

TURNING TOOLS

CBN & PCD INSERT STANDARDS

CBN & PCD INSERT GRADES

IDENTIFICATION	A112
CBN (CUBIC BORON NITRIDE)	A114
PCD (SINTERED DIAMOND)	A119
CLASSIFICATION OF CBN INSERTS	A120
CLASSIFICATION OF PCD INSERTS	A122

STANDARD OF CBN TURNING INSERTS

NEGATIVE INSERTS WITH HOLE

CN $\odot\odot$ TYPE...RHOMBIC 80°	A124
DN $\odot\odot$ TYPE...RHOMBIC 55°	A126
SN $\odot\odot$ TYPE...SQUARE 90°	A128
TN $\odot\odot$ TYPE...TRIANGULAR 60° ...	A129
VN $\odot\odot$ TYPE...RHOMBIC 35°	A130
WN $\odot\odot$ TYPE...TRIGON 80°	A131

NEGATIVE INSERTS WITHOUT HOLE

CN $\odot\odot$ TYPE...RHOMBIC 80°	A132
DN $\odot\odot$ TYPE...RHOMBIC 55°	A132
SN $\odot\odot$ TYPE...SQUARE 90°	A133
TN $\odot\odot$ TYPE...TRIANGULAR 60° ...	A133
RN $\odot\odot$ TYPE...ROUND	A134

POSITIVE INSERTS WITH HOLE

VB $\odot\odot$ TYPE...RHOMBIC 35°	A135
CC $\odot\odot$ TYPE...RHOMBIC 80°	A136
DC $\odot\odot$ TYPE...RHOMBIC 55°	A138
TC $\odot\odot$ TYPE...TRIANGULAR 60° ...	A139
VC $\odot\odot$ TYPE...RHOMBIC 35°	A140
CP $\odot\odot$ TYPE...RHOMBIC 80°	A141
TP $\odot\odot$ TYPE...TRIANGULAR 60° ...	A142

POSITIVE INSERTS WITHOUT HOLE

TB $\odot\odot$ TYPE...TRIANGULAR 60° ...	A143
SP $\odot\odot$ TYPE...SQUARE 90°	A144
TP $\odot\odot$ TYPE...TRIANGULAR 60° ...	A144
DGJ TYPE	A145
RTG TYPE	A145
RBG TYPE	A145

STANDARD OF PCD TURNING INSERTS

NEGATIVE INSERTS WITH HOLE

CN $\odot\odot$ TYPE...RHOMBIC 80°	A146
DN $\odot\odot$ TYPE...RHOMBIC 55°	A146
SN $\odot\odot$ TYPE...SQUARE 90°	A147
TN $\odot\odot$ TYPE...TRIANGULAR 60° ...	A148
VN $\odot\odot$ TYPE...RHOMBIC 35°	A148

NEGATIVE INSERTS WITHOUT HOLE

SN $\odot\odot$ TYPE...SQUARE 90°	A149
---	------

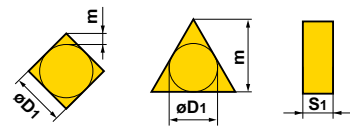
POSITIVE INSERTS WITH HOLE

CC $\odot\odot$ TYPE...RHOMBIC 80°	A150
DC $\odot\odot$ TYPE...RHOMBIC 55°	A150
TC $\odot\odot$ TYPE...TRIANGULAR 60° ...	A151
WC $\odot\odot$ TYPE...TRIGON 80°	A151
CP $\odot\odot$ TYPE...RHOMBIC 80°	A152
SP $\odot\odot$ TYPE...SQUARE 90°	A153
TP $\odot\odot$ TYPE...TRIANGULAR 60° ...	A154
WP $\odot\odot$ TYPE...TRIGON 80°	A155
VD $\odot\odot$ TYPE...RHOMBIC 35°	A156
DE $\odot\odot$ TYPE...RHOMBIC 55°	A156
TE $\odot\odot$ TYPE...TRIANGULAR 60° ...	A157

POSITIVE INSERTS WITHOUT HOLE

SP $\odot\odot$ TYPE...SQUARE 90°	A158
TP $\odot\odot$ TYPE...TRIANGULAR 60° ...	A159

IDENTIFICATION



Symbol	Tolerance of Nose Height m (mm)	Tolerance of Inscribed Circle øD1 (mm)	Tolerance of Thickness S1 (mm)
G	±0.025	±0.025	±0.13
M*	±0.08–±0.18	±0.05–±0.15	±0.13

Inserts marked with * are sintered.

Detail of M Class Insert Tolerance

● Tolerance of Nose Height **m** (mm)

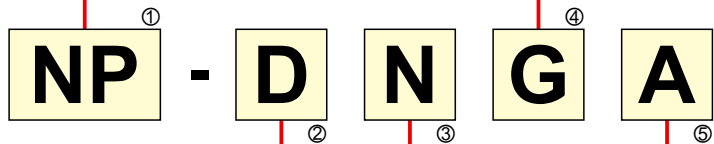
D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
6.35	±0.08	±0.08	±0.08	±0.11	±0.16	—
9.525	±0.08	±0.08	±0.08	±0.11	±0.16	—
12.70	±0.13	±0.13	±0.13	±0.15	—	—

● Tolerance of Inscribed Circle **øD1** (mm)

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

④ Tolerance Class

NP	New Petit Cut
No mark	Standard Type
① Insert Geometry	



② Insert Shape		
Symbol	Insert Shape	
C	Rhombic80°	
D	Rhombic55°	
R	Round	
S	Square	
T	Triangular	
V	Rhombic35°	
W	Trigon	

③ Normal Clearance	
Symbol	Normal Clearance
B	5°
C	7°
D	15°
E	20°
N	0°
P	11°

⑤ Fixing and/or for Chip Breaker				
Metric				
Symbol	Hole	Hole Configuration	Chip Breaker	Figure
W	With Hole	Cylindrical Hole +	No	
T	With Hole	One Countersink (40–60°)	One Sided	
B	With Hole	Cylindrical Hole +	No	
H	With Hole	One Countersink (70–90°)	One Sided	
A	With Hole	Cylindrical Hole	No	
M	With Hole	Cylindrical Hole	One Sided	
N	Without Hole	—	No	
X	—	—	—	Special Design

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

⑥ Insert Size

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

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

⑦ Insert Thickness

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

⑧ Insert Corner Configuration

⑥ 15 **⑦ 04** **⑧ 04** **⑨ GA** **⑩ W** **⑪ 2** **⑫ J** **⑬ R**

⑨ Application (Honing)

Symbol	Honing
GA	Continuous Cutting – Medium Interrupted Cutting
GS	
GN	
FA	Continuous Cutting
FS	
FN	
TA	Interrupted Cutting
TS	
TN	

⑩ Wiper

W	With Wiper
No mark	Without Wiper

⑪ Number of Teeth

2	2
3	3
4	4
6	6
No mark	1

⑫ Cutting Edge Angle

F	91°
J	93°
No mark	Non Restriction

Please pay special attention when using wiper inserts. Please refer to page A016 for further information.

⑬ Cutting Direction

Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

Please refer to page A117 for further information.

CBN (CUBIC BORON NITRIDE)



Micro-Structure of MB8025

- 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.

SELECTION STANDARD

● 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	35–65 HRC	Coated	High speed finishing cutting	MBC010	250 (150–400)	–0.2	–0.2
			Continuous cutting for general purpose	MBC020	200 (80–250)	–0.5	–0.5
			Interrupted cutting for general purpose	MBC020	150 (60–200)	–0.2	–0.3
High Alloy Steel	35–65 HRC	Non-coated	Continuous cutting for general purpose	MB8025	180 (80–250)	–0.3	–0.5
			Interrupted cutting for general purpose	MB8025	120 (60–150)	–0.2	–0.3
			Continuous to light interrupted cutting	MB8025	120 (70–150)	–0.3	–0.5
			Continuous to medium interrupted cutting	MB825	120 (70–150)	–0.3	–0.5
			Heavy interrupted cutting	MB835	100 (50–120)	–0.3	–0.5

● 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	GG25	Ferritic + Pearlitic	MBS140					–0.5	–1.0 MBS140 –5.0	Dry, Wet
	GG30	Pearlitic	MB710 MB730							
Alloy Cast Iron		Pearlitic	MB710 MB730					–0.4	–0.5	Dry, Wet
Ductile Cast Iron	GGG40	Ferritic	MB710					–0.4	–0.5	Dry, Wet
	GGG70	Ferritic + Pearlitic Pearlitic	MB730							

● Sintered Alloy

Work Material	Recommended Grade	Recommended Cutting Conditions		
		Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
High Hardness Iron Type Sintered Metal	MB825, MB710, MB730	200 (150–250)	–0.1	0.15 (0.1–0.2)
Sintered Forged Products	MB8025	150 (100–200)	–0.1	0.15 (0.1–0.2)
Wear Resistant Parts	MB8025	120 (100–150)	–0.1	0.15 (0.1–0.2)

● Valve Seat

Amount of Hard Particles	None or Small ← → Large			
Hardness of Workpiece (HV)	150	250	300	350
Plunge Cut	MB730 MB825 MB835			
Traverse Cut	MB730 MB710 MB825			

● Roll

Work Material	Grade	Recommended Cutting Conditions		
		Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
Cast Steel Adamite Cast Steel	MB8025	80 (30–130)	0.3 (0.1–0.5)	0.2–3.0
Ductile Cast Iron Granular Cast Iron Chilled Cast Iron	MB710	80 (30–130)	0.3 (0.1–0.5)	0.2–3.0
High Chromium Steel High Alloy Steel	MB8025	80 (30–130)	0.3 (0.1–0.5)	0.2–3.0
High Speed Steel	MB730	50 (20–70)	0.25 (0.1–0.4)	0.1–3.0
Cemented Carbide	MB730, MBS140	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)	MB730	120 (100–150)	–0.2	–0.5
Co Base Heat Resistant Alloy (e.g. Stellite)	MB730	70 (50–100)	–0.2	–0.5

COATED CBN SERIES

MBC010 / MBC020

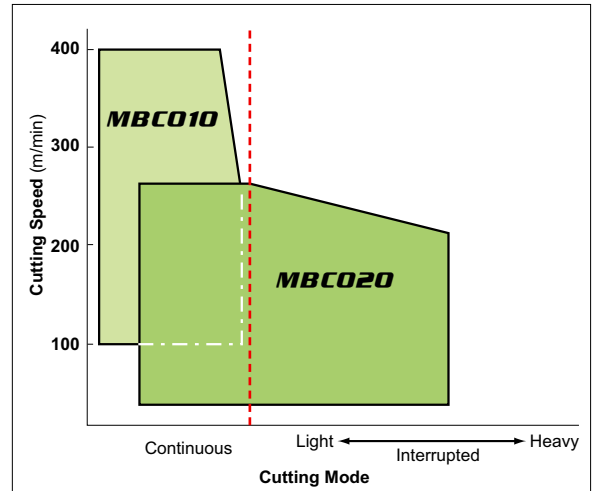
FEATURES

MBC010

MBC010 is a coated CBN grade for hardened steels. High wear resistance enables high-speed cutting. Micrograin CBN makes **MBC010** suitable for excellent surface finishes.

MBC020

MBC020 is a general purpose coated CBN grade suitable for machining hardened steel. It covers a wide range of applications from continuous to light interrupted cutting. The CBN substrate with high cutting edge rigidity and the coating based on MIRACLE coating technology improves wear resistance and allows **MBC020** to cover a wider range of machining applications than conventional CBN grades.

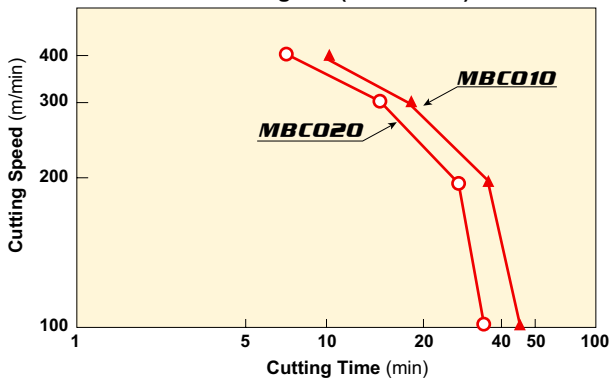


Grade	Grade Features and Application	Main Component	Coating Layer
MBC010	Coated CBN for High Speed Continuous Cutting MBC010 makes the best use of a special ceramic binder structure, actualizing high wear resistance. High wear resistance enables continuous machining at high speeds of over 300m/min.	CBN (Micro Grain) TiN Al ₂ O ₃	TiN
MBC020	Coated CBN for general cutting (First recommendation) Uses a CBN substrate that has high cutting edge rigidity. The TiAlN based coating delivers superb wear resistance. CBN grade first recommendation.	CBN (Micro Grain) TiN Al ₂ O ₃	TiAlN

CUTTING PERFORMANCE

Continuous Cutting

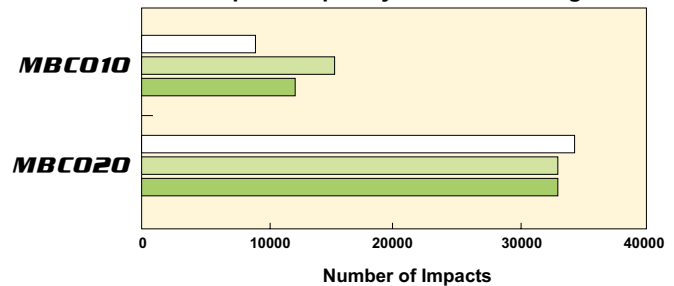
V-T Diagram (VB=0.1mm)



<Cutting Conditions>
Workpiece : Alloy steel (60HRC)
Feed : 0.1mm/rev
Depth of Cut : 0.1mm
External Continuous Cutting
Wet Cutting

Interrupted Cutting

Impact frequency before fracturing



<Cutting Conditions>

Workpiece : Alloy steel (60HRC)
External Interrupted Cutting 8 Groove
Cutting Speed : 150m/min
Feed : 0.15mm/rev
Depth of Cut : 0.2mm
Dry Cutting

NON-COATED CBN SERIES

NON-COATED CBN SERIES

CBN & PCD TURNING INSERTS

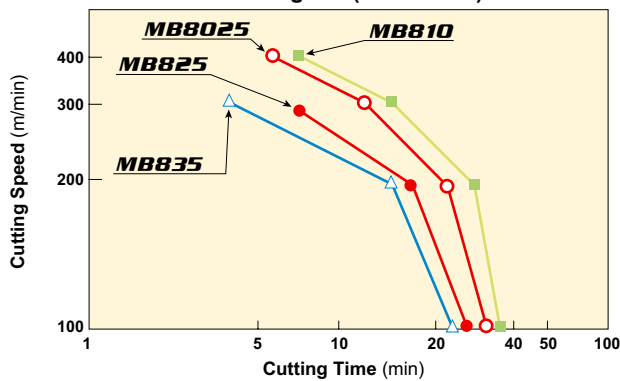
HARDENED STEEL MACHINING

Grade	Grade Features and Application	Main Component
MB8025	For General Purpose Turning, For Continuous to Light Interrupted Cutting 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 ₂ O ₃
MB825	For Continuous to Medium Interrupted Cutting Excellent balance of wear resistance and fracture resistance due to the introduction of micro-grain CBN particles.	CBN (Micro Grain) TiC Al ₂ O ₃
MB835	For Heavy Interrupted Cutting Improved grade employing micro-grain CBN particles. Excellent fracture resistance for use in heavy interrupted cutting.	CBN (Micro Grain) TiN Al ₂ O ₃

CUTTING PERFORMANCE

Continuous Cutting

V-T Diagram (VB=0.1mm)

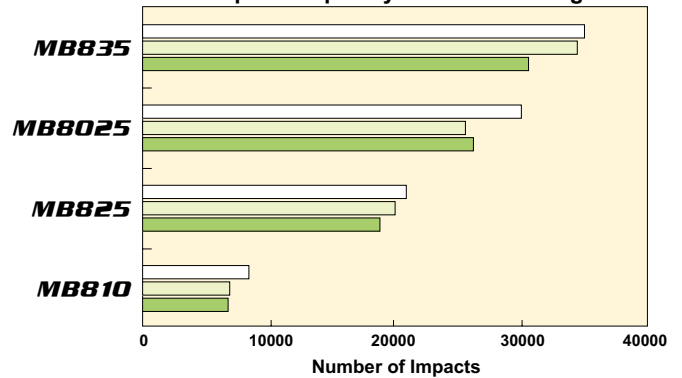


<Cutting Conditions>

Workpiece : Alloy steel (60HRC)
Feed : 0.1mm/rev
Depth of Cut : 0.1mm
Wet Cutting

Interrupted Cutting

Impact frequency before fracturing



<Cutting Conditions>

Workpiece : Alloy steel (60HRC) Feed : 0.15mm/rev
External Interrupted Depth of Cut : 0.2mm
Cutting 8 Groove Dry Cutting
Cutting Speed : 150m/min

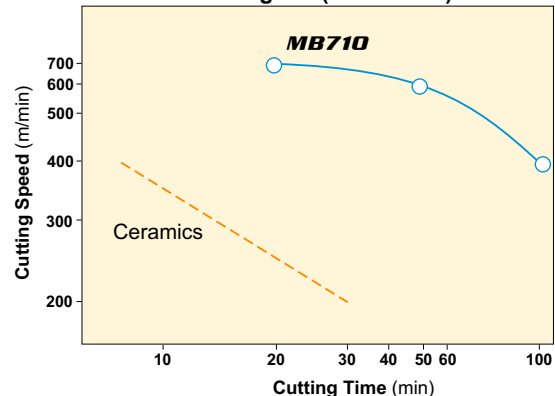
CAST IRON MACHINING

Grade	Grade Features and Application	Main Component
MB710	For General Cutting General purpose grade with well balanced wear and fracture resistance.	CBN TiC Al ₂ O ₃
MB730	For High Speed Cutting 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 (High Content) Co Base Alloy
MB5140	For High Speed Cutting and Roughing of Cast Iron 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 : DIN GG25
Insert : TNGA160408
Feed : 0.1mm/rev
Depth of Cut : 0.15mm
Wet Cutting

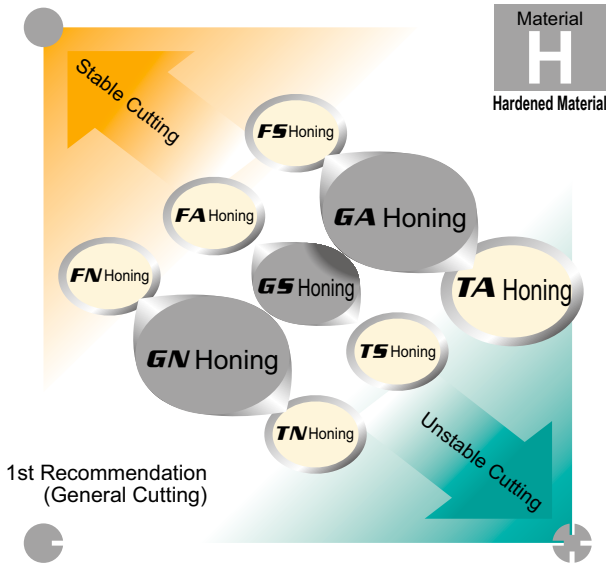
<Cutting Condition of Ceramics>

Workpiece : DIN GG25
Insert : TNGA160408
Feed : 0.1mm/rev
Depth of Cut : 0.1mm
Dry Cutting

HONING

NEW HONING TYPES

For CBN **MBC010** and **MBC020** coated grades, a wide range of edge honing types are offered 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.

HONING

NP-CNGA120404 **F** **A** W2

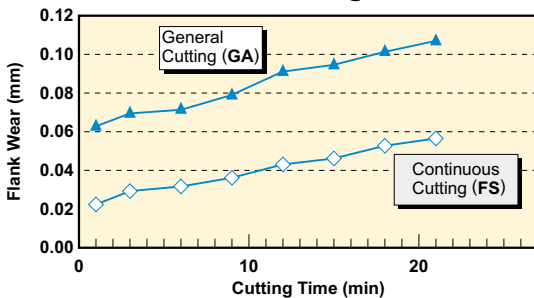
Main Application **F** **A** Edge Honing Type **W2**

EDGE HONING TYPE	A	For General Purpose Machining (First recommendation)	S	For Very Small Depths of Cut (Sharp anti-burr type)	N	For High Load Machining (Crater wear resistant)
F For Continuous Machining	FA Honing	0.1 15° R0.015	FS Honing	0.1 15° R0.015	FN Honing	0.05 15° R0.015
G For Continuous – Light Interrupted Machining	GA Honing	0.13 25° R0.03	GS Honing	0.13 25° R0.015	GN Honing	0.05 25° R0.015
T For Interrupted Machining	TA Honing	0.13 35° R0.03	TS Honing	0.13 35° R0.015	TN Honing	0.05 35° R0.015

(Note) First, select the insert edge type from the main application area (F,G,T) then choose a honing type (A,S,N) that compliments the machining requirement.

CUTTING PERFORMANCE

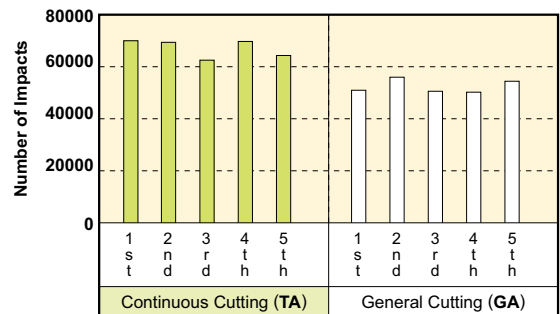
For Continuous Cutting **FS** HONING



<Cutting Condition>

Workpiece : Alloy steel (60HRC)
 Insert : NP-CNGA120408FS2/GA2 (MBC010)
 Cutting Speed : 150m/min
 Feed : 0.1mm/rev
 Depth of Cut : 0.1mm
 Dry Cutting

For Interrupted Cutting **TA** HONING



<Cutting Condition>

Workpiece : Alloy steel (60HRC)
 External Interrupted Cutting, 8 Grooves
 Insert : NP-TNGA160408TA3/GA3 (MB8025)
 Cutting Speed : 100m/min
 Feed : 0.1mm/rev
 Depth of Cut : 0.1mm
 Wet Cutting

NEW PETIT CUT

NEW PETIT CUT

CBN & PCD TURNING INSERTS

POWERFUL

● Excellent Brazing Strength

With the introduction of our new brazing technology, NEW PETIT CUT is now twice as strong as conventional PETIT CUT.

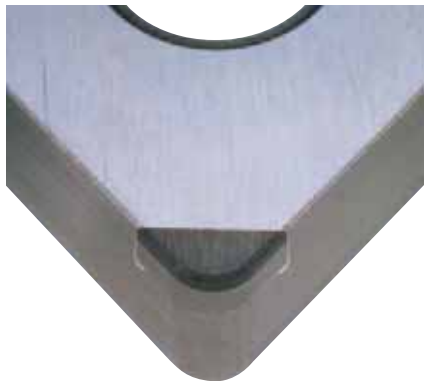
● Improved Performance

Two types of honing are available. One is suitable for increasing performance during continuous cutting and the other for improvements when interrupted cutting.

● Wider Application Range

These two technical improvements result in increased PETIT CUT stability and widen the application range to high speed and interrupted machining.

PETIT



PRICE

● Economical

A small insert with prolonged life is one of the main contributing factors towards reducing tool costs.

● Disposable Type

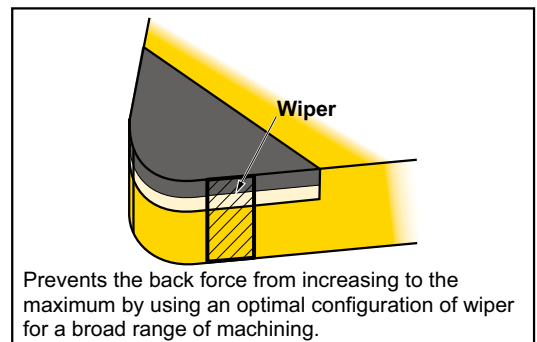
The cost of the NEW PETIT CUT insert is comparable to the cost of regrinding conventional style CBN inserts. Eliminating the loss of geometric integrity associated with regrinding.

WIPER-INSERT SERIES

With the addition of the wiper-insert series, "New Petit" inserts retain their high speed machining capability, while improving the finish of the machined surface.

● Advantages of Inserts with a Wiper

- ① Reduced manufacturing time with a high feed rate that leads to higher efficiency.
- ② Improved finished surface roughness.
- ③ Surface roughness is stable even during long machining cycles and longer tool life is achieved.



NP-CNGA120408GAW2

Wiper Symbol

MULTI-CORNER TYPE INSERTS

Double-sided, multi-corner type inserts are available for the MBC020 coated CBN range.

The stamp on the cemented carbide portion of the insert allows easy recognition of the cutting edges.

NP-TNGA160412GA6

No. of Cutting Edge Corners



For MB8025 non-coated, general purpose CBN and MBC010 coated CBN grades, single-sided, multi-corner type inserts are available. As in the double-sided, multi-corner types, the stamp on the cemented carbide portion of the insert makes it easy to recognize the cutting edges.

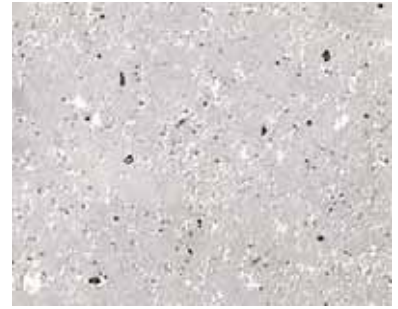
NP-TNGA160412GS3

No. of Cutting Edge Corners



SINTERED DIAMOND PCD GRADE MD220

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



Micro-Structure of MD220

CBN & PCD
TURNING INSERTS

PCD GRADE MD220

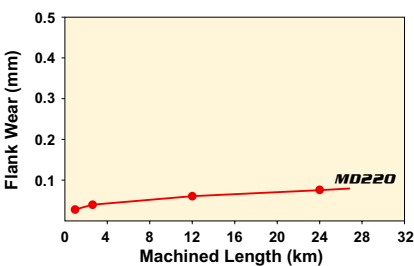
RECOMMENDED CUTTING CONDITIONS

● TURNING

Work Material	Recommended Cutting Condition		
	Recommended Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
Aluminium	1000 (200—1500)	-0.2	-3.0
Aluminium Alloy (Si ≤ 16%)	800 (200—1200)	-0.2	-3.0
Aluminium Alloy (Si ≥ 16%)	600 (200—1000)	-0.2	-3.0
Copper Alloy	700 (200—1200)	-0.2	-3.0
Strengthened Plastic	600 (100—1000)	-0.4	-2.0
Glass Fibre Reinforced Plastic	500 (100—800)	-0.25	-2.0
Carbon	400 (100—600)	-0.3	-2.0
Ceramics	50 (30—80)	-0.1	-2.0
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
 vc=200m/min
 ap=1.5mm
 f=0.15mm/rev
 Coolant: W.S.O










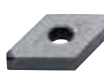







Sintered diamond tool wear for high Si aluminium alloy cutting

CLASSIFICATION (CBN)





CBN

CLASSIFICATION (CBN) TURNING INSERTS


NEGATIVE INSERTS WITH HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW Multi-corner Type Double Sided	G	Flat Top	NP-CNGA_004 	NP-DNGA_004 	NP-SNGA_004 	NP-TNGA_006 	NP-VNGA_004 	NP-WNGA_006 
NEW Multi-corner Type Double Sided With Wiper		Flat Top	NP-CNGA_00W4 					NP-WNGA_00W6 
Multi-corner Type Single Sided		Flat Top	NP-CNGA_002 	NP-DNGA_002 	NP-SNGA_002 	NP-TNGA_003 	NP-VNGA_002 	NP-WNGA_003 
Multi-corner Type Single Sided With Wiper		Flat Top	NP-CNGA_00W2 	NP-DNGA_GAW2J_R/L 				NP-WNGA_00W3 


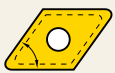






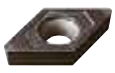






NEGATIVE INSERTS WITHOUT HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Round
NEW Multi-corner Type Double Sided (Solid CBN)	G	Flat Top	CNGN 	DNGN 	SNGN 	TNGN 	RNGN 












5° POSITIVE INSERTS WITH HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW Multi-corner Type Single Sided	G	Flat Top					NP-VBGW_002 	




7° POSITIVE INSERTS WITH HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	
NEW Multi-corner Type Single Sided	G	Flat Top 	NP-CCGW/B_002  ↻ A136	NP-DCGW_002  ↻ A138		NP-TCGW_003  ↻ A139	NP-VCGW_002  ↻ A140		
NEW Multi-corner Type Single Sided With Wiper		Flat Top 	NP-CCGW_00W2  ↻ A137						
One-corner Type Single Sided		Flat Top 	NP-CCGW_00  ↻ A137						






11° POSITIVE INSERTS WITH HOLE

Type	Tolerance	Breaker Name and Cross Section	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 
NEW Multi-corner Type Single Sided	G	Flat Top 	NP-CPGB_002  ↻ A141			NP-TPGB_003  ↻ A142		
Multi-corner Type Single Sided		Flat Top 				NP-TPGX_003  ↻ A142		






5° POSITIVE INSERTS WITHOUT HOLE

Type	Tolerance	Breaker Name and Cross Section	Triangular 60° 
Multi-corner Type Single Sided	G	Flat Top  TBGN  ↻ A143	

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  ↻ A144	TPGN  ↻ A144	

SPECIAL PURPOSE INSERTS

Tool Holder Type	Tolerance	Inserts
DG Type 	G	DGJ-CE  ↻ A145
TL Type 		RTG-A  ↻ A145
—		RBG  ↻ A145

CLASSIFICATION (PCD)

PCD

CLASSIFICATION (PCD) TURNING 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°
NEW PETIT CUT	One-corner Type Single Sided With Breaker	M	R/L-F	NP-CNMM_R/L-F	NP-DNMM_R/L-F	NP-SNMM_R/L-F	NP-TNMM_R/L-F	NP-VNMM_R/L-F	
STANDARD	One-corner Type Single Sided	M	Flat Top	CNMA					
STANDARD	One-corner Type Single Sided	G	Flat Top		DNGA	SNGA	TNGA	VNGA	

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		

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	One-corner Type Single Sided With Breaker	M	Standard	NP-CCMH					
			Flat Top	NP-CCMW					
STANDARD	One-corner Type Single Sided	M	R/L-F		NP-DCMT_R/L-F				
			Flat Top	CCMW	DCMW		TCMW		WCMW
STANDARD	One-corner Type Single Sided	G							

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	One-corner Type Single Sided With Breaker	M	Standard 	NP-CPMH ↻ A152					
	One-corner Type Single Sided With Breaker		R/L-F 				NP-TPMX_R/L-F ↻ A154		
	One-corner Type Single Sided With Breaker		R/L-F 				NP-TPMH_R/L-F ↻ A154		
STANDARD	One-corner Type Single Sided With Breaker	G	Standard 	CPGT ↻ A152					WPGT ↻ A155
	One-corner Type Single Sided		Flat Top 			SPGX ↻ A153	TPGX ↻ A154		

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 ↻ A156

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 ↻ A157
One-corner Type Single Sided (For Aluminium) With Breaker		R/L-F 	DEGX_R/L-F ↻ A156	
One-corner Type Single Sided (For Aluminium)		Flat Top 		TEGX ↻ A157

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 ↻ A158	TPGN ↻ A159


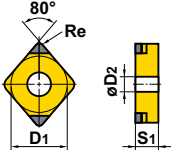
CBN TURNING INSERTS [NEGATIVE]

CN TYPE INSERTS WITH HOLE



Work Material	H	Hardened Materials	Coated CBN	CBN	Dimensions (mm)	Geometry	Applicable Holder Page		
	K	Cast Iron						S	Heat-resistant Alloy, Titanium Alloy
NEW PETIT CUT	NP-CNGA12040GA4		●						A168 A169 A262 A268 E004 -006
	120408GA4		●						
	120412GA4		●						
	120404GN4		★						
	120408GN4		★						
	120412GN4		★						
	120408FS4		●						
	120412FS4		●						
	120404TA4		●						
	120408TA4		●						
	120412TA4		●						
	120404TN4		□						
120408TN4		●							
120412TN4		●							
NEW PETIT CUT (With Wiper) *	NP-CNGA12040GAW4		●						A168 A169 A262 A268 E004 -006
	120408GAW4		●						
	120412GAW4		●						
	120408GAWC4		●						
	120412GAWC4		●						
	120408GSWC4		●						
120412GSWC4		●							
NEW PETIT CUT	NP-CNGA12040GA2		□	●	●	●			A168 A169 A262 A268 E004 -006
	120408GA2		□	●					
	120412GA2		□	●					
	120404GS2		●						
	120408GS2		●	●					
	120412GS2		●	●					
	120408FS2		●	□	●	●			
	120412FS2		●	□	●	●			
	120404TA2		□	●	●				
	120408TA2		□	●	●	●			
	120412TA2		□	●	●	●			
	120404TN2		□	●					
120408TN2		□	●						
120412TN2		□	●						

* Please refer to A016 before using wiper inserts.

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting Honing (Last letter of order number) : Please refer to page A117				
	K	Cast Iron	CBN										
	S	Heat-resistant Alloy, Titanium Alloy	CBN										
Shape	Order Number	Coated CBN		CBN				Dimensions (mm)				Geometry	Applicable Holder Page
		MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re	D2		
NEW PETIT CUT (With Wiper) * 	NP-CNGA120404GAW2	□	●					12.7	4.76	0.4	5.16		A168 A169 A262 A268 E004 -006
	120408GAW2	□	●					12.7	4.76	0.8	5.16		
	120412GAW2	□	●					12.7	4.76	1.2	5.16		
	120408GAWC2	□	●					12.7	4.76	0.8	5.16		
	120408GSW2	●						12.7	4.76	0.8	5.16		
	120412GSW2	●						12.7	4.76	1.2	5.16		
	120404GSWC2	●						12.7	4.76	0.4	5.16		
	120408GSWC2	●	●					12.7	4.76	0.8	5.16		
	120412GSWC2		●					12.7	4.76	1.2	5.16		
	120408FAW2				●			12.7	4.76	0.8	5.16		
	120412FAW2				●			12.7	4.76	1.2	5.16		
120408FSW2	●						12.7	4.76	0.8	5.16			

* Please refer to A016 before using wiper inserts.

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

GRADES
A114

IDENTIFICATION
A112

A125

CBN TURNING INSERTS [NEGATIVE]

DN TYPE INSERTS WITH HOLE



CBN

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

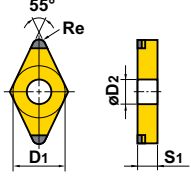
T

V

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				D1	S1	Re	D2	Geometry	Applicable Holder Page
			MBC010	MBC020	MB8025	MB835	MB710	MB730										
NEW PETIT CUT																	 A170 A171 A242 A262 -264 A267 A268 E007 -009	
	NP-DNGA110408GA4	●										9.525	4.76	0.8	3.81			
	110412GA4	●										9.525	4.76	1.2	3.81			
	150404GA4	★										12.7	4.76	0.4	5.16			
	150408GA4	●										12.7	4.76	0.8	5.16			
	150412GA4	★										12.7	4.76	1.2	5.16			
	150604GA4	●										12.7	6.35	0.4	5.16			
	150608GA4	●										12.7	6.35	0.8	5.16			
	150612GA4	●										12.7	6.35	1.2	5.16			
	150608GS4	●										12.7	6.35	0.8	5.16			
	150612GS4	●										12.7	6.35	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			
	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			
	150604TA4	□										12.7	6.35	0.4	5.16			
	150608TA4	●										12.7	6.35	0.8	5.16			
	150612TA4	●										12.7	6.35	1.2	5.16			
150604TN4	□										12.7	6.35	0.4	5.16				
150608TN4	□										12.7	6.35	0.8	5.16				
NEW PETIT CUT	NP-DNGA150404GA2	□	●									12.7	4.76	0.4	5.16	 A170 A171 A242 A262 -264 A267 A268 E007 -009		
	150408GA2	□	●									12.7	4.76	0.8	5.16			
	150412GA2	□	●									12.7	4.76	1.2	5.16			
	150604GA2	□	●									12.7	6.35	0.4	5.16			
	150608GA2	□	●									12.7	6.35	0.8	5.16			
	150612GA2	□	●									12.7	6.35	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			
	150604GS2	●				●	●					12.7	6.35	0.4	5.16			
	150608GS2	●	●			●	●					12.7	6.35	0.8	5.16			
	150612GS2	●	●			●	●					12.7	6.35	1.2	5.16			
	150604FS2	●										12.7	6.35	0.4	5.16			
	150608FS2	●										12.7	6.35	0.8	5.16			
	150612FS2	●										12.7	6.35	1.2	5.16			
	150404TA2					●						12.7	4.76	0.4	5.16			
	150408TA2					●						12.7	4.76	0.8	5.16			
	150604TA2	□	●	●								12.7	6.35	0.4	5.16			
	150608TA2	□	●	●								12.7	6.35	0.8	5.16			
	150612TA2	□	●									12.7	6.35	1.2	5.16			
150604TN2	□	●									12.7	6.35	0.4	5.16				
150608TN2	□	●									12.7	6.35	0.8	5.16				

● : Inventory maintained. ★ : Inventory maintained in Japan.
 □ : Non stock, produced to order only.

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron	●	●	●	✦	●	●	●	●	●	●			●
	S	Heat-resistant Alloy, Titanium Alloy	Honing (Last letter of order number) :						Honing (Last letter of order number) :						
Shape	Order Number	Coated CBN	CBN					Dimensions (mm)				Geometry	Applicable Holder Page		
		MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re	D2				
NEW PETIT CUT (With Wiper) *	NP-DNGA150404GAW2JR	★						12.7	4.76	0.4	5.16		A170 A171 A242 A262 A264 A267 E007 -009		
	150404GAW2JL	★						12.7	4.76	0.4	5.16				
	150408GAW2JR	★	●					12.7	4.76	0.8	5.16				
	150408GAW2JL	★	●					12.7	4.76	0.8	5.16				
	150608GAW2JR	●	●					12.7	6.35	0.8	5.16				
	150608GAW2JL	●	●					12.7	6.35	0.8	5.16				
	150612GAW2JR	●	●					12.7	6.35	1.2	5.16				
	150612GAW2JL	●	●					12.7	6.35	1.2	5.16				
	150608GSW2JR	●						12.7	6.35	0.8	5.16				
	150608GSW2JL	●						12.7	6.35	0.8	5.16				
	150612GSW2JR	●						12.7	6.35	1.2	5.16				
	150612GSW2JL	●						12.7	6.35	1.2	5.16				
	150608FSW2JR	●						12.7	6.35	0.8	5.16				
150608FSW2JL	●						12.7	6.35	0.8	5.16					

* Please refer to A016 before using wiper inserts.

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

CBN TURNING INSERTS [NEGATIVE]

SN TYPE INSERTS WITH HOLE 90°

CBN TURNING INSERTS

NEG WITH HOLE

C

D


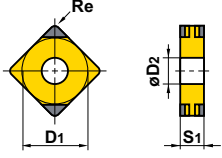

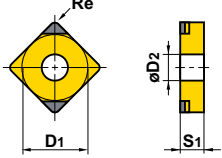
R

S

T

V


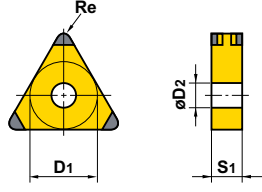

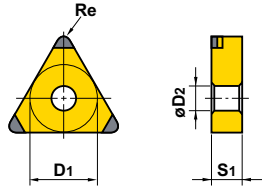
W

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Honing (Last letter of order number) :	Geometry	Applicable Holder Page		
	K	Cast Iron	●	●	●	●	●	●				●	
	S	Heat-resistant Alloy, Titanium Alloy	Please refer to page A117										
Shape	Order Number	Coated CBN	CBN					Dimensions (mm)				Geometry	Applicable Holder Page
		MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re	D2		
NEW PETIT CUT 	NP-SNGA120404GA4	★						12.7	4.76	0.4	5.16		A172 -175 A243
	120408GA4	★						12.7	4.76	0.8	5.16		
	120412GA4	★						12.7	4.76	1.2	5.16		
NEW PETIT CUT 	NP-SNGA120404GA2	□	●					12.7	4.76	0.4	5.16		A172 -175 A243
	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			

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.

TN TYPE INSERTS WITH HOLE



Work Material	H	Hardened Materials	Coated CBN	MB8025	MB835	MB710	MB730	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
	K	Cast Iron						●	●	✦	●		
Shape	S	Heat-resistant Alloy, Titanium Alloy	CBN				Dimensions (mm)				Geometry	Applicable Holder Page	
			MBC010	MBC020				D1	S1	Re			D2
NEW PETIT CUT 	NP-TNGA160404GA6	★						9.525	4.76	0.4	3.81		A176 -178 A243 A261 A267
	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		
	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		
	160408TN6	●						9.525	4.76	0.8	3.81		
160412TN6	□						9.525	4.76	1.2	3.81			
NEW PETIT CUT 	NP-TNGA160404GA3	□	●					9.525	4.76	0.4	3.81		A176 -178 A243 A261 A267
	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		
	160408TA3	□	●	●				9.525	4.76	0.8	3.81		
	160412TA3	□	●					9.525	4.76	1.2	3.81		
	160408TN3	□	●					9.525	4.76	0.8	3.81		
	160412TN3	□	●					9.525	4.76	1.2	3.81		

CBN

CBN TURNING INSERTS

NEG

WITH HOLE

- 
- 
- 
- 
- 
- 
- 

CBN TURNING INSERTS [NEGATIVE]

VN TYPE INSERTS WITH HOLE



35°

CBN TURNING INSERTS

NEG WITH HOLE

C

D


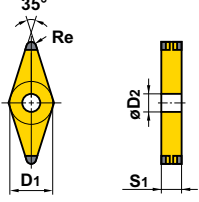

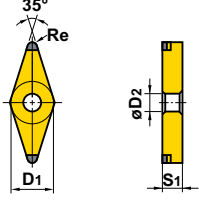
R

S

T

V

W

Work Material	H	Hardened Materials	●	●	●	✱				Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✱ : Unstable Cutting Honing (Last letter of order number) : Please refer to page A117					
	K	Cast Iron					●	●							
Shape	S	Heat-resistant Alloy, Titanium Alloy								Dimensions (mm)	Geometry	Applicable Holder Page			
	Order Number	Coated CBN	CBN					D1	S1				Re	D2	
			MBC010	MBC020	MB8025	MB835	MB710	MB730							
NEW PETIT CUT 	NP-VNGA160404GA4	●								9.525	4.76	0.4	3.81		A179 -181 A244 A269
	160408GA4	●								9.525	4.76	0.8	3.81		
NEW PETIT CUT 	NP-VNGA160404GA2	□	●							9.525	4.76	0.4	3.81		A179 -181 A244 A269
	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		

● : Inventory maintained. □ : Non stock, produced to order only.

CBN TURNING INSERTS [NEGATIVE]

CN TYPE INSERTS WITHOUT HOLE 80°

CBN TURNING INSERTS
NEG WITHOUT HOLE

C

D


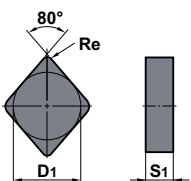
R

S


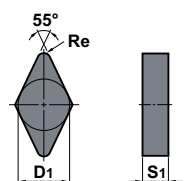
T

V


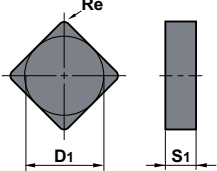
W

Work Material	K	Cast Iron	✱	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✱ : Unstable Cutting			
Shape	Order Number	Solid CBN	MBS140	Dimensions (mm)			Honing (Last letter of order number) : Please refer to page A117	-	
				D1	S1	Re			
	CNGN120404	●		12.7	4.76	0.4		-	
	120408	●		12.7	4.76	0.8			
	120412	●		12.7	4.76	1.2			


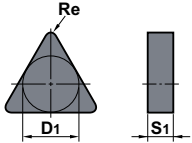
DN TYPE INSERTS WITHOUT HOLE 55°

Work Material	K	Cast Iron	✱	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✱ : Unstable Cutting			
Shape	Order Number	Solid CBN	MBS140	Dimensions (mm)			Honing (Last letter of order number) : Please refer to page A117	-	
				D1	S1	Re			
	DNGN110308	●		9.525	3.18	0.8		-	
	110312	●		9.525	3.18	1.2			

SN TYPE INSERTS WITHOUT HOLE 90°

Work Material	K	Cast Iron	* Solid CBN	Cutting Conditions (Guide) :			Dimensions (mm)	Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number		MBS140	Honing (Last letter of order number) :			D1	S1	Re
				Please refer to page A117					
	SNGN090308		●	9.525	3.18	0.8		-	
	120408		●	12.7	4.76	0.8			
	120412		●	12.7	4.76	1.2			
	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			
	120416		●	12.7	4.76	1.6			

TN TYPE INSERTS WITHOUT HOLE 60°

Work Material	K	Cast Iron	* Solid CBN	Cutting Conditions (Guide) :			Dimensions (mm)	Geometry	Applicable Holder Page
				● : Stable Cutting	● : General Cutting	✦ : Unstable Cutting			
Shape	Order Number		MBS140	Honing (Last letter of order number) :			D1	S1	Re
				Please refer to page A117					
	TNGN160408		●	9.525	4.76	0.8		-	
	160412		●	9.525	4.76	1.2			
	160416		●	9.525	4.76	1.6			

CBN

CBN TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

S

T

V

W

CBN TURNING INSERTS [NEGATIVE]

RN TYPE INSERTS WITHOUT HOLE



CBN TURNING INSERTS

NEG WITHOUT HOLE

C

D

R

S

T

V

W

Work Material	K	Cast Iron	✱				Cutting Conditions (Guide) :			Geometry	Applicable Holder Page
							● : Stable Cutting	● : General Cutting	✱ : Unstable Cutting		
Shape	Order Number	Solid CBN				Dimensions (mm)					
		MBS140					D1	S1			Re
	RNGN090300	●				9.525	3.18	—		—	
	120300	●				12.7	3.18	—			
	120400	●				12.7	4.76	—			

CBN TURNING INSERTS [POSITIVE]

VB TYPE INSERTS WITH HOLE



35°

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Cutting Conditions (Guide) :				Geometry	Applicable Holder Page	
	K	Cast Iron	●	●	✦	●	●	●	●	●	●	●			●
Shape	S	Heat-resistant Alloy, Titanium Alloy	CNC						Dimensions (mm)				Geometry	Applicable Holder Page	
			Coated CBN	CBN					D1	S1	Re	D2			
			MBC010	MBC020	MB8025	MB835	MB710	MB730							
NEW PETIT CUT 		NP-VBGW160404GA2	●	●						9.525	4.76	0.4	4.43		A240 E011
		160408GA2	●	●						9.525	4.76	0.8	4.43		
		160404GS2	●	●	●					9.525	4.76	0.4	4.43		
		160408GS2	●	●	●					9.525	4.76	0.8	4.43		
		160404TA2				●				9.525	4.76	0.4	4.43		
		160408TA2				●				9.525	4.76	0.8	4.43		

CBN

CBN TURNING INSERTS

POSIT

WITH HOLE

- C
- D
- R
- S
- T
- V
- W

GRADES
A114


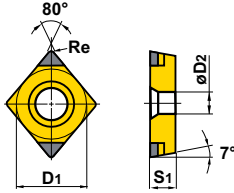

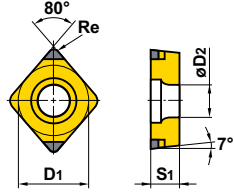
IDENTIFICATION
A112

CBN TURNING INSERTS [POSITIVE]

CC TYPE INSERTS WITH HOLE 80°

CBN TURNING INSERTS
 POSITIVE
 WITH HOLE

C
 D
 R
 S
 T
 V
 W

Work Material	H	Hardened Materials	Coated CBN	CBN	Cutting Conditions (Guide) :				Geometry	Applicable Holder Page				
	K	Cast Iron			●	●	●	●			●			
Shape	S	Heat-resistant Alloy, Titanium Alloy	MBC010	MBC020	MB8025	MB835	MB710	MB730	Dimensions (mm)					
									D1	S1	Re	D2		
NEW PETIT CUT 		NP-CCGB060204GA2	★	●					6.35	2.38	0.4	2.8		A184 A206 A235 A256 A260
		060204GS2	●						6.35	2.38	0.4	2.8		
		060204FS2	●	●					6.35	2.38	0.4	2.8		
NEW PETIT CUT 		NP-CCGW060202GA2	●	●					6.35	2.38	0.2	2.8		A184 A206 A235 A256 A260
		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		
		09T312GA2	●	●					9.525	3.97	1.2	4.4		
		120404GA2	●	●					12.7	4.76	0.4	5.5		
		120408GA2	●	●					12.7	4.76	0.8	5.5		
		060202GS2	●						6.35	2.38	0.2	2.8		
		060204GS2	●						6.35	2.38	0.4	2.8		
		09T304GS2	●	●	●				9.525	3.97	0.4	4.4		
		09T308GS2	●	●	●				9.525	3.97	0.8	4.4		
		09T312GS2	●	●					9.525	3.97	1.2	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		
		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		
		060202TA2	●	●	●				6.35	2.38	0.2	2.8		
		060204TA2	●	●	●				6.35	2.38	0.4	2.8		
		060208TA2	●	●					6.35	2.38	0.8	2.8		
		09T304TA2	●	●	●				9.525	3.97	0.4	4.4		
		09T308TA2	●	●	●				9.525	3.97	0.8	4.4		
		09T312TA2	●	●					9.525	3.97	1.2	4.4		
	09T304TN2	●	●					9.525	3.97	0.4	4.4			
	09T308TN2	●	●					9.525	3.97	0.8	4.4			

● : Inventory maintained. ★ : Inventory maintained in Japan.

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Order Number	Coated CBN	CBN						Dimensions (mm)	Geometry	Applicable Holder Page		
	K	Cast Iron	●	●	●	✦	●	●			●	●	●	●	●	●				●	●
	S	Heat-resistant Alloy, Titanium Alloy	●	●	●	●	●	●			●	●	●	●	●	●				●	●
NEW PETIT CUT (With Wiper) *	NP-CCGW09T308GAW2	●												9.525	3.97	0.8	4.4		A184 A206 A256 A260		
	120404GAW2	●	●											12.7	4.76	0.4	5.5				
	120408GAW2	●	●											12.7	4.76	0.8	5.5				
	09T308GAWC2	●	●											9.525	3.97	0.8	4.4				
	09T304GSW2	●												9.525	3.97	0.4	4.4				
	09T304GSWC2	●	●	●										9.525	3.97	0.4	4.4				
	09T308GSWC2	●	●	●										9.525	3.97	0.8	4.4				
	09T304FSWC2	●												9.525	3.97	0.4	4.4				
	09T308FSWC2	●												9.525	3.97	0.8	4.4				
	09T308TAWC2	●	●											9.525	3.97	0.8	4.4				
NEW PETIT CUT	NP-CCGW03S102FA	●	●	●										3.57	1.39	0.2	2.0		A245		
	04T002FA	●	●	●										4.37	1.79	0.2	2.4				
	03S104FS	●	●	●										3.57	1.39	0.4	2.0				
	04T004FS	●	●	●										4.37	1.79	0.4	2.4				

* Please refer to A016 before using wiper inserts.

CBN

CBN TURNING INSERTS

POSI 7°

WITH HOLE



CBN TURNING INSERTS [POSITIVE]

DC TYPE INSERTS WITH HOLE



CBN

TURNING INSERTS

POSITIVE 7°

WITH HOLE

C

D

R

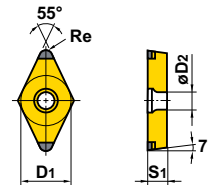
S

T

V

W

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Geometry	Applicable Holder Page			
	K	Cast Iron	●	●	●	●	●	●					
	S	Heat-resistant Alloy, Titanium Alloy	Honing (Last letter of order number) :										
			Please refer to page A117										
Shape	Order Number	Coated CBN	CBN					Dimensions (mm)				Geometry	Applicable Holder Page
		MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re	D2		
NEW PETIT CUT	NP-DCGW070202GA2	●	●					6.35	2.38	0.2	2.8		A185 A207 A222 A237 A238 A255 A257
	070204GA2	●	●					6.35	2.38	0.4	2.8		
	070208GA2	●	●					6.35	2.38	0.8	2.8		
	11T302GA2	●	●					9.525	3.97	0.2	4.4		
	11T304GA2	●	●					9.525	3.97	0.4	4.4		
	11T308GA2	●	●					9.525	3.97	0.8	4.4		
	11T312GA2	●	●					9.525	3.97	1.2	4.4		
	070204GS2	●	●	●				6.35	2.38	0.4	2.8		
	070208GS2	●	●	●				6.35	2.38	0.8	2.8		
	11T302GS2	●						9.525	3.97	0.2	4.4		
	11T304GS2	●	●	●		●	●	9.525	3.97	0.4	4.4		
	11T308GS2	●	●	●				9.525	3.97	0.8	4.4		
	070202GN2	★						6.35	2.38	0.2	2.8		
	070204GN2	●						6.35	2.38	0.4	2.8		
	070208GN2	●						6.35	2.38	0.8	2.8		
	11T302GN2	★						9.525	3.97	0.2	4.4		
	11T304GN2	★						9.525	3.97	0.4	4.4		
	11T308GN2	★						9.525	3.97	0.8	4.4		
	11T304FA2					●	●	9.525	3.97	0.4	4.4		
	11T308FA2					●	●	9.525	3.97	0.8	4.4		
	070202FS2	●						6.35	2.38	0.2	2.8		
	070204FS2	●				●		6.35	2.38	0.4	2.8		
	070208FS2	●						6.35	2.38	0.8	2.8		
	11T302FS2	●						9.525	3.97	0.2	4.4		
	11T304FS2	●						9.525	3.97	0.4	4.4		
	11T308FS2	●						9.525	3.97	0.8	4.4		
	070204TA2	●	●	●				6.35	2.38	0.4	2.8		
	11T302TA2	□	●	●				9.525	3.97	0.2	4.4		
	11T304TA2	●	●	●				9.525	3.97	0.4	4.4		
	11T308TA2			●				9.525	3.97	0.8	4.4		
	11T308TN2	●	●					9.525	3.97	0.8	4.4		



A185
A207
A222
A237
A238
A255
A257

CBN TURNING INSERTS [POSITIVE]

VC TYPE INSERTS WITH HOLE




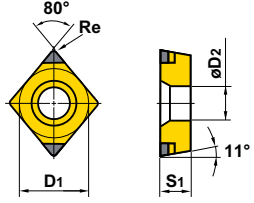
35°

- CBN TURNING INSERTS
- POSITIVE 7°
- WITH HOLE
- C
- D
- R
- S
- T
- V
- W

Work Material	H	Hardened Materials	Coated CBN						Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
	K	Cast Iron	CBN						● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting					
	S	Heat-resistant Alloy, Titanium Alloy							● : Stable Cutting ● : General Cutting ✖ : Unstable Cutting					
Shape	Order Number	Coated CBN						Dimensions (mm)				Geometry	Applicable Holder Page	
		MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re	D2			
NEW PETIT CUT 	NP-VCGW160404GA2	★	□					9.525	4.76	0.4	4.4		A091	
	160408GA2	★	□					9.525	4.76	0.8	4.4			
	160404GS2	□						9.525	4.76	0.4	4.4			
	160408GS2	□						9.525	4.76	0.8	4.4			

● : Inventory maintained. ★ : Inventory maintained in Japan.
 □ : Non stock, produced to order only.

CP TYPE INSERTS WITH HOLE 80°

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Cutting Conditions (Guide) :				Geometry	Applicable Holder Page
	K	Cast Iron	●	●	●	✦	●	●						
Shape	S	Heat-resistant Alloy, Titanium Alloy	Coated CBN						Dimensions (mm)				A235	
			MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re	D2		
NEW PETIT CUT 	NP-CPGB080204GA2		●	●					7.94	2.38	0.4	3.5		A235
	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		
	080204GS2		●						7.94	2.38	0.4	3.5		
	080208GS2		●						7.94	2.38	0.8	3.5		
	090304GS2		●						9.525	3.18	0.4	4.5		
	090308GS2		●						9.525	3.18	0.8	4.5		
	080204FS2		●	□	●				7.94	2.38	0.4	3.5		
	080208FS2		●	□	●				7.94	2.38	0.8	3.5		
	090304FS2		●	□	●				9.525	3.18	0.4	4.5		
	090308FS2		●	□	●				9.525	3.18	0.8	4.5		

CBN

CBN TURNING INSERTS

POSI 11°

WITH HOLE

C

D

R

S

T

V

W

GRADES
A114

IDENTIFICATION
A112

A141

CBN TURNING INSERTS [POSITIVE]

TP TYPE INSERTS WITH HOLE



CBN TURNING INSERTS

POSI 11° WITH HOLE

C

D

R

S

T


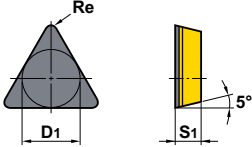
V

W

Work Material	H	Hardened Materials	Cutting Conditions (Guide) :						Cutting Conditions (Guide) :	Honing (Last letter of order number) :	Applicable Holder Page			
	K	Cast Iron	●	●	●	●	●	●				●		
Shape	S	Heat-resistant Alloy, Titanium Alloy	CBN						Dimensions (mm)				Geometry	Applicable Holder Page
			Coated CBN						D1	S1	Re	D2		
			MBC010	MBC020	MB8025	MB835	MB710	MB730						
NEW PETIT CUT 	NP-TPGB080204GA3		●	●					4.76	2.38	0.4	2.4		A236
	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		
NEW PETIT CUT 	NP-TPGX080202GS3		●						4.76	2.38	0.2	2.5		A251
	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		
	080204TA3				●				4.76	2.38	0.4	2.5		
	090204TA3				●				5.56	2.38	0.4	3		
110304TA3				●				6.35	3.18	0.4	3.5			

● : Inventory maintained. ★ : Inventory maintained in Japan.

TB TYPE INSERTS WITHOUT HOLE 60°

Work Material	H	Hardened Materials	Coated CBN						Cutting Conditions (Guide) :			Geometry	Applicable Holder Page
	K	Cast Iron	CBN						●	●	✦		
	S	Heat-resistant Alloy, Titanium Alloy	MBC010	MBC020	MB8025	MB835	MB710	MB730	Dimensions (mm)				
Shape	Order Number								D1	S1	Re		
	TBGN060104						★		3.97	1.59	0.4		-
	060108						★		3.97	1.59	0.8		

CBN

CBN TURNING INSERTS

POSI 5°

WITHOUT HOLE

C

D

R

S

T

V


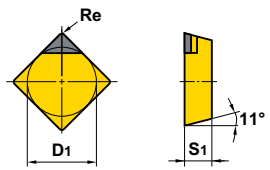
W

CBN TURNING INSERTS [POSITIVE]


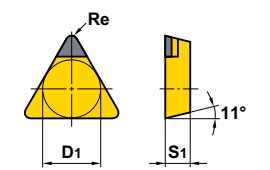
SP TYPE INSERTS WITHOUT HOLE 90°

CBN TURNING INSERTS
 POSITIVE 11°
 WITHOUT HOLE

C
 D
 R
 S
 T
 V
 W

Work Material	H	Hardened Materials	●	●	●	✦				Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting Honing (Last letter of order number) : Please refer to page A117				
	K	Cast Iron					●	●						
S		Heat-resistant Alloy, Titanium Alloy							●					
Shape	Order Number	Coated CBN	CBN					Dimensions (mm)			Geometry	Applicable Holder Page		
		MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re				
	SPGN090304						★			9.525	3.18	0.4		-
	090308						★			9.525	3.18	0.8		
	120304						★	★		12.7	3.18	0.4		
	120308						★	★		12.7	3.18	0.8		

TP TYPE INSERTS WITHOUT HOLE 60°

Work Material	H	Hardened Materials	●	●	●	✦				Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✦ : Unstable Cutting Honing (Last letter of order number) : Please refer to page A117				
	K	Cast Iron					●	●						
S		Heat-resistant Alloy, Titanium Alloy							●					
Shape	Order Number	Coated CBN	CBN					Dimensions (mm)			Geometry	Applicable Holder Page		
		MBC010	MBC020	MB8025	MB835	MB710	MB730	D1	S1	Re				
	TPGN110304						★	★		6.35	3.18	0.4		-
	160304						★	★		9.525	3.18	0.4		
	160308						★	★		9.525	3.18	0.8		

DGJ TYPE INSERTS WITHOUT HOLE



Work Material	H	Hardened Materials	●	●	●	●	●	✱	●	●	Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✱ : Unstable Cutting Honing (Last letter of order number) : Please refer to page A117	Shape	Order Number	Coated CBN		CBN						Dimensions (mm)	Geometry	Applicable Holder Page			
	K	Cast Iron	S	Heat-resistant Alloy, Titanium Alloy	MBC010	MBC020	MB8025	MB820	MB825	MB835				MB710	MB730	D1	S1	Re	D2								
													DGJ40CE			★	★					6	4	0.2	25		-
													50CE			★	★					6	5	0.2	25		
													60CE			★	★					6	6	0.2	25		

RTG TYPE INSERTS WITHOUT HOLE



Work Material	H	Hardened Materials	●	●	●	●	●	✱	●	●	Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✱ : Unstable Cutting Honing (Last letter of order number) : Please refer to page A117	Shape	Order Number	Coated CBN		CBN						Dimensions (mm)	Geometry	Applicable Holder Page			
	K	Cast Iron	S	Heat-resistant Alloy, Titanium Alloy	MBC010	MBC020	MB8025	MB820	MB825	MB835				MB710	MB730	D1	S1	Re	D2								
													RTG05A			★	★					5	3.5	7.5	2.5		-
													06A			★	★					6	3.5	7.5	3.5		
													07A			★	★					7	5	11	3.5		
													08A			★	★					8	5	11	4.5		
													10A			★	★					10	6.5	14	5.5		

RBG TYPE INSERTS WITHOUT HOLE



Work Material	H	Hardened Materials	●	●	●	●	●	✱	●	●	Cutting Conditions (Guide) : ● : Stable Cutting ● : General Cutting ✱ : Unstable Cutting Honing (Last letter of order number) : Please refer to page A117	Shape	Order Number	Coated CBN		CBN						Dimensions (mm)	Geometry	Applicable Holder Page			
	K	Cast Iron	S	Heat-resistant Alloy, Titanium Alloy	MBC010	MBC020	MB8025	MB820	MB825	MB835				MB710	MB730	D1	S1	Re	D2								
													RBG10									10	5	9	5		-
													12									12	6	11	6		
													16		★		★					16	8	13	8		

CBN

CBN TURNING INSERTS

POSI 5°/6° 12°

WITHOUT HOLE

C

D

R

S

T


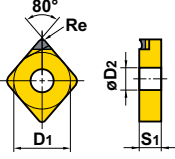

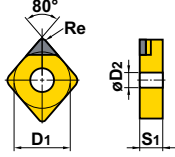
V

W


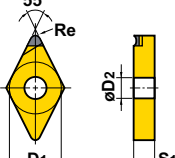
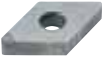
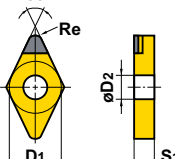
PCD TURNING INSERTS [NEGATIVE]

CN TYPE INSERTS WITH HOLE 80°

- PCD
- PCD TURNING INSERTS
- NEG
- WITH HOLE
- C
- D
- R
- S
- T
- V
- W


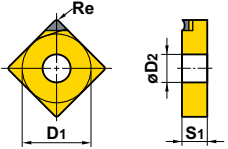

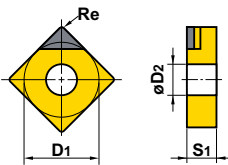
Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	NP-CNMM120402R-F	★	12.7	4.76	0.2	5.16	 Right hand insert shown.	A168 A169 E004 -006
	120402L-F	□	12.7	4.76	0.2	5.16		
	120404R-F	★	12.7	4.76	0.4	5.16		
	120404L-F	□	12.7	4.76	0.4	5.16		
	120408R-F	★	12.7	4.76	0.8	5.16		
	120408L-F	□	12.7	4.76	0.8	5.16		
	CNMA120404	★	12.7	4.76	0.4	5.16	 Right hand insert shown.	A168 A169 E004 -006
	120408	★	12.7	4.76	0.8	5.16		

DN TYPE INSERTS WITH HOLE 55°

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	NP-DNMM150402R-F	★	12.7	4.76	0.2	5.16	 Right hand insert shown.	A170 A171 A242 A262 -264 A267 A268 E007 -009
	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		
	150408L-F	□	12.7	4.76	0.8	5.16		
	DNMA150404	★	12.7	4.76	0.4	5.16	 Right hand insert shown.	A170 A171 A242 A262 -264 A267 A268 E007 -009
	150408	★	12.7	4.76	0.8	5.16		

SN TYPE INSERTS WITH HOLE



Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	NP-SNMM120404R-F	★	12.7	4.76	0.4	5.16		A172 -175 A243
	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		
	SNGA 120404	□	12.7	4.76	0.4	5.16		A172 -175 A243
	120408	★	12.7	4.76	0.8	5.16		

PCD

PCD TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W


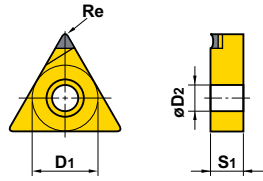

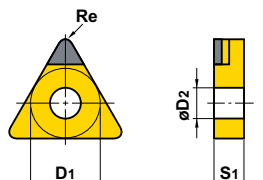
GRADES  A119

IDENTIFICATION  A112

PCD TURNING INSERTS [NEGATIVE]


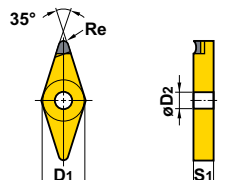

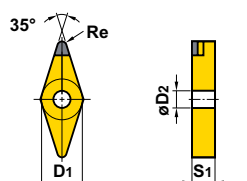
TN TYPE INSERTS WITH HOLE




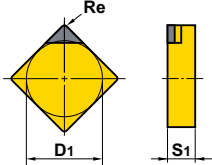
Shape	Order Number	PCD		Dimensions (mm)				Geometry	Applicable Holder Page
		MD220		D1	S1	Re	D2		
 NEW PETIT CUT (With Breaker)	NP-TNMM160402R-F	★		9.525	4.76	0.2	3.81	 Right hand insert shown.	A176 -178 A243 A261 A267
	160402L-F	□		9.525	4.76	0.2	3.81		
	160404R-F	★		9.525	4.76	0.4	3.81		
	160404L-F	□		9.525	4.76	0.4	3.81		
	160408R-F	★		9.525	4.76	0.8	3.81		
	160408L-F	□		9.525	4.76	0.8	3.81		
 TNGA160402 160404 160408	TNGA160402	★		9.525	4.76	0.2	3.81	 Right hand insert shown.	A176 -178 A243 A261 A267
	160404	★		9.525	4.76	0.4	3.81		
	160408	★		9.525	4.76	0.8	3.81		

VN TYPE INSERTS WITH HOLE



Shape	Order Number	PCD		Dimensions (mm)				Geometry	Applicable Holder Page
		MD220		D1	S1	Re	D2		
 NEW PETIT CUT (With Breaker)	NP-VNMM 160402R-F	★		9.525	4.76	0.2	3.81	 Right hand insert shown.	A179 -181 A244 A269
	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		
	160408L-F	□		9.525	4.76	0.8	3.81		
 VNGA160404 160408	VNGA160404	★		9.525	4.76	0.4	3.81	 Right hand insert shown.	A179 -181 A244 A269
	160408	★		9.525	4.76	0.8	3.81		

SN TYPE INSERTS WITHOUT HOLE 90°

Shape	Order Number	PCD	Dimensions (mm)			Geometry	Applicable Holder Page
		MD220	D1	S1	Re		
	SNGN 120404	□	12.7	4.76	0.4		-
	120408	★	12.7	4.76	0.8		

PCD

PCD
TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

S

T

V

W

PCD TURNING INSERTS [POSITIVE]

CC TYPE INSERTS WITH HOLE 80°

- PCD
- PCD TURNING INSERTS
- POSI 7°
- WITH HOLE
- C
- D
- R
- S
- T
- V
- W

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	NP-CCMH060202	★	6.35	2.38	0.2	2.8		A184 A206 A235 A256 A260
	060204	★	6.35	2.38	0.4	2.8		
	NP-CCMW03S102	●	3.57	1.39	0.2	2.0		A245
	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		A184 A206 A235 A256 A260
	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		


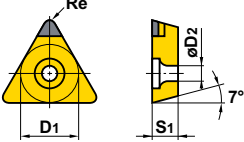
DC TYPE INSERTS WITH HOLE 55°

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	NP-DCMT070202R-F	★	6.35	2.38	0.2	2.8		A185 A207 A222 A237 A238 A255 A257
	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			
	DCMW070202	★	6.35	2.38	0.2	2.8		A185 A207 A222 A237 A238 A255 A257
	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		

Left hand insert shown.


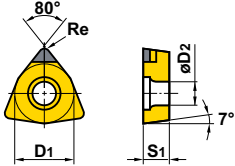
TC TYPE INSERTS WITH HOLE



Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
	TCMW110202	★	6.35	2.38	0.2	2.8		A187 A254
	110204	★	6.35	2.38	0.4	2.8		

WC TYPE INSERTS WITH HOLE



Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
	WCMWL30204	●	4.76	2.38	0.4	2.3		A253

PCD

PCD
TURNING INSERTS

POSI
7°

WITH
HOLE

C

D

R

S

T

V

W

PCD TURNING INSERTS [POSITIVE]

CP TYPE INSERTS WITH HOLE 80°

PCD
TURNING INSERTS

POSI 11°
WITH HOLE

C

D

R

S

T

V


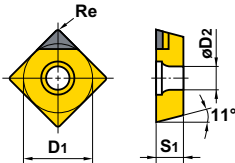
W

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	NP-CPMH080202	★	7.94	2.38	0.2	3.5		A235
	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		
 (With Breaker)	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.

SP TYPE INSERTS WITH HOLE



Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
	SPGX090304	★	9.525	3.18	0.4	4.8		-
	090308	★	9.525	3.18	0.8	4.8		

- PCD**
- PCD TURNING INSERTS 
- POSI 11°**
- WITH HOLE
- C**
- D**
- R**
- S**
- T**
- V**
- W**

PCD TURNING INSERTS [POSITIVE]


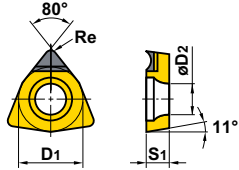
TP TYPE INSERTS WITH HOLE



Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page	
		MD220	D1	S1	Re	D2			
	NEW PETIT CUT	NP-TPMX090202R-F	★	5.56	2.38	0.2	3		A251
		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	Right hand insert shown.	
	NEW PETIT CUT	NP-TPMH080202R-F	★	4.76	2.38	0.2	2.5		A236
		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	Left hand insert shown.	
	TPGX080202	080204	★	4.76	2.38	0.2	2.5		A251
		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. □ : Non stock, produced to order only.

WP TYPE INSERTS WITH HOLE 80°

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	WPGT 040202	★	6.35	2.38	0.2	2.8		-
	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		

PCD

PCD
TURNING INSERTS

POSI
11°

WITH
HOLE

C

D

R

S

T

V

W

PCD TURNING INSERTS [POSITIVE]

VD TYPE INSERTS WITH HOLE



35°

PCD

PCD TURNING INSERTS

POSITIVE
15°
20°

WITH HOLE

C

D


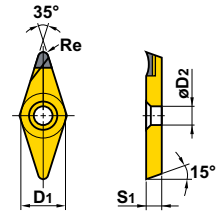
R

S

T

V


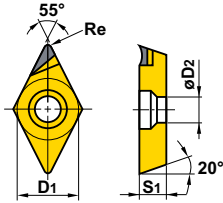
W

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
	VDGX160302R-F	●	9.525	3.18	0.2	4.5	 <p>Right hand insert shown.</p>	A194
	160302L-F	●	9.525	3.18	0.2	4.5		
	160304R-F	●	9.525	3.18	0.4	4.5		
	160304L-F	●	9.525	3.18	0.4	4.5		
(With Breaker)								

DE TYPE INSERTS WITH HOLE



55°

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
	DEGX150402R-F	★	12.7	4.76	0.2	5.1	 <p>Right hand insert shown.</p>	A192
	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)								

TE TYPE INSERTS WITH HOLE



Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	D1	S1	Re	D2		
 (With Breaker)	TEGX 160302R	★	9.525	3.18	0.2	4.3	 Right hand insert shown.	A193
	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		
	TEGX 160302	★	9.525	3.18	0.2	4.3		A193
	160304	★	9.525	3.18	0.4	4.3		

PCD

PCD
TURNING INSERTS

POSI
20°

WITH
HOLE

C

D

R

S

T

V

W

PCD TURNING INSERTS [POSITIVE]

SP TYPE INSERTS WITHOUT HOLE 90°

PCD

PCD TURNING INSERTS

POSI 11°

WITHOUT HOLE

C

D


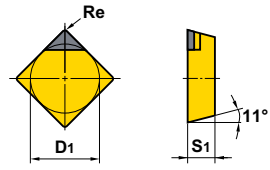
R

S


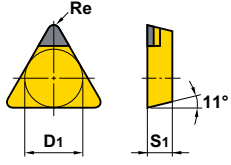
T

V

W

Shape	Order Number	PCD	Dimensions (mm)			Geometry	Applicable Holder Page
		MD220	D1	S1	Re		
	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		

TP TYPE INSERTS WITHOUT HOLE 60°

Shape	Order Number	PCD	Dimensions (mm)			Geometry	Applicable Holder Page
		MD220	D1	S1	Re		
	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		

PCD

PCD
TURNING INSERTS

POSI
11°

WITHOUT
HOLE

C

D

R

S

T

V

W

GRADES
A119

IDENTIFICATION
A112

A159