

Coated CBN Grade for Cast Irons

# BC5110

New  
Products

Excellent Wear Resistance when Turning Grey  
Cast Irons at Low Cutting Speeds  
Provides Fine Surface Finishes on Low Rigidity  
Workpieces



## Coated CBN Grade for Cast Irons

# BC5110

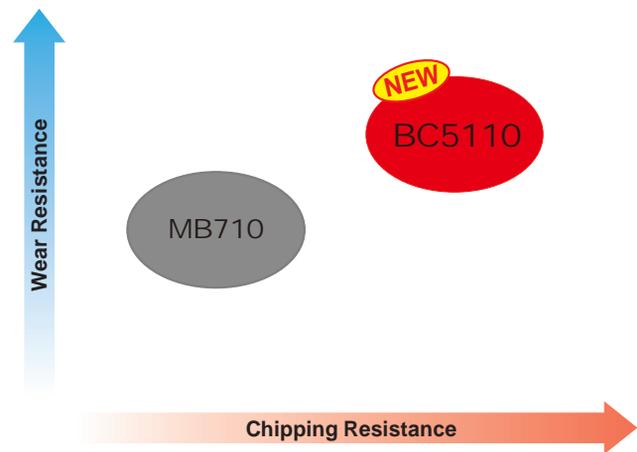
BC5110 combines a tough substrate with a high hardness coating to provide excellent chipping and wear resistance.

### Excellent Chipping Resistance

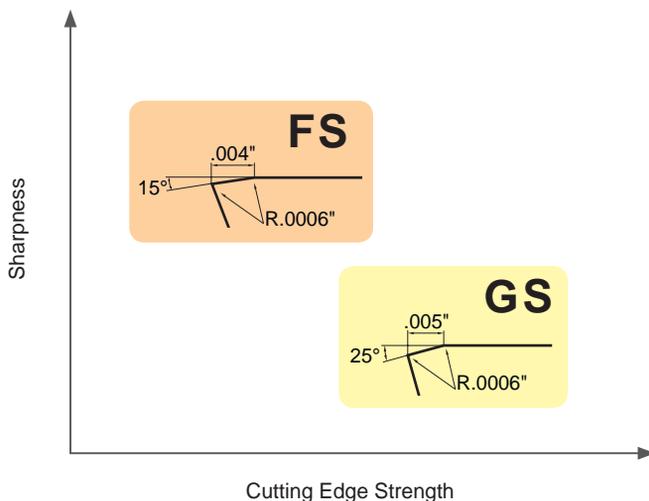
Compared to conventional grades, the fine grain and high cBN content greatly improves chipping resistance and provides stability and long tool life.

### Excellent Wear Resistant Coating

The hard ceramic coating layer provides excellent surface finishes as well as wear and notch resistance during continuous cutting. Additionally, chipping and peeling of the coating layer is suppressed due to the improved bonding strength to the cBN substrate.



### Edge Preparation (Honing) Options



#### FS Honing

FS honing has a sharp edge with a small chamfer angle for good flank wear resistance. Recommended for minimizing burrs and achieving improved surface finish.

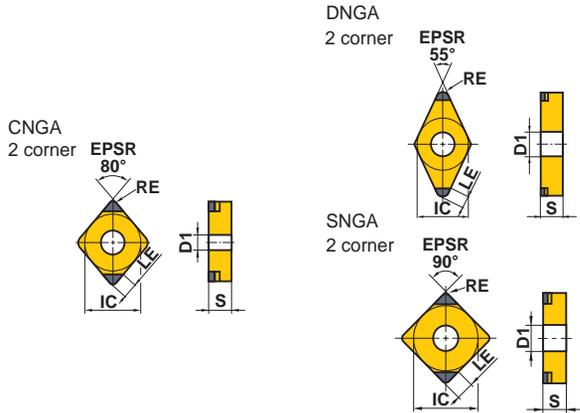
#### GS Honing

GS honing is preferable for thin or low rigidity workpiece material and for applications that are prone to chip the cutting edge.



### Negative Inserts (With Hole)

#### G Class

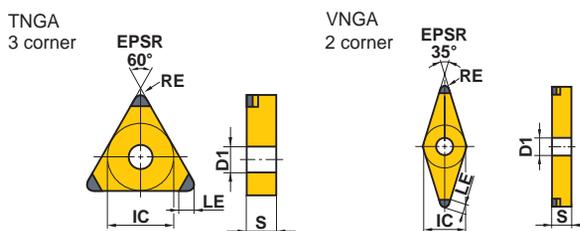


(inch)

Order Number	Coated CBN	Cutting Edges	IC	S	RE	D1	LE
	BC5110						
NP-CNGA431-FS2	●	2	.500	.187	.016	.203	.073
NP-CNGA432-FS2	●	2	.500	.187	.031	.203	.082
NP-CNGA433-FS2	●	2	.500	.187	.047	.203	.090
NP-CNGA431-GS2	●	2	.500	.187	.016	.203	.073
NP-CNGA432-GS2	●	2	.500	.187	.031	.203	.082
NP-CNGA433-GS2	●	2	.500	.187	.047	.203	.090
NP-DNGA431-FS2	●	2	.500	.187	.016	.203	.083
NP-DNGA432-FS2	●	2	.500	.187	.031	.203	.080
NP-DNGA441-FS2	●	2	.500	.250	.016	.203	.083
NP-DNGA442-FS2	●	2	.500	.250	.031	.203	.080
NP-DNGA431-GS2	●	2	.500	.187	.016	.203	.083
NP-DNGA432-GS2	●	2	.500	.187	.031	.203	.080
NP-DNGA442-GS2	●	2	.500	.250	.031	.203	.080
NP-SNGA432-GS2	●	2	.500	.187	.031	.203	.090

### Negative Inserts (With Hole)

#### G Class



(inch)

Order Number	Coated CBN	Cutting Edges	IC	S	RE	D1	LE
	BC5110						
NP-TNGA331-FS3	●	3	.375	.187	.016	.150	.063
NP-TNGA332-FS3	●	3	.375	.187	.031	.150	.069
NP-TNGA333-FS3	●	3	.375	.187	.047	.150	.076
NP-TNGA331-GS3	●	3	.375	.187	.016	.150	.063
NP-TNGA332-GS3	●	3	.375	.187	.031	.150	.069
NP-TNGA333-GS3	●	3	.375	.187	.047	.150	.076
NP-VNGA331-FS2	●	2	.375	.187	.016	.150	.099
NP-VNGA332-FS2	●	2	.375	.187	.031	.150	.079
NP-VNGA331-GS2	●	2	.375	.187	.016	.150	.099
NP-VNGA332-GS2	●	2	.375	.187	.031	.150	.079

● : Inventory maintained. (1 insert in one case)

## Positive Inserts (With Hole)

### G Class

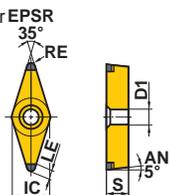
NEW PETIT CUT

NP\_002



VBGW

2 corner



(inch)

Order Number	Coated CBN	Cutting Edges	IC	S	RE	D1	LE
	BC5110						
NP-VBGW331-GS2	●	2	.375	.187	.016	.173	.099
NP-VBGW332-GS2	●	2	.375	.187	.031	.173	.079

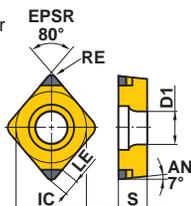
## Positive Inserts (With Hole)

### G Class



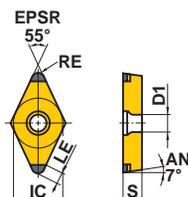
CCGW

2 corner



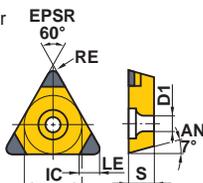
DCGW

2 corner



TCGW

3 corner



(inch)

Order Number	Coated CBN	Cutting Edges	IC	S	RE	D1	LE
	BC5110						
NP-CCGW21.50.5-FS2	●	2	.250	.094	.008	.110	.069
NP-CCGW21.51-FS2	●	2	.250	.094	.016	.110	.073
NP-CCGW32.51-FS2	●	2	.375	.156	.016	.173	.073
NP-CCGW32.52-FS2	●	2	.375	.156	.031	.173	.082
NP-CCGW21.50.5-GS2	●	2	.250	.094	.008	.110	.069
NP-CCGW32.51-GS2	●	2	.375	.156	.016	.173	.073
NP-CCGW32.52-GS2	●	2	.375	.156	.031	.173	.082
NP-DCGW21.51-FS2	●	2	.250	.094	.016	.110	.083
NP-DCGW32.52-FS2	●	2	.375	.156	.031	.173	.080
NP-DCGW21.51-GS2	●	2	.250	.094	.016	.110	.083
NP-DCGW32.51-GS2	●	2	.375	.156	.016	.173	.083
NP-DCGW32.52-GS2	●	2	.375	.156	.031	.173	.080
NP-TCGW21.51-FS3	●	3	.250	.094	.016	.110	.063
NP-TCGW21.51-FS3	●	3	.250	.094	.031	.110	.069
NP-TCGW1.81.51-GS3	●	3	.219	.094	.016	.098	.063
NP-TCGW21.52-GS3	●	3	.250	.094	.031	.110	.069

## Positive Inserts (With Hole)

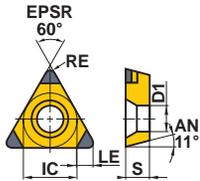
### G Class

NEW PETIT CUT

NP\_003



TPGB  
3 corner



(inch)

Order Number	Coated CBN	Cutting Edges	IC	S	RE	D1	LE
	BC5110						
NP-TPGB1.81.51-FS3	●	3	.219	.094	.016	.114	.063
NP-TPGB221-FS3	●	3	.250	.125	.016	.134	.063
NP-TPGB222-FS3	●	3	.250	.125	.031	.134	.069
NP-TPGB1.51.51-GS3	●	3	.187	.094	.016	.094	.063
NP-TPGB221-GS3	●	3	.250	.125	.016	.134	.063
NP-TPGB222-GS3	●	3	.250	.125	.031	.134	.069

## Positive Inserts (Without Hole)

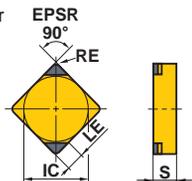
### G Class

NEW PETIT CUT

NP\_002



SPGN  
2 corner

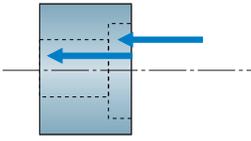
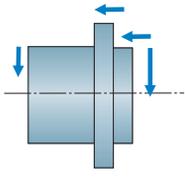
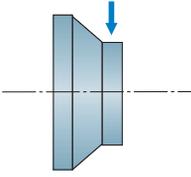
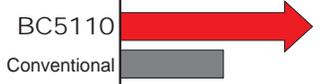


(inch)

Order Number	Coated CBN	Cutting Edges	IC	S	RE	D1	LE
	BC5110						
NP-SPGN433-GS2	●	2	.500	.187	.047	—	.099

● : Inventory maintained. (1 insert in one case)

## Application Examples

Insert		NP-DCGW21.51-FS2	NP-VCGW332-FS2	NP-VNGA332-FS2
Workpiece Material		Gray Cast Iron (AISI No 35 B) 	Gray Cast Iron (AISI No 35 B) 	Gray Cast Iron 
Component		Automotive Parts	Automotive Parts	Ring
Cutting Conditions	Cutting Speed <b>vc</b> (SFM)	1195	1740	360
	Feed per Rev. <b>f</b> (IPR)	.004	.004	.005
	Depth of Cut <b>ap</b> (inch)	.004	.004	.024
Cutting Mode		Wet Cutting	Wet Cutting	Dry Cutting
Results		<p>Number of Workpieces 200 400 600</p>  <p>BC5110 achieved 1.25 X longer tool life with stable dimensional accuracy and improved surface finish when compared to conventional product.</p>	<p>Number of Workpieces 200 400 600 800</p>  <p>BC5110 achieved 1.5 X longer tool life with greatly reduced flank wear compared to conventional product.</p>	<p>Number of Workpieces 1000 2000 3000 4000</p>  <p>BC5110 achieved a 50% increase in tool life plus an improved surface finish.</p>

The application examples are from customers workpieces and can therefore differ from the recommended cutting conditions.

## Recommended Cutting Conditions

Workpiece Material	Cutting Speed vc (SFM)						f (IPR)	ap (inch)	Cutting Mode
	330	655	985	1310	1640	1970			
<b>K</b> Gray Cast Irons AISI No 35 B, No 45 B							≤ .020	≤ .020	Dry, Wet

### For your safety

●Don't touch breakers and chips without gloves. ●Please machine within recommended application range, and exchange expired tools with new parts in advance. ●Please use safety cover and wear safety glasses. ●When using compounded cutting oils, please take fire prevention. ●When attaching inserts or spare parts, please use the attached wrench or driver. ●When using tools in revolution machining, please make a trial run to check run-out, vibration, abnormal sounds etc.

## MITSUBISHI MATERIALS U.S.A. CORPORATION

Customer Service : 800-523-0800  
Technical Service : 800-486-2341

**LOS ANGELES HEAD OFFICE**  
3535 Hyland Avenue, Suite 200, Costa Mesa, CA 92626  
TEL : 714-352-6100 FAX : 714-668-1320

**NORTH CAROLINA OFFICE**  
105 Corporate Center Drive Suite A, Mooresville, NC 28117  
TEL : 980-312-3100 FAX : 704-746-9292

**CHICAGO OFFICE**  
1314B North Plum Grove Road, Schaumburg, IL 60173  
TEL : 847-252-6300 FAX : 847-519-1732

**TORONTO OFFICE**  
3535 Laird Road, Units 15 & 16, Mississauga, Ontario, L5L 5Y7, Canada  
TEL : 905-814-0240 FAX : 905-814-0245

**MMC METAL DE MEXICO, S.A. DE C.V.**  
Av. La Cañada No.16, Parque Industrial Bernardo Quintana,  
El Marques, Queretaro, CP76246, Mexico  
TEL : +52-442-221-6136 FAX : +52-442-221-6134

**URL : <http://www.mmus-carbide.com>**  
(Tool specifications subject to change without notice.)

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