

# HOW TO READ THE STANDARD OF CBN&PCD TURNING INSERTS

## ● How this section page is organized

- ① Organized according to turning insert shape.  
(Refer to the index on the next page.)
- ② Inserts are arranged in order of :
  - Negative inserts (with hole→without hole)
  - Positive inserts (with hole→without hole)

**GRADE APPLICATION RECOMMENDED FOR EACH WORK MATERIAL**  
cutting conditions suitable for each type of work material is shown as a general guide to select the grade.

● : Stable Cutting   ● : General Cutting   ✕ : Unstable Cutting

**INDICATION OF NEGATIVE/POSITIVE TYPE**

**SHAPE & ANGLE MARK**

**TITLE OF PRODUCT ACCORDING TO THE INSERT TYPE**

**PRODUCT SECTION**

**FIGURE SHOWING THE INSERT GEOMETRY**  
D<sub>1</sub> : Diameter of Inscribed Circle   S<sub>1</sub> : Thickness  
R<sub>e</sub> : Corner Radius   φD<sub>2</sub> : Diameter of Hole  
Dimensions are detailed in the "Dimensions" column.

**STOCK STATUS**

**INSERT NUMBER**

**INSERT GRADES**

**INSERT DIMENSIONS**

**CBN TURNING INSERTS (NEGATIVE)**  
**80° CN TYPE INSERTS WITH HOLE**

Work Material	Order Number	Grade	Dimensions (mm)	Geometry	Applicable Holder Range			
NEG	NP-CNGA120404GA	●●●●●	12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008			
	120408GA	●●●●●	12.7 4.76 0.8 5.16					
	120412GA	●●●●●	12.7 4.76 1.2 5.16					
	120404GN4	●●●●●	12.7 4.76 0.4 5.16					
	120408GN4	●●●●●	12.7 4.76 0.8 5.16					
	120412GN4	●●●●●	12.7 4.76 1.2 5.16					
	120404FS4	●●●●●	12.7 4.76 0.4 5.16					
	120408FS4	●●●●●	12.7 4.76 0.8 5.16					
	120412FS4	●●●●●	12.7 4.76 1.2 5.16					
	120404TA4	●●●●●	12.7 4.76 0.4 5.16					
	120408TA4	●●●●●	12.7 4.76 0.8 5.16					
	120412TA4	●●●●●	12.7 4.76 1.2 5.16					
NEG	NP-CNGA120404GWS4	●●●●●	12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008			
	120408GWS4	●●●●●	12.7 4.76 0.8 5.16					
	120412GWS4	●●●●●	12.7 4.76 1.2 5.16					
	NEW PATT CUT (With Wiper)	BF-CGG120404TA4	●●●●●			12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008
		120408TA4	●●●●●			12.7 4.76 0.8 5.16		
		120412TA4	●●●●●			12.7 4.76 1.2 5.16		
	NEW PATT CUT	NP-CNGA120404GA2	●●●●●			12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008
		120408GA2	●●●●●			12.7 4.76 0.8 5.16		
		120412GA2	●●●●●			12.7 4.76 1.2 5.16		
		120404GS2	●●●●●			12.7 4.76 0.4 5.16		
		120408GS2	●●●●●			12.7 4.76 0.8 5.16		
		120412GS2	●●●●●			12.7 4.76 1.2 5.16		
120404GN2		●●●●●	12.7 4.76 0.4 5.16					
120408GN2		●●●●●	12.7 4.76 0.8 5.16					
120412GN2		●●●●●	12.7 4.76 1.2 5.16					
120404FS2		●●●●●	12.7 4.76 0.4 5.16					
120408FS2		●●●●●	12.7 4.76 0.8 5.16					
120412FS2		●●●●●	12.7 4.76 1.2 5.16					
120404TA2	●●●●●	12.7 4.76 0.4 5.16						
120408TA2	●●●●●	12.7 4.76 0.8 5.16						
120412TA2	●●●●●	12.7 4.76 1.2 5.16						
120404TS2	●●●●●	12.7 4.76 0.4 5.16						
120408TS2	●●●●●	12.7 4.76 0.8 5.16						
120412TS2	●●●●●	12.7 4.76 1.2 5.16						

● Inventory maintained in Japan. □ Non stock, produced to order only. (1 lot in one case)

Work Material	Order Number	Grade	Dimensions (mm)	Geometry	Applicable Holder Range			
NEG	NP-CNGA120404G2	●●●●●	12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008			
	120408G2	●●●●●	12.7 4.76 0.8 5.16					
	120412G2	●●●●●	12.7 4.76 1.2 5.16					
	120404T2	●●●●●	12.7 4.76 0.4 5.16					
	120408T2	●●●●●	12.7 4.76 0.8 5.16					
	120412T2	●●●●●	12.7 4.76 1.2 5.16					
	NEW PATT CUT #2	TNP-CNGA120404G2	●●●●●			12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008
		120408G2	●●●●●			12.7 4.76 0.8 5.16		
		120412G2	●●●●●			12.7 4.76 1.2 5.16		
	NEW PATT CUT (With Wiper)	NP-CNGA120404GWS	●●●●●			12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008
		120408GWS	●●●●●			12.7 4.76 0.8 5.16		
		120412GWS	●●●●●			12.7 4.76 1.2 5.16		
NEW PATT CUT		BF-CNGM120404TA2	●●●●●	12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008		
		120408TA2	●●●●●	12.7 4.76 0.8 5.16				
		120412TA2	●●●●●	12.7 4.76 1.2 5.16				
NEW PATT CUT (With Breaker)		BM-CNGM120408TA2	●●●●●	12.7 4.76 0.8 5.16		C008 C009 E013 E036 E041 H006 -008		
		120412TA2	●●●●●	12.7 4.76 1.2 5.16				
NEW PATT CUT (With Breaker)		NP-CNMA120404G5	●●●●●	12.7 4.76 0.4 5.16		C008 C009 E013 E036 E041 H006 -008		
		120408G5	●●●●●	12.7 4.76 0.8 5.16				
		120412G5	●●●●●	12.7 4.76 1.2 5.16				
		120404G5	●●●●●	12.7 4.76 0.4 5.16				
	120408G5	●●●●●	12.7 4.76 0.8 5.16					
	120412G5	●●●●●	12.7 4.76 1.2 5.16					
	120404F5	●●●●●	12.7 4.76 0.4 5.16					
	120408F5	●●●●●	12.7 4.76 0.8 5.16					
	120412F5	●●●●●	12.7 4.76 1.2 5.16					
	120404T5	●●●●●	12.7 4.76 0.4 5.16					
	120408T5	●●●●●	12.7 4.76 0.8 5.16					
	120412T5	●●●●●	12.7 4.76 1.2 5.16					

**LEGEND FOR STOCK STATUS MARK**  
is shown on the left hand page of each double-page spread.

**PHOTO OF INSERT**

**PRODUCT NAME**

**PAGE REFERENCE**

- CHIP BREAKERS
  - GRADES
  - TECHNICAL DATA
- indicates reference pages, on the right hand page of each double-page spread.

**APPLICABLE HOLDER PAGE**  
indicates reference pages for details of applicable holders.

**● To Order : Please specify**  
① insert number and ② grade.

# TURNING TOOLS

# CBN & PCD INSERT STANDARDS

# CBN & PCD INSERT GRADES

IDENTIFICATION .....	B002
CBN (CUBIC BORON NITRIDE) .....	B004
PCD (SINTERED DIAMOND) .....	B015
CLASSIFICATION OF CBN & PCD INSERTS .....	B016

## STANDARD OF CBN TURNING INSERTS

### NEGATIVE INSERTS WITH HOLE

CN $\odot\odot$ TYPE...RHOMBIC 80° .....	B022
DN $\odot\odot$ TYPE...RHOMBIC 55° .....	B025
SN $\odot\odot$ TYPE...SQUARE 90° .....	B027
TN $\odot\odot$ TYPE...TRIANGULAR 60° .....	B028
VN $\odot\odot$ TYPE...RHOMBIC 35° .....	B030
WN $\odot\odot$ TYPE...TRIGON 80° .....	B031

### NEGATIVE INSERTS WITHOUT HOLE

CN $\odot\odot$ TYPE...RHOMBIC 80° .....	B032
DN $\odot\odot$ TYPE...RHOMBIC 55° .....	B032
RN $\odot\odot$ TYPE...ROUND .....	B033
SN $\odot\odot$ TYPE...SQUARE 90° .....	B034
TN $\odot\odot$ TYPE...TRIANGULAR 60° .....	B035

### POSITIVE INSERTS WITH HOLE

CC $\odot\odot$ TYPE...RHOMBIC 80° .....	B036
CP $\odot\odot$ TYPE...RHOMBIC 80° .....	B039
DC $\odot\odot$ TYPE...RHOMBIC 55° .....	B040
TC $\odot\odot$ TYPE...TRIANGULAR 60° .....	B042
TP $\odot\odot$ TYPE...TRIANGULAR 60° .....	B043
VB $\odot\odot$ TYPE...RHOMBIC 35° .....	B045
VC $\odot\odot$ TYPE...RHOMBIC 35° .....	B046
WC $\odot\odot$ TYPE...TRIGON 80° .....	B046

### POSITIVE INSERTS WITHOUT HOLE

SP $\odot\odot$ TYPE...SQUARE 90° .....	B048
TB $\odot\odot$ TYPE...TRIANGULAR 60° .....	B049
TP $\odot\odot$ TYPE...TRIANGULAR 60° .....	B049
RTGTYPE .....	B047
GYTYPE .....	B050
MGTRTYPE .....	B051

## STANDARD OF PCD TURNING INSERTS

### NEGATIVE INSERTS WITH HOLE

CN $\odot\odot$ TYPE...RHOMBIC 80° .....	B052
DN $\odot\odot$ TYPE...RHOMBIC 55° .....	B052
SN $\odot\odot$ TYPE...SQUARE 90° .....	B053
TN $\odot\odot$ TYPE...TRIANGULAR 60° .....	B053
VN $\odot\odot$ TYPE...RHOMBIC 35° .....	B054

### NEGATIVE INSERTS WITHOUT HOLE

SN $\odot\odot$ TYPE...SQUARE 90° .....	B055
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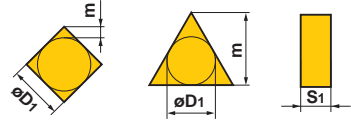
### POSITIVE INSERTS WITH HOLE

CC $\odot\odot$ TYPE...RHOMBIC 80° .....	B056
CP $\odot\odot$ TYPE...RHOMBIC 80° .....	B056
DC $\odot\odot$ TYPE...RHOMBIC 55° .....	B057
SP $\odot\odot$ TYPE...SQUARE 90° .....	B057
TC $\odot\odot$ TYPE...TRIANGULAR 60° .....	B058
TP $\odot\odot$ TYPE...TRIANGULAR 60° .....	B059
VB $\odot\odot$ TYPE...RHOMBIC 35° .....	B061
VC $\odot\odot$ TYPE...RHOMBIC 35° .....	B061
WC $\odot\odot$ TYPE...TRIGON 80° .....	B062
WP $\odot\odot$ TYPE...TRIGON 80° .....	B062
DE $\odot\odot$ TYPE...RHOMBIC 55° .....	B063
TE $\odot\odot$ TYPE...TRIANGULAR 60° .....	B063
VD $\odot\odot$ TYPE...RHOMBIC 35° .....	B064

### POSITIVE INSERTS WITHOUT HOLE

SP $\odot\odot$ TYPE...SQUARE 90° .....	B065
TP $\odot\odot$ TYPE...TRIANGULAR 60° .....	B065

# IDENTIFICATION



Symbol	Tolerance of Nose Height <b>m</b> (mm)	Tolerance of Inscribed Circle <b>φD1</b> (mm)	Tolerance of Thickness <b>S1</b> (mm)
<b>G</b>	±0.025	±0.025	±0.13
<b>M*</b>	±0.08—±0.18	±0.05—±0.15	±0.13

The surface of insert with \* mark is sintered.

Detail of M Class Insert Tolerance

● Tolerance of Nose Height **m** (mm)

D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
<b>6.35</b>	±0.08	±0.08	±0.08	±0.11	±0.16	—
<b>9.525</b>	±0.08	±0.08	±0.08	±0.11	±0.16	—
<b>12.70</b>	±0.13	±0.13	±0.13	±0.15	—	—

● Tolerance of Inscribed Circle **φD1** (mm)

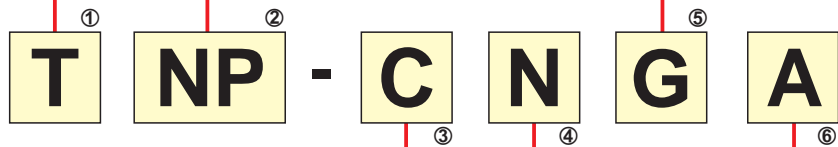
D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
<b>6.35</b>	±0.05	±0.05	±0.05	±0.05	±0.05	—
<b>9.525</b>	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
<b>12.70</b>	±0.08	±0.08	±0.08	±0.08	—	±0.08

<b>T</b>	10-inserts Package
<b>No mark</b>	1-insert Package

① Insert Case

<b>BM</b>	With Breaker
<b>BF</b>	With Breaker
<b>NP</b>	New Petit Cut
<b>No mark</b>	Standard Type

② Insert Geometry



③ Insert Shape

Symbol	Insert Shape	
<b>S</b>	Square	
<b>T</b>	Triangular	
<b>C</b>	Rhombic 80°	
<b>D</b>	Rhombic 55°	
<b>V</b>	Rhombic 35°	
<b>W</b>	Trigon	
<b>R</b>	Round	

④ Normal Clearance

Symbol	Normal Clearance	
<b>B</b>	5°	
<b>C</b>	7°	
<b>D</b>	15°	
<b>E</b>	20°	
<b>N</b>	0°	
<b>P</b>	11°	

⑥ Fixing and/or for Chip Breaker

Metric				
Symbol	Hole	Hole Configuration	Chip Breaker	Figure
<b>W</b>	With Hole	Cylindrical Hole +	No	
<b>T</b>	With Hole	One Countersink (40—60°)	One Sided	
<b>B</b>	With Hole	Cylindrical Hole +	No	
<b>H</b>	With Hole	One Countersink (70—90°)	One Sided	
<b>A</b>	With Hole	Cylindrical Hole	No	
<b>M</b>	With Hole	Cylindrical Hole	One Sided	
<b>N</b>	Without Hole	—	No	
<b>X</b>	—	—	—	Special Design

Diameter of Inscribed Circle (mm)	Symbol						
3.97		<b>02</b>		<b>04</b>	<b>03</b>	<b>03</b>	<b>06</b>
4.76		<b>L3</b>	<b>08</b>	<b>05</b>	<b>04</b>	<b>04</b>	<b>08</b>
5.56		<b>03</b>	<b>09</b>	<b>06</b>	<b>05</b>	<b>05</b>	<b>09</b>
6.35		<b>04</b>	<b>11</b>	<b>07</b>	<b>06</b>	<b>06</b>	<b>11</b>
7.94		<b>05</b>	<b>13</b>	<b>09</b>	<b>08</b>	<b>07</b>	<b>13</b>
9.525	<b>09</b>	<b>06</b>	<b>16</b>	<b>11</b>	<b>09</b>	<b>09</b>	<b>16</b>
12.70	<b>12</b>	<b>08</b>	<b>22</b>	<b>15</b>	<b>12</b>	<b>12</b>	<b>22</b>

**⑦ Insert Size**

\*Thickness is from the bottom of the insert to the top of the cutting edge.

Symbol	Thickness (mm)
<b>S1</b>	1.39
<b>01</b>	1.59
<b>T0</b>	1.79
<b>02</b>	2.38
<b>T2</b>	2.78
<b>03</b>	3.18
<b>T3</b>	3.97
<b>04</b>	4.76

**⑧ Insert Thickness**

Symbol	Corner Radius (mm)
<b>02</b>	0.2
<b>04</b>	0.4
<b>08</b>	0.8
<b>12</b>	1.2
<b>16</b>	1.6

**⑨ Insert Corner Configuration**

**⑦ 12**   **⑧ 04**   **⑨ 04**   **⑩ G**   **⑪ WS**   **⑫ 2**   **⑬ J**   **⑭ R**

**⑩ Application (Honing)**

Symbol	Honing
<b>GA</b>	General Cutting
<b>GS</b>	
<b>GN</b>	
<b>G</b>	
<b>FA</b>	Continuous Cutting
<b>FS</b>	
<b>FN</b>	
<b>F</b>	Interrupted Cutting
<b>TA</b>	
<b>TS</b>	
<b>TN</b>	
<b>T</b>	

**⑪ Wiper**

<b>WS</b>	With Wiper
<b>No mark</b>	Without Wiper

**⑫ Number of Teeth**

<b>2</b>	2
<b>3</b>	3
<b>4</b>	4
<b>6</b>	6
<b>No mark</b>	1

**⑬ Cutting Edge Angle**

<b>F</b>	91°
<b>J</b>	93°
<b>No mark</b>	Non Restriction

Please pay special attention when using an indexable insert. Please refer to page B014 for further information.

**⑭ Cutting Direction**

Figure	Hand	Symbol
	Right	<b>R</b>
	Left	<b>L</b>
	Neutral	<b>N</b>

Please refer to page B011 for further information.

# COATED CBN SERIES

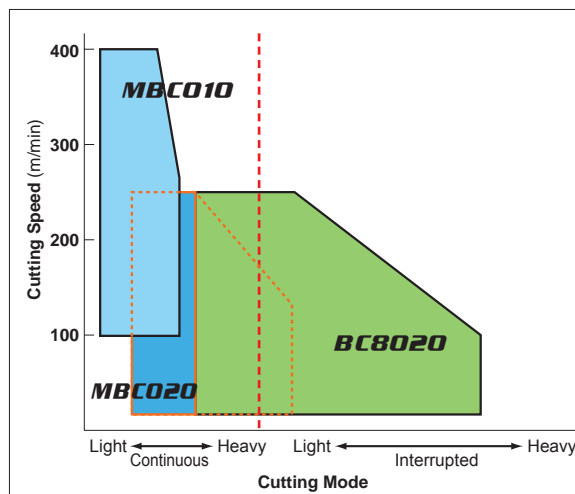
## **BC8020 / MBC010 / MBC020**

CBN & PCD TURNING INSERTS

### FEATURES

With the expansion of BC8020, Mitsubishi can offer 3 coated CBN grades for machining of hardened steels. These 3 coated CBN grades cover a wide range of applications.

To achieve longer tool life, Mitsubishi uses a unique "Particle-activated Sintering Method", combined with increased cutting edge strength. With high crater wear resistance CBN grades and a wear resistant ceramic coatings, longer tool life and improved machine efficiency are obtained.

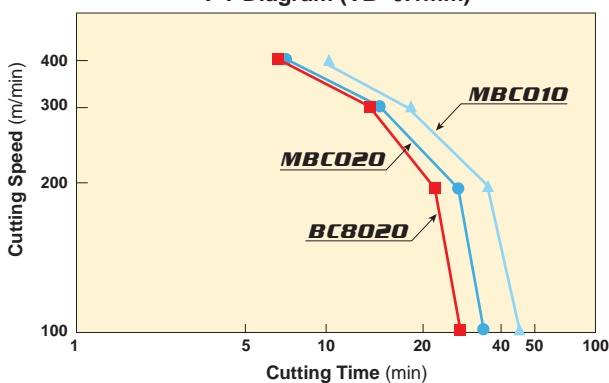


Grade	Grade Features and Application	Main Component	Coating Layer
<b>BC8020</b>	<b>High efficiency coated CBN</b> Increased cutting edge strength and high crater wear resistant CBN grade in combination with a highly wear resistant TiAlN coating, results in longer tool life and improved machining efficiency under heavy duty or interrupting cutting.	CBN (Medium Grain) TiN Al <sub>2</sub> O <sub>3</sub>	TiAlN
<b>MBC010</b>	<b>Coated CBN for High Speed Continuous Cutting</b> MBC010 makes the best use of special ceramic binder structure, actualizing high wear resistance. High wear resistance enables continuous machining at high speed of over 300m/min.	CBN (Micro Grain) TiN Al <sub>2</sub> O <sub>3</sub>	TiN
<b>MBC020</b>	<b>Coated CBN for general cutting</b> Uses a CBN substrate that has high cutting edge toughness. The TiAlN based coating delivers superb wear resistance. It covers a wide range of applications from continuous to light interrupted cutting.	CBN (Micro Grain) TiN Al <sub>2</sub> O <sub>3</sub>	TiAlN

### CUTTING PERFORMANCE

#### Continuous Cutting

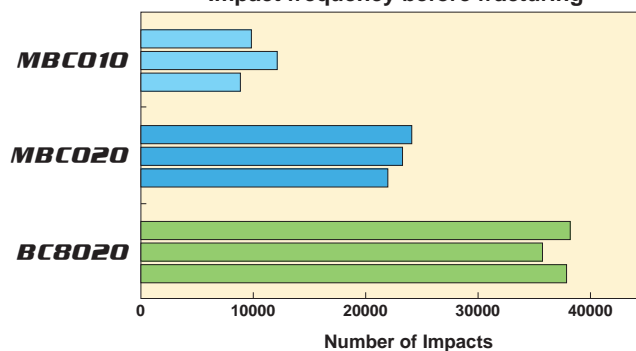
V-T Diagram (VB=0.1mm)



<Cutting Conditions>  
 Workpiece : JIS SCM415 (60HRC)  
 External Continuous Cutting  
 Insert : NP-CNGA120408GA  
 Feed : 0.1mm/rev  
 Depth of Cut : 0.1mm  
 Wet Cutting

#### Interrupted Cutting

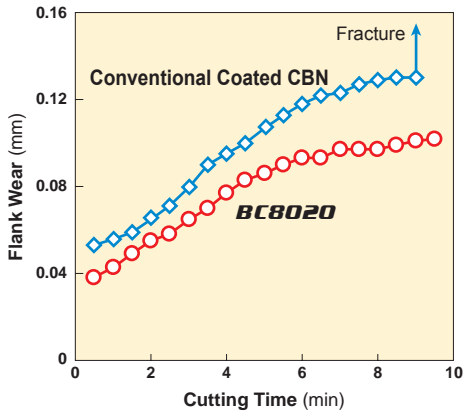
Impact frequency before fracturing



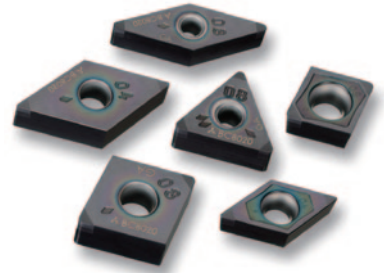
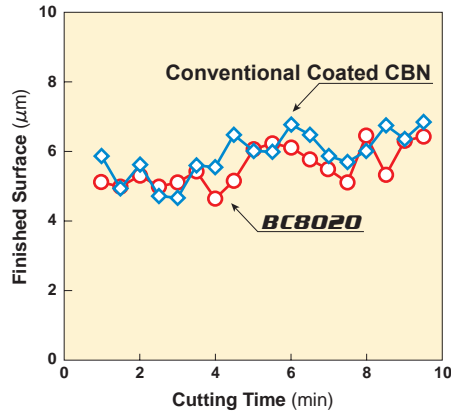
<Cutting Conditions>  
 Workpiece : JIS SCM415 (60HRC)  
 External Interrupted Cutting 8 Groove  
 Insert : NP-CNGA120408GA  
 Cutting Speed : 150m/min  
 Feed : 0.2mm/rev  
 Depth of Cut : 0.2mm  
 Dry Cutting

# BC8020

## CONTINUOUS CUTTING WEAR RESISTANCE



## FINISHED SURFACE

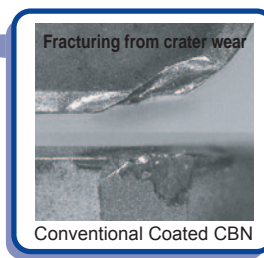
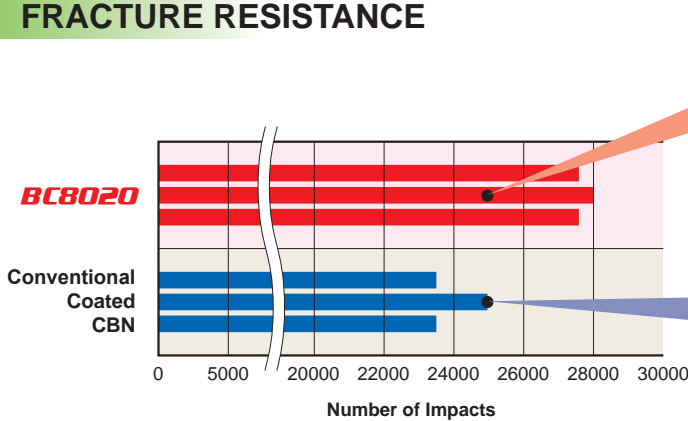


CBN & PCD TURNING INSERTS

<Cutting Conditions>

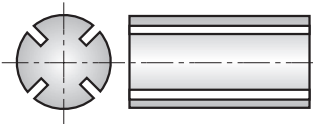
Workpiece : JIS SCr420 (60HRC) Insert : NP-CNGA120408GA  
 Cutting Speed : 150m/min Feed : 0.15mm/rev Depth of Cut : 0.5mm  
 Wet Continuous Cutting

## INTERRUPTED CUTTING (CRATER WEAR) FRACTURE RESISTANCE

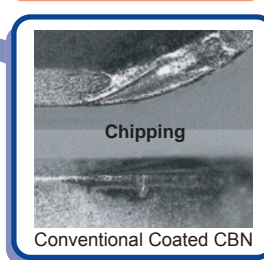
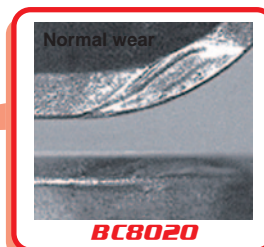
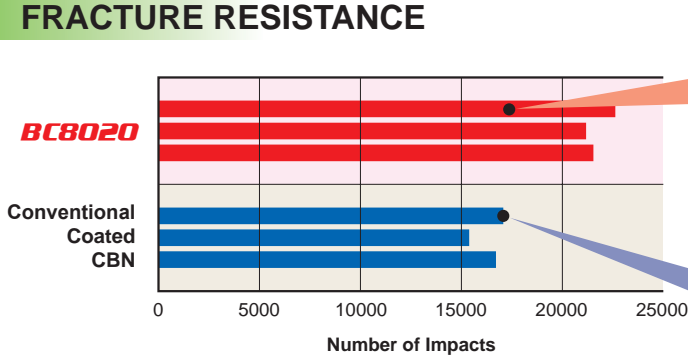


<Cutting Conditions>

Workpiece : JIS SCM415 (60HRC)  
 Medium Interrupted Cutting  
 Insert : NP-CNGA120408GA  
 Cutting Speed : 150m/min  
 Feed : 0.15mm/rev  
 Depth of Cut : 0.15mm  
 Dry Interrupted Cutting

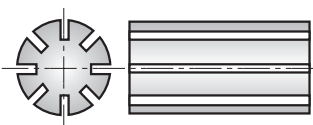


## INTERRUPTED CUTTING (CHIPPING) FRACTURE RESISTANCE



<Cutting Conditions>

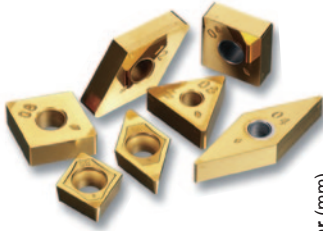
Workpiece : JIS SCM415 (60HRC)  
 Heavy Interrupted Cutting  
 Insert : NP-CNGA120408GA  
 Cutting Speed : 150m/min  
 Feed : 0.2mm/rev  
 Depth of Cut : 0.2mm  
 Dry Interrupted Cutting



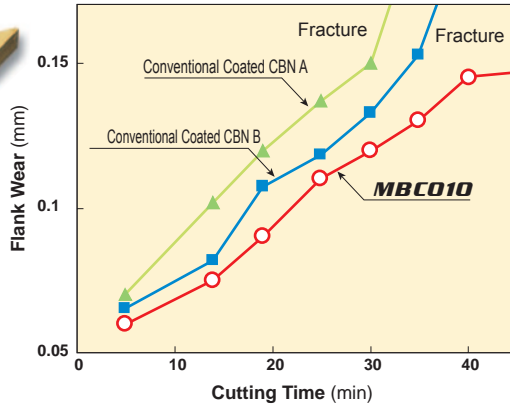
**BC8020** exhibits excellent cutting performance for severe or interrupted machining.

# MBCO10

CBN & PCD TURNING INSERTS

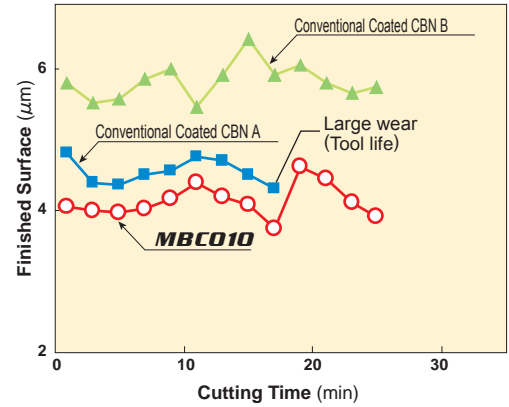


## WEAR RESISTANCE



<Cutting Conditions>  
 Workpiece : JIS SCM415 (60HRC)  
 Insert : NP-CNGA120408GS2  
 Cutting Speed : 300m/min  
 Feed : 0.05mm/rev  
 Depth of Cut : 0.1mm  
 Dry Continuous Cutting

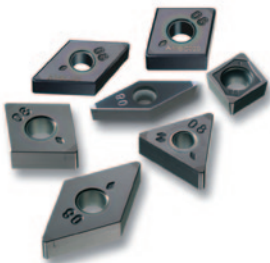
## FINISHED SURFACE



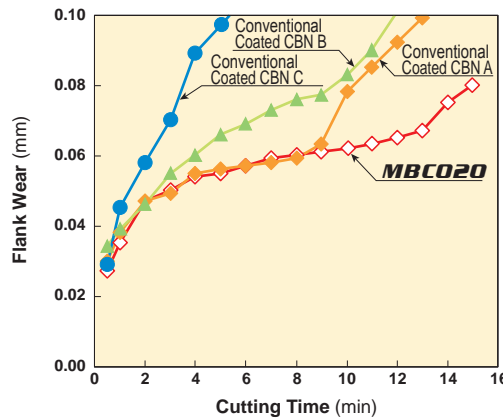
<Cutting Conditions>  
 Workpiece : JIS SCM415 (60HRC)  
 Insert : NP-CNGA120408GS2  
 Cutting Speed : 150m/min  
 Feed : 0.15mm/rev  
 Depth of Cut : 0.2mm  
 Dry Continuous Cutting

**MBCO10** employs TiN based coating for superior, consistent surface finishes.

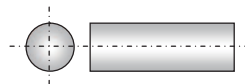
# MBCO20



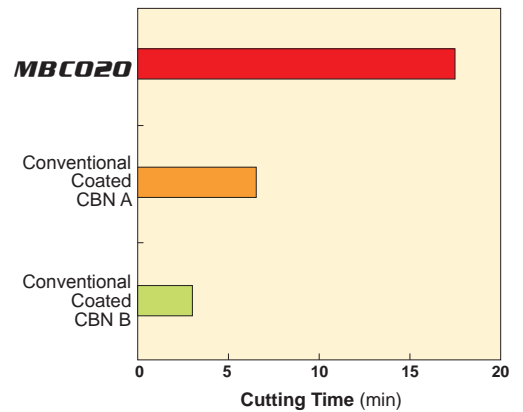
## WEAR RESISTANCE



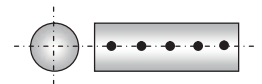
<Cutting Conditions>  
 Workpiece : JIS SCr420 (60HRC)  
 Round bar  
 Insert : NP-CNGA120408GA4  
 Cutting Speed : 220m/min  
 Feed : 0.1mm/rev  
 Depth of Cut : 0.1mm  
 Dry Continuous Cutting



## TOUGHNESS



<Cutting Conditions>  
 Workpiece : JIS SCr420 (60HRC)  
 Insert : NP-CNGA120408GA4  
 Cutting Speed : 120m/min  
 Feed : 0.15mm/rev  
 Depth of Cut : 0.15mm  
 Dry Interrupted Cutting



**MBCO20** exhibits excellent cutting performance for a wide range of applications from continuous through interrupted machining.

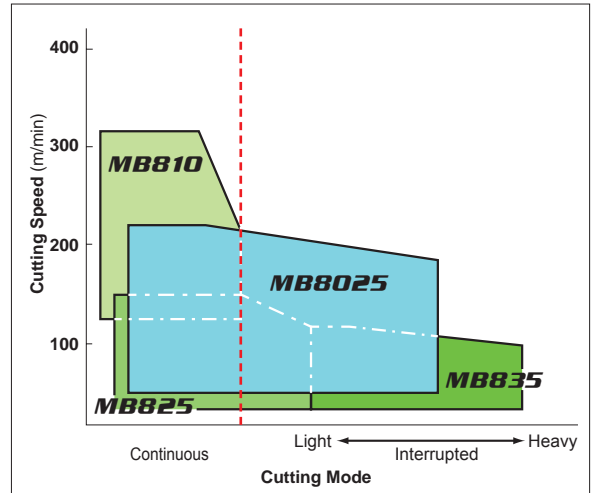


# NON-COATED CBN SERIES



## FEATURES

- CBN tool material is produced by mixing the main component CBN (cubic boron nitride), which has a hardness second only to diamond, with a special ceramic or metal binder. It is then sintered at a pressure of over 5GPa and at a temperature of 1200°C or higher.
- CBN has lower affinity to iron than diamond. The low affinity and high hardness properties means that sintered CBN delivers a superior cutting performance especially during high speed machining of materials such as hardened steel, cast iron and sintered alloys etc.



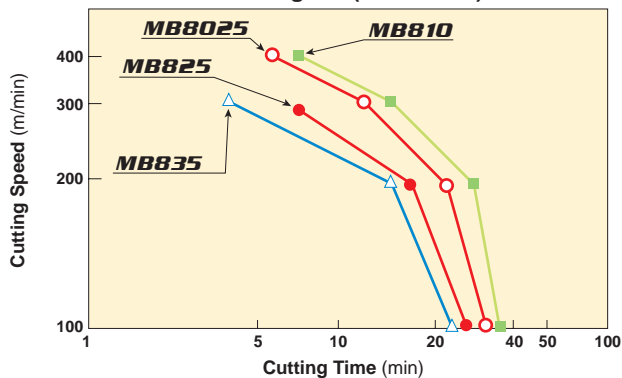
## HARDENED STEEL MACHINING

Grade	Grade Features and Application	Main Component
<b>MB8025</b>	<b>For General Purpose Turning</b> By employing a "Particle-activated Sintering Method", the new sintered CBN technology is recommended for continuous cutting from medium to high speeds.	CBN (Micro Grain) TiN Al <sub>2</sub> O <sub>3</sub>
<b>MB810</b>	<b>For High Speed Continuous Cutting</b> It features improved wear resistance due to impregnation with larger CBN particles.	CBN TiN Al <sub>2</sub> O <sub>3</sub>
<b>MB825</b>	<b>For Continuous to Medium Interrupted Cutting</b> Excellent balance of wear resistance and fracture resistance due to introduction of micro-grain CBN particles.	CBN (Micro Grain) TiC Al <sub>2</sub> O <sub>3</sub>
<b>MB835</b>	<b>For Heavy Interrupted Cutting</b> Improved grade employing micro-grain CBN particles. Excellent fracture resistance for use in heavy interrupted cutting.	CBN (Micro Grain) TiN Al <sub>2</sub> O <sub>3</sub>

## CUTTING PERFORMANCE

### Continuous Cutting

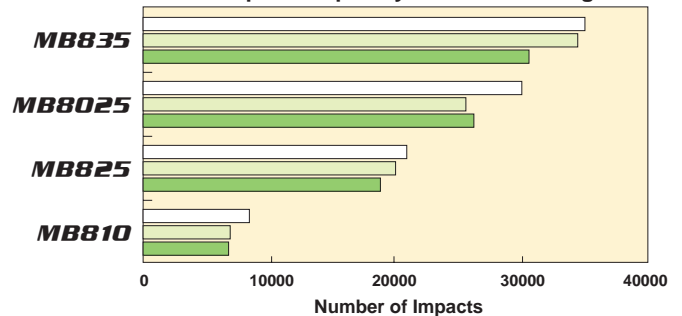
V-T Diagram (VB=0.1mm)



<Cutting Conditions>  
 Workpiece : JIS SCM415 (60HRC)  
                   External Continuous Cutting  
 Insert : NP-CNGA120408  
 Feed : 0.1mm/rev  
 Depth of Cut : 0.1mm  
 Wet Cutting

### Interrupted Cutting

Impact frequency before fracturing



<Cutting Conditions>

Workpiece : JIS SCM415 (60HRC)      Feed : 0.15mm/rev  
                   External Interrupted      Depth of Cut : 0.2mm  
                   Cutting 8 Groove      Dry Cutting  
 Insert : NP-CNGA120408  
 Cutting Speed : 150m/min



## MB5015 For Cylinder liner \*Produced to order only.

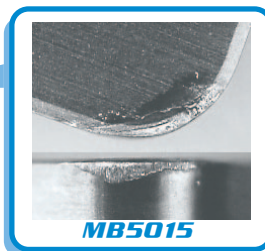
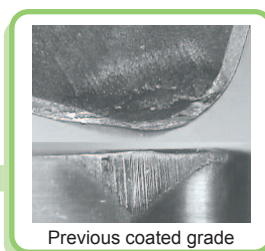
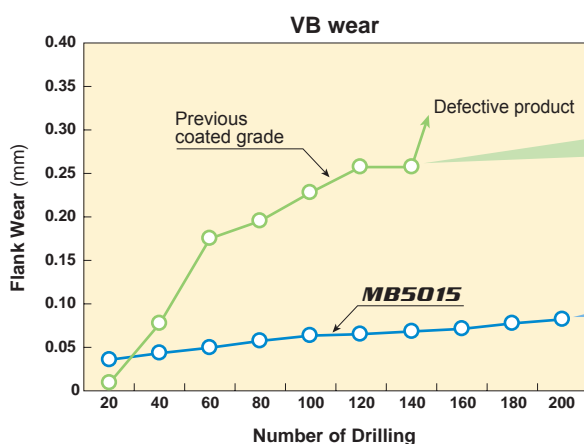
### FEATURES

● **MB5015** is exclusive grade for boring of Centrifugal casting Cylinder liners in semi finishing or finishing applications with high with high wear resistance.

### RECOMMENDED CUTTING CONDITIONS

Work Material	Cutting Mode	Cutting Speed (m/min)				Feed (mm/rev)	Depth of Cut (mm)	Coolant
		100	500	1000	1500			
Centrifugal casting	Cast Iron					-0.3(Finishing) -0.8(Semi-finishing)	-0.05(Finishing) -0.2(Semi-finishing)	Wet

### CUTTING PERFORMANCE



<Cutting Conditions>

Workpiece : FC200 (Centrifugal casting)  $\phi$ 63.0  
 Cutting Speed : 800m/min Feed : 0.35mm/rev Depth of Cut : 0.03mm  
 Work : Centrifugal casting Cylinder liner Hole Depth : 100mm

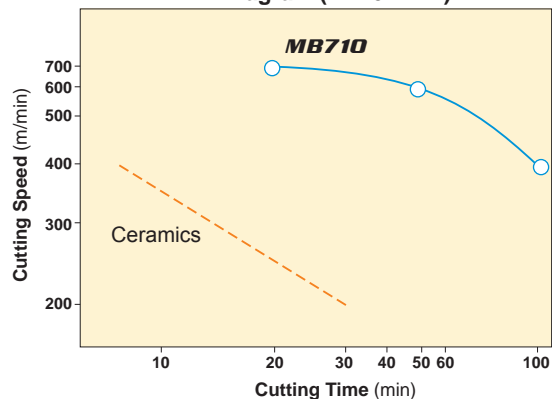
### CAST IRON MACHINING

Grade	Grade Features and Application	Main Component
<b>MB710</b>	<b>For General Cutting</b> General purpose grade with well balanced wear and fracture resistance.	CBN TiC Al <sub>2</sub> O <sub>3</sub>
<b>MB730</b>	<b>For Continuous to Interrupted Cutting</b> Has the larger CBN content and therefore displays good thermal conductivity. It is suitable for the high temperatures that are generated in high speed cutting.	CBN Co Base Alloy
<b>MB4020</b>	<b>For High Speed Cutting</b> Has the larger CBN content and therefore displays good thermal conductivity. From high-speed cutting to interrupted cutting are possible.	CBN (High Content) Co Base Alloy
<b>MB5140</b>	<b>For High Speed Cutting and Roughing of Cast Iron</b> Highest CBN content, high thermal conductivity. Enables deep depth of cut.	CBN AlN (Solid)

### CUTTING PERFORMANCE

#### Continuous Cutting

V-T Diagram (VB=0.1mm)



<Cutting Condition of **MB710**>

Workpiece : JIS FC250  
 Insert : TNGA160408  
 Feed : 0.1mm/rev  
 Depth of Cut : 0.15mm  
 Wet Cutting

<Cutting Condition of Ceramics>

Workpiece : JIS FC250  
 Insert : TNGA160408  
 Feed : 0.1mm/rev  
 Depth of Cut : 0.1mm  
 Dry Cutting

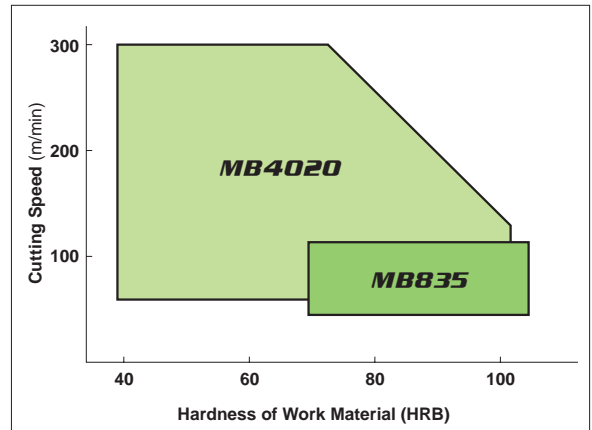
# MB4020 SINTERED ALLOY MACHINING

## FEATURES AND RECOMMENDED CUTTING CONDITIONS

### For General Cutting

By increasing CBN content and employing the special binder that conjoins CBN particles more tightly, the long tool life is achieved in machining of sintered alloy.  
Excellent general-purpose grade that can cover machining and forms of various sintered alloy materials with different hardness and structure. Can be also used for cast iron machining.

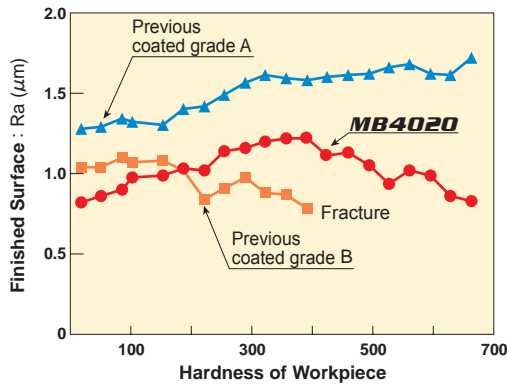
Work Material	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
General sintered alloy	80 ~ 300	-0.2	-0.3
High density sintered alloy	80 ~ 250	-0.2	-0.3
Sintered alloy	80 ~ 150	-0.2	-0.3



CBN & PCD TURNING INSERTS

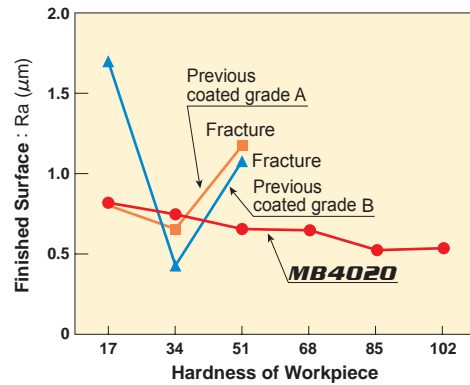
## CUTTING PERFORMANCE

### Continuous cutting of high density sintered alloy



<Cutting Conditions>  
Workpiece : High density sintered alloy Insert : NP-CNGA120408  
Cutting Speed : 190m/min Feed : 0.15mm/rev  
Depth of Cut : 0.1mm  
Wet Cutting

### Continuous cutting of sintered alloy



<Cutting Conditions>  
Workpiece : Sintered alloy Insert : NP-CNGA120408  
Cutting Speed : 100m/min Feed : 0.15mm/rev  
Depth of Cut : 0.1mm  
Wet Cutting

## APPLICATION EXAMPLE

Insert		NP-TNGA160404FS3	NP-TPGX080204FS3
Workpiece		 Carburized and quenched alloy	 Carburized and quenched alloy
Component		Variable valve parts	Oil pump parts
Cutting Conditions	Cutting Speed (m/min)	250	100
	Feed (mm/rev)	0.1	0.03
	Depth of Cut (mm)	0.2	0.05
Result		 MB4020: ~300 pieces Previous coated grade: ~150 pieces	 MB4020: ~250 pieces Previous coated grade: ~120 pieces

# CBN

- Suitable for high speed finishing of heat treated steel, sintered ferrous alloy and cast iron.
- Low affinity to iron, thus good surface finishes are possible.
- Grinding can be replaced by machining.



CBN & PCD TURNING INSERTS

## ● Heat Treated Steel

Work Material	Type	Cutting Mode	Recommended Grade	Recommended Cutting Conditions			
				Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	
Structural Steel Esp. Carburized Steel (SC, SCM, SCr) High Alloy Steel (SKD, SKH)	Coated	High speed finishing cutting	<b>MBC010</b>	250 (150–400)	-0.2	-0.2	
		Continuous cutting for general purpose	<b>MBC020</b>	200 (80–250)	-0.2	-0.3	
		Heavy interrupted cutting for general purpose	<b>BC8020</b>	200 (80–250)	-0.3	-0.8	
		Interrupted cutting for general purpose		150 (60–200)	-0.2	-0.3	
	Non-coated	Continuous cutting for general purpose	<b>MB8025</b>	180 (80–250)	-0.3	-0.5	
		Interrupted cutting for general purpose		120 (60–150)	-0.2	-0.3	
		High speed finishing cutting	<b>MB810</b>	200 (150–300)	-0.15	-0.15	
		Continuous to light interrupted cutting		<b>MB825</b>	120 (70–150)	-0.3	-0.5
		Interrupted cutting			<b>MB835</b>	100 (50–120)	-0.3

## ● Cast Iron

Work Material	Workpiece Structure	Cutting Speed (m/min)					Feed (mm/rev)	Depth of Cut (mm)	Coolant
		250	500	750	1000	1250			
Gray Cast Iron	JIS FC250 Ferritic + Pearlitic	<b>MB5140</b>					-0.5	-1.0 MBS140 -5.0	Dry, Wet
	JIS FC300 Pearlitic								
Alloy Cast Iron	Pearlitic	<b>MB710</b>		<b>MB4020</b>			-0.4	-0.5	Dry, Wet
Ductile Cast Iron	JIS FCD400 Ferritic	<b>MB710</b>					-0.4	-0.5	Dry, Wet
	JIS FCD700 Ferritic + Pearlitic	<b>MB730</b>							

## ● Sintered Alloy

Work Material	Recommended Grade	Recommended Cutting Conditions		
		Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
General Sintered Alloy	<b>MB4020</b>	250 (80–300)	-0.2	-0.3
High Density Sintered Alloy	<b>MB4020</b>	150 (80–250)	-0.2	-0.3
Sintered Alloy	<b>MB4020, MB835</b>	100 (80–150)	-0.2	-0.3

## ● Valve Seat

Amount of Hard Particles	None or Small	←-----→ Large			
Hardness of Workpiece (HV)	150	250	300	350	
Plunge Cut	<b>MB4020</b>		<b>MB825</b>	<b>MB835</b>	
Traverse Cut	<b>MB4020</b>		<b>MB710</b>	<b>MB825</b>	

## ● Roll

Work Material	Grade	Recommended Cutting Conditions		
		Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
Cast Steel Adamite Cast Steel	<b>MB825, MB8025</b>	80 (30–130)	0.3 (0.1–0.5)	0.2–3.0
Ductile Cast Iron Granular Cast Iron Chilled Cast Iron	<b>MB710</b>	80 (30–130)	0.3 (0.1–0.5)	0.2–3.0
High Chromium Steel High Alloy Steel	<b>MB825, MB8025</b>	80 (30–130)	0.3 (0.1–0.5)	0.2–3.0
High Speed Steel	<b>MB730</b>	50 (20–70)	0.25 (0.1–0.4)	0.1–3.0
Cemented Carbide	<b>MB730, MBS140</b>	20 (10–30)	-0.2	-0.2

## ● Heat Resistant Alloy

Work Material	Grade	Recommended Cutting Conditions		
		Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
Ni Base Heat Resistant Alloy (e.g. Inconel)	<b>MB730</b>	120 (100–150)	-0.2	-0.5
Co Base Heat Resistant Alloy (e.g. Stellite)	<b>MB730</b>	70 (50–100)	-0.2	-0.5

# HONING

## NEW HONING TYPES

For the CBN **BC8020**, **MBC010** and **MBC020** coated grades, **MB4020** and **MB710/MB730** a wide range of edge honing styles are available to cover a large range of applications and to represent Mitsubishi Materials' unique cutting tool technology.



### General cutting

**GA** honing is the first recommendation.  
**GS** honing if the depth of cut is 0.1mm or less.  
**GN** honing if the crater wear is large.

### Continuous cutting, stable cutting

**FS** honing is the first recommendation.  
**FA** honing to improve the initial machining performance.  
**FN** honing if the crater wear is large.

### Medium and heavy interrupted cutting, unstable cutting

**TA** honing is the first recommendation.  
**TS** honing if the depth of cut is 0.1mm or less.  
**TN** honing if the crater wear is large.

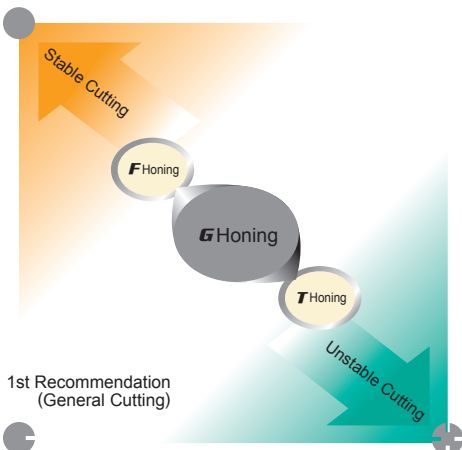
## NP-CNGA120408- **G** **A** 2

Main Application **G** Edge Honing Type **A** 2

MAIN APPLICATION	EDGE HONING TYPE	<b>A</b> For General Purpose Machining	<b>S</b> For Anti Chatter (Sharp anti-burr type)	<b>N</b> For Small Depth of Cut (Crater wear resistant)
<b>F</b> Continuous cutting	<b>FA</b> Honing	0.1 15° R0	<b>FS</b> Honing	0.1 15° R0.015
<b>G</b> Light interrupted cutting	<b>GA</b> Honing	0.13 25° R0.03	<b>GS</b> Honing	0.13 25° R0.015
<b>T</b> Interrupted cutting	<b>TA</b> Honing	0.13 35° R0.03	<b>TS</b> Honing	0.13 35° R0.015
			<b>TN</b> Honing	0.05 35° R0.015

## CONVENTIONAL HONING TYPES

For CBN grades except new honing types, three conventional honing types, namely F, G and T types are available for different applications.



## NP-CNGA120408- **G** 2

Main Application **G** 2

<b>F</b> Honing	Continuous cutting	0.1 15° R0
<b>G</b> Honing	Light interrupted cutting	0.13 25° R0.03
<b>T</b> Honing	Interrupted cutting	0.13 35° R0.03

# CBN GROOVING SERIES (GY/MG)



CBN & PCD TURNING INSERTS

## FEATURES

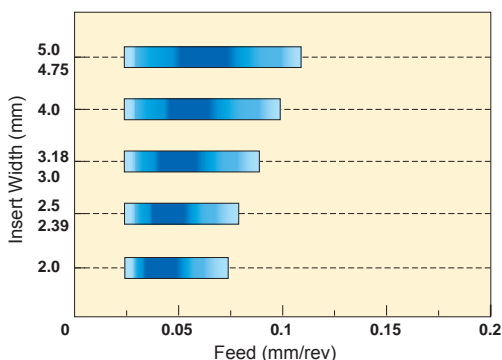
- A combination with a high rigidity holder ensures high accuracy and long tool life.

Holder rigidity is essential when grooving hardened steel. The GY series Tri Lock system offers high rigidity equivalent to a 1-piece type despite being a 2-piece type. MG has a wide insert location face for high gripping force. A combination with these holders allows it to deliver excellent performance when grooving hardened steel.

- Product line-up for different holder properties

MG for narrow grooves and GY for general grooves are both lined up to allow selection of the most suitable tool.

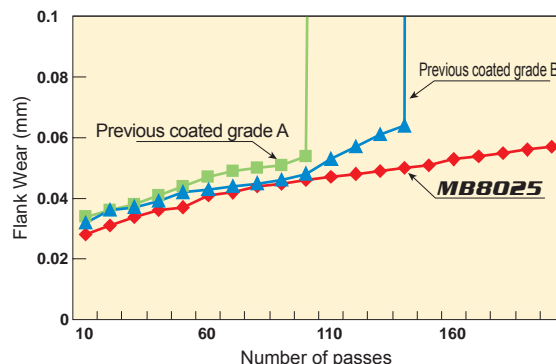
## RECOMMENDED CUTTING CONDITIONS



Work Material	Hardness	Grade	Cutting Speed (m/min)	Coolant
H Hardened Steel	35—65HRC	MB8025	100 (60—120)	Dry, Wet

## CUTTING PERFORMANCE

- Tool life evaluation for the GY holder



<Cutting Conditions>

Workpiece : JIS SCM415 (HRC60) Depth of Cut : 0.35mm  
 Cutting Speed : 120m/min Dry Cutting  
 Feed : 0.1mm/rev

## APPLICATION EXAMPLE

Insert	GY1G0300F020N-GFGS (Grade : MB8025)	MGTR43200 (Grade : MB8025)
Workpiece	 SNCM230H (HRC58—62)	 SCr420H (HRC61—65)
Component	Transmission shaft	Transmission shaft
Cutting Conditions	Cutting Speed (m/min)	129
	Feed (mm/rev)	0.1
Result	 GY achieves longer tool life without fracturing.	 2.5 times longer tool life than the conventional insert.

# CBN BREAKER INSERT (*BM/BF* Breaker)

## FEATURES

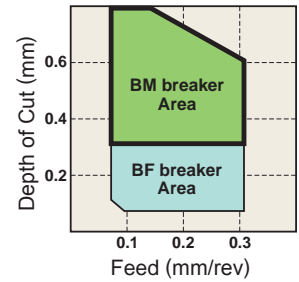
### ● Chip Breaker Geometry Designed for Excellent Chip Control

Radial chip breaker ensures optimization of the cutting point and the chip breaker position. Enables effective chip discharge even when copy machining and prevents the chips from wrapping around the holder under finish cutting conditions.

### ● Long Life Coated CBN Grade

Combination of Coating grade & Breaker, high efficiency and long tool life in wide variety of applications.

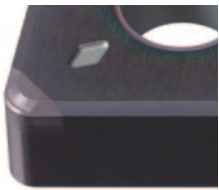
## APPLICATION AREA



CBN & PCD TURNING INSERTS

## DEEP CUTTING DEPTH

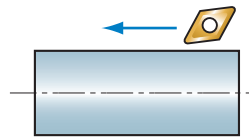
### *BM* Breaker (Deep shoulder Milling)



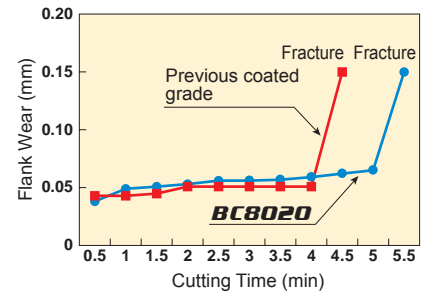
Good for deep depth cutting of carburized layer.  
Recommend and under  $ap=0.6\text{mm}$

Available in BC8020 grade.

## CUTTING PERFORMANCE



<Cutting Conditions>  
Workpiece : JIS SCM415 (60HRC)  
Insert : BM-CNGM120408TA  
Cutting Speed : 180m/min  
Feed : 0.2mm/rev  
Depth of Cut : 0.5mm  
Dry Cutting



## LIGHT CUTTING DEPTH

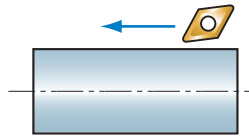
### *BF* Breaker



Good for chip removal under light depth and feed cutting.  
Recommend and under  $ap=0.3\text{mm}$

Available in MBC020 grade.

## CUTTING PERFORMANCE

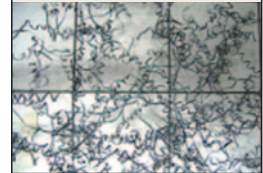


<Cutting Conditions>  
Workpiece : SCr420H (55HRC)  
Insert : BF-CNGG120408TA4  
Cutting Speed : 100m/min  
Feed : 0.2mm/rev  
Depth of Cut : 0.1mm  
Dry Cutting

### MITSUBISHI's Breaker



### Conventional



# MULTI-CORNER TYPE INSERTS

### ● A single sided, multi-corner type insert has no cutting edges on the underside.

## Double Sided, multi-corner type insert, ex.

**NP-CNGA120408GA4**

No. of Cutting Edge Corners

## Single Sided, multi-corner type insert, ex.

**NP-CNGA120408GA2**

No. of Cutting Edge Corners

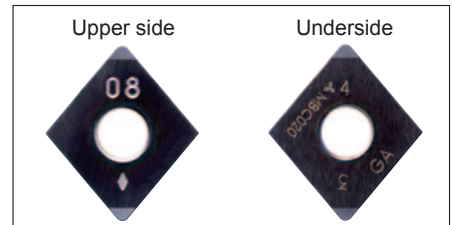
## 10-INSERTS PACKS

Two types of packs for **MB8025** Multi-corner type inserts, are available, a single insert pack and a ten insert pack. For easy storage.

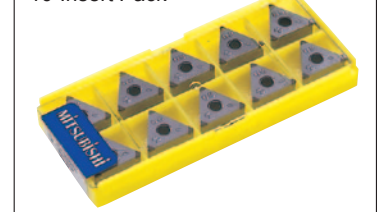
**TNP-CNGA120404G2**

10-Insert Pack Symbol

## Double sided, multi-corner type insert



## 10-Insert Pack





# WIPER INSERT

CBN & PCD TURNING INSERTS

## ● Improving Surface Finish

Under the same machining conditions as conventional breakers, but with the feed rate increased, the surface finish of the workpiece can be improved.

## ● Improving Efficiency

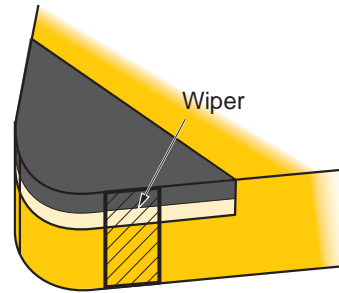
High feed rates not only shorten machining times but also make it possible to combine roughing and finishing operations.

## ● Increased Tool Life

When a change to high feed conditions, the time required to cut one component is decreased, thus more parts can be machined with each insert. In addition, the high feed rate prevents rubbing, therefore, delaying the progression of wear and increasing the tool life of the insert.

## ● Improving Chip Control

Under high feed conditions, the chips generated become thicker and are more easily broken, thus, chip control is improved.



## ■ Insert example

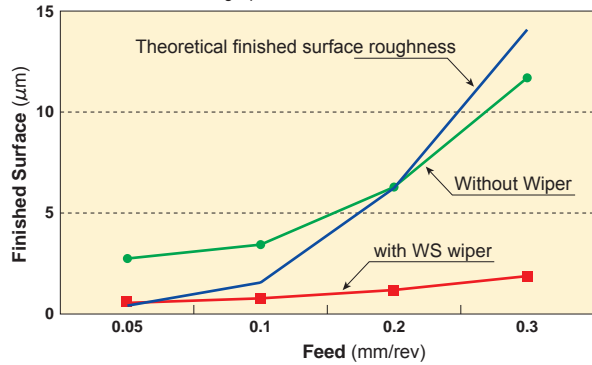
Wiper insert for low rigidity workpieces

**NP-CNGA120408GAWS2**

New wiper edge code

## ■ CUTTING PERFORMANCE

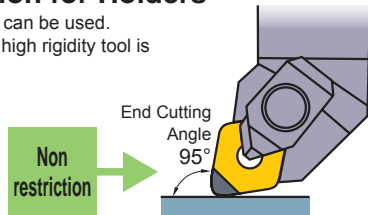
<Cutting Conditions> Workpiece : Hardened Material (HRC60) Depth of Cut : 0.1mm  
 Insert : NP-CNGA120408GAWS2 Dry Cutting  
 Cutting Speed : 120m/min



## NOTES FOR USE

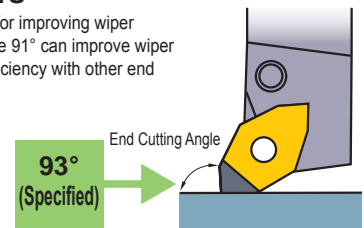
### ■ No Restriction for Holders

A standard holders can be used.  
 (\*A double clamp, high rigidity tool is recommended.)

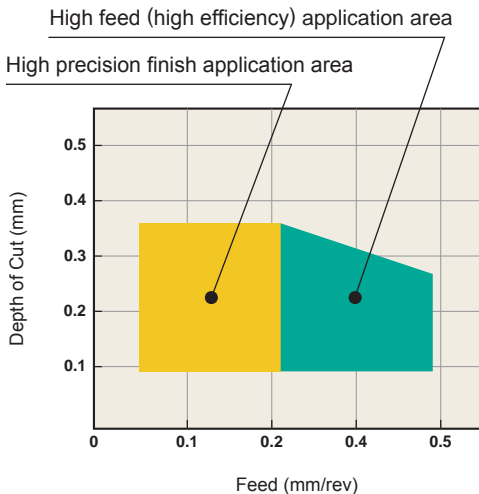


### ■ Restriction for Holders

Use a holder with end cutting angle 93° for improving wiper efficiency. A holder with end cutting angle 91° can improve wiper efficiency, however, there is no wiper efficiency with other end cutting angles (60°, 90°, 107° etc.).



## RECOMMENDED CUTTING CONDITIONS AND PERFORMANCE

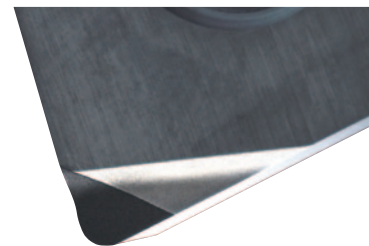


High precision finishing	
Cutting Speed: 100m/min Feed: 0.1mm/rev Depth of Cut: 0.1mm Dry Cutting	
Without Wiper	With Wiper
Ry=3.2µm	Ry=1.0µm

High feed, high efficiency machining	
Cutting Speed: 100m/min Feed: 0.3mm/rev Depth of Cut: 0.1mm Dry Cutting	
Without Wiper	With Wiper
Ry=12.2µm	Ry=1.2µm



# PCD (SINTERED DIAMOND)



- Suitable for materials such as aluminium alloy, non-ferrous metals, and fibre strengthened plastic.
- Suitable for extremely high speed finishing.

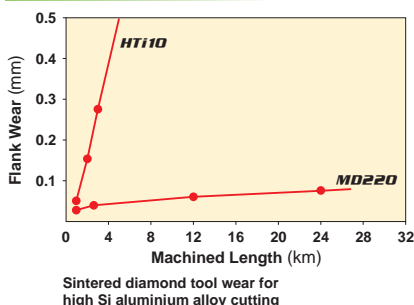
## SELECTION STANDARD

### ● TURNING

Work Material	Recommended Grade			Recommended Cutting Conditions		
	MD205	MD220	MD230	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
Aluminium		◎		1000 (200–1500)	–0.2	–1.0
Aluminium Alloy (Si ≤ 16%)		◎		800 (200–1200)	–0.2	–1.0
Aluminium Alloy (Si ≥ 16%)	◎	○		600 (200–1000)	–0.2	–1.0
Copper Alloy		◎		700 (200–1200)	–0.2	–1.0
Strengthened Plastic		◎		600 (100–1000)	–0.4	–1.0
Glass Fibre Reinforced Plastic		◎		500 (100–800)	–0.25	–1.0
Carbon	○	◎		400 (100–600)	–0.3	–1.0
Ceramics		○		50 (30–80)	–0.1	–1.0
Hard Rubber		◎		600 (300–800)	–0.15	–1.0
Wood Inorganic Board		◎		1300 (300–4000)	–0.4	–
Cemented Carbide	◎	○		15 (5–20)	–0.2	–0.5

(Note1) ◎ : 1st recommendation. ○ : 2nd recommendation  
 (Note2) Not suitable for steel.

## CUTTING PERFORMANCE



### <Cutting Conditions>

Workpiece : High Si Aluminium Alloy  
 Tool : P11R,SPGN120308  
 Cutting Speed : 200m/min  
 Depth of Cut : 1.5mm  
 Feed : 0.15mm/rev  
 Coolant : W.S.O

## APPLICATION

Grade		
MD205	MD220	MD230
Please use when there is insufficient resistance to wear with the MD220.	Apply for general finishing of non-ferrous metals and non-metal cutting.	Please use when a fracture has occurred with the MD 220 and you desire a high-quality finished surface.

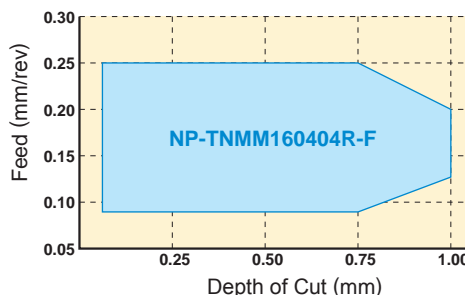
## NEW PETIT CUT INSERT SERIES

### FEATURES

- **Economical** The small PCD delivers long tool life. Eliminates the need for regrinding, making tool management easier and economical.
- **With Breaker** Chip breaker formed directly on the PCD portion delivers superior chip control.
- Corner R0.05mm inserts are available, making it suitable for the machining of small work corner radii.

### CUTTING PERFORMANCE

- Chip geometry when using a breaker insert
- Chip geometry when using an insert with no breaker



### <Cutting Conditions>

Workpiece : A5052  
 Cutting Speed : 340m/min  
 Feed : 0.1mm/rev


































Depth of Cut : 0.1mm  
 Dry Cutting

### <Cutting Conditions>

Workpiece : A1050  
 Cutting Speed : 400m/min  
 Wet Cutting






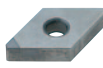






# CLASSIFICATION

## NEGATIVE INSERTS WITH HOLE










Product Name	Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	
NEW PETIT CUT	Multi-corner Type Double Sided	G	Flat Top	NP-CNGA_04  ↻ B022	NP-DNGA_04  ↻ B025	NP-SNGA_04  ↻ B027	NP-TNGA_06  ↻ B028	NP-VNGA_04  ↻ B030	NP-WNGA_06  ↻ B031	
	Multi-corner Type Double Sided With Wiper		Flat Top	NP-CNGA_04  ↻ B022						
	Multi-corner Type Double Sided With Breaker		BF	BF-CNGG_04  ↻ B022	BF-DNGG_04  ↻ B025					
	Multi-corner Type Double Sided With Breaker		Flat Top	NP-CNGA_02*  ↻ B022, B023	NP-DNGA_02*  ↻ B025	NP-SNGA_02*  ↻ B027	NP-TNGA_03*  ↻ B028	NP-VNGA_02*  ↻ B030	NP-WNGA_03  ↻ B031	
	Multi-corner Type Single Sided With Wiper		Flat Top	NP-CNGA_0WS2*  ↻ B023	NP-DNGA_0WS2J_R/L  ↻ B026					NP-WNGA_0WS3  ↻ B031
	Multi-corner Type Single Sided With Breaker		BF	BF-CNGM_02  ↻ B023	BF-DNGM_02  ↻ B026					
	Multi-corner Type Single Sided With Breaker		BM	BM-CNGM_02  ↻ B023	BM-DNGM_02  ↻ B026			BM-TNGM_03  ↻ B029		
	One-corner Type Single Sided		M	Flat Top	NP-CNMA_0  ↻ B023	NP-DNMA_0  ↻ B026	NP-SNMA_0  ↻ B027	NP-TNMA_0  ↻ B029	NP-VNMA_0  ↻ B030	
	One-corner Type Single Sided With Breaker			R/L-F	NP-CNMM_R/L-F  ↻ B052	NP-DNMM_R/L-F  ↻ B052	NP-SNMM_R/L-F  ↻ B053	NP-TNMM_R/L-F  ↻ B053	NP-VNMM_R/L-F  ↻ B054	

(Note) Two types of packs for \* type inserts, pack of single insert and pack of ten inserts, are available. (The single pack is standard.) Please refer to the "Standard of inserts".

### NEGATIVE INSERTS WITH HOLE









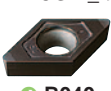


























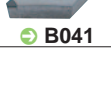


Product Name	Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
STANDARD	One-corner Type Single Sided	M	<p><b>Flat Top</b></p> 	 <b>CNMA</b>  ↻ B024, B052					
	One-corner Type Single Sided	G	<p><b>Flat Top</b></p> 		 <b>DNGA</b> 	 <b>SNGA</b> 	 <b>TNGA</b> 	 <b>VNGA</b> 	
				↻ B026, B052	↻ B027, B053	↻ B029, B053	↻ B030, B054		

### 5° POSITIVE INSERTS WITH HOLE

Product Name	Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW PETIT CUT	Multi-corner Type Single Sided	G	<p><b>Flat Top</b></p> 					 <b>NP-VBGW_02</b>  ↻ B045	
	One-corner Type Single Sided		<p><b>Flat Top</b></p> 					 <b>NP-VBGW_01</b>  ↻ B045	
	One-corner Type Single Sided With Breaker		<p><b>R-F</b></p> 					 <b>NP-VBGT_R-F</b>  ↻ B061	

# CLASSIFICATION

## 7° POSITIVE INSERTS WITH HOLE

Product Name	Type	Tolerance	Breaker Name and Cross Section	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 
NEW PETIT CUT	Multi-corner Type Double Sided With Breaker	G	Flat Top 	NP-CCGW/B_02*  ↻ B036	NP-DCGW_02*  ↻ B040		NP-TCGW_03  ↻ B042	NP-VCGW_02  ↻ B046	
	Multi-corner Type Single Sided With Wiper		Flat Top 	NP-CCGW_0WS2  ↻ B037					
	Multi-corner Type Single Sided With Breaker		BF 	BF-CCGT_02  ↻ B037	BF-DCGT_02  ↻ B040				
	One-corner Type Single Sided	M	Flat Top 	NP-CCMB_0  ↻ B037					
	One-corner Type Single Sided With Breaker		Standard 	NP-CCMH  ↻ B056					
	One-corner Type Single Sided	G	Flat Top 	NP-CCGW_0  ↻ B037	NP-DCGW_0  ↻ B041				
	One-corner Type Single Sided	M	Flat Top 	NP-CCMW_0  ↻ B038	NP-DCMW_0  ↻ B041				NP-WCMW_0  ↻ B046
	One-corner Type Single Sided		Flat Top 	NP-CCMW  ↻ B056					
	One-corner Type Single Sided With Breaker		R/L-F 			NP-DCMT_R/L-F  ↻ B057			
	One-corner Type Single Sided With Breaker	G	R-F 					NP-VCGT_R-F  ↻ B061	
STANDARD	One-corner Type Single Sided	M G	Flat Top 	CCMW  ↻ B038, B056	DCMW  ↻ B041, B057		TCMW TCGW  ↻ B042, B058		WCMW  ↻ B062



(Note) Two types of packs for \* type inserts, pack of single insert and pack of ten inserts, are available. (The single pack is standard.) Please refer to the "Standard of inserts".

## 11° POSITIVE INSERTS WITH HOLE


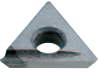



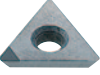
Product Name	Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW PETIT CUT	Multi-corner Type Single Sided	G	Flat Top 	NP-CPGB_02  ↻ B039			NP-TPGB_03  ↻ B043		
	Multi-corner Type Single Sided		Flat Top 				NP-TPGX_03  ↻ B043		
	One-corner Type Single Sided	M	Flat Top 	NP-CPMB_0  ↻ B039			NP-TPMB_0  ↻ B043		
	One-corner Type Single Sided With Breaker		Standard 	NP-CPMH  ↻ B056					
	One-corner Type Single Sided	G	Flat Top 				NP-TPGX_0  ↻ B044		
	One-corner Type Single Sided With Breaker	M	R/L-F 				NP-TPMX_R/L-F  ↻ B059		
	One-corner Type Single Sided With Breaker		R/L-F 				NP-TPMH_R/L-F  ↻ B059		
STANDARD	One-corner Type Single Sided With Breaker	G	Standard 	CPGT  ↻ B056					WPGT  ↻ B062
	One-corner Type Single Sided		Flat Top 			SPGX  ↻ B057	TPGX  ↻ B044, B060		
	One-corner Type Single Sided With Breaker		R/L-F 				TPGT/V_R/L-F  ↻ B059, B060		

# CLASSIFICATION

## 15° POSITIVE INSERTS WITH HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 35°	
One-corner Type Single Sided (For Aluminium) With Breaker	G	R/L 	VDGX_R/L-F  ➔ B064	

## 20° POSITIVE INSERTS WITH HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 55°	Triangular 60°
One-corner Type Single Sided (For Aluminium) With Breaker	G	R/L 		TEGX_R/L  ➔ B063
One-corner Type Single Sided (For Aluminium) With Breaker		R/L-F 	DEGX_R/L-F  ➔ B063	
One-corner Type Single Sided (For Aluminium)		Flat Top 		TEGX  ➔ B063

### NEGATIVE INSERTS WITHOUT HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Round
One-corner Type Single Sided	G	Flat Top					
					SNGN  ↻ B034, B055	TNGN  ↻ B035	
Multi-corner Type Double Sided (Solid CBN)	G	Flat Top	CNGN  ↻ B032	DNGN  ↻ B032	SNGN  ↻ B034	TNGN  ↻ B035	RNGN  ↻ B033

### 5° POSITIVE INSERTS WITHOUT HOLE

Type	Tolerance	Breaker Name and Cross Section	Triangular 60°
Multi-corner Type Single Sided	G	Flat Top	TBGN  ↻ B049

### 11° POSITIVE INSERTS WITHOUT HOLE

Type	Tolerance	Breaker Name and Cross Section	Square 90°	Triangular 60°
One-corner Type Single Sided	G	Flat Top	SPGN  ↻ B048, B065	TPGN  ↻ B049, B065

### SPECIAL PURPOSE INSERTS

Tool Holder Type	Tolerance	Inserts
GY Type	G	GY_GFGS  ↻ B050
		MGTR  ↻ B051
TL Type		RTG-A  ↻ B047



# CBN TURNING INSERTS [NEGATIVE]

## 80° CN TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D


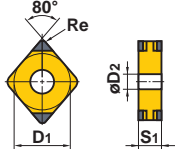
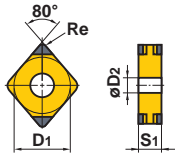

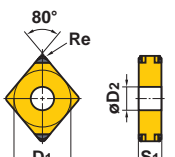

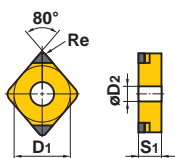
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
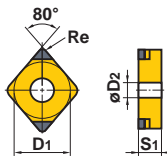

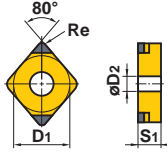

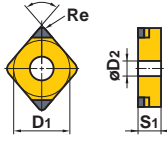

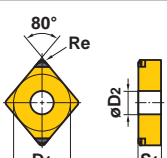

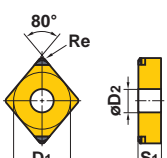

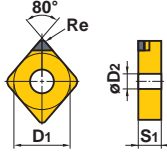
W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page		
	K	Cast Iron								● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting	Honing (Last letter of order number) : Refer to page B011.				
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN		CBN					Dimensions (mm)							
		Sintered Alloy	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re
NEW PETIT CUT 	NP-CNGA120404GA4	●	●									12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008
	120408GA4	●	●									12.7	4.76	0.8	5.16		
	120412GA4	●	●									12.7	4.76	1.2	5.16		
	120404GN4		●									12.7	4.76	0.4	5.16		
	120408GN4		●									12.7	4.76	0.8	5.16		
	120412GN4		●									12.7	4.76	1.2	5.16		
	120404FS4	●										12.7	4.76	0.4	5.16		
	120408FS4	●										12.7	4.76	0.8	5.16		
	120412FS4	●										12.7	4.76	1.2	5.16		
	120404TA4	●	●									12.7	4.76	0.4	5.16		
120408TA4	●	●									12.7	4.76	0.8	5.16			
120412TA4	●	●									12.7	4.76	1.2	5.16			
NEW PETIT CUT (With Wiper) *	NP-CNGA120404GAWS4	●										12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008
	120408GAWS4	●										12.7	4.76	0.8	5.16		
	120412GAWS4	●										12.7	4.76	1.2	5.16		
NEW PETIT CUT 	BF-CNGG120404TA4		●									12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008
	120408TA4		●									12.7	4.76	0.8	5.16		
	120412TA4		●									12.7	4.76	1.2	5.16		
(With Breaker)																	
NEW PETIT CUT 	NP-CNGA120404GA2	●	●									12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008
	120408GA2	●	●									12.7	4.76	0.8	5.16		
	120412GA2	●	●									12.7	4.76	1.2	5.16		
	120404GS2		●						●	●		12.7	4.76	0.4	5.16		
	120408GS2		●						●	●		12.7	4.76	0.8	5.16		
	120412GS2		●						●	●		12.7	4.76	1.2	5.16		
	120404GN2		●									12.7	4.76	0.4	5.16		
	120408GN2		●									12.7	4.76	0.8	5.16		
	120412GN2		●									12.7	4.76	1.2	5.16		
	120404FS2	●								●		12.7	4.76	0.4	5.16		
	120408FS2	●								●		12.7	4.76	0.8	5.16		
	120412FS2	●								●		12.7	4.76	1.2	5.16		
	120404TA2	●	●							●		12.7	4.76	0.4	5.16		
	120408TA2	●	●							●		12.7	4.76	0.8	5.16		
	120412TA2	●	●							●		12.7	4.76	1.2	5.16		
	120404TS2									●		12.7	4.76	0.4	5.16		
120408TS2									●		12.7	4.76	0.8	5.16			
120412TS2									●		12.7	4.76	1.2	5.16			

\* Please refer to B014 before using the wiper insert.



● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

Work Material	H	Hardened Materials	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting Honing (Last letter of order number) : Refer to page B011.
	K	Cast Iron																		
Shape	Order Number	Coated CBN			CBN							Dimensions (mm)				Geometry	Applicable Holder Page			
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1	Re	D2					
NEW PETIT CUT 	NP-CNGA120404G2				●						12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008				
	120408G2				●						12.7	4.76	0.8	5.16						
	120412G2				●						12.7	4.76	1.2	5.16						
	120404T2				●						12.7	4.76	0.4	5.16						
	120408T2				●						12.7	4.76	0.8	5.16						
	120412T2				●						12.7	4.76	1.2	5.16						
NEW PETIT CUT *2 	TNP-CNGA120404G2				●						12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008				
	120408G2				●						12.7	4.76	0.8	5.16						
	120412G2				●						12.7	4.76	1.2	5.16						
	120404T2				●						12.7	4.76	0.4	5.16						
	120408T2				●						12.7	4.76	0.8	5.16						
	120412T2				●						12.7	4.76	1.2	5.16						
NEW PETIT CUT (With Wiper) *1 	NP-CNGA120404GAWS2			●	●						12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008				
	120408GAWS2	●	●	●							12.7	4.76	0.8	5.16						
	120412GAWS2	●	●	●							12.7	4.76	1.2	5.16						
	120404GSWS2	●									12.7	4.76	0.4	5.16						
	120408GSWS2	●									12.7	4.76	0.8	5.16						
	120412GSWS2	●									12.7	4.76	1.2	5.16						
NEW PETIT CUT 	BF-CNGM120404TA2			●							12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008				
	120408TA2			●							12.7	4.76	0.8	5.16						
	120412TA2			●							12.7	4.76	1.2	5.16						
	(With Breaker)																			
NEW PETIT CUT 	BM-CNGM120408TA2	●									12.7	4.76	0.8	5.16		C008 C009 E013 E036 E041 H006 -008				
	120412TA2	●									12.7	4.76	1.2	5.16						
NEW PETIT CUT 	NP-CNMA120404GS										12.7	4.76	0.4	5.16		C008 C009 E013 E036 E041 H006 -008				
	120408GS										12.7	4.76	0.8	5.16						
	120412GS										12.7	4.76	1.2	5.16						
	120404G				●	●					12.7	4.76	0.4	5.16						
	120408G				●	●					12.7	4.76	0.8	5.16						
	120412G				●	●					12.7	4.76	1.2	5.16						
	120404F				□	●		●			12.7	4.76	0.4	5.16						
	120408F				□	●		●			12.7	4.76	0.8	5.16						
	120412F				□	●		●			12.7	4.76	1.2	5.16						
	120404T				□	●	●		●		12.7	4.76	0.4	5.16						
	120408T				□	●	●		●		12.7	4.76	0.8	5.16						
	120412T				□	●	●		●		12.7	4.76	1.2	5.16						

\*1 Please refer to B014 before using the wiper insert.

\*2 The order number is for a 10-insert pack. Please specify order number, grade and quantity.

# CBN TURNING INSERTS [NEGATIVE]

## 80° CN TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D


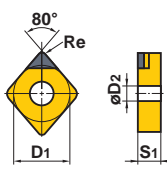
R

S

T


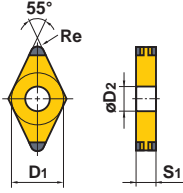

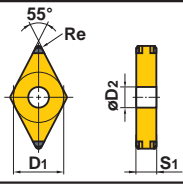

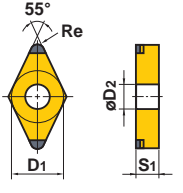
V

W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page		
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			●	●
S	Heat-resistant Alloy, Titanium Alloy									Honing (Last letter of order number) : Refer to page B011.							
	Sintered Alloy																
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)				Geometry	Applicable Holder Page			
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re	D2
	<b>CNMA120404</b>					●			●	●		12.7	4.76	0.4	5.16		C008
	<b>120408</b>					●			●	●		12.7	4.76	0.8	5.16		C009
	<b>120412</b>								●	●		12.7	4.76	1.2	5.16		E013
																	E036
																E041	
																H006	
																-008	

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

# 55° DN TYPE INSERTS WITH HOLE

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page		
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			●	●
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN		CBN					Dimensions (mm)				Geometry	Applicable Holder Page		
		Sintered Alloy	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re
NEW PETIT CUT 	NP-DNGA150404GA4	●	●									12.7	4.76	0.4	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011
	150408GA4	●	●									12.7	4.76	0.8	5.16		
	150412GA4	●	●									12.7	4.76	1.2	5.16		
	150404GN4		●									12.7	4.76	0.4	5.16		
	150408GN4		●									12.7	4.76	0.8	5.16		
	150412GN4		●									12.7	4.76	1.2	5.16		
	150404FS4	●										12.7	4.76	0.4	5.16		
	150408FS4	●										12.7	4.76	0.8	5.16		
	150412FS4	●										12.7	4.76	1.2	5.16		
	150404TA4	●	●									12.7	4.76	0.4	5.16		
	150408TA4	●	●									12.7	4.76	0.8	5.16		
	150412TA4	●	●									12.7	4.76	1.2	5.16		
NEW PETIT CUT 	BF-DNGG150404TA4		●									12.7	4.76	0.4	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011
	150408TA4		●									12.7	4.76	0.8	5.16		
	150412TA4		●									12.7	4.76	1.2	5.16		
(With Breaker)																	
NEW PETIT CUT 	<b>NEW</b> NP-DNGA110408GA2	●										9.525	4.76	0.8	3.81		C010 C011 E013 E036 -038 E040 E041 H009 -011
	150404GA2	●	●									12.7	4.76	0.4	5.16		
	150408GA2	●	●									12.7	4.76	0.8	5.16		
	150412GA2	●	●									12.7	4.76	1.2	5.16		
	150404GS2		●						●	●		12.7	4.76	0.4	5.16		
	150408GS2		●						●	●		12.7	4.76	0.8	5.16		
	150412GS2		●						●	●		12.7	4.76	1.2	5.16		
	150404GN2			●								12.7	4.76	0.4	5.16		
	150408GN2			●								12.7	4.76	0.8	5.16		
	150412GN2			●								12.7	4.76	1.2	5.16		
	150404FS2	●								●		12.7	4.76	0.4	5.16		
	150408FS2	●								●		12.7	4.76	0.8	5.16		
	150412FS2	●								●		12.7	4.76	1.2	5.16		
	150404TA2	●	●									12.7	4.76	0.4	5.16		
	150408TA2	●	●									12.7	4.76	0.8	5.16		
	150412TA2	●	●									12.7	4.76	1.2	5.16		
	150404TS2									●		12.7	4.76	0.4	5.16		
	150408TS2									●		12.7	4.76	0.8	5.16		
	150412TS2									●		12.7	4.76	1.2	5.16		
	150404G2				●							12.7	4.76	0.4	5.16		
	150408G2				●							12.7	4.76	0.8	5.16		
	150412G2				●							12.7	4.76	1.2	5.16		
150404T2				●							12.7	4.76	0.4	5.16			
150408T2				●							12.7	4.76	0.8	5.16			
150412T2				●							12.7	4.76	1.2	5.16			

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

GRADES > B004  
IDENTIFICATION > B002

B025

# CBN TURNING INSERTS [NEGATIVE]

## 55° DN TYPE INSERTS WITH HOLE

CBN  
CBN TURNING INSERTS

NEG

WITH HOLE

C

D


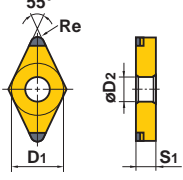

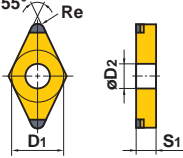

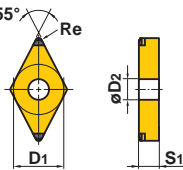

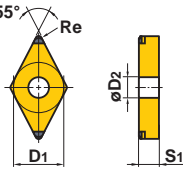

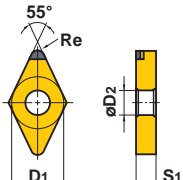

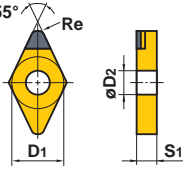
R

S

T

V

W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page			
	K	Cast Iron								● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting								
Shape	S	Heat-resistant Alloy, Titanium Alloy								Honing (Last letter of order number) : Refer to page B011.				Order Number	Dimensions (mm)	Geometry	Applicable Holder Page	
	Sintered Alloy		Coated CBN		CBN			D1	S1	Re	D2							
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020							
NEW PETIT CUT *2		TNP-DNGA150404G2										12.7	4.76	0.4	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011	
		150408G2											12.7	4.76	0.8			5.16
		150412G2											12.7	4.76	1.2			5.16
		150404T2											12.7	4.76	0.4			5.16
		150408T2											12.7	4.76	0.8			5.16
		150412T2											12.7	4.76	1.2			5.16
NEW PETIT CUT (With Wiper) *1		NP-DNGA150404GWS2JR										12.7	4.76	0.4	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011	
		150404GWS2JL											12.7	4.76	0.4			5.16
		150408GWS2JR											12.7	4.76	0.8			5.16
		150408GWS2JL											12.7	4.76	0.8			5.16
		150404GSWS2JR											12.7	4.76	0.4			5.16
		150404GSWS2JL											12.7	4.76	0.4			5.16
		150408GSWS2JR											12.7	4.76	0.8			5.16
		150408GSWS2JL											12.7	4.76	0.8			5.16
NEW PETIT CUT		BF-DNGM150404TA2										12.7	4.76	0.4	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011	
		150408TA2										12.7	4.76	0.8	5.16			
		150412TA2											12.7	4.76	1.2			5.16
(With Breaker)																		
NEW PETIT CUT		BM-DNGM150408TA2										12.7	4.76	0.8	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011	
		150412TA2										12.7	4.76	1.2	5.16			
(With Breaker)																		
NEW PETIT CUT		NP-DNMA150404GS										12.7	4.76	0.4	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011	
		150408GS											12.7	4.76	0.8			5.16
		150404G											12.7	4.76	0.4			5.16
		150408G											12.7	4.76	0.8			5.16
		150412G											12.7	4.76	1.2			5.16
		150404F											12.7	4.76	0.4			5.16
		150408F											12.7	4.76	0.8			5.16
		150412F											12.7	4.76	1.2			5.16
		150404T											12.7	4.76	0.4			5.16
		150408T											12.7	4.76	0.8			5.16
150412T											12.7	4.76	1.2	5.16				
NEW PETIT CUT		DNGA150404										12.7	4.76	0.4	5.16		C010 C011 E013 E036 -038 E040 E041 H009 -011	
		150408										12.7	4.76	0.8	5.16			
		150412											12.7	4.76	1.2			5.16

\*1 Please refer to B014 before using the wiper insert.

\*2 The order number is for a 10-insert pack. Please specify order number, grade and quantity.

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)



# 90° SN TYPE INSERTS WITH HOLE

Work Material	H	Hardened Materials	●	●	●	●	●	●	●	●	●	Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting Honing (Last letter of order number) : Refer to page B011.	Geometry	Applicable Holder Page				
	K	Cast Iron	●	●	●	●	●	●	●	●	●							
Shape	Order Number	Coated CBN	CBN									Dimensions (mm)				Geometry	Applicable Holder Page	
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1	Re	D2			
	<b>NP-SNGA12040GA4</b>		●										12.7	4.76	0.4	5.16		C012 -015 E014 E035
	<b>120408GA4</b>		●										12.7	4.76	0.8	5.16		
	<b>120412GA4</b>		●										12.7	4.76	1.2	5.16		
	<b>NP-SNGA12040GS2</b>		●										12.7	4.76	0.4	5.16		C012 -015 E014 E035
	<b>120408GS2</b>		●						●	●			12.7	4.76	0.8	5.16		
	<b>120412GS2</b>		●						●	●			12.7	4.76	1.2	5.16		
	<b>120404FS2</b>										●		12.7	4.76	0.4	5.16		
	<b>120408FS2</b>										●		12.7	4.76	0.8	5.16		
	<b>120412FS2</b>										●		12.7	4.76	1.2	5.16		
	<b>120404TS2</b>										●		12.7	4.76	0.4	5.16		
	<b>120408TS2</b>										●		12.7	4.76	0.8	5.16		
	<b>120412TS2</b>										●		12.7	4.76	1.2	5.16		
	<b>120404G2</b>				●								12.7	4.76	0.4	5.16		
	<b>120408G2</b>				●								12.7	4.76	0.8	5.16		
	<b>120412G2</b>				●								12.7	4.76	1.2	5.16		
	<b>120404T2</b>				●								12.7	4.76	0.4	5.16		
	<b>120408T2</b>				●								12.7	4.76	0.8	5.16		
<b>120412T2</b>				●								12.7	4.76	1.2	5.16			
	<b>TNP-SNGA12040G2</b>				●								12.7	4.76	0.4	5.16		C012 -015 E014 E035
	<b>120408G2</b>				●								12.7	4.76	0.8	5.16		
	<b>120412G2</b>				●								12.7	4.76	1.2	5.16		
	<b>120404T2</b>				●								12.7	4.76	0.4	5.16		
	<b>120408T2</b>				●								12.7	4.76	0.8	5.16		
	<b>120412T2</b>				●								12.7	4.76	1.2	5.16		
	<b>NP-SNMA12040GS</b>									●	●		12.7	4.76	0.4	5.16		C012 -015 E014 E035
	<b>120408GS</b>									●	●		12.7	4.76	0.8	5.16		
	<b>120404G</b>				●	●							12.7	4.76	0.4	5.16		
	<b>120408G</b>				●	●							12.7	4.76	0.8	5.16		
	<b>120412G</b>				●								12.7	4.76	1.2	5.16		
	<b>120404F</b>				□	●				●			12.7	4.76	0.4	5.16		
	<b>120408F</b>				□	●				●			12.7	4.76	0.8	5.16		
	<b>120412F</b>				□	●				●			12.7	4.76	1.2	5.16		
	<b>120404T</b>				□	●	●			●			12.7	4.76	0.4	5.16		
	<b>120408T</b>				□	●	●			●			12.7	4.76	0.8	5.16		
<b>120412T</b>				□	●	●			●			12.7	4.76	1.2	5.16			
	<b>SNGA120404</b>									□	□		12.7	4.76	0.4	5.16		C012 -015 E014 E035
	<b>120408</b>									●	●		12.7	4.76	0.8	5.16		
	<b>120412</b>									●	●		12.7	4.76	1.2	5.16		

\* The order number is for a 10-insert pack. Please specify order number, grade and quantity.



# CBN TURNING INSERTS [NEGATIVE]

## 60° TN TYPE INSERTS WITH HOLE

CBN  
CBN TURNING INSERTS

NEG

WITH HOLE

C

D


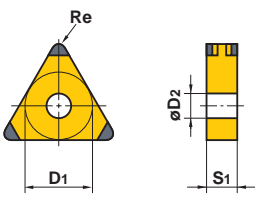

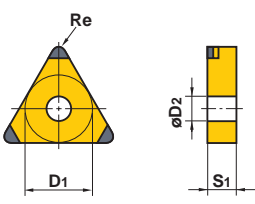
R

S

T


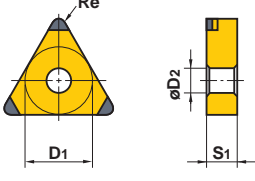

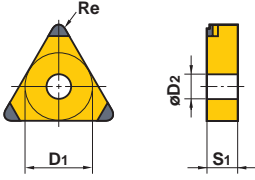

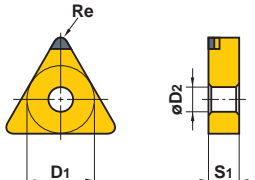

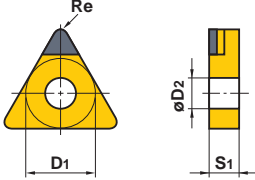
V

W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page		
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			●	
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN		CBN					Dimensions (mm)				Geometry	Applicable Holder Page		
		Sintered Alloy	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re
NEW PETIT CUT 	NP-TNGA160404GA6	●	●									9.525	4.76	0.4	3.81		C016 C017 E014 E035 E040
	160408GA6	●	●									9.525	4.76	0.8	3.81		
	160412GA6	●	●									9.525	4.76	1.2	3.81		
	160404GN6		●									9.525	4.76	0.4	3.81		
	160408GN6		●									9.525	4.76	0.8	3.81		
	160412GN6		●									9.525	4.76	1.2	3.81		
	160404FS6	●										9.525	4.76	0.4	3.81		
	160408FS6	●										9.525	4.76	0.8	3.81		
	160412FS6	●										9.525	4.76	1.2	3.81		
	160404TA6	●	●									9.525	4.76	0.4	3.81		
	160408TA6	●	●									9.525	4.76	0.8	3.81		
	160412TA6	●	●									9.525	4.76	1.2	3.81		
NEW PETIT CUT 	NP-TNGA160402GA3		●									9.525	4.76	0.2	3.81		C016 C017 E014 E035 E040
	160404GA3	●	●									9.525	4.76	0.4	3.81		
	160408GA3	●	●									9.525	4.76	0.8	3.81		
	160412GA3	●	●									9.525	4.76	1.2	3.81		
	160404GS3		●									9.525	4.76	0.4	3.81		
	160408GS3		●						●	●		9.525	4.76	0.8	3.81		
	160412GS3		●						●	●		9.525	4.76	1.2	3.81		
	160402GN3		●									9.525	4.76	0.2	3.81		
	160404GN3		●									9.525	4.76	0.4	3.81		
	160408GN3		●									9.525	4.76	0.8	3.81		
	160412GN3		●									9.525	4.76	1.2	3.81		
	160404FS3	●									●	9.525	4.76	0.4	3.81		
	160408FS3	●									●	9.525	4.76	0.8	3.81		
	160412FS3	●									●	9.525	4.76	1.2	3.81		
	160404TA3	●	●									9.525	4.76	0.4	3.81		
	160408TA3	●	●									9.525	4.76	0.8	3.81		
	160412TA3	●	●									9.525	4.76	1.2	3.81		
	160404TS3										●	9.525	4.76	0.4	3.81		
	160408TS3										●	9.525	4.76	0.8	3.81		
	160412TS3										●	9.525	4.76	1.2	3.81		
	160404G3				●							9.525	4.76	0.4	3.81		
	160408G3				●							9.525	4.76	0.8	3.81		
	160412G3				●							9.525	4.76	1.2	3.81		
	160404T3				●							9.525	4.76	0.4	3.81		
160408T3				●							9.525	4.76	0.8	3.81			
160412T3				●							9.525	4.76	1.2	3.81			

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)



Work Material	H	Hardened Materials								Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting Honing (Last letter of order number) : Refer to page B011.							
	K	Cast Iron															
Shape	S	Heat-resistant Alloy, Titanium Alloy								Dimensions (mm)				Geometry	Applicable Holder Page		
		Sintered Alloy	Coated CBN		CBN												
	Order Number	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1	Re	D2		
NEW PETIT CUT * 	TNP-TNGA160404G3				●							9.525	4.76	0.4	3.81		C016 C017 E014 E035 E040
	160408G3				●							9.525	4.76	0.8	3.81		
	160412G3				●							9.525	4.76	1.2	3.81		
	160404T3				●							9.525	4.76	0.4	3.81		
	160408T3				●							9.525	4.76	0.8	3.81		
	160412T3				●							9.525	4.76	1.2	3.81		
NEW PETIT CUT  (With Breaker)	BM-TNGM160408TA3	●										9.525	4.76	0.8	3.81		C016 C017 E014 E035 E040
	160412TA3	●										9.525	4.76	1.2	3.81		
NEW PETIT CUT 	NP-TNMA160404GS								●	●		9.525	4.76	0.4	3.81		C016 C017 E014 E035 E040
	160408GS								●	●		9.525	4.76	0.8	3.81		
	160412GS								●	●		9.525	4.76	1.2	3.81		
	160404G				●	●						9.525	4.76	0.4	3.81		
	160408G				●	●						9.525	4.76	0.8	3.81		
	160412G				●	●						9.525	4.76	1.2	3.81		
	160404F				□	●			●			9.525	4.76	0.4	3.81		
	160408F				□	●			●			9.525	4.76	0.8	3.81		
	160412F				□	●			□			9.525	4.76	1.2	3.81		
	160404T				□	●	●		●			9.525	4.76	0.4	3.81		
	160408T				□	●	●		●			9.525	4.76	0.8	3.81		
160412T				□	●	●		□			9.525	4.76	1.2	3.81			
	TNGA160404				●				●	●		9.525	4.76	0.4	3.81		C016 C017 E014 E035 E040
	160408				●				●	●		9.525	4.76	0.8	3.81		
	220404								●	□		12.7	4.76	0.4	5.16		
	220408								●	□		12.7	4.76	0.8	5.16		
	220412								●	□		12.7	4.76	1.2	5.16		

\* The order number is for a 10-insert pack. Please specify order number, grade and quantity.

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

GRADES > B004  
IDENTIFICATION > B002

B029

# CBN TURNING INSERTS [NEGATIVE]

## 35° VN TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D


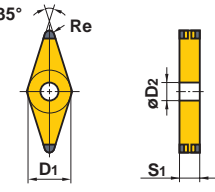
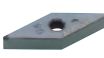
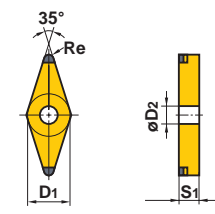
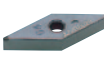
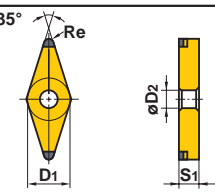

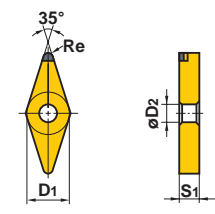

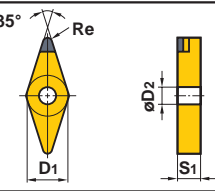
R

S

T

V


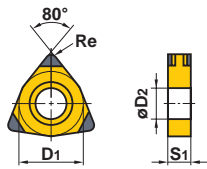

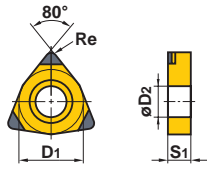

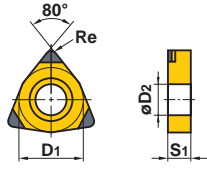
W

Work Material	H	Hardened Materials									Cutting Conditions (Guide) :				Geometry	Applicable Holder Page		
	K	Cast Iron									● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting							
Shape	S	Heat-resistant Alloy, Titanium Alloy									Honing (Last letter of order number) : Refer to page B011.				D1	S1	Re	D2
	Sintered Alloy		Coated CBN		CBN				Dimensions (mm)									
Order Number	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020								
NEW PETIT CUT 	NP-VNGA160404GA4	●	●								9.525	4.76	0.4	3.81		C018 -020 E015 E042		
	160408GA4	●	●								9.525	4.76	0.8	3.81				
	160412GA4	●									9.525	4.76	1.2	3.81				
	160404FS4	●									9.525	4.76	0.4	3.81				
	160408FS4	●									9.525	4.76	0.8	3.81				
	160412FS4	●									9.525	4.76	1.2	3.81				
	160404TA4	●									9.525	4.76	0.4	3.81				
	160408TA4	●									9.525	4.76	0.8	3.81				
NEW PETIT CUT 	NP-VNGA160402GA2		●								9.525	4.76	0.2	3.81		C018 -020 E015 E042		
	160404GA2	●	●								9.525	4.76	0.4	3.81				
	160408GA2	●	●								9.525	4.76	0.8	3.81				
	160404GS2		●								9.525	4.76	0.4	3.81				
	160408GS2		●								9.525	4.76	0.8	3.81				
	160402GN2		●								9.525	4.76	0.2	3.81				
	160404FS2	●							●		9.525	4.76	0.4	3.81				
	160408FS2	●							●		9.525	4.76	0.8	3.81				
	160404TA2	●									9.525	4.76	0.4	3.81				
	160408TA2	●									9.525	4.76	0.8	3.81				
	160404TS2									●	9.525	4.76	0.4	3.81				
	160408TS2									●	9.525	4.76	0.8	3.81				
	160404G2				●						9.525	4.76	0.4	3.81				
	160408G2				●						9.525	4.76	0.8	3.81				
160404T2				●						9.525	4.76	0.4	3.81					
160408T2				●						9.525	4.76	0.8	3.81					
NEW PETIT CUT * 	TNP-VNGA160404G2				●						9.525	4.76	0.4	3.81		C018 -020 E015 E042		
	160408G2				●						9.525	4.76	0.8	3.81				
	160404T2				●						9.525	4.76	0.4	3.81				
	160408T2				●						9.525	4.76	0.8	3.81				
NEW PETIT CUT 	NP-VNMA160404GS								●	●	9.525	4.76	0.4	3.81		C018 -020 E015 E042		
	160408GS								●	●	9.525	4.76	0.8	3.81				
	160404G				●	●					9.525	4.76	0.4	3.81				
	160408G				●	●					9.525	4.76	0.8	3.81				
	160404F				□	●			●		9.525	4.76	0.4	3.81				
	160408F				□	●			●		9.525	4.76	0.8	3.81				
	160404T				□	●	●		●		9.525	4.76	0.4	3.81				
160408T				□	●	●		●		9.525	4.76	0.8	3.81					
VNGA160404 	VNGA160404								□	□	9.525	4.76	0.4	3.81		C018 -020 E015 E042		
	160408								□	□	9.525	4.76	0.8	3.81				

\* The order number is for a 10-insert pack. Please specify order number, grade and quantity.

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 80° WN TYPE INSERTS WITH HOLE

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			●
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)				Geometry	Applicable Holder Page		
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re
NEW PETIT CUT 	<b>NP-WNGA080408GA6</b>	●	●								12.7	4.76	0.8	5.16		C021 E015 E039
NEW PETIT CUT 	<b>NP-WNGA080408GA3</b>	●	●								12.7	4.76	0.8	5.16		C021 E015 E039
	<b>080408FS3</b>								●		12.7	4.76	0.8	5.16		
	<b>080408TS3</b>								●		12.7	4.76	0.8	5.16		
NEW PETIT CUT (With Wiper) * 	<b>NP-WNGA080408GAWS3</b>		●	●							12.7	4.76	0.8	5.16		C021 E015 E039
	<b>080408GSWS3</b>	●									12.7	4.76	0.8	5.16		

\* Please refer to B014 before using the wiper insert.

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

# CBN TURNING INSERTS [NEGATIVE]

## 80° CN TYPE INSERTS WITHOUT HOLE

CBN

CBN TURNING INSERTS

NEG

WITHOUT HOLE

C

D


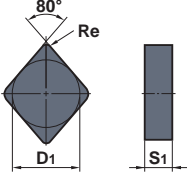
R

S


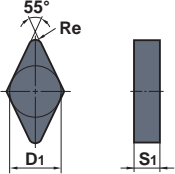
T

V

W

Work Material	H	Hardened Materials	●		●		●		●		●		●		Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting			
	K	Cast Iron	●		●		●		●		●		●					
Shape	S	Heat-resistant Alloy, Titanium Alloy	●		●		●		●		●		●		Dimensions (mm) D1 S1 Re	Geometry	Applicable Holder Page	
		Sintered Alloy	●		●		●		●		●		●					
			Coated CBN	CBN							Solid CBN							
	Order Number		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	MBS140					
	CNGN120404												●	12.7	4.76	0.4		-
	120408												●	12.7	4.76	0.8		
	120412												●	12.7	4.76	1.2		

## 55° DN TYPE INSERTS WITHOUT HOLE

Work Material	H	Hardened Materials	●		●		●		●		●		●		Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting			
	K	Cast Iron	●		●		●		●		●		●					
Shape	S	Heat-resistant Alloy, Titanium Alloy	●		●		●		●		●		●		Dimensions (mm) D1 S1 Re	Geometry	Applicable Holder Page	
		Sintered Alloy	●		●		●		●		●		●					
	Order Number		Coated CBN	CBN							Solid CBN							
			BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	MBS140					
	DNGN110308												●	9.525	3.18	0.8		-
	110312												●	9.525	3.18	1.2		

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

# RN TYPE INSERTS WITHOUT HOLE

Work Material	H	Hardened Materials											Cutting Conditions (Guide) :			Geometry	Applicable Holder Page
	K	Cast Iron											● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting				
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN			CBN					Solid CBN	Dimensions (mm)				-	
		Sintered Alloy	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	MBS140	D1			S1
													●	9.525	3.18		-
													●	12.7	3.18		
													●	12.7	4.76		

CBN

CBN TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

S

T

V

W

# CBN TURNING INSERTS [NEGATIVE]

## 90° SN TYPE INSERTS WITHOUT HOLE

CBN

CBN TURNING INSERTS

NEG

WITHOUT HOLE

C

D


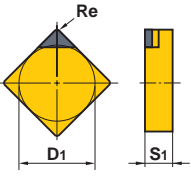

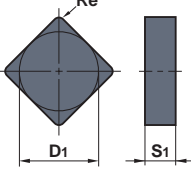
R

S

T


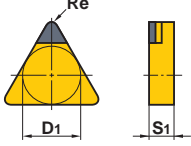

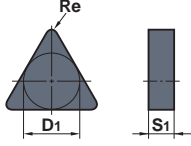
V

W

Work Material	H	Hardened Materials											Cutting Conditions (Guide) :			Geometry	Applicable Holder Page
	K	Cast Iron											● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting		
S	Heat-resistant Alloy, Titanium Alloy												Dimensions (mm)			Geometry	Applicable Holder Page
	Sintered Alloy												D1	S1	Re		
Shape	Order Number	Coated CBN			CBN						Solid CBN	Dimensions (mm)			Geometry	Applicable Holder Page	
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	MBS140	D1	S1			Re
	SNGN090304												9.525	3.18	0.4		-
	090308												9.525	3.18	0.8		
	120404												12.7	4.76	0.4		
	120408												12.7	4.76	0.8		
	120412												12.7	4.76	1.2		
	SNGN090308											●	9.525	3.18	0.8		-
	090312											●	9.525	3.18	1.2		
	090316											●	9.525	3.18	1.6		
	090408											●	9.525	4.76	0.8		
	090412											●	9.525	4.76	1.2		
	120408											●	12.7	4.76	0.8		
	120412											●	12.7	4.76	1.2		
	120416											●	12.7	4.76	1.6		

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 60° TN TYPE INSERTS WITHOUT HOLE

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :										Dimensions (mm)	Geometry	Applicable Holder Page			
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●				●	●	●
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN			CBN					Solid CBN	D1	S1	Re				
		Sintered Alloy	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	MBS140					
														9.525	4.76	0.4		-
	<b>TNGN160404</b>								●	□				9.525	4.76	0.8		
	<b>160408</b>								●	□								
												●		9.525	4.76	0.8		-
	<b>TNGN160408</b>											●		9.525	4.76	1.2		
	<b>160412</b>											●		9.525	4.76	1.6		
	<b>160416</b>											●						

CBN

CBN TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

S

T

V

W



# CBN TURNING INSERTS [POSITIVE]

## 80° CC TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

POSITIVE  
7°

WITH HOLE

C

D

R

S


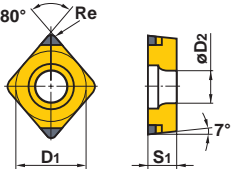

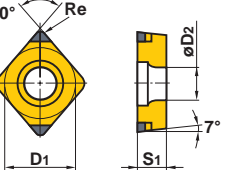

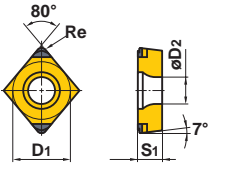

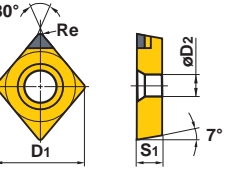

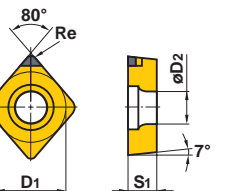
T

V

W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page			
	K	Cast Iron								● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting								
Shape	S	Heat-resistant Alloy, Titanium Alloy								Honing (Last letter of order number) : Refer to page B011.				Order Number	Dimensions (mm)	Geometry	Applicable Holder Page	
	Sintered Alloy	Coated CBN		CBN					D1	S1	Re	D2						
			BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020						
NEW PETIT CUT					●								6.35	2.38	0.4	2.8		E006
	NP-CCGB060204GA2																	
NEW PETIT CUT			●	●									6.35	2.38	0.2	2.8		C022 D008 E030 E034
	060204GA2		●	●									6.35	2.38	0.4	2.8		
	060208GA2		●	●									6.35	2.38	0.8	2.8		
	09T302GA2		●	●									9.525	3.97	0.2	4.4		
	09T304GA2		●	●									9.525	3.97	0.4	4.4		
	09T308GA2		●	●									9.525	3.97	0.8	4.4		
	060202GS2								●	●			6.35	2.38	0.2	2.8		
	060204GS2			●					●	●			6.35	2.38	0.4	2.8		
	060208GS2								●	●			6.35	2.38	0.8	2.8		
	09T304GS2			●					●	●			9.525	3.97	0.4	4.4		
	09T308GS2			●					●	●			9.525	3.97	0.8	4.4		
	09T302GN2			●									9.525	3.97	0.2	4.4		
	09T304GN2			●									9.525	3.97	0.4	4.4		
	09T308GN2			●									9.525	3.97	0.8	4.4		
	060202FA2								●	●			6.35	2.38	0.2	2.8		
	060204FA2								●	●			6.35	2.38	0.4	2.8		
	060208FA2								●	●			6.35	2.38	0.8	2.8		
	09T304FA2								●	●			9.525	3.97	0.4	4.4		
	09T308FA2								●	●			9.525	3.97	0.8	4.4		
	060202FS2		●								●		6.35	2.38	0.2	2.8		
	060204FS2		●								●		6.35	2.38	0.4	2.8		
	060208FS2										●		6.35	2.38	0.8	2.8		
	09T302FS2		●								●		9.525	3.97	0.2	4.4		
	09T304FS2		●								●		9.525	3.97	0.4	4.4		
	09T308FS2		●								●		9.525	3.97	0.8	4.4		
	060202TS2										●		6.35	2.38	0.2	2.8		
	060204TS2										●		6.35	2.38	0.4	2.8		
	060208TS2										●		6.35	2.38	0.8	2.8		
	09T302TS2										●		9.525	3.97	0.2	4.4		
	09T304TS2										●		9.525	3.97	0.4	4.4		
	09T308TS2										●		9.525	3.97	0.8	4.4		
	09T304G2				●								9.525	3.97	0.4	4.4		
	09T308G2				●								9.525	3.97	0.8	4.4		

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

Work Material	H	Hardened Materials	Coated CBN	CBN	Dimensions (mm)	Geometry	Applicable Holder Page											
	K	Cast Iron						S	Heat-resistant Alloy, Titanium Alloy	Sintered Alloy								
Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting Honing (Last letter of order number) : Refer to page B011.																		
Shape	Order Number	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1	Re	D2	Geometry		Applicable Holder Page
NEW PETIT CUT *2 	TNP-CCGW09T304G2				●							9.525	3.97	0.4	4.4		C022 D008 E030 E034	
	09T308G2				●							9.525	3.97	0.8	4.4			
NEW PETIT CUT (With Wiper) *1 	NP-CCGW09T308GAWS2		●	●								9.525	3.97	0.8	4.4		C022 D008 E030 E034	
	09T308GSWS2	●										9.525	3.97	0.8	4.4			
NEW PETIT CUT  (With Breaker)	BF-CCGT09T304TA2		●									9.525	3.97	0.4	4.4		C022 D008 E030 E034	
	09T308TA2	●										9.525	3.97	0.8	4.4			
NEW PETIT CUT 	NP-CCMB060204G				●							6.35	2.38	0.4	2.8		E006	
NEW PETIT CUT 	NP-CCGW09T302GS								●	●		9.525	3.97	0.2	4.4		C022 D008 E030 E034	
	09T304GS								●	●		9.525	3.97	0.4	4.4			
	060202G				●	●						6.35	2.38	0.2	2.8			
	060204G				●	●						6.35	2.38	0.4	2.8			
	060208G				●							6.35	2.38	0.8	2.8			
	09T302G				●	●						9.525	3.97	0.2	4.4			
	09T304G				●	●						9.525	3.97	0.4	4.4			
	09T308G				●							9.525	3.97	0.8	4.4			
	060202F				●							6.35	2.38	0.2	2.8			
	060204F				●							6.35	2.38	0.4	2.8			
	09T302F				●							9.525	3.97	0.2	4.4			
	09T304F				□	●						9.525	3.97	0.4	4.4			
	09T308F				□							9.525	3.97	0.8	4.4			
	060202T						●					6.35	2.38	0.2	2.8			
	060204T						●					6.35	2.38	0.4	2.8			
	09T302T						●					9.525	3.97	0.2	4.4			
09T304T				□	●						9.525	3.97	0.4	4.4				
09T308T				□							9.525	3.97	0.8	4.4				

\*1 Please refer to B014 before using the wiper insert.  
 \*2 The order number is for a 10-insert pack. Please specify order number, grade and quantity.

# CBN TURNING INSERTS [POSITIVE]

## 80° CC TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

POSITIVE  
7°

WITH HOLE

C

D


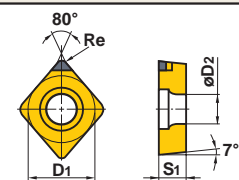

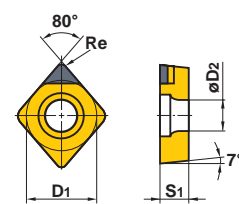
R

S

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V


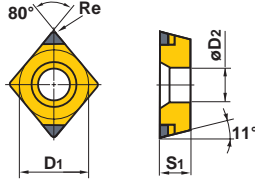

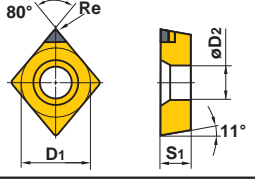
W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page			
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			●		
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN		CBN					Dimensions (mm)				Geometry	Applicable Holder Page			
	Sintered Alloy	●	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re	D2
	*	NP-CCMW03S102F					●						3.57	1.39	0.2	2.0		E016
	*	03S104F					●						3.57	1.39	0.4	2.0		
	*	04T002F					●						4.37	1.79	0.2	2.4		
	*	04T004F					●						4.37	1.79	0.4	2.4		
		CCMW060202								□	□		6.35	2.38	0.2	2.8		C022 D008 E030 E034
		060204								□	□		6.35	2.38	0.4	2.8		
		09T302								□	□		9.525	3.97	0.2	4.4		
		09T304								□	□		9.525	3.97	0.4	4.4		
		09T308								□	□		9.525	3.97	0.8	4.4		
		120404								□	□		12.7	4.76	0.4	5.5		
		120408								□	□		12.7	4.76	0.8	5.5		
	120412								□	□		12.7	4.76	1.2	5.5			

\* Diameter of inscribed circle is special. (For SCLC type)

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 80° CP TYPE INSERTS WITH HOLE

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page			
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			●	●	
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN		CBN					Dimensions (mm)				E006	E006			
	Sintered Alloy	●	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re	D2
NEW PETIT CUT 	NP-CPGB080204GA2	●	●										7.94	2.38	0.4	3.5		E006
	080208GA2	●	●										7.94	2.38	0.8	3.5		
	090304GA2		●										9.525	3.18	0.4	4.5		
	090308GA2		●										9.525	3.18	0.8	4.5		
	080202FS2									●			7.94	2.38	0.2	3.5		
	080204FS2	●								●			7.94	2.38	0.4	3.5		
	080208FS2	●											7.94	2.38	0.8	3.5		
	090302FS2									●			9.525	3.18	0.2	4.5		
	090304FS2									●			9.525	3.18	0.4	4.5		
090308FS2									●			9.525	3.18	0.8	4.5			
NEW PETIT CUT 	NP-CPMB080204G												7.94	2.38	0.4	3.5		E006
	090304G												9.525	3.18	0.4	4.5		

CBN

CBN TURNING INSERTS

POSI 11°

WITH HOLE

C

D

R

S

T

V

W

# CBN TURNING INSERTS [POSITIVE]

## 55° DC TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

POSITIVE  
7°

WITH HOLE

C

D

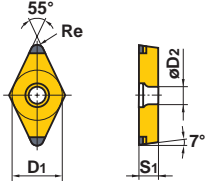
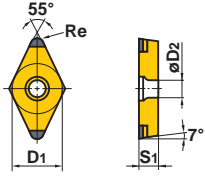
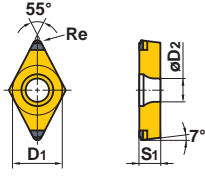
R

S

T


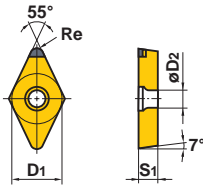

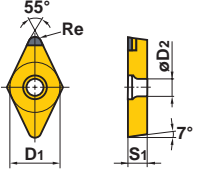

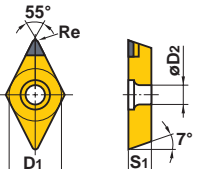
V

W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron								● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting	Honing (Last letter of order number) : Refer to page B011.			
Shape	S	Heat-resistant Alloy, Titanium Alloy								Dimensions (mm)				Geometry	Applicable Holder Page	
	Sintered Alloy		Coated CBN		CBN			D1	S1	Re	D2					
Order Number	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1	Re	D2	Geometry	Applicable Holder Page
NEW PETIT CUT	<b>NP-DCGW070202GA2</b>	●	●								6.35	2.38	0.2	2.8		C023 D009 D026 E008 E009 E029 E031
	<b>070204GA2</b>	●	●								6.35	2.38	0.4	2.8		
	<b>070208GA2</b>		●								6.35	2.38	0.8	2.8		
	<b>11T302GA2</b>	●	●								9.525	3.97	0.2	4.4		
	<b>11T304GA2</b>	●	●								9.525	3.97	0.4	4.4		
	<b>11T308GA2</b>	●	●								9.525	3.97	0.8	4.4		
	<b>070204GS2</b>		●								6.35	2.38	0.4	2.8		
	<b>11T302GS2</b>		●								9.525	3.97	0.2	4.4		
	<b>11T304GS2</b>		●					●	●		9.525	3.97	0.4	4.4		
	<b>11T308GS2</b>		●					●	●		9.525	3.97	0.8	4.4		
	<b>070202GN2</b>		●								6.35	2.38	0.2	2.8		
	<b>070204GN2</b>		●								6.35	2.38	0.4	2.8		
	<b>070208GN2</b>		●								6.35	2.38	0.8	2.8		
	<b>11T302GN2</b>		●								9.525	3.97	0.2	4.4		
	<b>11T304GN2</b>		●								9.525	3.97	0.4	4.4		
	<b>11T308GN2</b>		●								9.525	3.97	0.8	4.4		
	<b>11T304FA2</b>							●	●		9.525	3.97	0.4	4.4		
	<b>11T308FA2</b>							●	●		9.525	3.97	0.8	4.4		
	<b>070202FS2</b>	●									6.35	2.38	0.2	2.8		
	<b>070204FS2</b>	●							●		6.35	2.38	0.4	2.8		
	<b>070208FS2</b>								●		6.35	2.38	0.8	2.8		
	<b>11T302FS2</b>	●							●		9.525	3.97	0.2	4.4		
	<b>11T304FS2</b>	●							●		9.525	3.97	0.4	4.4		
	<b>11T308FS2</b>	●							●		9.525	3.97	0.8	4.4		
	<b>070204TS2</b>								●		6.35	2.38	0.4	2.8		
	<b>070208TS2</b>								●		6.35	2.38	0.8	2.8		
	<b>11T302TS2</b>								●		9.525	3.97	0.2	4.4		
	<b>11T304TS2</b>								●		9.525	3.97	0.4	4.4		
	<b>11T308TS2</b>								●		9.525	3.97	0.8	4.4		
	<b>11T304G2</b>				●						9.525	3.97	0.4	4.4		
	<b>11T308G2</b>				●						9.525	3.97	0.8	4.4		
NEW PETIT CUT *	<b>TNP-DCGW11T304G2</b>				●						9.525	3.97	0.4	4.4		C023 D009 D026 E008 E009 E029 E031
	<b>11T308G2</b>				●						9.525	3.97	0.8	4.4		
NEW PETIT CUT	<b>BF-DCGT11T304TA2</b>		●								9.525	3.97	0.4	4.4		C023 D009 D026 E008 E009 E029 E031
(With Breaker)	<b>11T308TA2</b>		●								9.525	3.97	0.8	4.4		

\* The order number is for a 10-insert pack. Please specify order number, grade and quantity.

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

Work Material	H	Hardened Materials									Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1			Re
Shape	Order Number	Coated CBN			CBN					Dimensions (mm)				Geometry	Applicable Holder Page		
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1			Re	D2
NEW PETIT CUT 	<b>NP-DCGW11T302GS</b>								●	●		9.525	3.97	0.2	4.4		C023 D009 D026 E008 E009 E029 E031
	<b>11T304GS</b>								●	●		9.525	3.97	0.4	4.4		
	<b>070202G</b>				●							6.35	2.38	0.2	2.8		
	<b>070204G</b>				●							6.35	2.38	0.4	2.8		
	<b>070208G</b>				●							6.35	2.38	0.8	2.8		
	<b>11T302G</b>				●	●						9.525	3.97	0.2	4.4		
	<b>11T304G</b>				●	●						9.525	3.97	0.4	4.4		
	<b>11T308G</b>				●							9.525	3.97	0.8	4.4		
	<b>070202F</b>				●							6.35	2.38	0.2	2.8		
	<b>070204F</b>				●							6.35	2.38	0.4	2.8		
	<b>11T302F</b>				●							9.525	3.97	0.2	4.4		
	<b>11T304F</b>				□	●						9.525	3.97	0.4	4.4		
	<b>11T308F</b>				□							9.525	3.97	0.8	4.4		
	<b>070202T</b>								●			6.35	2.38	0.2	2.8		
	<b>070204T</b>								●			6.35	2.38	0.4	2.8		
<b>11T302T</b>								●			9.525	3.97	0.2	4.4			
<b>11T304T</b>				□	●						9.525	3.97	0.4	4.4			
<b>11T308T</b>				□	□						9.525	3.97	0.8	4.4			
NEW PETIT CUT 	<b>NP-DCMW070204G</b>					●					6.35	2.38	0.4	2.8		C023 D009 D026 E008 E009 E029 E031	
	<b>11T304G</b>					●					9.525	3.97	0.4	4.4			
	<b>DCMW070202</b>								□	□	6.35	2.38	0.2	2.8		C023 D009 D026 E008 E009 E029 E031	
	<b>070204</b>								□	□	6.35	2.38	0.4	2.8			
	<b>11T302</b>								□	□	9.525	3.97	0.2	4.4			
	<b>11T304</b>								□	□	9.525	3.97	0.4	4.4			

CBN

CBN TURNING INSERTS

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GRADES > B004  
IDENTIFICATION > B002

B041

# CBN TURNING INSERTS [POSITIVE]

## 60° TC TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

POSITIVE  
7°

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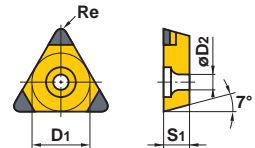

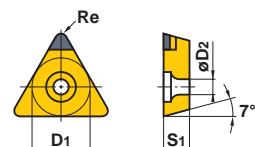
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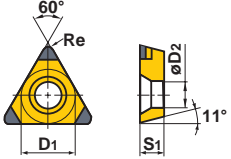

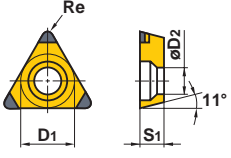

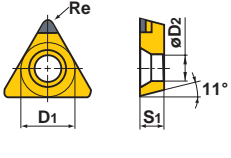
W

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
	K	Cast Iron								● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting	Honing (Last letter of order number) : Refer to page B011.		
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)				Geometry	Applicable Holder Page	
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1
NEW PETIT CUT 	<b>NP-TCGW090202GA3</b>			●							5.56	2.38	0.2	2.5	 C027 E028
	<b>090204GA3</b>			●							5.56	2.38	0.4	2.5	
	<b>090208GA3</b>			●							5.56	2.38	0.8	2.5	
	<b>110202GA3</b>			●							6.35	2.38	0.2	2.8	
	<b>110204GA3</b>			●							6.35	2.38	0.4	2.8	
	<b>110208GA3</b>			●							6.35	2.38	0.8	2.8	
	<b>130304GA3</b>			●							7.94	3.18	0.4	3.4	
	<b>130308GA3</b>			●							7.94	3.18	0.8	3.4	
	<b>16T304GA3</b>			●							9.525	3.97	0.4	4.4	
	<b>16T308GA3</b>			●							9.525	3.97	0.8	4.4	
	<b>110204FA3</b>								●	●	6.35	2.38	0.4	2.8	
	<b>110208FA3</b>								●	●	6.35	2.38	0.8	2.8	
	<b>110204FS3</b>									●	6.35	2.38	0.4	2.8	
	<b>110208FS3</b>									●	6.35	2.38	0.8	2.8	
	<b>110204TS3</b>									●	6.35	2.38	0.4	2.8	
<b>110208TS3</b>									●	6.35	2.38	0.8	2.8		
	<b>TCMW110202</b>								□	□	6.35	2.38	0.2	2.8	 C027 E028
	<b>110204</b>								□	□	6.35	2.38	0.4	2.8	

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)



# 60° TP TYPE INSERTS WITH HOLE

Work Material	H	Hardened Materials	●	●	●	●	●	●	●	●	●	●	●	Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting Honing (Last letter of order number) : Refer to page B011.					
	K	Cast Iron																	
Shape	Order Number	Coated CBN		CBN						Dimensions (mm)				Geometry	Applicable Holder Page				
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1			Re	D2		
NEW PETIT CUT 	NP-TPGB080204GA3			●										4.76	2.38	0.4	2.4		E007
	080208GA3			●										4.76	2.38	0.8	2.4		
	090204GA3			●										5.56	2.38	0.4	2.9		
	090208GA3			●										5.56	2.38	0.8	2.9		
	110304GA3			●										6.35	3.18	0.4	3.4		
	110308GA3			●										6.35	3.18	0.8	3.4		
	160304GA3			●										9.525	3.18	0.4	4.4		
	160308GA3			●										9.525	3.18	0.8	4.4		
	090202FS3										●			5.56	2.38	0.2	2.9		
	090204FS3										●			5.56	2.38	0.4	2.9		
	110302FS3										●			6.35	3.18	0.2	3.4		
	110304FS3										●			6.35	3.18	0.4	3.4		
	110308FS3										●			6.35	3.18	0.8	3.4		
	160304FS3										●			9.525	3.18	0.4	4.4		
	160308FS3										●			9.525	3.18	0.8	4.4		
NEW PETIT CUT 	NP-TPGX080202GA3			□										4.76	2.38	0.2	2.5		E025
	080204GA3			□										4.76	2.38	0.4	2.5		
	080208GA3			□										4.76	2.38	0.8	2.5		
	090204GA3			□										5.56	2.38	0.4	3		
	090208GA3			□										5.56	2.38	0.8	3		
	110304GA3			□										6.35	3.18	0.4	3.5		
	110308GA3			□										6.35	3.18	0.8	3.5		
	080202GS3			●										4.76	2.38	0.2	2.5		
	080204GS3			●										4.76	2.38	0.4	2.5		
	090202GS3			●										5.56	2.38	0.2	3		
	090204GS3			●										5.56	2.38	0.4	3		
	110304GS3			●										6.35	3.18	0.4	3.5		
110308GS3			●										6.35	3.18	0.8	3.5			
NEW PETIT CUT 	NP-TPMB080204G													4.76	2.38	0.4	2.4		E007
	090204G													5.56	2.38	0.4	2.9		
	110304G													6.35	3.18	0.4	3.4		
	160304G													9.525	3.18	0.4	4.4		

CBN

CBN TURNING INSERTS

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# CBN TURNING INSERTS [POSITIVE]

## 60° TP TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

POSITIVE  
11°

WITH HOLE

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Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page		
	K	Cast Iron								● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting	Honing (Last letter of order number) : Refer to page B011.				
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)				Geometry	Applicable Holder Page			
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re	D2
NEW PETIT CUT	<b>NP-TPGX090204G</b>				●						5.56	2.38	0.4	3		E025	
	<b>090208G</b>				●						5.56	2.38	0.8	3			
	<b>110304G</b>				●						6.35	3.18	0.4	3.5			
	<b>110308G</b>				●						6.35	3.18	0.8	3.5			
	<b>080202F</b>					●					4.76	2.38	0.2	2.5			
	<b>080204F</b>					●					4.76	2.38	0.4	2.5			
	<b>090202F</b>					●					5.56	2.38	0.2	3			
	<b>090204F</b>					●					5.56	2.38	0.4	3			
	<b>110304F</b>					●			●		6.35	3.18	0.4	3.5			
	<b>110308F</b>					●			●		6.35	3.18	0.8	3.5			
	<b>080202T</b>								●		4.76	2.38	0.2	2.5			
	<b>080204T</b>								●		4.76	2.38	0.4	2.5			
	<b>090202T</b>								●		5.56	2.38	0.2	3			
	<b>090204T</b>								●		5.56	2.38	0.4	3			
	<b>110304T</b>					●	●		●		6.35	3.18	0.4	3.5			
<b>110308T</b>					●	●		●		6.35	3.18	0.8	3.5				
	<b>TPGX080202</b>							●	●		4.76	2.38	0.2	2.5		E025	
	<b>080204</b>					●		●	●		4.76	2.38	0.4	2.5			
	<b>080208</b>								□	□		4.76	2.38	0.8			2.5
	<b>090202</b>								●	●		5.56	2.38	0.2			3
	<b>090204</b>					●			●	●		5.56	2.38	0.4			3
	<b>090208</b>								□	□		5.56	2.38	0.8			3
	<b>110302</b>								□	□		6.35	3.18	0.2			3.5
	<b>110304</b>					●			●	●		6.35	3.18	0.4			3.5
	<b>110308</b>					●			●	●		6.35	3.18	0.8			3.5
	<b>160304</b>								●	□		9.525	3.18	0.4			4.8
	<b>160308</b>								●	□		9.525	3.18	0.8			4.8
<b>160404</b>								□	□		9.525	4.76	0.4	4.8			
<b>160408</b>								□	□		9.525	4.76	0.8	4.8			

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)



# CBN TURNING INSERTS [POSITIVE]

## 35° VC TYPE INSERTS WITH HOLE

CBN

CBN TURNING INSERTS

POSITIVE  
7°

WITH HOLE

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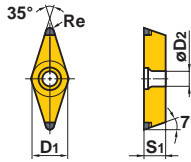
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
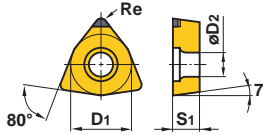
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Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			●
S	Heat-resistant Alloy, Titanium Alloy									Honing (Last letter of order number) : Refer to page B011.						
	Sintered Alloy															
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)				Geometry	Applicable Holder Page		
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re
	NP-VCGW160404GA2	●	●								9.525	4.76	0.4	4.4		C028 C029 E032 E033
	160408GA2	●	●								9.525	4.76	0.8	4.4		
	160404FS2	●									9.525	4.76	0.4	4.4		
	160408FS2	●									9.525	4.76	0.8	4.4		


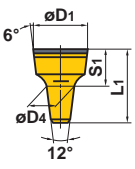
## 80° WC TYPE INSERTS WITH HOLE

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●	●			
S	Heat-resistant Alloy, Titanium Alloy									Honing (Last letter of order number) : Refer to page B011.						
	Sintered Alloy															
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)				Geometry	Applicable Holder Page		
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1			S1	Re
	NP-WCMWL30204FA										4.76	2.38	0.4	2.3		E027
	L30208FA										4.76	2.38	0.8	2.3		

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



# RTG TYPE INSERTS WITHOUT HOLE

Work Material	H	Hardened Materials									Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron									● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting						
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN		CBN						Dimensions (mm)				C035		
		Sintered Alloy	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020	D1	S1		L1	D4
	<b>RTG05A</b>											5	3.5	7.5	2.5		C035
	<b>06A</b>						●					6	3.5	7.5	3.5		
	<b>07A</b>						●					7	5	11	3.5		
	<b>08A</b>						●					8	5	11	4.5		
	<b>10A</b>						●					10	6.5	14	5.5		

CBN

CBN TURNING INSERTS

POSI  
5°  
6°

WITHOUT HOLE

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# CBN TURNING INSERTS [POSITIVE]

## 90° SP TYPE INSERTS WITHOUT HOLE

CBN

CBN TURNING INSERTS

POSITIVE  
11°

WITHOUT HOLE

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Work Material	H	Hardened Materials								Cutting Conditions (Guide) :			Geometry	Applicable Holder Page	
	K	Cast Iron	●	●	●	●	●	●	●	●	●	●			●
S	Heat-resistant Alloy, Titanium Alloy												Sintered Alloy	●	
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)			Geometry	Applicable Holder Page		
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020			D1	S1
	SPGN090302							□	□		9.525	3.18	0.2		-
	090304							●	□		9.525	3.18	0.4		
	090308							●	□		9.525	3.18	0.8		
	090312							□	□		9.525	3.18	1.2		
	120304							●	●		12.7	3.18	0.4		
	120308							●	●		12.7	3.18	0.8		
	120312							□	□		12.7	3.18	1.2		
	120408							□	□		12.7	4.76	0.8		
	120412							□	□		12.7	4.76	1.2		

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 60° TB TYPE INSERTS WITHOUT HOLE

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :			Geometry	Applicable Holder Page		
	K	Cast Iron								● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting						
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)			Geometry	Applicable Holder Page			
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020			D1	S1	Re
	TBGN060104					●			●	□		3.97	1.59	0.4		-
	060108					●			●	□		3.97	1.59	0.8		

CBN

CBN TURNING INSERTS

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WITHOUT HOLE

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# 60° TP TYPE INSERTS WITHOUT HOLE

Work Material	H	Hardened Materials								Cutting Conditions (Guide) :			Geometry	Applicable Holder Page		
	K	Cast Iron								● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting						
Shape	Order Number	Coated CBN			CBN				Dimensions (mm)			Geometry	Applicable Holder Page			
		BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730	MB4020			D1	S1	Re
	TPGN090204								□	□		5.56	2.38	0.4		E026
	110302								□	□		6.35	3.18	0.2		
	110304								●	●		6.35	3.18	0.4		
	110308								□	□		6.35	3.18	0.8		
	160304								●	●		9.525	3.18	0.4		
	160308								●	●		9.525	3.18	0.8		
	160312								□	□		9.525	3.18	1.2		
	160408								□	□		9.525	4.76	0.8		
	220408								□	□		12.7	4.76	0.8		

GRADES > B004  
IDENTIFICATION > B002

B049



# CBN TURNING INSERTS [POSITIVE]

## GY TYPE INSERTS WITHOUT HOLE

CBN  
CBN TURNING INSERTS

POSITIVE  
7°  
WITHOUT HOLE

C

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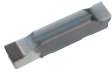
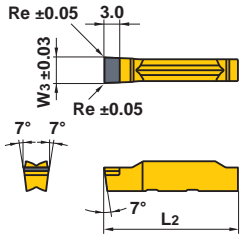
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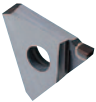
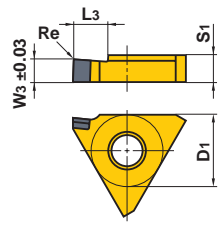
W

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :							Dimensions (mm)			Geometry	Applicable Holder Page	
	K	Cast Iron	●	●	●	●	●	●	●						●
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN			CBN				W <sub>3</sub>	Re	L <sub>2</sub>	Geometry	Applicable Holder Page	
		Sintered Alloy	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835						MB710
		GY1G0200D020N-GFGS				●					2.00	0.2	20.70		F016 -F107
		0239E020N-GFGS				●					2.39	0.2	20.70		
		0250E020N-GFGS				●					2.50	0.2	20.70		
		0300F020N-GFGS				●					3.00	0.2	20.70		
		0318F020N-GFGS				●					3.18	0.2	20.70		
		0400G020N-GFGS				●					4.00	0.2	25.65		
		0475H020N-GFGS				●					4.75	0.2	25.65		
		0500H020N-GFGS				●					5.00	0.2	25.65		

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

# CBN TURNING INSERTS [NEGATIVE]

## MGTR TYPE INSERTS WITH HOLE

Work Material	H	Hardened Materials	●	●	●	●	●	●	●	●	Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting					
	K	Cast Iron														
Shape	S	Heat-resistant Alloy, Titanium Alloy									Dimensions (mm)					
		Sintered Alloy														
Order Number	Coated CBN			CBN						Geometry	Applicable Holder Page					
	BC8020	MBC010	MBC020	MB8025	MB810	MB825	MB835	MB710	MB730			W <sub>3</sub>	L <sub>3</sub>	D <sub>1</sub>	S <sub>1</sub>	Re
	<b>MGTR43125</b>			●						1.25	2.0	12.7	4.76	0.2		H014
	<b>43150</b>			●						1.50	3.5	12.7	4.76	0.2		
	<b>43200</b>			●						2.00	3.5	12.7	4.76	0.2		
	<b>43250</b>			●						2.50	4.0	12.7	4.76	0.2		
	<b>43300</b>			●						3.00	4.0	12.7	4.76	0.2		
	<b>43350</b>			●						3.50	5.0	12.7	4.76	0.2		
	<b>43400</b>			●						4.00	5.0	12.7	4.76	0.2		
															Right hand tool holder only.	

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D

R

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V

W

# PCD TURNING INSERTS [NEGATIVE]

## 80° CN TYPE INSERTS WITH HOLE

PCD

PCD TURNING INSERTS

NEG

WITH HOLE

C

D


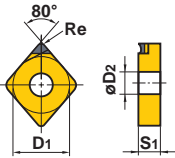

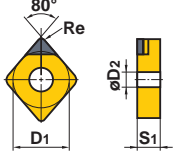
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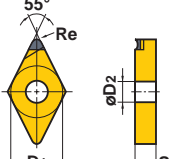

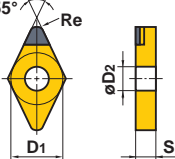
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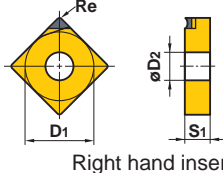

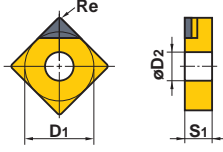
Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
 NEW PETIT CUT	NP-CNMM120402R-F	●	12.7	4.76	0.2	5.16	 Right hand insert shown.	C008 C009 E036 E041 H006 -008	
	120402L-F	□	12.7	4.76	0.2	5.16			
	120404R-F	●	12.7	4.76	0.4	5.16			
	120404L-F	□	12.7	4.76	0.4	5.16			
	120408R-F	●	12.7	4.76	0.8	5.16			
	(With Breaker) 120408L-F	□	12.7	4.76	0.8	5.16			
 CNMA120404 120408	CNMA120404	●	12.7	4.76	0.4	5.16	 Right hand insert shown.	C008 C009 E013 E036 E041 H006 -008	
	120408	●	12.7	4.76	0.8	5.16			

## 55° DN TYPE INSERTS WITH HOLE


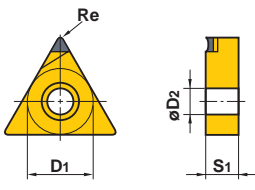

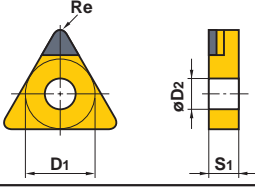
Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
 NEW PETIT CUT	NP-DNMM150402R-F	●	12.7	4.76	0.2	5.16	 Right hand insert shown.	C010 C011 E013 E036 -038 E040 E041 H009 -011	
	150402L-F	□	12.7	4.76	0.2	5.16			
	150404R-F	●	12.7	4.76	0.4	5.16			
	150404L-F	□	12.7	4.76	0.4	5.16			
	150408R-F	●	12.7	4.76	0.8	5.16			
	(With Breaker) 150408L-F	□	12.7	4.76	0.8	5.16			
 DNMA150404 150408	DNMA150404	●	12.7	4.76	0.4	5.16	 Right hand insert shown.	C010 C011 E013 E036 -038 E040 E041 H009 -011	
	150408	●	12.7	4.76	0.8	5.16			

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 90° SN TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
 NEW PETIT CUT (With Breaker)	NP-SNMM120404R-F	●	12.7	4.76	0.4	5.16	 Right hand insert shown.	C012 -015 E014 E035	
	120404L-F	□	12.7	4.76	0.4	5.16			
	120408R-F	●	12.7	4.76	0.8	5.16			
	120408L-F	□	12.7	4.76	0.8	5.16			
	SNGA120404	□	12.7	4.76	0.4	5.16		C012 -015 E014 E035	
	120408	●	12.7	4.76	0.8	5.16			

# 60° TN TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
 NEW PETIT CUT (With Breaker)	NP-TNMM160402R-F	●	9.525	4.76	0.2	3.81	 Right hand insert shown.	C016 C017 E014 E035 E040	
	160402L-F	□	9.525	4.76	0.2	3.81			
	160404R-F	●	9.525	4.76	0.4	3.81			
	160404L-F	□	9.525	4.76	0.4	3.81			
	160408R-F	●	9.525	4.76	0.8	3.81			
	TNGA160402	●	9.525	4.76	0.2	3.81		C016 C017 E014 E035 E040	
	160404	●	9.525	4.76	0.4	3.81			
	160408	●	9.525	4.76	0.8	3.81			

# PCD TURNING INSERTS [NEGATIVE]

## 35° VN TYPE INSERTS WITH HOLE

PCD

PCD TURNING INSERTS

NEG

WITH HOLE

C

D

R

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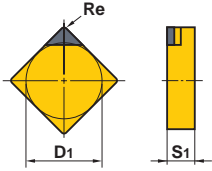
V

W

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)						
			D1	S1	Re	D2			
	<b>NP-VNMM160402R-F</b>	●	9.525	4.76	0.2	3.81		C018 -020 E015 E042	
	<b>160402L-F</b>	□	9.525	4.76	0.2	3.81			
	<b>160404R-F</b>	●	9.525	4.76	0.4	3.81			
	<b>160404L-F</b>	□	9.525	4.76	0.4	3.81			
	<b>160408R-F</b>	●	9.525	4.76	0.8	3.81			
	<b>160408L-F</b>	□	9.525	4.76	0.8	3.81			
	<b>VNGA160404</b>	●	9.525	4.76	0.4	3.81		C018 -020 E015 E042	
	<b>160408</b>	●	9.525	4.76	0.8	3.81			

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
 (1 insert in one case)

# 90° SN TYPE INSERTS WITHOUT HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :			PCD	Dimensions (mm)	Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting				
Shape	Order Number		MD220	D1	S1	Re	Geometry		Applicable Holder Page	
	SNGN120404		□	12.7	4.76	0.4			-	
	120408		●	12.7	4.76	0.8				

PCD

PCD TURNING INSERTS

NEG

WITHOUT HOLE

C

D

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W

# PCD TURNING INSERTS [POSITIVE]

## 80° CC TYPE INSERTS WITH HOLE

PCD

PCD TURNING INSERTS

POSI  
7°  
11°

WITH HOLE

C

D

R

S

T

V

W

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
	NP-CCMH060202	●	6.35	2.38	0.2	2.8		E006	
	060204	●	6.35	2.38	0.4	2.8			
	NP-CCMW03S102	●	3.57	1.39	0.2	2.0		-	
	03S104	●	3.57	1.39	0.4	2.0			
	04T002	●	4.37	1.79	0.2	2.4			
	04T004	●	4.37	1.79	0.4	2.4			
	CCMW060202	●	6.35	2.38	0.2	2.8		C022 D008 E030 E034	
	060204	●	6.35	2.38	0.4	2.8			
	09T302	●	9.525	3.97	0.2	4.4			
	09T304	●	9.525	3.97	0.4	4.4			


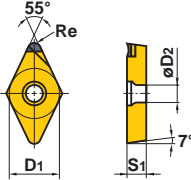
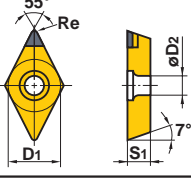
## 80° CP TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
	NP-CPMH080202	●	7.94	2.38	0.2	3.5		E006	
	080204	●	7.94	2.38	0.4	3.5			
	090302	●	9.525	3.18	0.2	4.5			
	090304	●	9.525	3.18	0.4	4.5			
	CPGT080202	●	7.94	2.38	0.2	3.4		-	
	080204	●	7.94	2.38	0.4	3.4			
	090302	●	9.525	3.18	0.2	4.4			
	090304	●	9.525	3.18	0.4	4.4			


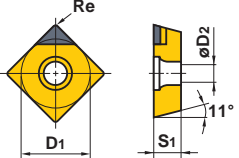
● : Inventory maintained in Japan. (1 insert in one case)



# 55° DC TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :				
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting		
Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 NEW PETIT CUT	NP-DCMT070202R-F	●	6.35	2.38	0.2	2.8	 Left hand insert shown.	C023 D009 D026 E008 E009 E029 E031
	070202L-F	●	6.35	2.38	0.2	2.8		
	070204R-F	●	6.35	2.38	0.4	2.8		
	070204L-F	●	6.35	2.38	0.4	2.8		
	11T302R-F	●	9.525	3.97	0.2	4.4		
	11T302L-F	●	9.525	3.97	0.2	4.4		
	11T304R-F	●	9.525	3.97	0.4	4.4		
	11T304L-F	●	9.525	3.97	0.4	4.4		
(With Breaker)	DCMW070202	●	6.35	2.38	0.2	2.8		C023 D009 D026 E008 E009 E029 E031
	070204	●	6.35	2.38	0.4	2.8		
	11T302	●	9.525	3.97	0.2	4.4		
	11T304	●	9.525	3.97	0.4	4.4		

# 90° SP TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :				
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting		
Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 SPGX090304	SPGX090304	●	9.525	3.18	0.4	4.8		-
	090308	●	9.525	3.18	0.8	4.8		

PCD

PCD TURNING INSERTS

POSI  
7°  
11°  
WITH HOLE

C

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W

# PCD TURNING INSERTS [POSITIVE]

## 60° TC TYPE INSERTS WITH HOLE

PCD

PCD TURNING INSERTS

POSITIVE  
7°

WITH HOLE

C

D

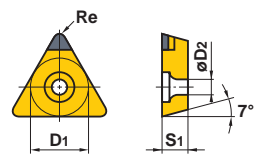

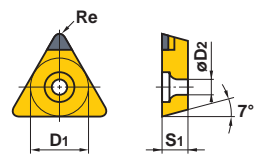

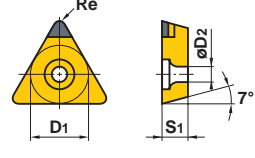
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
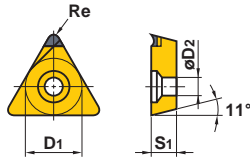
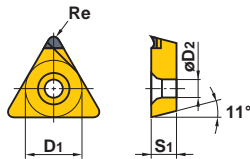
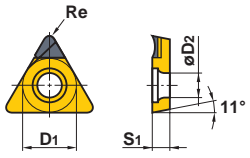
V

W

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✖ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)						
			D1	S1	Re	D2			
	<b>TCMW110202</b>	●	6.35	2.38	0.2	2.8		C027 E028	
	<b>110204</b>	●	6.35	2.38	0.4	2.8			
	<b>TCGW060102</b>	●	3.97	1.59	0.2	2.3		-	
	<b>060104</b>	●	3.97	1.59	0.4	2.3			
	<b>060108</b>	●	3.97	1.59	0.8	2.3			

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 60° TP TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :				PCD	Dimensions (mm)	Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✱ : Unstable Cutting					
Shape	Order Number	MD220	PCD	D1	S1	Re	D2	Geometry		Applicable Holder Page	
	NEW PETIT CUT	NP-TPMX090202R-F	●	5.56	2.38	0.2	3		E025		
		090202L-F	●	5.56	2.38	0.2	3				
		090204R-F	□	5.56	2.38	0.4	3				
		090204L-F	●	5.56	2.38	0.4	3				
		090208R-F	□	5.56	2.38	0.8	3				
		090208L-F	●	5.56	2.38	0.8	3				
		110302R-F	□	6.35	3.18	0.2	3.5				
		110302L-F	●	6.35	3.18	0.2	3.5				
		110304R-F	□	6.35	3.18	0.4	3.5				
		110304L-F	●	6.35	3.18	0.4	3.5				
		110308R-F	□	6.35	3.18	0.8	3.5				
		110308L-F	●	6.35	3.18	0.8	3.5				
		160302R-F	□	9.525	3.18	0.2	4.8				
		160302L-F	●	9.525	3.18	0.2	4.8				
		160304R-F	□	9.525	3.18	0.4	4.8				
		160304L-F	●	9.525	3.18	0.4	4.8				
	(With Breaker)		160308R-F	□	9.525	3.18	0.8			4.8	
	NEW PETIT CUT	NP-TPMH080202R-F	●	4.76	2.38	0.2	2.5				
		080202L-F	●	4.76	2.38	0.2	2.5				
		080204R-F	●	4.76	2.38	0.4	2.5				
		080204L-F	●	4.76	2.38	0.4	2.5				
		090202R-F	●	5.56	2.38	0.2	2.9				
		090202L-F	●	5.56	2.38	0.2	2.9				
		090204R-F	●	5.56	2.38	0.4	2.9				
		090204L-F	●	5.56	2.38	0.4	2.9				
		110302R-F	●	6.35	3.18	0.2	3.4				
		110302L-F	●	6.35	3.18	0.2	3.4				
		110304R-F	●	6.35	3.18	0.4	3.4				
		110304L-F	●	6.35	3.18	0.4	3.4				
		160302R-F	●	9.525	3.18	0.2	4.4				
		160302L-F	●	9.525	3.18	0.2	4.4				
		160304R-F	●	9.525	3.18	0.4	4.4				
(With Breaker)		160304L-F	●	9.525	3.18	0.4	4.4		-		
		TPGT160302R-F	●	9.525	3.18	0.2	4.4				
		160302L-F	●	9.525	3.18	0.2	4.4				
		160304R-F	●	9.525	3.18	0.4	4.4				
		160304L-F	●	9.525	3.18	0.4	4.4				
(With Breaker)								Right hand insert shown.			

PCD

PCD TURNING INSERTS

POSI 11°

WITH HOLE

C

D

R

S

T

V

W

GRADES > B015  
IDENTIFICATION > B002

B059

# PCD TURNING INSERTS [POSITIVE]

## 60° TP TYPE INSERTS WITH HOLE

PCD

PCD TURNING INSERTS

POSI 11°

WITH HOLE

C

D


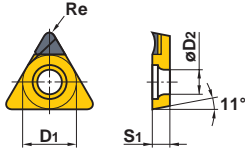

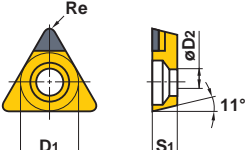
R

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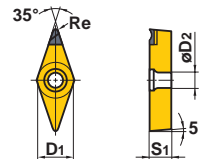
W

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✖ : Unstable Cutting			
Shape	Order Number		MD220	D1	S1	Re	D2		
	TPGV090202R-F	●	●	5.56	2.38	0.2	2.8	 <p>Right hand insert shown.</p>	-
	090202L-F	●	●	5.56	2.38	0.2	2.8		
	090204R-F	●	●	5.56	2.38	0.4	2.8		
	090204L-F	●	●	5.56	2.38	0.4	2.8		
	110302R-F	●	●	6.35	3.18	0.2	3.4		
	110302L-F	●	●	6.35	3.18	0.2	3.4		
	110304R-F	●	●	6.35	3.18	0.4	3.4		
	110304L-F	●	●	6.35	3.18	0.4	3.4		
(With Breaker)									
	TPGX080202	●	●	4.76	2.38	0.2	2.5		E025
	080204	●	●	4.76	2.38	0.4	2.5		
	080208	●	●	4.76	2.38	0.8	2.5		
	090202	●	●	5.56	2.38	0.2	3		
	090204	●	●	5.56	2.38	0.4	3		
	090208	●	●	5.56	2.38	0.8	3		
	110302	●	●	6.35	3.18	0.2	3.5		
	110304	●	●	6.35	3.18	0.4	3.5		
	110308	●	●	6.35	3.18	0.8	3.5		
	160304	●	●	9.525	3.18	0.4	4.8		
160308	●	●	9.525	3.18	0.8	4.8			

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



# 35° VB TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting					
Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page	
		MD220	D1	S1	Re	D2			
 (With Breaker)	NP-VBGT1103V5R-F	●	6.35	3.18	0.05	2.85		D010 D011 E011 E012	
	110301R-F	●	6.35	3.18	0.1	2.85			
	110302R-F	●	6.35	3.18	0.2	2.85			
	110304R-F	●	6.35	3.18	0.4	2.85			

PCD

PCD TURNING INSERTS

POSITION 5° 7°

WITH HOLE

C

D

R

S


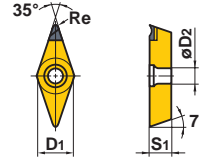
T

V

W



# 35° VC TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting					
Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page	
		MD220	D1	S1	Re	D2			
 (With Breaker)	NP-VCGT0802V5R-F	●	4.76	2.38	0.05	2.4		C028 E011 E012 E032	
	080201R-F	●	4.76	2.38	0.1	2.4			
	080202R-F	●	4.76	2.38	0.2	2.4			
	080204R-F	●	4.76	2.38	0.4	2.4			
	1103V5R-F	●	6.35	3.18	0.05	2.8			
	110301R-F	●	6.35	3.18	0.1	2.8			
	110302R-F	●	6.35	3.18	0.2	2.8			
	110304R-F	●	6.35	3.18	0.4	2.8			

GRADES > B015  
IDENTIFICATION > B002

B061

# PCD TURNING INSERTS [POSITIVE]

## 80° WC TYPE INSERTS WITH HOLE

PCD

PCD TURNING INSERTS

POSI  
7°  
11°

WITH  
HOLE

C

D


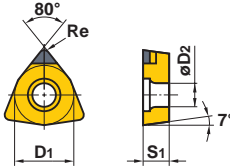
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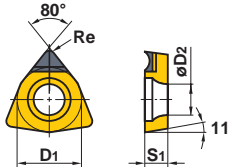
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V

W

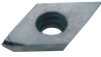
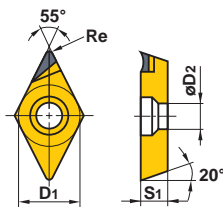
Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✖ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
	WCMWL30202	●	4.76	2.38	0.2	2.3		E027	
	L30204	□	4.76	2.38	0.4	2.3			
	040202	●	6.35	2.38	0.2	2.8			
	040204	□	6.35	2.38	0.4	2.8			
	06T304	●	9.525	3.97	0.4	4.4			
	06T308	□	9.525	3.97	0.8	4.4			

## 80° WP TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✖ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
 (With Breaker)	WPGT040202	●	6.35	2.38	0.2	2.8		E010	
	040204	●	6.35	2.38	0.4	2.8			
	060302	●	9.525	3.18	0.2	4.4			
	060304	●	9.525	3.18	0.4	4.4			

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 55° DE TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
	DEGX150402R-F	●	12.7	4.76	0.2	5.1	 <p>Right hand insert shown.</p>	C032	
	150402L-F	●	12.7	4.76	0.2	5.1			
	150404R-F	●	12.7	4.76	0.4	5.1			
	150404L-F	●	12.7	4.76	0.4	5.1			
(With Breaker)									

PCD

PCD TURNING INSERTS

POSI  
20°WITH  
HOLE

C

D

R


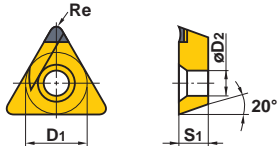

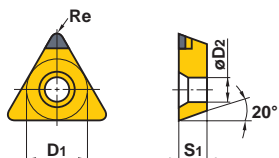
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W

# 60° TE TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	Dimensions (mm)				Geometry	Applicable Holder Page	
			D1	S1	Re	D2			
	TEGX160302R	●	9.525	3.18	0.2	4.3	 <p>Right hand insert shown.</p>	C033 E043	
	160302L	●	9.525	3.18	0.2	4.3			
	160304R	●	9.525	3.18	0.4	4.3			
	160304L	●	9.525	3.18	0.4	4.3			
(With Breaker)									
	TEGX160302	●	9.525	3.18	0.2	4.3		C033 E043	
	160304	●	9.525	3.18	0.4	4.3			


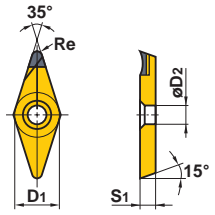
GRADES > B015  
IDENTIFICATION > B002

B063



# PCD TURNING INSERTS [POSITIVE]

## 35° VD TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	PCD	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number	MD220	D1	S1	Re	D2			
	<b>VDGX160302R-F</b>	●	9.525	3.18	0.2	4.5	 <p>Right hand insert shown.</p>	C034	
	<b>160302L-F</b>	●	9.525	3.18	0.2	4.5			
	<b>160304R-F</b>	●	9.525	3.18	0.4	4.5			
	<b>160304L-F</b>	●	9.525	3.18	0.4	4.5			
(With Breaker)									

PCD

PCD TURNING INSERTS

POSI 15°

WITH HOLE

C

D

R

S


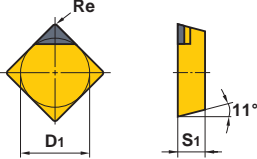
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W

● : Inventory maintained in Japan. □ : Non stock, produced to order only.  
(1 insert in one case)

# 90° SP TYPE INSERTS WITHOUT HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :			PCD	Dimensions (mm)			Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting		D1	S1	Re		
			MD220									-
	SPGN090302	●	9.525	3.18	0.2							
	090304	●	9.525	3.18	0.4							
	090308	●	9.525	3.18	0.8							
	090312	□	9.525	3.18	1.2							
	120304	●	12.7	3.18	0.4							
	120308	●	12.7	3.18	0.8							
120312	●	12.7	3.18	1.2								

PCD

PCD TURNING INSERTS

POSI  
11°WITHOUT  
HOLE

C

D

R


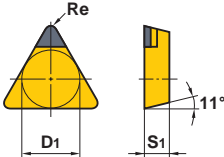
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V

W

# 60° TP TYPE INSERTS WITHOUT HOLE

Work Material	N	Non-ferrous Metal	●	Cutting Conditions (Guide) :			PCD	Dimensions (mm)			Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting		D1	S1	Re		
			MD220									E026
	TPGN110302	●	6.35	3.18	0.2							
	110304	●	6.35	3.18	0.4							
	110308	●	6.35	3.18	0.8							
	160302	●	9.525	3.18	0.2							
	160304	●	9.525	3.18	0.4							
	160308	●	9.525	3.18	0.8							
160312	□	9.525	3.18	1.2								

GRADES > B015  
IDENTIFICATION > B002

B065