avoid vibration.</p>
Excessively Wear On Crater	<p>Reduce the cutting speed.</p> <p>Reduce the feed.</p> <p>Reduce the negative rank angle.</p> <p>Choose E type edge grinding.</p> <p>Choose coated blade.</p> <p>Choose cooling liquid (only for continuous cutting).</p>
Cutting Edge Damaged Seriously	<p>Reduce the depth of cutting (low blade load).</p> <p>Reduce the cutting speed.</p> <p>Increase the corner radius (the circular blade is the most ideal blade).</p> <p>Chose the cutting tools with negative rake and edge grinding.</p> <p>Check the tool center height.</p>
The Blade Damaged	<p>Check if the blade and the PCD tips are clean.</p> <p>Check if the blade pad support well.</p> <p>Please don't choose wear blade pad.</p> <p>Please don't choose wear plate</p> <p>Check the tool center height.</p>

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