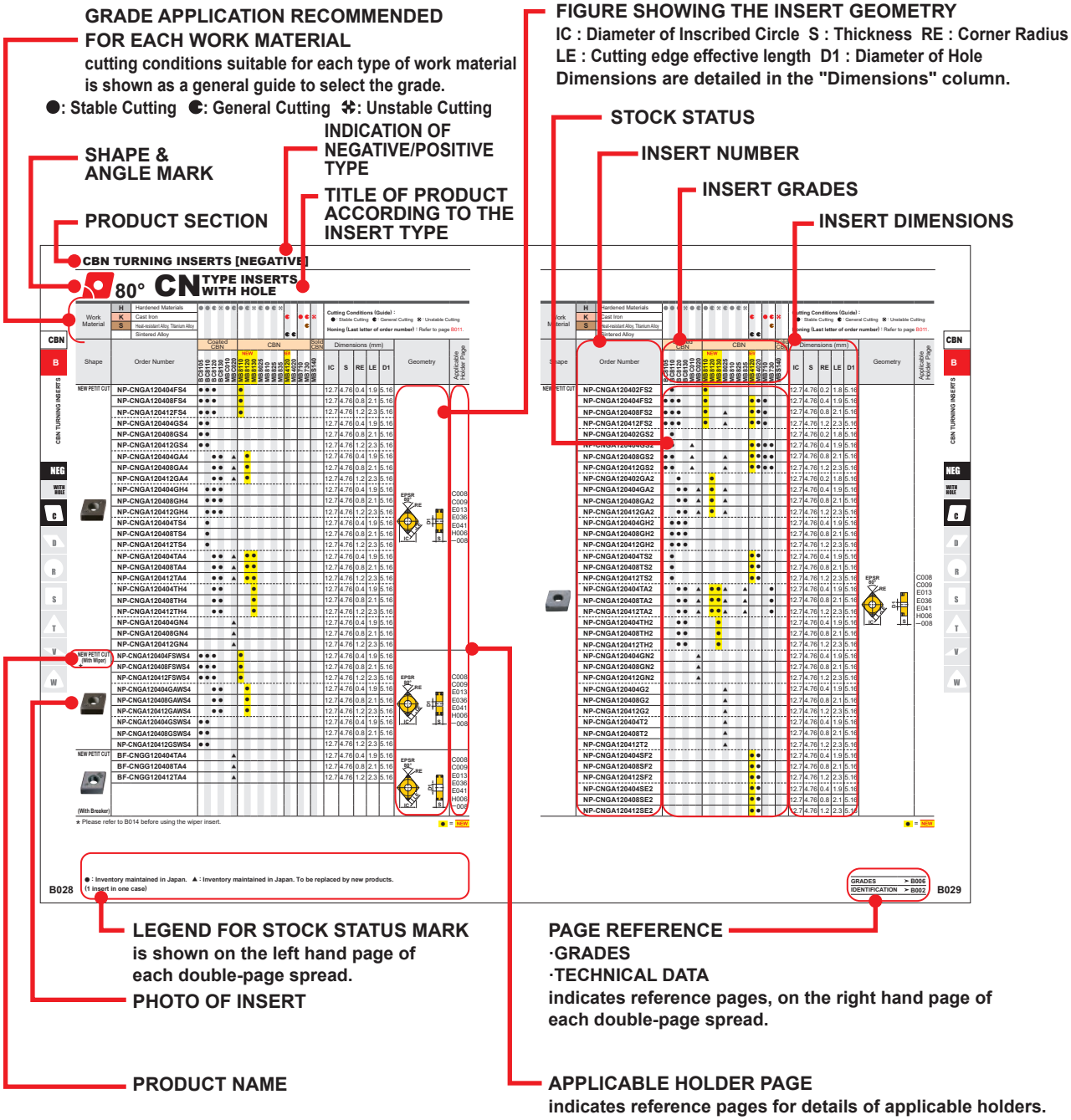
HOW TO READ THE STANDARD OF CBN & PCD TURNING INSERTS

●How this section page is organised

①Organised according to turning insert shape.
(Refer to the index on the next page.)

②Inserts are arranged in order of :

- Negative inserts (with hole→without hole)
- Positive inserts (with hole→without hole)



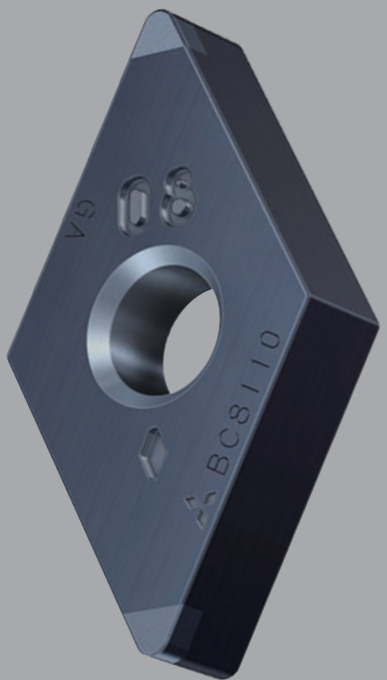
●To Order : Please specify
①insert number and ②grade.

TURNING TOOLS

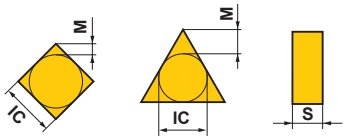
CBN & PCD INSERT STANDARDS
CBN & PCD INSERT GRADES

STANDARD OF CBN TURNING INSERTS

STANDARD OF PCD TURNING INSERTS



IDENTIFICATION



Symbol	Tolerance of Nose Height **M** (mm)	Tolerance of Inscribed Circle **IC** (mm)	Tolerance of Thickness **S** (mm)
G	±0.025	±0.025	±0.13
M*	±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
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 **IC** (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

⑤ Tolerance Class

BM	With Breaker
BF	With Breaker
NP	New Petit Cut
No mark	Standard Type

② Insert Geometry

T	10-inserts Package
No mark	1-insert Package

① Insert Case

①	②		③	④	⑤	⑥
T	**NP**	-	**C**	**N**	**G**	**A**

③ Insert Shape

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

④ Normal Clearance

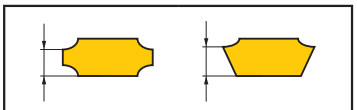
Symbol	Normal Clearance	
B	5°	
C	7°	
D	15°	
E	20°	
N	0°	
P	11°	

⑥ Fixing and/or for Chip Breaker

Metric				
Symbol	Hole	Hole Configuration	Chip Breaker	Figure
W	With Hole	Cylindrical Hole + One Countersink (40–60°)	No	
T	With Hole		One Sided	
B	With Hole	Cylindrical Hole + One Countersink (70–90°)	No	
H	With Hole		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						
	R	W	V	D	C	S	T
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

⑦ 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

⑧ Insert Thickness

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

⑨ Insert Corner Configuration

⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
12	04	04	G	WS	2	J	R

⑩ Application (Honing)

Symbol	Honing
GS GA GB GH GN G	General Cutting
FS FA FB F	Continuous Cutting
TS TA TH T	Interrupted Cutting
SF SE	Cutting Sintered Alloys

Refer to the Honing on page B016 for details.

⑪ Wiper

WS	For High Rigidity Workpiece Material
WL	For Deflection and Vibration Prevention
No mark	Without Wiper

⑫ Number of Teeth

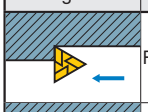
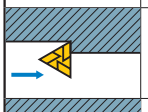
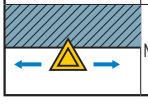
2	2
3	3
4	4
6	6
No mark	1

⑬ Cutting Edge Angle

F	91°
J	93°
No mark	Non Restriction

Please pay special attention when using an indexable insert.

⑭ Cutting Direction

Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

CLASSIFICATION OF CBN & PCD GRADES

FEATURES

NON-COATED CBN MATERIALS

CBN sintered materials base cutting tools are produced by binding CBN (cubic Boron Nitride) and ceramic having hardness next to diamond and sintering under ultra-high pressure and high temperature.
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 hardened steel, cast iron and sintered alloys etc.

COATED CBN MATERIALS

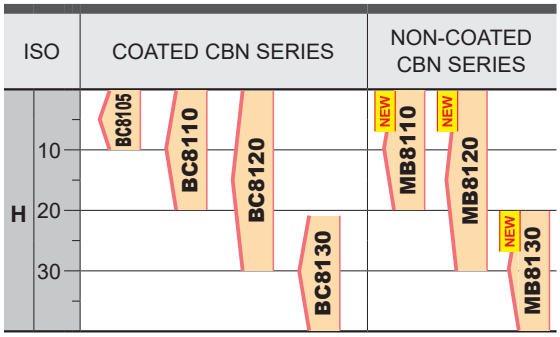
To achieve longer tool life, Mitsubishi uses a unique "Particle-activated Sintering Method", combined with increased cutting edge strength. With high crater wear resistance CBN grades and a wear resistant ceramic coatings, longer tool life and improved machine efficiency are obtained.

PCD MATERIALS (Sintered Diamond)

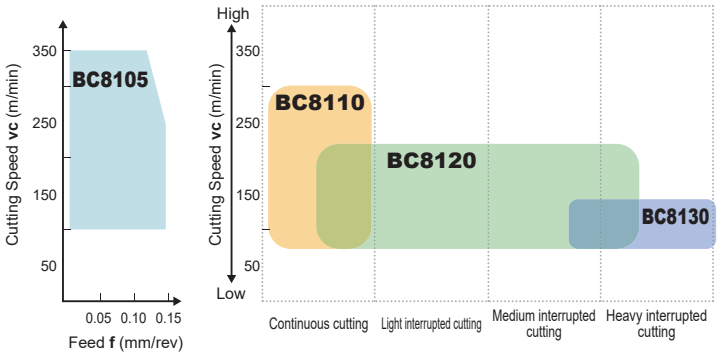
Suitable for cutting materials such as nonferrous metals and fiber reinforced plastics (FRP) including aluminium alloys.
It supports ultra high speed finish cutting.

■ Work materials for turning grades/application area

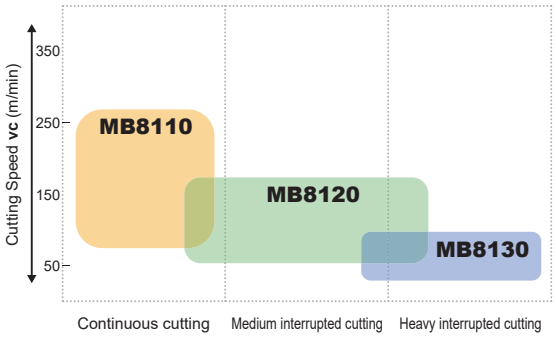
●Hardened Steel



COATED CBN MATERIALS



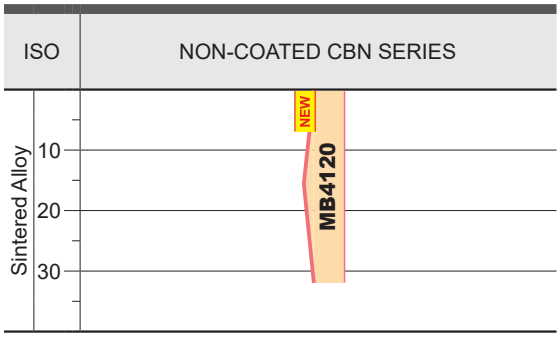
NON-COATED CBN MATERIALS

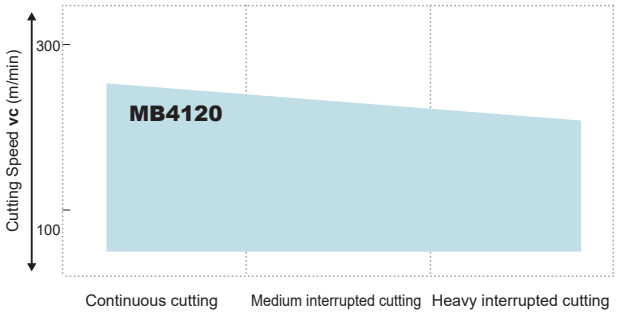


Suitable for finishing with surface roughness Ra 0.6 µm or Rz 2.4 µm or less.

Coated CBN Grade BC8100 and Non-coated CBN Grade MB8100 for high-hardness steel processing are available in a wide range of areas from finishing to continuous cutting of hardened steels and strongly interrupted machining.

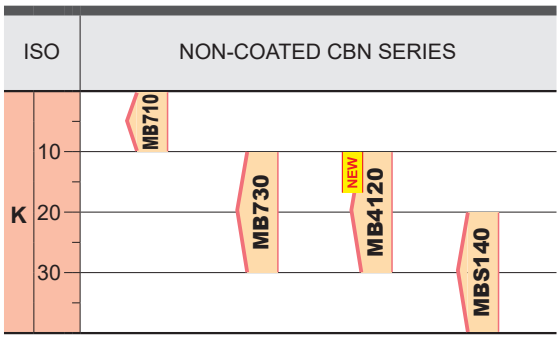
●Sintered Alloy

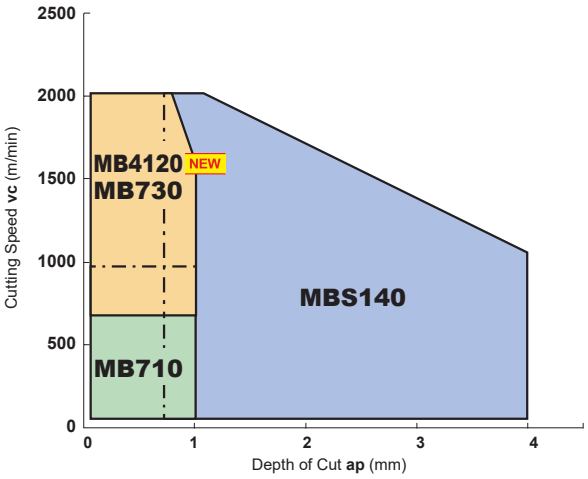




The CBN grade “MB4120” for sintered alloy and cast iron cutting can be used widely from continuous cutting to interrupted cutting in the processing of cast irons such as sintered alloys for valve mechanism parts and oil pump parts.

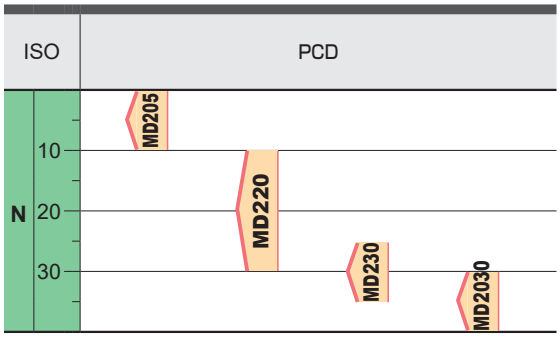
●Cast Iron

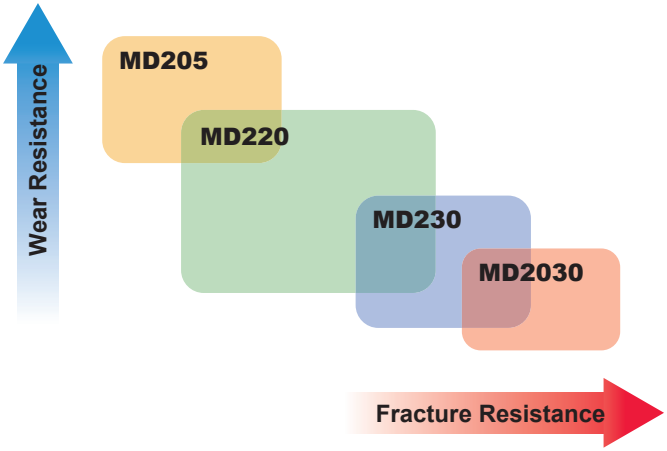




Lineup of grades available from general cutting to deep depth cutting for high efficiency machining.

●Aluminium Alloy





Suitable for cutting materials such as nonferrous metals and fiber reinforced plastics (FRP) including aluminium alloys.
It supports ultra high speed finish cutting.

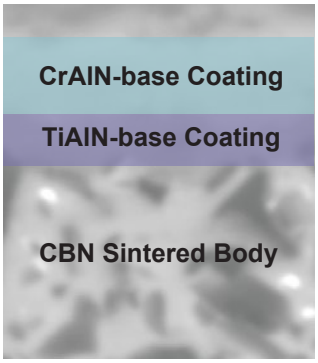
COATED CBN
BC8100 series for machining of hardened steel

FEATURES

The coated CBN grade BC8100 series and non-coated CBN grade MB8100 series for cutting of hardened steel uses new developed optimized substrate technology CBN base material. The new ultra-micro-binder prevents sudden fracturing and longer tool life. The BC8100 series coating exhibit excellent fracture resistance and wear resistance by using a special PVD coating suitable for each cutting mode.

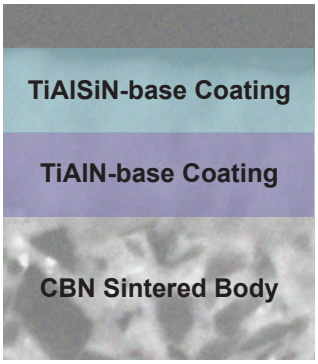
■ Newly Developed Special PVD Coating

BC8105



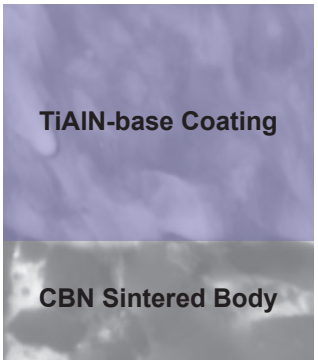
Offers excellent surface finishes.
Peeling resistance and adhesion strength are improved by having both lubricity and wear resistance.

BC8110



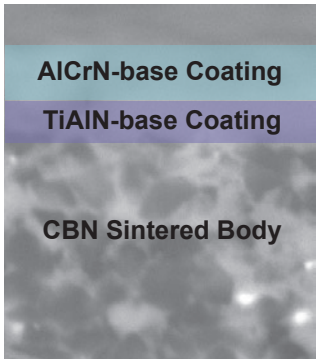
Chipping caused by built up edge is prevented with improved welding resistance.
Improved wear and adhesion strength to the CBN surface.

BC8120



Chipping caused by built up edge is prevented with improved welding resistance.
Improved adhesion to the coating to the CBN surface enhances peeling resistance.
The CBN is also improved in toughness by adopting new binder and sintering method.

BC8130

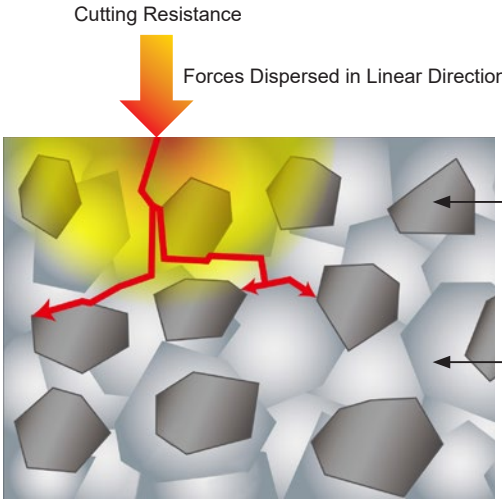


Peeling caused by severe impact and chipping are prevented with high fracture resistances.
Improved adhesion strength to the CBN surface.

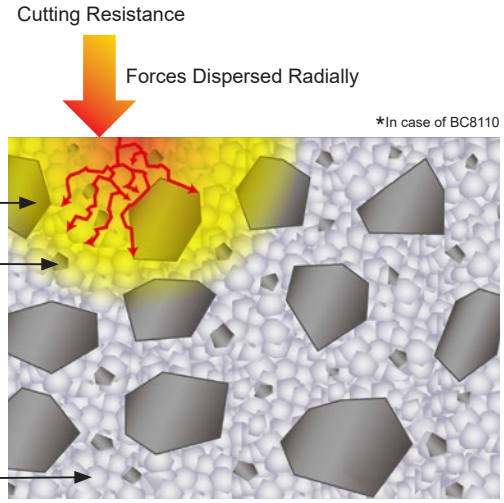
*Graphical representation.

■ The newly developed Ultra Micro-particle Binder prevents sudden fracture

●Conventional

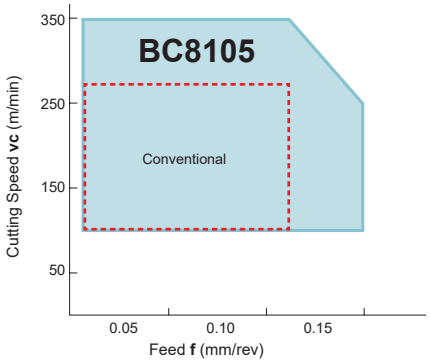


●BC8100 Series

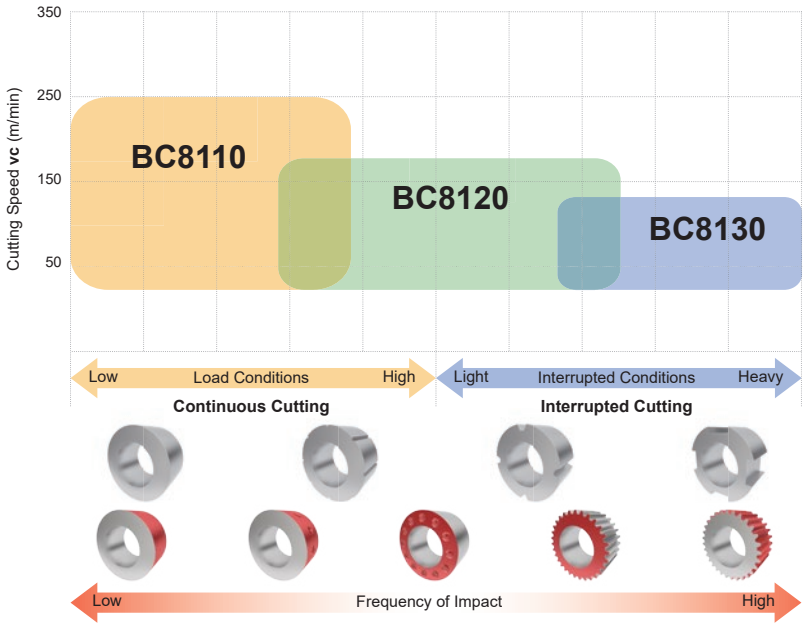


Dispersal of the newly developed Ultra Micro-particle Binder for sintered CBN and Micro Grain CBN suppresses cracking to prevent sudden fracturing.

Application range



*BC8110 is recommended to improve wear resistance.



Recommended cutting conditions

	Grade	Cutting mode	Cutting Speed vc (m/min) 50 150 250 350	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
BC8100 Series	BC8105	Continuous		≤0.15	≤0.2	Dry, Wet
	BC8110	Continuous		≤0.20	≤0.35	Dry, Wet
	BC8120	Continuous		≤0.3	≤0.5	Dry, Wet
		Interrupted		≤0.2	≤0.3	Dry, Wet
	BC8130	Interrupted		≤0.20	≤0.30	Dry, Wet

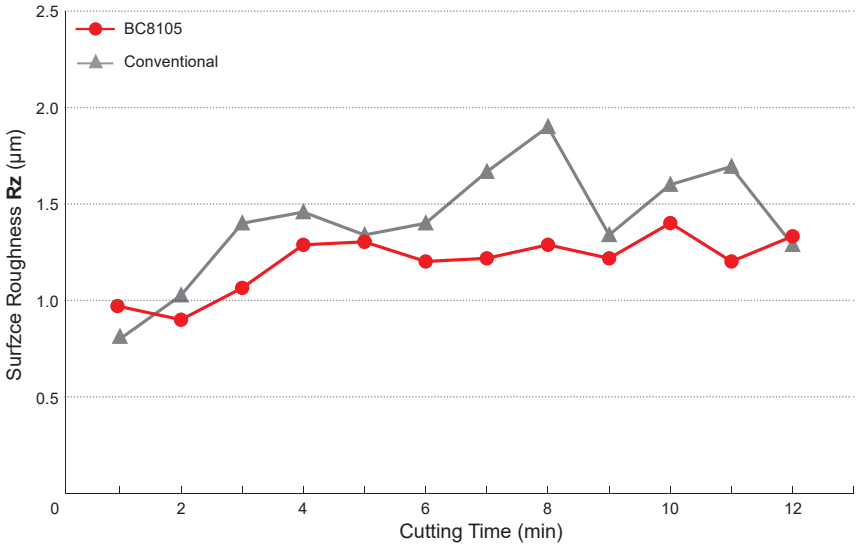
COATED CBN
BC8100 series for machining of hardened steel

■ Cutting example and application example

BC8105 Highest Accuracy

Use of a CBN substrate with excellent wear resistance and chipping resistance, together with a high-lubricity coating film, controls the occurrence of boundary wear and exhibits outstanding surface roughness.

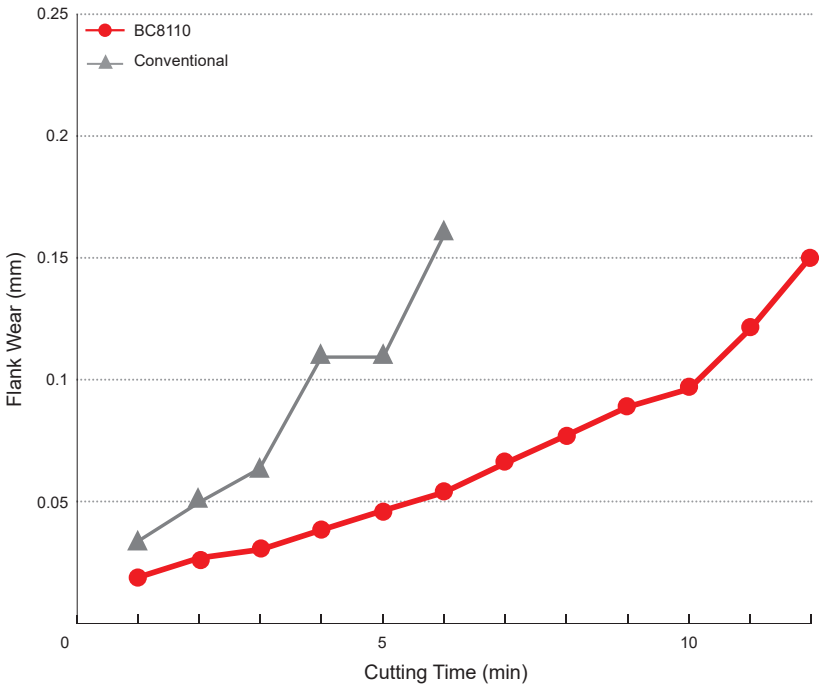
Suitable for finishing with surface roughness Ra 0.6 µm or Rz 2.4 µm or less.



Insert	NP-CNGA120408GS2
Workpiece Material	AISI 5120 (60 HRC)
Machining Methods	External Continuous Cutting
Cutting Speed vc (m/min)	200
Feed f (mm/rev)	0.05
Depth of Cut ap (mm)	0.05
Cutting Mode	Dry Cutting

BC8110 High Speed Turning

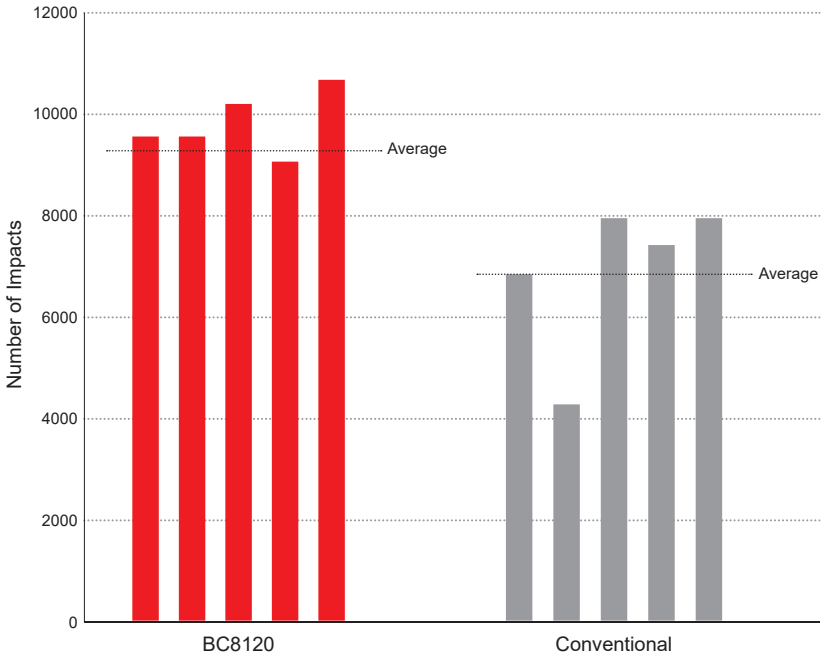
Use of a CBN substrate with excellent wear resistance and chipping resistance, together with an extremely hard coating film, provides the highest flank wear resistance of the entire BC8100 series.



Insert	NP-CNGA120408GS2
Workpiece Material	AISI 5120 (60 HRC)
Machining Methods	External Continuous Cutting
Cutting Speed vc (m/min)	250
Feed f (mm/rev)	0.10
Depth of Cut ap (mm)	0.2
Cutting Mode	Dry Cutting

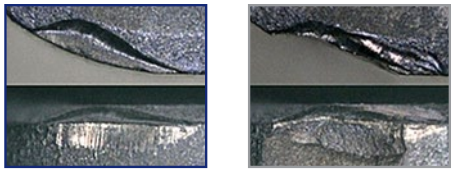
BC8120 General Application

Use of a CBN substrate with excellent fracture resistance and crater wear resistance, together with a coating film having superior wear resistance, combines both fracture resistance and wear resistance while exhibiting outstanding crater wear resistance.



Number of Impacts before Fracturing

Cutting Edge Condition after 8000 Impacts

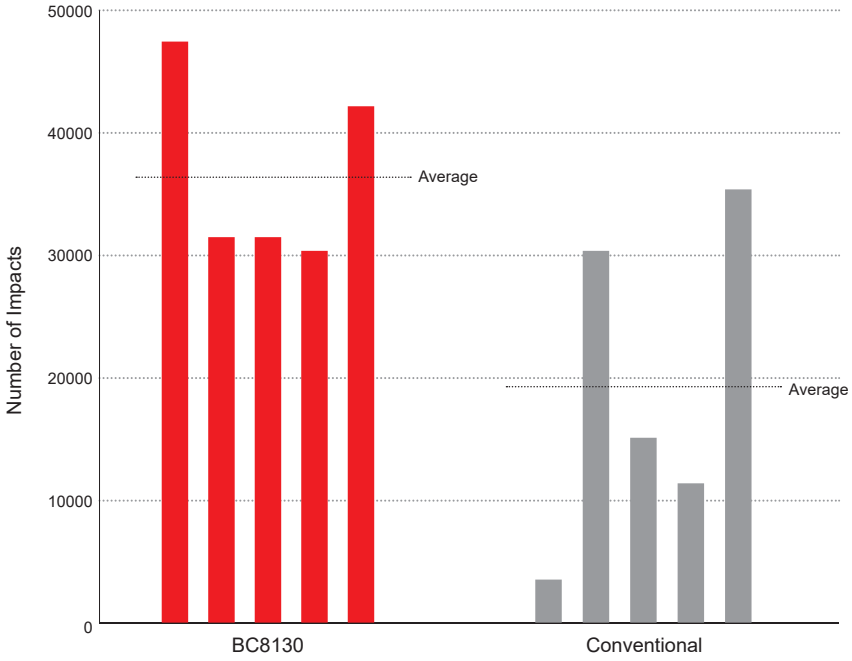


BC8120 Conventional

Insert	NP-CNGA120408GA2
Workpiece Material	AISI 5120 (60 HRC)
Machining Methods	External Interrupted Cutting
Cutting Speed vc (m/min)	250
Feed f (mm/rev)	0.15
Depth of Cut ap (mm)	0.1
Cutting Mode	Dry Cutting

BC8130 Tough Machining

Use of a CBN substrate with excellent cutting edge strength, together with a coating film that combines hardness with impact resistance, allows it to exhibit outstanding cutting edge strength and fracture resistance.



Number of Impacts before Fracturing

Insert	NP-CNGA120408GA2
Workpiece Material	AISI 5120 (60 HRC)
Machining Methods	External Heavy Interrupted Cutting
Cutting Speed vc (m/min)	250
Feed f (mm/rev)	0.05
Depth of Cut ap (mm)	0.1
Cutting Mode	Wet Cutting

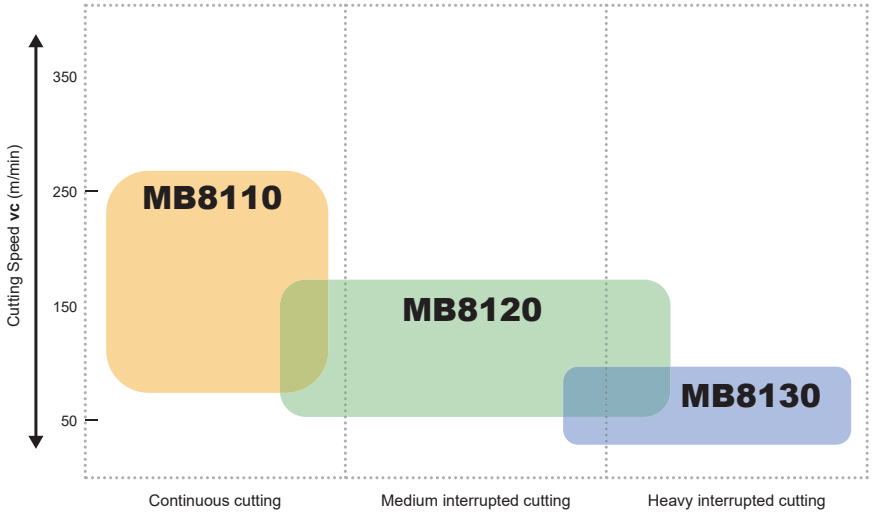
NON-COATED CBN

BC8100 series for machining of hardened steel

FEATURES

The MB8100 series CBN base material uses the optimized substrate technology (see B006) applied to the BC8100 series to prevent sudden defects during cutting and achieve long life.
The MB8100 series has a lineup of MB8110 for continuous cutting, MB8120 for general cutting, and MB8130 for interrupted cutting, and can be used in a wide range of cutting applications.

■ Application range



■ Recommended cutting conditions

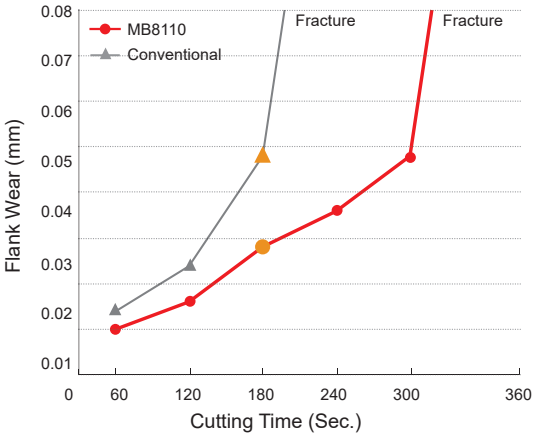
Grade	Cutting mode	Cutting Speed vc (m/min) 50 100 150 200 250 300	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
MB8100 Series MB8110	Continuous		≤0.2	≤0.3	Dry, Wet
MB8120	Continuous		≤0.2	≤0.5	Dry, Wet
	Interrupted		≤0.2	≤0.3	Dry, Wet
MB8130	Interrupted		≤0.2	≤0.3	Dry, Wet

■ Application example

MB8110 Continuous cutting

Tool Life (Flank Wear)

Insert	NP-CNGA120408GA2
Workpiece Material	AISI 5120 (60 HRC)
Machining Methods	External Continuous Cutting
Cutting Speed **vc** (m/min)	250
Feed **f** (mm/rev)	0.1
Depth of Cut **ap** (mm)	0.2
Cutting Mode	Dry Cutting



Cutting Edge after 180 sec.

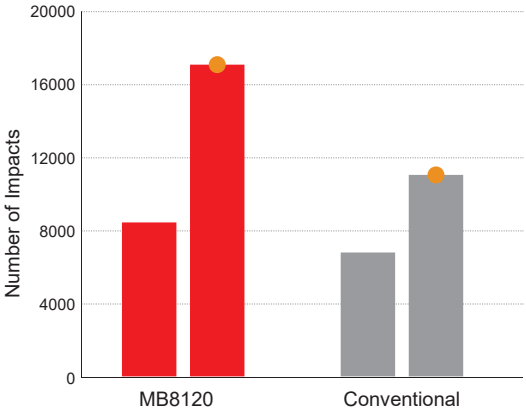

MB8110

Conventional

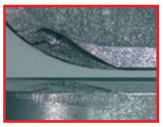
MB8120 General Application

Test of Interrupted Cutting

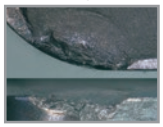
Insert	NP-CNGA120408GA2
Workpiece Material	AISI 5120 (60 HRC)
Machining Methods	External Interrupted Cutting
Cutting Speed **vc** (m/min)	250
Feed **f** (mm/rev)	0.15
Depth of Cut **ap** (mm)	0.1
Cutting Mode	Dry Cutting



17000 Impacts


MB8120

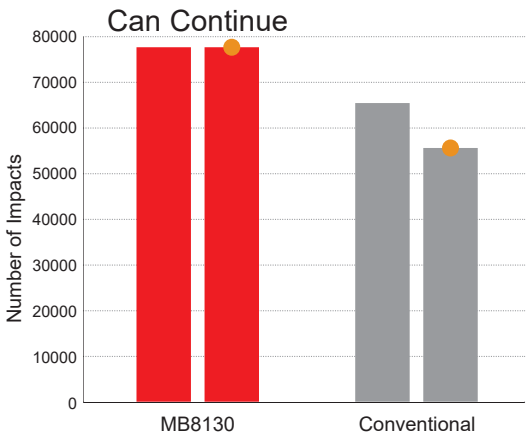
11000 Impacts


Conventional

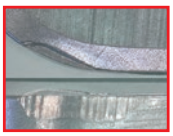
MB8130 Interrupted cutting

Test of Interrupted Cutting

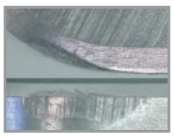
Insert	NP-CNGA120408GA2
Workpiece Material	AISI 5120 (60 HRC)
Machining Methods	External Heavy Interrupted Cutting
Cutting Speed **vc** (m/min)	150
Feed **f** (mm/rev)	0.05
Depth of Cut **ap** (mm)	0.1
Cutting Mode	Wet Cutting



77000 Impacts


MB8130

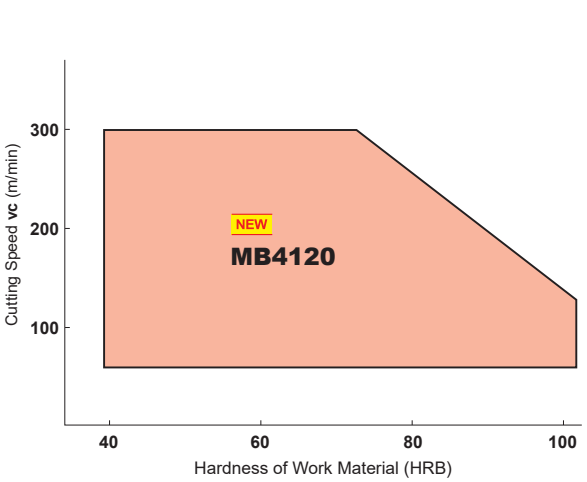
54000 Impacts


Conventional

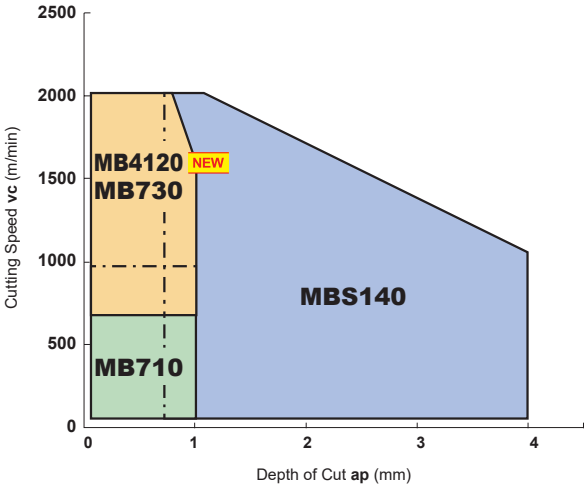
NON-COATED CBN
Sintered Alloy Machining • Cast Iron Machining
MB4120/MB710/MB730/MBS140

■ Application Range

●Sintered Alloy Machining



●Cast Iron Machining



■ Recommended Cutting Conditions

●Sintered Alloy Machining

Work Material	Application range	Grade	Cutting Speed vc (m/min) 100 150 200 250 300	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
General Sintered Alloy	General Cutting	MB4120 NEW		≤0.2	≤0.3	Dry, Wet
High Density Sintered Alloy	General Cutting	MB4120 NEW		≤0.2	≤0.3	Dry, Wet
Sintered Alloy	General Cutting	MB4120 NEW		≤0.2	≤0.3	Dry, Wet

●Cast Iron Machining

Work Material	Application range	Grade	Cutting Speed vc (m/min) 250 500 750 1000 1250 1500	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
Gray Cast Iron JIS FC250, JIS FC300	General Cutting	MB4120 NEW		≤0.4	≤0.5	Dry, Wet
	General Cutting	MB730		≤0.5	≤1.0	Dry, Wet
	General Cutting	MB710		≤0.5	≤1.0	Dry, Wet
	Heavy Cutting	MBS140		≤0.5	≤5	Dry, Wet

MB4120

● The first recommendation that can be widely used for continuous to interrupted cutting of sintered alloy and cast iron.

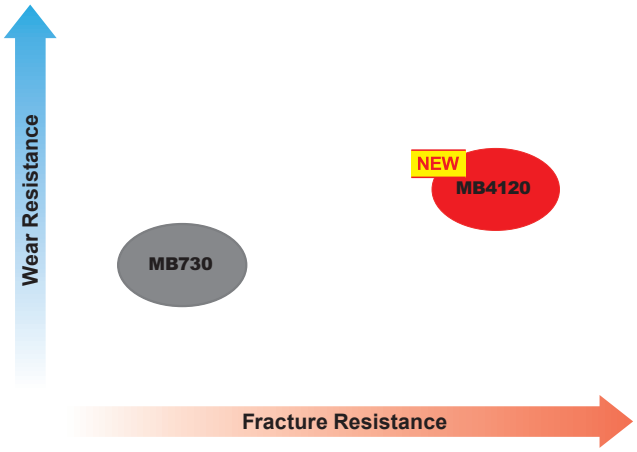
FEATURES

High Fracture Resistance

Fine CBN particles increase cutting edge toughness. The high fracture resistance allows stable performance even during interrupted machining.

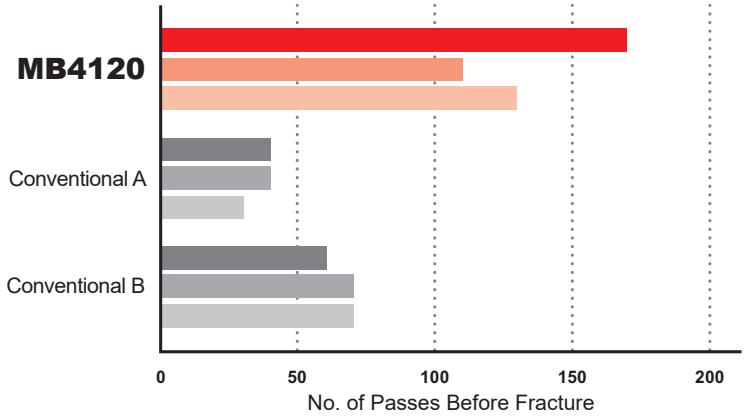
High Adhesion Strength of Fine CBN Particles

Optimization of the sintering conditions strengthens adhesion between fine CBN particles. This increases both fracture resistance and wear resistance.



■ Application Example

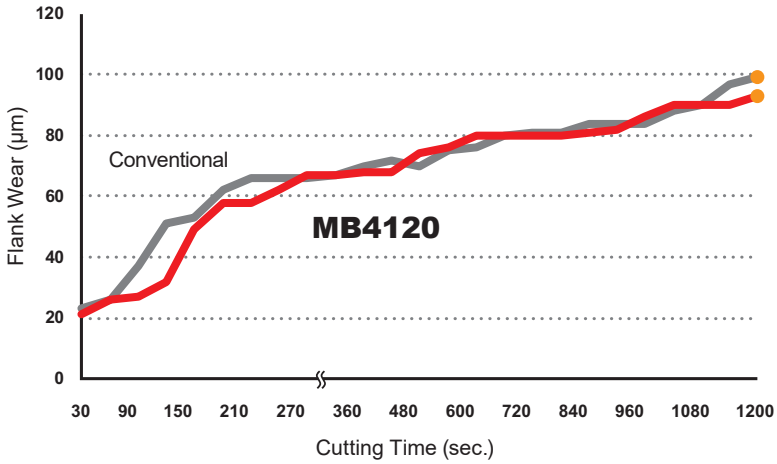
Fracture Resistance Comparison During Interrupted Facing of High Strength Sintered Alloy

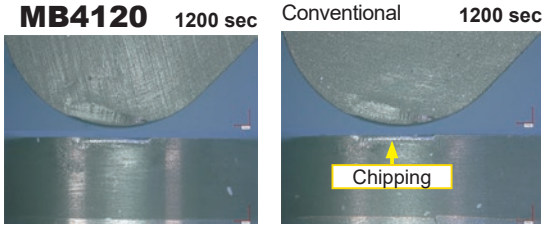


<Cutting Conditions>
Work Material : High Strength Sintered Alloy
Insert : NP-TNGA160408SE3
Cutting Speed : vc=150m/min
Feed : f=0.15mm/rev
Depth of Cut : ap=0.1mm
Cutting Mode : Wet Cutting

Excellent chipping resistance in interrupted face cutting of gear.

Comparison in Continuous Machining of AISI No 35 B





<Cutting Conditions>
Work Material : AISI No 35 B (Perlite)
Insert : NP-TNGA160408SF3
Cutting Speed : vc=800m/min
Feed : f=0.1mm/rev
Depth of Cut : ap=0.2mm
Cutting Mode : Dry Cutting

It has excellent fracture resistance as compared to conventional products.

SOLID CBN

Cast Iron Machining MBS140

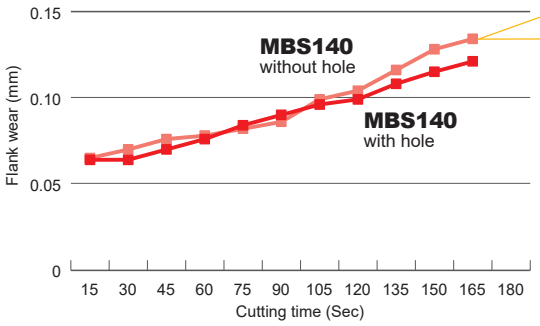
FEATURES

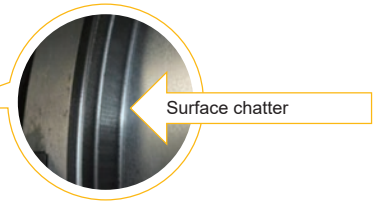
Supports high-efficiency machining with large depths of cut.

Since all inserts are CBN sintered bodies, there are no limits to the depths of cut as with CBN brazing tools, allowing machining with large depths of cut. For rough machining of cast iron, high-speed, high-efficiency machining, which is a characteristic of CBN tools, can be achieved.

Combines wear resistance and fracture resistance

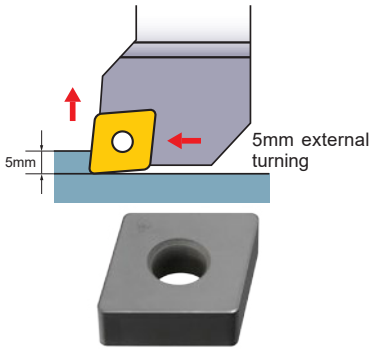
Use of micro-grain CBN with a newly-developed special binder provides high wear resistance.
Use of Mitsubishi's original high-efficiency sintering technology provides high fracture resistance and supports machining with large depths of cut.





<Cutting Conditions>
Workpiece : FC250 (DIN GG25)
Insert : CNGA120408/CNGN120408
Holder : Double Clamp Holder
Cutting Speed : vc=400 m/min
Feed : f=0.05 mm/rev
Depth of Cut : ap=5.0 mm
Cutting Mode : Wet Cutting

Addition of insert series equipped with holes
Comparison of depth of cut
5mm face turning



CBN

FOR CYLINDER LINER MB5015

***Produce to order only.**

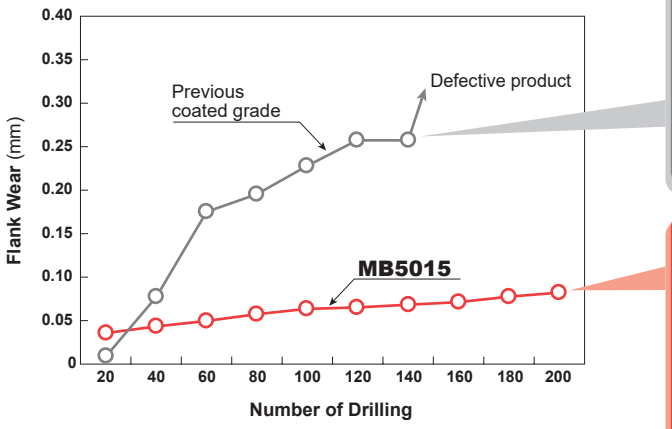
FEATURES

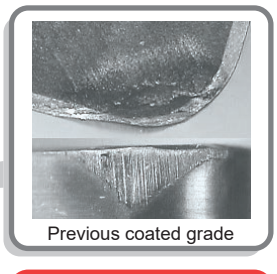
MB5015 is exclusive grade for boring of Centrifugal casting Cylinder liners in semi finishing or finishing applications with high with high wear resistance.

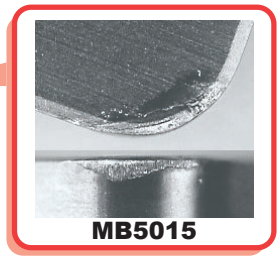
Recommended Cutting Conditions

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

Cutting Performance







<Cutting Conditions>
Workpiece : FC200 (Centrifugal casting) ϕ63.0
Cutting Speed : vc=800m/min Feed : f=0.35mm/rev Depth of Cut : ap=0.03mm
Work : Centrifugal casting Cylinder liner Hole Depth : 100mm

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.

●Heat Treated Steel

Work Material		Type	Cutting Mode	Recommended Grade	Recommended Cutting Conditions			
					Cutting Speed vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
Structural Steel Esp. Carburized Steel (SC, SCM, SCr) High Alloy Steel (SKD, SKH)	35—65 HRC	Coated	High speed finishing cutting	**BC8105**	250 (100—350)	≤0.15	≤0.2	Dry,Wet
			Continuous cutting for general purpose	**BC8110**	200 (100—300)	≤0.2	≤0.35	Dry,Wet
				BC8120	200 (100—230)	≤0.3	≤0.8	Dry,Wet
			Medium interrupted cutting	**BC8120**	150 (60—200)	≤0.2	≤0.3	Dry,Wet
			Interrupted cutting	**BC8130**	120 (60—150)	≤0.2	≤0.3	Dry,Wet
		Non-coated	Continuous cutting for general purpose	NEW **MB8110**	200 (100—250)	≤0.2	≤0.3	Dry,Wet
				NEW **MB8120**	150 (80—220)	≤0.2	≤0.5	Dry,Wet
			Medium interrupted cutting	NEW **MB8120**	130 (85—180)	≤0.2	≤0.3	Dry,Wet
			Interrupted cutting	NEW **MB8130**	100 (60—150)	≤0.2	≤0.3	Dry,Wet

●Cast Iron

Work Material		Workpiece Structure	Cutting Speed vc (m/min) 250 500 750 1000 1250	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
Gray Cast Iron	JIS FC250	Ferritic + Pearlitic	MBS140, MB710, MB730, MB4120 NEW	—0.5	—1.0 MBS140 —5.0	Dry,Wet
	JIS FC300	Pearlitic				
Alloy Cast Iron		Pearlitic		—0.4	—0.5	Dry,Wet
Ductile Cast Iron	JIS FCD400	Ferritic	MB710, MB730	—0.4	—0.5	Dry,Wet
	JIS FCD700	Ferritic + Pearlitic Pearlitic				

●Sintered Alloy

Work Material	Recommended Grade	Recommended Cutting Conditions		
		Cutting Speed vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
General Sintered Alloy	NEW **MB4120**	180 (80—300)	—0.2	—0.3
High Density Sintered Alloy	NEW **MB4120**	150 (80—230)	—0.2	—0.3
Sintered Alloy	NEW **MB4120**	130 (80—180)	—0.2	—0.3

●Valve Seat

Amount of Hard Particles	None or Small ⟷ Large			
Hardness of Workpiece (HV)	150	250	300	350
Plunge Cut	NEW MB4120, MB4020	MB825	MB835	
Traverse Cut	NEW MB4120, MB4020	MB710	MB825	

●Roll

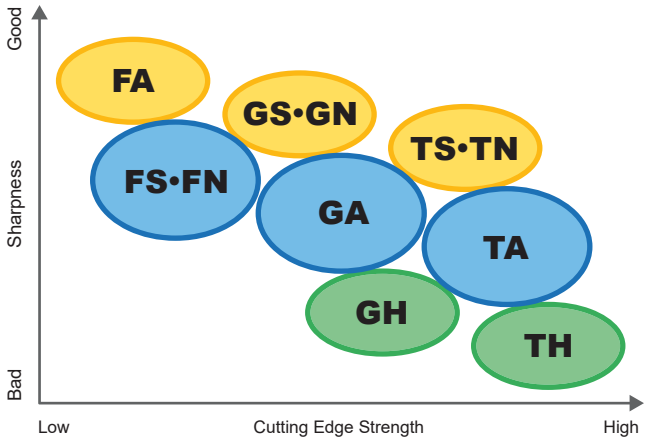
Work Material	Grade	Recommended Cutting Conditions		
		Cutting Speed vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
Cast Steel Adamite Cast Steel	**MB8025**	80 (30—130)	0.3 (0.1—0.5)	0.2—3.0
Ductile Cast Iron Granular Cast Iron Chilled Cast Iron	**MB710**	80 (30—130)	0.3 (0.1—0.5)	0.2—3.0
High Chromium 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 vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
Ni Base Heat Resistant Alloy (e.g. Inconel)	**MB730, MB8025**	120 (100—150)	—0.2	—0.5
Co Base Heat Resistant Alloy (e.g. Stellite)	**MB730, MB8025**	70 (50—100)	—0.2	—0.5

HONING

Honing for Machining Hardened Steel

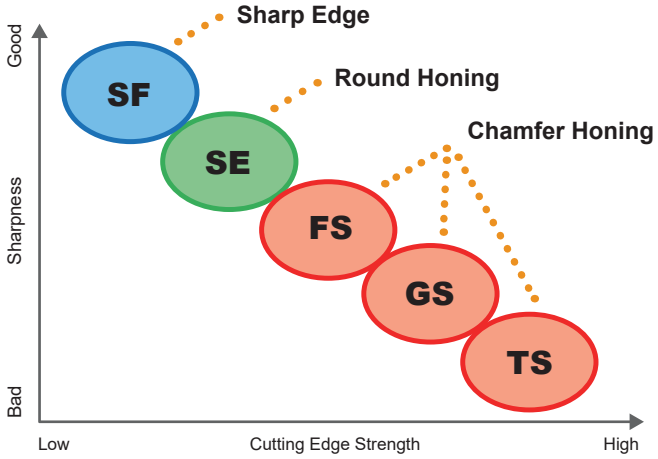


● General cutting
GA Honing : General machining
GS Honing : Vibration and burr control
GN Honing : If the crater wear is large.
GH Honing : For depths of cut of 0.15 or greater

● Continuous cutting, Stable cutting
FS Honing : General machining
FA Honing : For improved biting compared to **FS**
FN Honing : if the crater wear is large.

● Medium and heavy interrupted cutting, Unstable cutting
TA Honing : General machining
TS Honing : Vibration and burr control
TN Honing : If the crater wear is large.
TH Honing : For depths of cut of 0.15 or greater

Honing for Machining Sintered Alloys

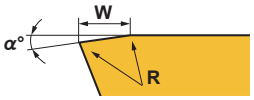


● Continuous cutting, Stable cutting
FS Honing : Continuous cutting, General machining

● Medium and heavy interrupted cutting, Unstable cutting
GS,TS Honing : If fracturing occurs at the blade edge during interrupted cutting

● Focus on high-precision cutting, dimensional precision, and surface roughness
SF Honing : Focus on finished surface roughness
SE Honing : If chipping occurs

NP-CNGA120408-G A 2



Main Application — Edge Honing Type

(mm)

	A General			S Vibration and burr control			N Crater wear control			H High efficiency			F Focus on dimensional precision			E Chipping control		
	α	W	R	α	W	R	α	W	R	α	W	R	α	W	R	α	W	R
F Continuous cutting	15°	0.1	0	15°	0.1	0.01	15°	0.05	0.01	—	—	—	—	—	—	—	—	—
G General cutting	25°	0.13	0.03	25°	0.13	0.01	25°	0.05	0.01	25°	0.27	0.03	—	—	—	—	—	—
T Interrupted cutting	35°	0.13	0.03	35°	0.13	0.01	35°	0.05	0.01	35°	0.27	0.03	—	—	—	—	—	—
S High-precision cutting	—	—	—	—	—	—	—	—	—	—	—	—	0°	0	0	0°	0	0.01

Conventional honing shapes
F honing : 0.1mm×15°+R0
G honing : 0.13mm×25°+R0.03
T honing : 0.13mm×35°+R0.03

CBN BREAKER INSERT

FEATURES

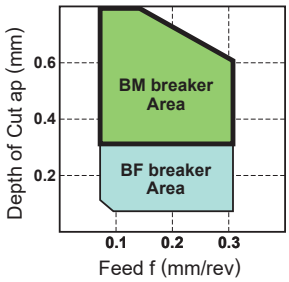
Chip Breaker Geometry Designed for Excellent Chip Control

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.

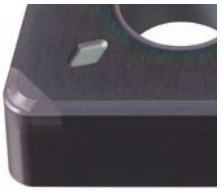
Long Life Coated CBN Grade

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

■Application Area



■ BM Breaker (Deep shoulder Turning)

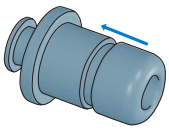


Good for deep depth cutting of carburized layer.

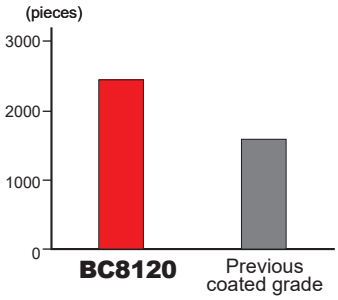
Recommend and under ap=0.6mm

Available in BC8120 grade.

●Cutting Performance

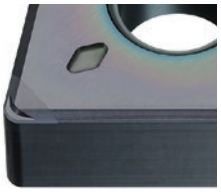


<Cutting Conditions>
Workpiece : AISI 4142 (56-59HRC)
Component : Counter shaft (External interrupted cutting)
Insert : BM-DNGM150608TA2
Cutting Speed : vc= 170m/min
Feed : f= 0.15mm/rev
Depth of Cut : ap= 0.07 — 0.10mm
Cutting Mode : Wet Cutting



BC8120 achieved 1.5X longer tool life.

■ BF Breaker (Light cutting depth)

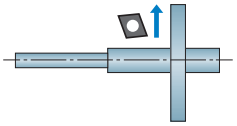


Good for chip removal under light depth and feed cutting.

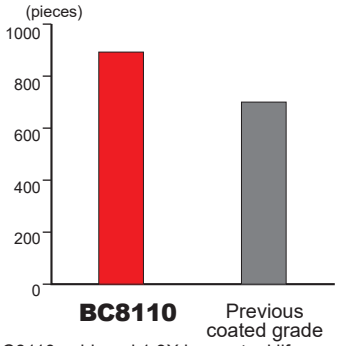
Recommend and under ap=0.3mm

Available in BC8110 grade.

●Cutting Performance



<Cutting Conditions>
Workpiece : SCr420H (61-65HRC)
Component : Clutch shaft (Continuous facing)
Cutting Speed : vc=150m/min
Feed : f=0.12mm/rev
Depth of Cut : ap=0.15mm
Wet Cutting



BC8110 achieved 1.3X longer tool life.

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

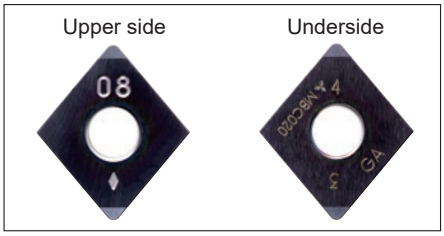
No. of Cutting Edge Corners

Single Sided, multi-corner type insert, ex.

NP-CNGA120408GA2

No. of Cutting Edge Corners

Double sided, Multi-corner type insert



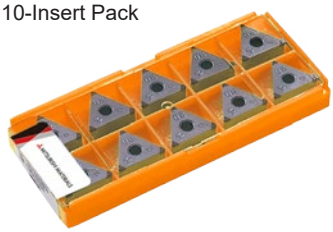
10-INSERTS PACKS

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

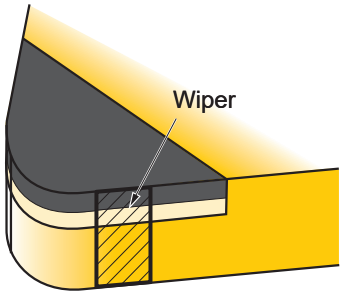
10-Insert Pack Symbol

10-Insert Pack



WIPER INSERT

FEATURES



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.

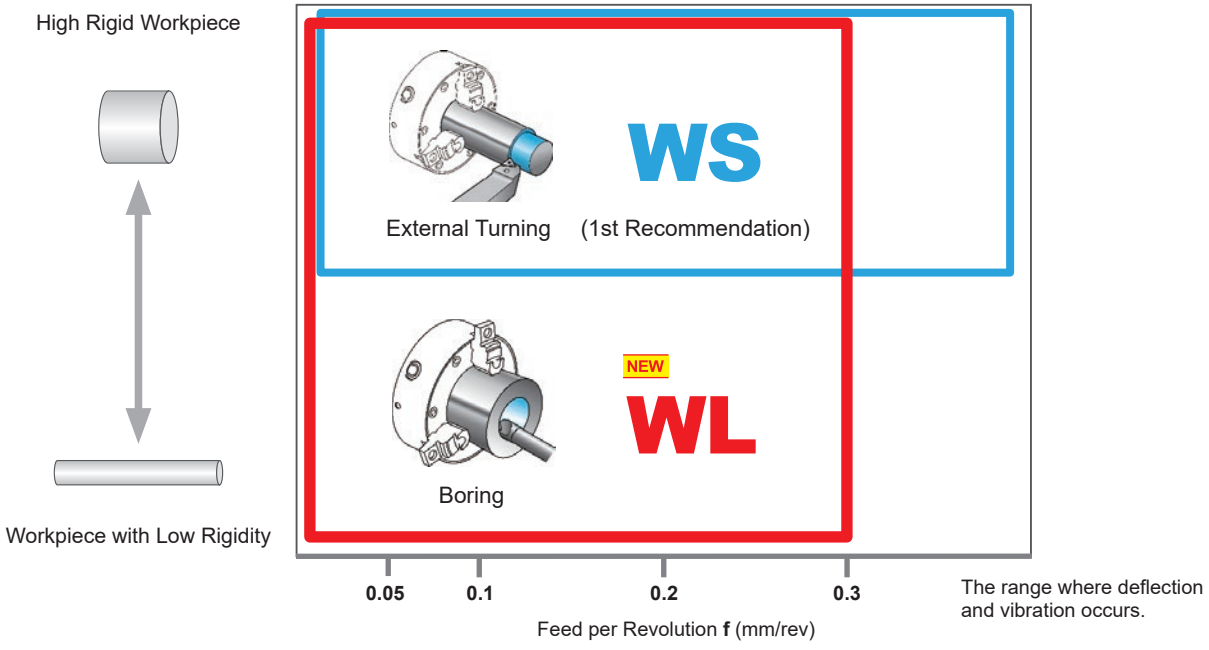
Increased Tool Life

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.

■ Application of Wiper Inserts



NEW

■ WL Wiper Insert

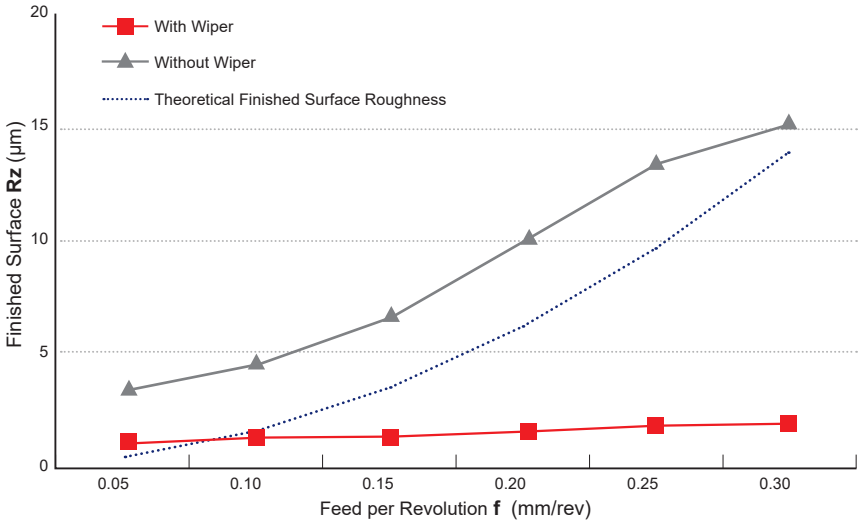
Preventing the cutting edge from vibration during boring and turning of small diameter workpieces as well as providing excellent finish surface roughness.

The Optimum Wiper Width

Applying slight slope on the wiper cutting edge reduces cutting resistance.

■ Cutting Performance

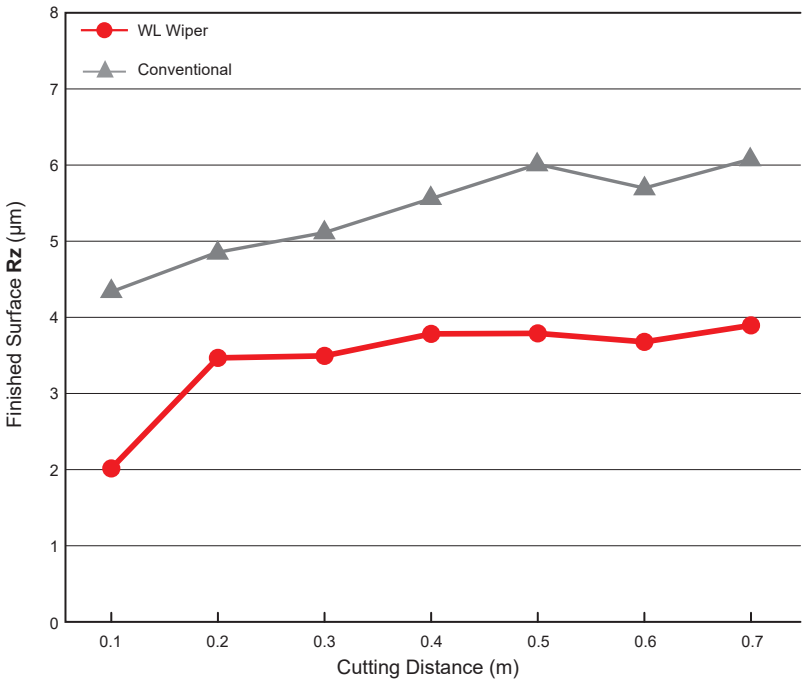
WL Wiper (External Turning)



<Cutting Conditions>
Workpiece Material : Hardened Steel (60HRC)
Insert : NP-CNGA120408
Machining Methods : Continuous
Cutting Speed : vc=120m/min
Depth of Cut : ap=0.1mm
Cutting Mode : Dry Cutting

NEW

WL Wiper (Boring)



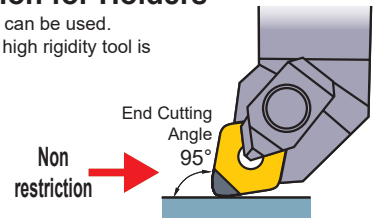
<Cutting Conditions>
Workpiece Material : SCr415 (60HRC)
Insert : NP-CNGA120408FBWL2
Machining Methods : Continuous
Cutting Speed : vc=160m/min
Feed : f=0.3mm/rev
Depth of Cut : ap=0.1mm
Cutting Mode : Dry Cutting

Stable surface finish is maintained even in unstable cutting.

■ Notes for Use

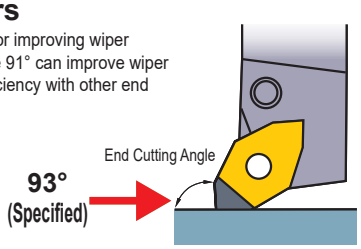
No Restriction for Holders

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.).



CBN GROOVING SERIES
(GY/MG)

FEATURES

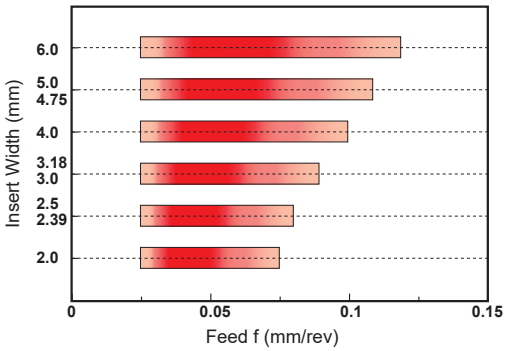
A combination with a high rigidity holder ensures high accuracy and long tool life.

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.

BC8110 coated materials for continuous machining of hardened steel have been added to GY inserts.

BC8110 materials with excellent wear resistance have been added. Compared to conventional materials, they display excellent wear resistance to achieve long tool life. A blade width of 6.0 has also been added to the lineup of BC8110.

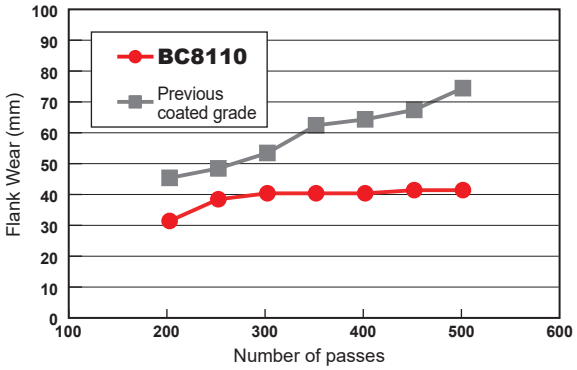
■ Recommended Cutting Conditions



Work Material		Hardness	Grade	Cutting Speed vc (m/min)	Cutting Mode
H	Hardened Steel	35—65HRC	**BC8110** **MB8025**	100 (60—120)	Dry,Wet

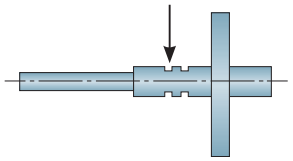
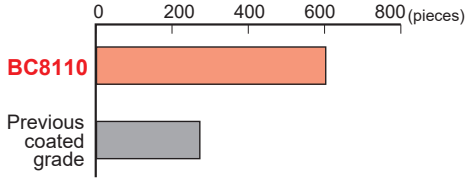
■ Cutting Performance

Tool life evaluation for the GY holder



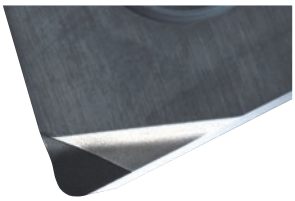
<Cutting Conditions>
Insert : GY1G0200D020N-GFGS
Workpiece : SCr420 (60HRC)
Cutting Speed : vc=120 m/min
Feed : f=0.1 mm/rev
Depth of Cut : ap=0.3 mm
Cutting Mode : Dry Cutting

■ Application Example

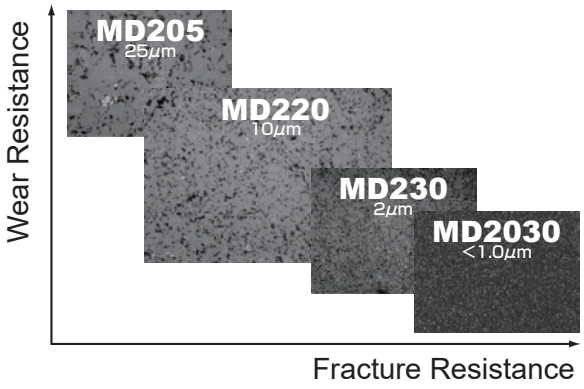
Insert		**GY1G0300F020N-GFGS** (Grade : **BC8110**)
Workpiece		 SNCM230H (58—62HRC)
Component		Input shaft
Cutting Conditions	Cutting Speed vc (m/min)	130
Cutting Conditions	Feed f (mm/rev)	0.1
Result		 Tool life over twice as long as conventional products

PCD (SINTERED DIAMOND)

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



FEATURES



Grade	Features
MD205	**For Continuous Cutting** Coarse grain diamond particles are sintered and wear resistance is excellent. Use when wear resistance with MD220 is insufficient.
MD220	**Materials for General Machining** Sintered medium grain diamond particles. Wear resistance and fracture resistance are superbly balanced. Applicable to general finishing of non-ferrous metals, non-metal cutting, and similar machining.
MD230	**For Interrupted Cutting** Fine grain diamond particles are used. Fracture resistance and cutting edge sharpness are excellent. Use when fracture and a high quality finished surface is demanded with MD220.
MD2030	**For Heavy Interrupted Cutting** Strong sintering of ultra micro-grain PCD particles provides exceptional fracture resistance. Chipping during high-speed finish turning can be controlled.

■ SELECTION STANDARD

TURNING

Work Material	Recommended Grade			Recommended Cutting Conditions		
	MD205	MD220	MD2030	Cutting Speed vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
Aluminium Alloy (Si ≤ 12%)		◎	○	800 (200—1200)	—0.2	—1.0
Aluminium Alloy (Si ≥13%)	◎	○		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.

■ NEW PETIT CUT INSERT SERIES

- **Economical** Low cost is achieved by reducing the area of the diamond sintered body. In addition, tool management is economical because regrinding is unnecessary.
- **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.

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_○4 → B028	NP-DNGA_○4 → B032	NP-SNGA_○4 → B037	NP-TNGA_○6 → B039	NP-VNGA_○4 → B042	NP-WNGA_○6 → B044
	Multi-corner Type Double Sided With Wiper		Flat Top	NP-CNGA_○WS4 → B028					
	Multi-corner Type Double Sided With Breaker		BF	BF-CNGG_○4 → B028	BF-DNGG_○4 → B033				
	Multi-corner Type Double Sided With Breaker		Flat Top	NP-CNGA_○2 * → B029	NP-DNGA_○2 * → B033	NP-SNGA_○2 * → B037	NP-TNGA_○3 * → B039	NP-VNGA_○2 * → B042	NP-WNGA_○3 → B044
	Multi-corner Type Single Sided With Wiper		Flat Top	NP-CNGA_○W○2 → B030	NP-DNGA_○WS2J_R/L → B035				NP-WNGA_○WS3 → B044
	Multi-corner Type Single Sided With Breaker		BF	BF-CNGM_○2 → B030	BF-DNGM_○2 → B035				
	Multi-corner Type Single Sided With Breaker		BM	BM-CNGM_○2 → B030	BM-DNGM_○2 → B035		BM-TNGM_○3 → B040		
	One-corner Type Single Sided	M	Flat Top	NP-CNMA_○ → B031	NP-DNMA_○ → B036	NP-SNMA_○ → B038	NP-TNMA_○ → B040	NP-VNMA_○ → B043	
	One-corner Type Single Sided With Breaker		R/L-F	NP-CNMM_R/L-F → B068	NP-DNMM_R/L-F → B068	NP-SNMM_R/L-F → B069	NP-TNMM_R/L-F → B069	NP-VNMM_R/L-F → B070	

Note1) 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	Multi-corner Type Double Sided (Solid CBN)	G	Flat Top	CNGA  B031		SNGA  B038	TNGA  B041		
	One-corner Type Single Sided	M	Flat Top	CNMA  B031, B068					
	One-corner Type Single Sided	G	Flat Top		DNGA  B036, B068	SNGA  B038, B069	TNGA  B041, B069	VNGA  B043, B070	

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	Flat Top					NP-VBGW_○2  B061	
	One-corner Type Single Sided		Flat Top					NP-VBGW_○  B062	
	One-corner Type Single Sided With Breaker		R-F					NP-VBGT_R-F  B077	

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 Single Sided	G	Flat Top	NP-CCGW/B_○2 * → B049	NP-DCGW_○2 * → B054		NP-TCGW_○3 → B057	NP-VCGW_○2 → B062	
	Multi-corner Type Single Sided With Wiper	G	Flat Top	NP-CCGW_○W○2 → B050					
	Multi-corner Type Single Sided With Breaker	G	BF	BF-CCGT_○2 → B051	BF-DCGT_○2 → B055				
	Multi-corner Type Single Sided With Breaker	G	BM	BM-CCGT_○2 → B051	BM-DCGT_○2 → B055				
	One-corner Type Single Sided	M	Flat Top	NP-CCMB_○ → B051					
	One-corner Type Single Sided With Breaker	M	Standard	NP-CCMH → B072					
	One-corner Type Single Sided	G	Flat Top	NP-CCGW_○ → B051	NP-DCGW_○ → B056				
	One-corner Type Single Sided	M	Flat Top	NP-CCMW_○ → B052	NP-DCMW_○ → B056				NP-WCMW_○ → B063
	One-corner Type Single Sided	M	Flat Top	NP-CCMW → B072					
	One-corner Type Single Sided With Breaker	M	R/L-F		NP-DCMT_R/L-F → B073				
	One-corner Type Single Sided With Breaker	G	R-F					NP-VCGT_R-F → B077	
STANDARD	Multi-corner Type Single Sided	G	Flat Top	CCGW → B052	DCGW → B056		TCGW → B057		
	One-corner Type Single Sided	M G	Flat Top	CCMW → B052, B072	DCMW → B056, B073		TCMW TCGW → B057, B074		WCMW → B078

Note1) 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_○2  B053			NP-TPGB_○3  B058		
	Multi-corner Type Single Sided		Flat Top				NP-TPGX_○3  B059		
	One-corner Type Single Sided	M	Flat Top	NP-CPMB_○  B053			NP-TPMB_○  B059		
	One-corner Type Single Sided With Breaker		Standard	NP-CPMH  B072					
	One-corner Type Single Sided	G	Flat Top				NP-TPGX_○  B059		
	One-corner Type Single Sided With Breaker	M	R/L-F				NP-TPMX_R/L-F  B075		
	One-corner Type Single Sided With Breaker		R/L-F				NP-TPMH_R/L-F  B075		
STANDARD	One-corner Type Single Sided With Breaker	G	Standard	CPGT  B072					WPGT  B078
	One-corner Type Single Sided		Flat Top			SPGX  B073	TPGX  B060, B076		
	One-corner Type Single Sided With Breaker		R/L-F				TPGT/V_R/L-F  B075, B076		

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  ➲ B080	

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  ➲ B079
One-corner Type Single Sided (For Aluminium With Breaker)		R/L-F 	DEGX_R/L-F  ➲ B079	
One-corner Type Single Sided (For Aluminium)		Flat Top 		TEGX  ➲ B079

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  B047, B071	TNGN  B048	
Multi-corner Type Double Sided (Solid CBN)	G	Flat Top	CNGN  B045	DNGN  B045	SNGN  B047	TNGN  B048	RNGN  B046

5° POSITIVE INSERTS WITHOUT HOLE

Type	Tolerance	Breaker Name and Cross Section	Triangular 60°	
Multi-corner Type Single Sided	G	Flat Top	TBGN  B065	

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  B064, B081	TPGN  B065, B081

SPECIAL PURPOSE INSERTS

Tool Holder Type	Tolerance	Inserts
GY Type	G	GY_GFGS  B066
MG Type	G	MGTR  B067
TL Type	G	RTG-A  B063

80° CN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN												Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
								NEW						NEW													
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140		IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CNGA120404FS4	●	●	●				●													12.7	4.76	0.4	1.9	5.16	EPSR 80° RE LE IC D1 S	C008 C009 E013 E036 E041 H006 −008
	NP-CNGA120408FS4	●	●	●				●													12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412FS4	●	●	●				●													12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GS4	●	●																		12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GS4	●	●																		12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GS4	●	●																		12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GA4			●	●		▲	●													12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GA4			●	●		▲	●													12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GA4			●	●		▲	●													12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GH4		●	●	●																12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GH4		●	●	●																12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GH4		●	●	●																12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404TS4		●																		12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408TS4		●																		12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412TS4		●																		12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404TA4			●	●		▲	●	●												12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408TA4			●	●		▲	●	●												12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412TA4			●	●		▲	●	●												12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404TH4			●	●				●												12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408TH4			●	●				●												12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412TH4			●	●				●												12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GN4						▲														12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GN4						▲														12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GN4						▲														12.7	4.76	1.2	2.3	5.16		
NEW PETIT CUT (With Wiper) *	NP-CNGA120404FSWS4	●	●	●				●													12.7	4.76	0.4	1.9	5.16	EPSR 80° RE LE IC D1 S	C008 C009 E013 E036 E041 H006 −008
	NP-CNGA120408FSWS4	●	●	●				●													12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412FSWS4	●	●	●				●													12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GAWS4			●	●				●												12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GAWS4			●	●				●												12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GAWS4			●	●				●												12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GSWS4	●	●																		12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GSWS4	●	●																		12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GSWS4	●	●																		12.7	4.76	1.2	2.3	5.16		
NEW PETIT CUT (With Breaker)	BF-CNGG120404TA4						▲														12.7	4.76	0.4	1.9	5.16	EPSR 80° RE LE IC D1 S	C008 C009 E013 E036 E041 H006 −008
	BF-CNGG120408TA4						▲														12.7	4.76	0.8	2.1	5.16		
	BF-CNGG120412TA4						▲														12.7	4.76	1.2	2.3	5.16		

* Please refer to B018 before using the wiper insert.

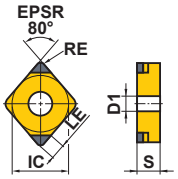
● = NEW

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

Work Material			Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
									NEW						NEW											
Shape		Order Number	BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
	H	Hardened Materials	●	●	●	✱	●	●	●	●	✱	●	●	●	✱												
	K	Cast Iron														●		●	●	✱							
	S	Heat-resistant Alloy, Titanium Alloy																	●								
		Sintered Alloy														●	●										
NEW PETIT CUT		NP-CNGA120402FS2		●					●												12.7	4.76	0.2	1.8	5.16		
		NP-CNGA120404FS2	●	●	●				●							●	●	●			12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408FS2	●	●	●				●			▲				●	●	●			12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412FS2	●	●	●				●			▲				●	●	●			12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120402GS2		●																	12.7	4.76	0.2	1.8	5.16		
		NP-CNGA120404GS2	●	●			▲									●	●	●	●		12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408GS2	●	●			▲					▲				●	●	●	●		12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412GS2	●	●			▲					▲				●	●	●	●		12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120402GA2			●				●												12.7	4.76	0.2	1.8	5.16		
		NP-CNGA120404GA2			●	●		▲	●			▲									12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408GA2			●	●		▲	●			▲									12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412GA2			●	●		▲	●			▲									12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404GH2		●	●	●															12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408GH2		●	●	●															12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412GH2		●	●	●															12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404TS2		●												●	●				12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408TS2		●												●	●				12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412TS2		●												●	●				12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404TA2			●	●		▲	●	●	▲			▲					●		12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408TA2			●	●		▲	●	●	▲			▲					●		12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412TA2			●	●		▲	●	●	▲			▲					●		12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404TH2			●	●				●											12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408TH2			●	●				●											12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412TH2			●	●				●											12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404GN2						▲													12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408GN2						▲													12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412GN2						▲													12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404G2										▲									12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408G2										▲									12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412G2										▲									12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404T2										▲									12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408T2										▲									12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412T2										▲									12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404SF2														●	●				12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408SF2														●	●				12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412SF2														●	●				12.7	4.76	1.2	2.3	5.16		
		NP-CNGA120404SE2														●	●				12.7	4.76	0.4	1.9	5.16		
		NP-CNGA120408SE2														●	●				12.7	4.76	0.8	2.1	5.16		
		NP-CNGA120412SE2														●	●				12.7	4.76	1.2	2.3	5.16		



C008
C009
E013
E036
E041
H006
–008

Cutting Conditions (Guide) :
● : Stable Cutting ● : General Cutting ✱ : Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

● = NEW

80° CN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN											Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT ✶2	TNP-CNGA120404G2										▲									12.7	4.76	0.4	1.9	5.16	EPSR 80° RE LE IC D1 S	C008 C009 E013 E036 E041 H006 —008
	TNP-CNGA120408G2										▲									12.7	4.76	0.8	2.1	5.16		
	TNP-CNGA120412G2										▲									12.7	4.76	1.2	2.3	5.16		
	TNP-CNGA120404T2										▲									12.7	4.76	0.4	1.9	5.16		
	TNP-CNGA120408T2										▲									12.7	4.76	0.8	2.1	5.16		
	TNP-CNGA120412T2										▲									12.7	4.76	1.2	2.3	5.16		
NEW PETIT CUT (With Wiper) ✶1	NP-CNGA120404FSWS2	●	●	●				●												12.7	4.76	0.4	1.9	5.16	EPSR 80° RE LE IC D1 S	C008 C009 E013 E036 E041 H006 —008
	NP-CNGA120408FSWS2	●	●	●				●												12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412FSWS2	●	●	●				●												12.7	4.76	1.2	2.3	5.16		
	NEW NP-CNGA120404FBWL2	●	●	●				●												12.7	4.76	0.4	1.9	5.16		
	NEW NP-CNGA120408FBWL2	●	●	●				●												12.7	4.76	0.8	2.1	5.16		
	NEW NP-CNGA120412FBWL2	●	●	●				●												12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GAWS2			●	●		▲	●			▲									12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GAWS2			●	●		▲	●			▲									12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GAWS2			●	●		▲	●			▲									12.7	4.76	1.2	2.3	5.16		
	NP-CNGA120404GSWS2	●	●			▲														12.7	4.76	0.4	1.9	5.16		
	NP-CNGA120408GSWS2	●	●			▲														12.7	4.76	0.8	2.1	5.16		
	NP-CNGA120412GSWS2	●	●			▲														12.7	4.76	1.2	2.3	5.16		
	NEW NP-CNGA120404GBWL2	●	●	●					●											12.7	4.76	0.4	1.9	5.16		
	NEW NP-CNGA120408GBWL2	●	●	●					●											12.7	4.76	0.8	2.1	5.16		
	NEW NP-CNGA120412GBWL2	●	●	●					●											12.7	4.76	1.2	2.3	5.16		
NEW PETIT CUT (With Breaker)	BF-CNGM120404TS2		●																	12.7	4.76	0.4	1.9	5.16	EPSR 80° RE LE IC D1 S	C008 C009 E013 E036 E041 H006 —008
	BF-CNGM120408TS2		●																	12.7	4.76	0.8	2.1	5.16		
	BF-CNGM120412TS2		●																	12.7	4.76	1.2	2.3	5.16		
	BF-CNGM120404TA2						▲													12.7	4.76	0.4	1.9	5.16		
	BF-CNGM120408TA2						▲													12.7	4.76	0.8	2.1	5.16		
	BF-CNGM120412TA2						▲													12.7	4.76	1.2	2.3	5.16		
NEW PETIT CUT (With Breaker)	BM-CNGM120404TA2			●																12.7	4.76	0.4	1.9	5.16	EPSR 80° RE LE IC D1 S	C008 C009 E013 E036 E041 H006 —008
	BM-CNGM120408TA2			●																12.7	4.76	0.8	2.1	5.16		
	BM-CNGM120412TA2			●																12.7	4.76	1.2	2.3	5.16		

✶1 Please refer to B018 before using the wiper insert.
✶2 The order number is for a 10-insert pack. Please specify order number, grade and quantity.

● = NEW

● : Inventory maintained in Japan. □ : Non stock, produced to order only.
▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.
(1 insert in one case)

Work Material			Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
									NEW						NEW											
Shape		Order Number	BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
	H	Hardened Materials	●	●	◐	✲	●	◐	●	◐	✲	◐	●	◐	✲												
	K	Cast Iron														◐		●	◐	✲							
	S	Heat-resistant Alloy, Titanium Alloy																	◐								
		Sintered Alloy														◐	◐										
NEW PETIT CUT		NP-CNMA120404GS																●	●		12.7	4.76	0.4	1.9	5.16	EPSR 80° LE RE IC D1 S	C008 C009 E013 E036 E041 H006 −008
		NP-CNMA120408GS																●	●		12.7	4.76	0.8	2.1	5.16		
		NP-CNMA120412GS																●	●		12.7	4.76	1.2	2.3	5.16		
		NP-CNMA120404F										□	▲					●			12.7	4.76	0.4	1.9	5.16		
		NP-CNMA120408F										□	▲					●			12.7	4.76	0.8	2.1	5.16		
		NP-CNMA120412F										□	▲					●			12.7	4.76	1.2	2.3	5.16		
		NP-CNMA120404G										▲		▲							12.7	4.76	0.4	1.9	5.16		
		NP-CNMA120408G										▲		▲							12.7	4.76	0.8	2.1	5.16		
		NP-CNMA120412G										▲		▲							12.7	4.76	1.2	2.3	5.16		
		NP-CNMA120404T										□		▲	▲				●		12.7	4.76	0.4	1.9	5.16		
		NP-CNMA120408T										□		▲	▲				●		12.7	4.76	0.8	2.1	5.16		
		NP-CNMA120412T										□		▲	▲				●		12.7	4.76	1.2	2.3	5.16		
		CNMA120404											▲					●	●		12.7	4.76	0.4	3.7	5.16	EPSR 80° LE RE IC D1 S	C008 C009 E013 E036 E041 H006 −008
		CNMA120408											▲					●	●		12.7	4.76	0.8	3.6	5.16		
		CNMA120412											▲					●	●		12.7	4.76	1.2	3.6	5.16		
		CNGA120408																		●	12.7	4.76	0.8	—	5.16	EPSR 80° RE IC D1 S	C008 C009 E013 E036 E041 H006 −008
		CNGA120412																		●	12.7	4.76	1.2	—	5.16		

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

● = NEW

55° DN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN											Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110 NEW	MB8120 NEW	MB8130 NEW	MB8025	MB810	MB825	MB835	MB4120 NEW	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DNGA150404FS4	●	●	●				●												12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 —041 H009 —011
	NP-DNGA150408FS4	●	●	●				●												12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412FS4	●	●	●				●												12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604FS4	●	●					●												12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608FS4	●	●					●												12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612FS4	●	●					●												12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404GS4	●	●																	12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GS4	●	●																	12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GS4	●	●																	12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604GS4	●	●																	12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GS4	●	●																	12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GS4	●	●																	12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404GA4			●	●		▲	●												12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GA4			●	●		▲	●												12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GA4			●	●		▲	●												12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604GA4			●	●			●												12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GA4			●	●			●												12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GA4			●	●			●												12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404GH4		●	●	●															12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GH4		●	●	●															12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GH4		●	●	●															12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604GH4		●	●	●															12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GH4		●	●	●															12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GH4		●	●	●															12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404TS4		●																	12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TS4		●																	12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TS4		●																	12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604TS4		●																	12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TS4		●																	12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TS4		●																	12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404TA4			●	●		▲	●	●											12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TA4			●	●		▲	●	●											12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TA4			●	●		▲	●	●											12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604TA4			●	●			●												12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TA4			●	●			●												12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TA4			●	●			●												12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404TH4			●	●				●											12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TH4			●	●				●											12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TH4			●	●				●											12.7	4.76	1.2	1.9	5.16		

● = NEW

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
								NEW						NEW											
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DNGA150604TH4			●	●															12.7	6.35	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 –041 H009 –011
	NP-DNGA150608TH4			●	●															12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TH4			●	●															12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404GN4						▲													12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GN4						▲													12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GN4						▲													12.7	4.76	1.2	1.9	5.16		
NEW PETIT CUT	BF-DNGG150404TA4						▲													12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 –041 H009 –011
	BF-DNGG150408TA4						▲													12.7	4.76	0.8	2.0	5.16		
	BF-DNGG150412TA4						▲													12.7	4.76	1.2	1.9	5.16		
(With Breaker)																										
NEW PETIT CUT	NP-DNGA150402FS2		●					●												12.7	4.76	0.2	2.3	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 –041 H009 –011
	NP-DNGA150404FS2	●	●	●				●							●	●				12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408FS2	●	●	●				●							●	●				12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412FS2	●	●	●				●							●	●				12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604FS2	●	●	●				●							●					12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608FS2	●	●	●				●							●					12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612FS2	●	●	●				●							●					12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150402GS2		●																	12.7	4.76	0.2	2.3	5.16		
	NP-DNGA150404GS2	●	●			▲									●					12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150404GS2																●	●		12.7	4.76	0.4	1.5	5.16		
	NP-DNGA150408GS2	●	●			▲									●					12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150408GS2																●	●		12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150412GS2	●	●			▲									●		●	●		12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604GS2	●	●												●					12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GS2	●	●												●					12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GS2	●	●												●					12.7	6.35	1.2	1.9	5.16		
	NP-DNGA110408GA2			●	●			●												9.525	4.76	0.8	2.0	3.81		
	NP-DNGA150402GA2			●																12.7	4.76	0.2	2.3	5.16		
	NP-DNGA150404GA2			●	●		▲	●		▲										12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GA2			●	●		▲	●		▲										12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GA2			●	●		▲	●		▲										12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150602GA2			●																12.7	6.35	0.2	2.3	5.16		
	NP-DNGA150604GA2			●	●			●												12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GA2			●	●			●												12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GA2			●	●			●												12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404GH2		●	●	●															12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GH2		●	●	●															12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GH2		●	●	●															12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604GH2		●	●	●															12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GH2		●	●	●															12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GH2		●	●	●															12.7	6.35	1.2	1.9	5.16		

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

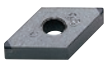
55° DN TYPE INSERTS WITH HOLE

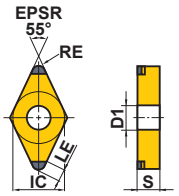
Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
●: Stable Cutting ◐: General Cutting ✲: Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DNGA150404TS2		●												●	●				12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TS2		●												●	●				12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TS2		●												●	●				12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604TS2		●												●					12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TS2		●												●					12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TS2		●												●					12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404TA2			●	●		▲		●	●										12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150404TA2													▲						12.7	4.76	0.4	1.5	5.16		
	NP-DNGA150408TA2			●	●		▲		●	●										12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150408TA2													▲						12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150412TA2			●	●		▲		●	●										12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604TA2			●	●				●											12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TA2			●	●				●											12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TA2			●	●				●											12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404TH2			●	●					●										12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TH2			●	●					●										12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TH2			●	●					●										12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150604TH2			●	●															12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TH2			●	●															12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TH2			●	●															12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404GN2						▲													12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GN2						▲													12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GN2						▲													12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150404G2										▲									12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408G2										▲									12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412G2										▲									12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150404T2										▲									12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408T2										▲									12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412T2										▲									12.7	4.76	1.2	1.9	5.16		
	NP-DNGA150404SF2														●	●				12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408SF2														●	●				12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412SF2														●	●				12.7	4.76	1.2	1.9	5.16		
	NEW NP-DNGA150604SF2														●					12.7	6.35	0.4	2.1	5.16		
	NEW NP-DNGA150608SF2														●					12.7	6.35	0.8	2.0	5.16		
	NEW NP-DNGA150612SF2														●					12.7	6.35	1.2	1.9	5.16		
	NP-DNGA150404SE2														●	●				12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408SE2														●	●				12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412SE2														●	●				12.7	4.76	1.2	1.9	5.16		
	NEW NP-DNGA150604SE2														●					12.7	6.35	0.4	2.1	5.16		
	NEW NP-DNGA150608SE2														●					12.7	6.35	0.8	2.0	5.16		
	NEW NP-DNGA150612SE2														●					12.7	6.35	1.2	1.9	5.16		





C010
C011
E013
E036
–041
H009
–011

● = NEW

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN												Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
								NEW						NEW													
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140		IC	S	RE	LE	D1		
NEW PETIT CUT ✶2	TNP-DNGA150404G2										▲										12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 −041 H009 −011
	TNP-DNGA150408G2										▲										12.7	4.76	0.8	2.0	5.16		
	TNP-DNGA150412G2										▲										12.7	4.76	1.2	1.9	5.16		
	TNP-DNGA150404T2										▲										12.7	4.76	0.4	2.1	5.16		
	TNP-DNGA150408T2										▲										12.7	4.76	0.8	2.0	5.16		
	TNP-DNGA150412T2										▲										12.7	4.76	1.2	1.9	5.16		
NEW PETIT CUT (With Wiper) ✶1	NP-DNGA150404GAWS2JR			●			▲		●		▲										12.7	4.76	0.4	1.9	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 −041 H009 −011
	NP-DNGA150404GAWS2JL			●			▲		●		▲										12.7	4.76	0.4	1.9	5.16		
	NP-DNGA150408GAWS2JR			●			▲		●		▲										12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150408GAWS2JL			●			▲		●		▲										12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150604GAWS2JR			●					●												12.7	6.35	0.4	1.9	5.16		
	NP-DNGA150604GAWS2JL			●					●												12.7	6.35	0.4	1.9	5.16		
	NP-DNGA150608GAWS2JR			●					●												12.7	6.35	0.8	1.7	5.16		
	NP-DNGA150608GAWS2JL			●					●												12.7	6.35	0.8	1.7	5.16		
	NP-DNGA150404GSWS2JR					▲															12.7	4.76	0.4	1.9	5.16		
	NP-DNGA150404GSWS2JL					▲															12.7	4.76	0.4	1.9	5.16		
	NP-DNGA150408GSWS2JR					▲															12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150408GSWS2JL					▲															12.7	4.76	0.8	1.7	5.16	Right hand insert shown.	
NEW PETIT CUT (With Breaker)	BF-DNGM150404TS2		●																		12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 −041 H009 −011
	BF-DNGM150408TS2		●																		12.7	4.76	0.8	2.0	5.16		
	BF-DNGM150412TS2		●																		12.7	4.76	1.2	1.9	5.16		
	BF-DNGM150404TA2						▲														12.7	4.76	0.4	2.1	5.16		
	BF-DNGM150408TA2						▲														12.7	4.76	0.8	2.0	5.16		
	BF-DNGM150412TA2						▲														12.7	4.76	1.2	1.9	5.16		
NEW PETIT CUT (With Breaker)	BM-DNGM150404TA2			●																	12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E013 E036 −041 H009 −011
	BM-DNGM150408TA2			●																	12.7	4.76	0.8	2.0	5.16		
	BM-DNGM150412TA2			●																	12.7	4.76	1.2	1.9	5.16		
	BM-DNGM150604TA2			●																	12.7	6.35	0.4	2.1	5.16		
	BM-DNGM150608TA2			●																	12.7	6.35	0.8	2.0	5.16		
	BM-DNGM150612TA2			●																	12.7	6.35	1.2	1.9	5.16		

✶1 Please refer to B018 before using the wiper insert.
✶2 The order number is for a 10-insert pack. Please specify order number, grade and quantity.

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

55° DN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DNMA150404GS																●	●		12.7	4.76	0.4	1.5	5.16	EPSR 55°	C010 C011 E013 E036 −041 H009 −011
	NP-DNMA150408GS																●	●		12.7	4.76	0.8	1.7	5.16		
	NP-DNMA150404F										□									12.7	4.76	0.4	2.1	5.16		
	NP-DNMA150404F											▲					●			12.7	4.76	0.4	1.5	5.16		
	NP-DNMA150408F										□									12.7	4.76	0.8	2.0	5.16		
	NP-DNMA150408F											▲					●			12.7	4.76	0.8	1.7	5.16		
	NP-DNMA150412F										□									12.7	4.76	1.2	1.9	5.16		
	NP-DNMA150404G										▲									12.7	4.76	0.4	2.1	5.16		
	NP-DNMA150404G												▲							12.7	4.76	0.4	1.5	5.16		
	NP-DNMA150408G										▲									12.7	4.76	0.8	2.0	5.16		
	NP-DNMA150408G												▲							12.7	4.76	0.8	1.7	5.16		
	NP-DNMA150412G										▲									12.7	4.76	1.2	1.9	5.16		
	NP-DNMA150404T										□									12.7	4.76	0.4	2.1	5.16		
	NP-DNMA150404T												▲	▲				●		12.7	4.76	0.4	1.5	5.16		
	NP-DNMA150408T										□									12.7	4.76	0.8	2.0	5.16		
	NP-DNMA150408T												▲	▲				●		12.7	4.76	0.8	1.7	5.16		
	NP-DNMA150412T										□									12.7	4.76	1.2	1.9	5.16		
	DNGA150404																□	□		12.7	4.76	0.4	3.6	5.16	EPSR 55°	C010 C011 E013 E036 −041 H009 −011
	DNGA150408																□	□		12.7	4.76	0.8	3.2	5.16		
	DNGA150412																□	□		12.7	4.76	1.2	2.8	5.16		

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

90° SN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-SNGA120404GA4					▲														12.7	4.76	0.4	2.1	5.16	EPSR 90° RE LE D1 IC S	C012 −015 E014 E035
	NP-SNGA120408GA4					▲														12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412GA4					▲														12.7	4.76	1.2	2.5	5.16		
NEW PETIT CUT	NP-SNGA120404FS2														●	●				12.7	4.76	0.4	2.1	5.16	EPSR 90° RE LE D1 IC S	C012 −015 E014 E035
	NP-SNGA120408FS2														●	●				12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412FS2														●	●				12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404GS2					▲									●					12.7	4.76	0.4	2.1	5.16		
	NP-SNGA120408GS2					▲									●		●	●		12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412GS2					▲									●		●	●		12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120408GA2		●	●				●												12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412GA2		●	●				●												12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404TS2														●	●				12.7	4.76	0.4	2.1	5.16		
	NP-SNGA120408TS2														●	●				12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412TS2														●	●				12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404G2										▲									12.7	4.76	0.4	2.1	5.16		
	NP-SNGA120408G2										▲									12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412G2										▲									12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404T2										▲									12.7	4.76	0.4	2.1	5.16		
	NP-SNGA120408T2										▲									12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412T2										▲									12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404SF2														●	●				12.7	4.76	0.4	2.1	5.16		
	NP-SNGA120408SF2														●	●				12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412SF2														●	●				12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404SE2														●	●				12.7	4.76	0.4	2.1	5.16		
	NP-SNGA120408SE2														●	●				12.7	4.76	0.8	2.3	5.16		
	NP-SNGA120412SE2														●	●				12.7	4.76	1.2	2.5	5.16		
NEW PETIT CUT *	TNP-SNGA120404G2										▲									12.7	4.76	0.4	2.1	5.16	EPSR 90° RE LE D1 IC S	C012 −015 E014 E035
	TNP-SNGA120408G2										▲									12.7	4.76	0.8	2.3	5.16		
	TNP-SNGA120412G2										▲									12.7	4.76	1.2	2.5	5.16		
	TNP-SNGA120404T2										▲									12.7	4.76	0.4	2.1	5.16		
	TNP-SNGA120408T2										▲									12.7	4.76	0.8	2.3	5.16		
	TNP-SNGA120412T2										▲									12.7	4.76	1.2	2.5	5.16		

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

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

90° SN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
								NEW						NEW											
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-SNMA120404GS																●	●		12.7	4.76	0.4	2.1	5.16	EPSR 90° LE RE D1 IC S	C012 −015 E014 E035
	NP-SNMA120408GS																●	●		12.7	4.76	0.8	2.3	5.16		
	NP-SNMA120404F										□	▲					●			12.7	4.76	0.4	2.1	5.16		
	NP-SNMA120408F										□	▲					●			12.7	4.76	0.8	2.3	5.16		
	NP-SNMA120412F										□	▲					●			12.7	4.76	1.2	2.5	5.16		
	NP-SNMA120404G										▲		▲							12.7	4.76	0.4	2.1	5.16		
	NP-SNMA120408G										▲		▲							12.7	4.76	0.8	2.3	5.16		
	NP-SNMA120412G										▲									12.7	4.76	1.2	2.5	5.16		
	NP-SNMA120404T										□		▲	▲				●		12.7	4.76	0.4	2.1	5.16		
	NP-SNMA120408T										□		▲	▲				●		12.7	4.76	0.8	2.3	5.16		
	NP-SNMA120412T										□		▲	▲				●		12.7	4.76	1.2	2.5	5.16		
	SNGA120404																□	□		12.7	4.76	0.4	4.0	5.16	EPSR 90° LE RE D1 IC S	C012 −015 E014 E035
	SNGA120408																●	●		12.7	4.76	0.8	4.1	5.16		
	SNGA120412																●	●		12.7	4.76	1.2	4.1	5.16		
	SNGA120408																		●	12.7	4.76	0.8	—	5.16	EPSR 90° RE D1 IC S	C012 −015 E014 E035
	SNGA120412																		●	12.7	4.76	1.2	—	5.16		

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

60° TN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
								NEW						NEW											
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TNGA160404FS6	●	●	●				●												9.525	4.76	0.4	1.6	3.81	EPSR 60° RE D1 LE IC S	C016 C017 E014 E035 E040
	NP-TNGA160408FS6	●	●	●				●												9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412FS6	●	●	●				●												9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GS6	●	●																	9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GS6	●	●																	9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GS6	●	●																	9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GA6			●	●		▲	●												9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GA6			●	●		▲	●												9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GA6			●	●		▲	●												9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GH6		●	●	●															9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GH6		●	●	●															9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GH6		●	●	●															9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TS6		●																	9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TS6		●																	9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412TS6		●																	9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TA6			●	●		▲	●	●											9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TA6			●	●		▲	●	●											9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412TA6			●	●		▲	●	●											9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TH6			●	●				●											9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TH6			●	●				●											9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412TH6			●	●				●											9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GN6						▲													9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GN6						▲													9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GN6						▲													9.525	4.76	1.2	1.9	3.81		
NEW PETIT CUT	NP-TNGA160402FS3		●					●												9.525	4.76	0.2	1.5	3.81	EPSR 60° RE D1 LE IC S	C016 C017 E014 E035 E040
	NP-TNGA160404FS3	●	●	●				●							●	●				9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408FS3	●	●	●				●							●	●				9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412FS3	●	●	●				●							●	●				9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160402GS3		●																	9.525	4.76	0.2	1.5	3.81		
	NP-TNGA160404GS3	●	●			▲									●					9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GS3	●	●			▲									●		●	●		9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GS3	●	●			▲									●		●	●		9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160402GA3			●			▲	●												9.525	4.76	0.2	1.5	3.81		
	NP-TNGA160404GA3			●	●		▲	●		▲										9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GA3			●	●		▲	●		▲										9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GA3			●	●		▲	●		▲										9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GH3		●	●	●															9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GH3		●	●	●															9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GH3		●	●	●															9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TS3		●												●	●				9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TS3		●												●	●				9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412TS3		●												●	●				9.525	4.76	1.2	1.9	3.81		

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

60° TN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN					CBN											Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TNGA160404TA3			●	●		▲		●	●										9.525	4.76	0.4	1.6	3.81	EPSR 60° RE D1 LE IC S	C016 C017 E014 E035 E040
	NP-TNGA160408TA3			●	●		▲		●	●	▲			▲						9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412TA3			●	●		▲		●	●	▲									9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TH3			●	●					●										9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TH3			●	●					●										9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412TH3			●	●					●										9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160402GN3						▲													9.525	4.76	0.2	1.5	3.81		
	NP-TNGA160404GN3						▲													9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GN3						▲													9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412GN3						▲													9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404G3										▲									9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408G3										▲									9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412G3										▲									9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404T3										▲									9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408T3										▲									9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412T3										▲									9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404SF3														●	●				9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408SF3														●	●				9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412SF3														●	●				9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404SE3														●	●				9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408SE3														●	●				9.525	4.76	0.8	1.8	3.81		
	NP-TNGA160412SE3														●	●				9.525	4.76	1.2	1.9	3.81		
NEW PETIT CUT *	TNP-TNGA160404G3										▲									9.525	4.76	0.4	1.6	3.81	EPSR 60° RE D1 LE IC S	C016 C017 E014 E035 E040
	TNP-TNGA160408G3										▲									9.525	4.76	0.8	1.8	3.81		
	TNP-TNGA160412G3										▲									9.525	4.76	1.2	1.9	3.81		
	TNP-TNGA160404T3										▲									9.525	4.76	0.4	1.6	3.81		
	TNP-TNGA160408T3										▲									9.525	4.76	0.8	1.8	3.81		
	TNP-TNGA160412T3										▲									9.525	4.76	1.2	1.9	3.81		
NEW PETIT CUT (With Breaker)	BM-TNGM160408TA3			●																9.525	4.76	0.8	1.8	3.81	EPSR 60° RE D1 LE IC S	C016 C017 E014 E035 E040
	BM-TNGM160412TA3			●																9.525	4.76	1.2	1.9	3.81		
NEW PETIT CUT	NP-TNMA160404GS																●	●		9.525	4.76	0.4	1.6	3.81	EPSR 60° LE RE D1 IC S	C016 C017 E014 E035 E040
	NP-TNMA160408GS																●	●		9.525	4.76	0.8	1.8	3.81		
	NP-TNMA160412GS																●	●		9.525	4.76	1.2	1.9	3.81		
	NP-TNMA160404F										□	▲					●			9.525	4.76	0.4	1.6	3.81		
	NP-TNMA160408F										□	▲					●			9.525	4.76	0.8	1.8	3.81		
	NP-TNMA160412F										□	▲					□			9.525	4.76	1.2	1.9	3.81		

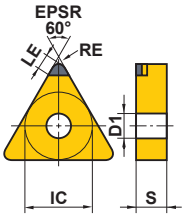
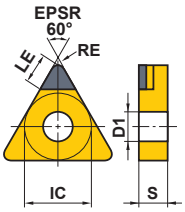
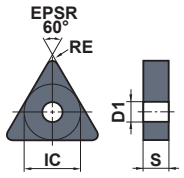
* The order number is for a 10-insert pack. Please specify order number, grade and quantity.

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

Work Material			Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
									NEW						NEW											
			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
	H	Hardened Materials	●	●	◐	✲	●	◐	●	◐	✲	◐	●	◐	✲												
	K	Cast Iron														◐		●	◐	✲							
	S	Heat-resistant Alloy, Titanium Alloy																	◐								
		Sintered Alloy														◐	◐										
NEW PETIT CUT	NP-TNMA160404G											▲		▲							9.525	4.76	0.4	1.6	3.81		C016 C017 E014 E035 E040
	NP-TNMA160408G											▲		▲							9.525	4.76	0.8	1.8	3.81		
	NP-TNMA160412G											▲		▲							9.525	4.76	1.2	1.9	3.81		
	NP-TNMA160404T											□		▲	▲				●		9.525	4.76	0.4	1.6	3.81		
	NP-TNMA160408T											□		▲	▲				●		9.525	4.76	0.8	1.8	3.81		
	NP-TNMA160412T											□		▲	▲				□		9.525	4.76	1.2	1.9	3.81		
	TNGA160404												▲					●	●		9.525	4.76	0.4	3.7	3.81		C016 C017 E014 E035 E040
	TNGA160408												▲					●	●		9.525	4.76	0.8	3.4	3.81		
	TNGA220404																	●	□		12.7	4.76	0.4	3.7	5.16		
	TNGA220408																	●	□		12.7	4.76	0.8	3.4	5.16		
	TNGA220412																	●	□		12.7	4.76	1.2	3.1	5.16		
	TNGA160408																			●	9.525	4.76	0.8	—	3.81		C016 C017 E014 E035 E040
	TNGA160412																			●	9.525	4.76	1.2	—	3.81		

● = NEW

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

35° VN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN											Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110 NEW	MB8120 NEW	MB8130 NEW	MB8025	MB810	MB825	MB835	MB4120 NEW	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-VNGA160404FS4	●	●	●				●												9.525	4.76	0.4	2.5	3.81	EPSR 35° RE LE IC D1 S	C018 −020 E015 E042
	NP-VNGA160408FS4	●	●	●				●												9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412FS4			●																9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160404GS4	●	●																	9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GS4	●	●																	9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GS4		●																	9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160404GA4			●	●		▲	●												9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GA4			●	●		▲	●												9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GA4			●	●			●												9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160404GH4		●	●	●															9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GH4		●	●	●															9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GH4		●	●	●															9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160404TS4		●																	9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TS4		●																	9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160404TA4			●	●			●												9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TA4			●	●			●												9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412TA4			●	●			●												9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160404TH4			●	●															9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TH4			●	●															9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412TH4			●	●															9.525	4.76	1.2	1.6	3.81		
NEW PETIT CUT	NP-VNGA160402FS2		●					●												9.525	4.76	0.2	2.5	3.81	EPSR 35° RE LE IC D1 S	C018 −020 E015 E042
	NP-VNGA160404FS2	●	●	●				●							●	●				9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408FS2	●	●	●				●							●	●				9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412FS2			●																9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160402GS2		●																	9.525	4.76	0.2	2.5	3.81		
	NP-VNGA160404GS2	●	●		▲										●	●				9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GS2	●	●		▲										●	●				9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GS2		●																	9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160402GA2			●			▲	●												9.525	4.76	0.2	2.5	3.81		
	NP-VNGA160404GA2			●	●		▲	●			▲									9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GA2			●	●		▲	●			▲									9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GA2			●	●			●												9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160404GH2		●	●	●															9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GH2		●	●	●															9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GH2		●	●	●															9.525	4.76	1.2	1.6	3.81		
	NP-VNGA160404TS2		●												●	●				9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TS2		●												●	●				9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160404TA2			●	●			●												9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TA2			●	●			●												9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412TA2			●	●			●												9.525	4.76	1.2	1.6	3.81		

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

Work Material			Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
					BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
	H	Hardened Materials	NEW PETIT CUT	NP-VNGA160404TH2			●	●															9.525	4.76	0.4	2.5	3.81	EPSR 35° RE LE IC D1 S	C018 −020 E015 E042
	K	Cast Iron		NP-VNGA160408TH2			●	●															9.525	4.76	0.8	2.0	3.81		
	S	Heat-resistant Alloy, Titanium Alloy		NP-VNGA160412TH2			●	●															9.525	4.76	1.2	1.6	3.81		
		Sintered Alloy		NP-VNGA160402GN2						▲													9.525	4.76	0.2	2.5	3.81		
				NP-VNGA160404G2										▲									9.525	4.76	0.4	2.5	3.81		
				NP-VNGA160408G2										▲									9.525	4.76	0.8	2.0	3.81		
				NP-VNGA160404T2										▲									9.525	4.76	0.4	2.5	3.81		
				NP-VNGA160408T2										▲									9.525	4.76	0.8	2.0	3.81		
				NP-VNGA160404SF2														●	●				9.525	4.76	0.4	2.5	3.81		
				NP-VNGA160408SF2														●	●				9.525	4.76	0.8	2.0	3.81		
				NP-VNGA160404SE2														●	●				9.525	4.76	0.4	2.5	3.81		
				NP-VNGA160408SE2														●	●				9.525	4.76	0.8	2.0	3.81		
			NEW PETIT CUT *	TNP-VNGA160404G2										▲									9.525	4.76	0.4	2.5	3.81	EPSR 35° RE LE IC D1 S	C018 −020 E015 E042
				TNP-VNGA160408G2										▲									9.525	4.76	0.8	2.0	3.81		
				TNP-VNGA160404T2										▲									9.525	4.76	0.4	2.5	3.81		
				TNP-VNGA160408T2										▲									9.525	4.76	0.8	2.0	3.81		
			NEW PETIT CUT	NP-VNMA160404GS																●	●		9.525	4.76	0.4	1.4	3.81	EPSR 35° LE RE IC D1 S	C018 −020 E015 E042
				NP-VNMA160408GS																●	●		9.525	4.76	0.8	1.5	3.81		
				NP-VNMA160404F										□									9.525	4.76	0.4	2.5	3.81		
				NP-VNMA160404F											▲					●			9.525	4.76	0.4	1.4	3.81		
				NP-VNMA160408F										□									9.525	4.76	0.8	2.0	3.81		
				NP-VNMA160408F											▲					●			9.525	4.76	0.8	1.5	3.81		
				NP-VNMA160404G										▲									9.525	4.76	0.4	2.5	3.81		
				NP-VNMA160404G												▲							9.525	4.76	0.4	1.4	3.81		
				NP-VNMA160408G										▲									9.525	4.76	0.8	2.0	3.81		
				NP-VNMA160408G												▲							9.525	4.76	0.8	1.5	3.81		
				NP-VNMA160404T										□									9.525	4.76	0.4	2.5	3.81		
				NP-VNMA160404T												▲	▲				●		9.525	4.76	0.4	1.4	3.81		
				NP-VNMA160408T										□									9.525	4.76	0.8	2.0	3.81		
				NP-VNMA160408T												▲	▲				●		9.525	4.76	0.8	1.5	3.81		
				VNGA160404																□	□		9.525	4.76	0.4	2.8	3.81	EPSR 35° LE RE IC D1 S	C018 −020 E015 E042
				VNGA160408																□	□		9.525	4.76	0.8	1.9	3.81		

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

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

● = NEW

80° WN TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN											Solid CBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-WNGA080408FS6	●	●																	12.7	4.76	0.8	2.1	5.16	EPSR 80° RE D1 LE IC S	C021 E015 E039
	NP-WNGA080408GS6	●	●																	12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408GA6						▲													12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408TS6		●																	12.7	4.76	0.8	2.1	5.16		
NEW PETIT CUT	NP-WNGA080408FS3	●	●	●											●	●				12.7	4.76	0.8	2.1	5.16	EPSR 80° RE D1 LE IC S	C021 E015 E039
	NP-WNGA080408GS3	●	●												●					12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408GA3			●	●		▲													12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408GH3		●	●	●															12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408TS3		●												●	●				12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408TA3			●	●															12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408TH3			●	●															12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408SF3														●	●				12.7	4.76	0.8	2.1	5.16		
	NP-WNGA080408SE3														●	●				12.7	4.76	0.8	2.1	5.16		
NEW PETIT CUT (With Wiper) *	NP-WNGA080408GAWS3						▲				▲									12.7	4.76	0.8	2.1	5.16	EPSR 80° RE D1 LE IC S	C021 E015 E039
	NP-WNGA080408GSWS3		●			▲														12.7	4.76	0.8	2.1	5.16		

* Please refer to B018 before using the wiper insert.

● = NEW

● : Inventory maintained in Japan.

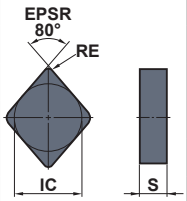
▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

80° CN TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

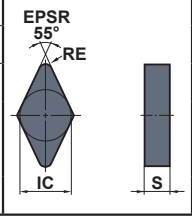
Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)			Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE		
	**CNGN120404**																	●	12.7	4.76	0.4		—
	CNGN120408																	●	12.7	4.76	0.8		
	CNGN120412																	●	12.7	4.76	1.2		

● = NEW

55° DN TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

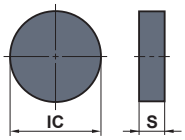
Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)			Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE		
	**DNGN110308**																	●	9.525	3.18	0.8		—
	DNGN110312																	●	9.525	3.18	1.2		

● = NEW

RN TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)			Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE		
	**RNGN090300**																	●	9.525	3.18	—		—
	RNGN120300																	●	12.7	3.18	—		
	RNGN120400																	●	12.7	4.76	—		

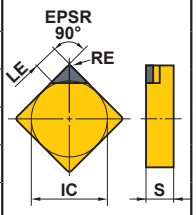
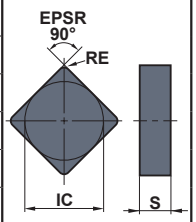
● = NEW

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

90° SN TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

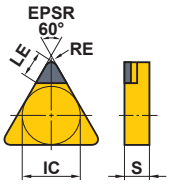
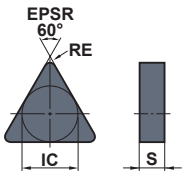
Shape	Order Number	Coated CBN						CBN										Solid CBN	Dimensions (mm)				Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE		
	SNGN090304																□	□		9.525	3.18	0.4	4.0		—
	SNGN090308																□	□		9.525	3.18	0.8	4.1		
	SNGN120404																□	□		12.7	4.76	0.4	4.0		
	SNGN120408																●	□		12.7	4.76	0.8	4.1		
	SNGN120412																●	□		12.7	4.76	1.2	4.1		
	SNGN090308																		●	9.525	3.18	0.8	—		—
	SNGN090312																		●	9.525	3.18	1.2	—		
	SNGN090316																		●	9.525	3.18	1.6	—		
	SNGN090408																		●	9.525	4.76	0.8	—		
	SNGN090412																		●	9.525	4.76	1.2	—		
	SNGN120408																		●	12.7	4.76	0.8	—		
	SNGN120412																		●	12.7	4.76	1.2	—		
	SNGN120416																		●	12.7	4.76	1.6	—		

● = NEW

60° TN TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated CBN						CBN											Solid CBN	Dimensions (mm)				Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	MBS140	IC	S	RE	LE		
	TNGN160404																●	□		9.525	4.76	0.4	3.7		—
	TNGN160408																●	□		9.525	4.76	0.8	3.4		
	TNGN160408																		●	9.525	4.76	0.8	—		—
	TNGN160412																		●	9.525	4.76	1.2	—		
	TNGN160416																		●	9.525	4.76	1.6	—		

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

80° CC TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CCGB060204GA2					▲				▲									6.35	2.38	0.4	1.9	2.8	EPSR 80° RE D1 LE AN 7° IC S	C022 D008 E006 E030 E034
NEW PETIT CUT	NP-CCGW060202FS2		●					●							●	●			6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204FS2		●					●							●	●			6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208FS2		●					●							●	●			6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T302FS2	●	●					●							●	●			9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304FS2	●	●	●				●							●	●			9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308FS2	●	●	●				●							●	●			9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202GS2	●	●												●		●	●	6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204GS2	●	●			▲									●		●	●	6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208GS2	●	●												●		●	●	6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T302GS2	●	●												●				9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304GS2	●	●			▲									●		●	●	9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308GS2	●	●			▲									●		●	●	9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202GA2			●			▲		●	▲									6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204GA2			●	●		▲		●	▲									6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208GA2			●	●		▲		●	▲									6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T302GA2			●			▲		●	▲									9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304GA2			●	●		▲		●	▲									9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308GA2			●	●		▲		●	▲									9.525	3.97	0.8	2.1	4.4		
	NP-CCGW09T304GH2		●	●	●														9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308GH2		●	●	●														9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202TS2															●			6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204TS2															●			6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208TS2														●	●			6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T302TS2															●			9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304TS2															●			9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308TS2														●	●			9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202TA2													▲					6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204TA2				●				●					▲					6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208TA2				●				●										6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T304TA2			●	●				●	●				▲					9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308TA2			●	●				●	●				▲					9.525	3.97	0.8	2.1	4.4		
	NP-CCGW09T304TH2			●	●					●									9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308TH2			●	●					●									9.525	3.97	0.8	2.1	4.4		

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

80° CC TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CCGW060202FA2																●	●	6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204FA2																●	●	6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208FA2																●	●	6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T304FA2																●	●	9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308FA2																●	●	9.525	3.97	0.8	2.1	4.4		
	NP-CCGW09T302GN2						▲												9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304GN2						▲												9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308GN2						▲												9.525	3.97	0.8	2.1	4.4		
	NP-CCGW09T304G2										▲								9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308G2										▲								9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202SF2														●	●			6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204SF2														●	●			6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208SF2														●	●			6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T302SF2														●	●			9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304SF2														●	●			9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308SF2														●	●			9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202SE2														●	●			6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204SE2														●	●			6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208SE2														●	●			6.35	2.38	0.8	2.1	2.8		
	NP-CCGW09T302SE2														●	●			9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304SE2														●	●			9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308SE2														●	●			9.525	3.97	0.8	2.1	4.4		
NEW PETIT CUT ∗2	TNP-CCGW09T304G2										▲								9.525	3.97	0.4	1.9	4.4		
	TNP-CCGW09T308G2										▲								9.525	3.97	0.8	2.1	4.4		
NEW PETIT CUT (With Wiper) ∗1	NP-CCGW09T304FSWS2	●	●	●				●											9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308FSWS2	●	●	●				●											9.525	3.97	0.8	2.1	4.4		
	NEW NP-CCGW09T304FBWL2	●	●	●				●											9.525	3.97	0.4	1.9	4.4		
	NEW NP-CCGW09T308FBWL2	●	●	●				●											9.525	3.97	0.8	2.1	4.4		
	NP-CCGW09T304GAWS2		●	●				●											9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308GAWS2		●	●		▲		●			▲								9.525	3.97	0.8	2.1	4.4		
	NP-CCGW09T304GSWS2	●	●																9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308GSWS2	●	●		▲														9.525	3.97	0.8	2.1	4.4		
	NEW NP-CCGW09T304GBWL2	●	●	●				●											9.525	3.97	0.4	1.9	4.4		
	NEW NP-CCGW09T308GBWL2	●	●	●				●											9.525	3.97	0.8	2.1	4.4		

EPSR 80° RE D1 LE AN 7° IC S

C022 D008 E006 E030 E034

EPSR 80° RE D1 LE AN 7° IC S

C022 D008 E030 E034

EPSR 80° RE D1 LE AN 7° IC S

C022 D008 E030 E034

∗1 Please refer to B018 before using the wiper insert.
∗2 The order number is for a 10-insert pack. Please specify order number, grade and quantity.

● = NEW

● : Inventory maintained in Japan. □ : Non stock, produced to order only.
▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.
(1 insert in one case)

Work Material			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730
	H	Hardened Materials	●	●	◐	✱	●	◐	●	◐	✱	◐	●	◐	✱				
	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 B016.

Shape	Order Number	Coated CBN						CBN												Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730		IC	S	RE	LE	D1		
NEW PETIT CUT	BF-CCGT09T304TS2		●																	9.525	3.97	0.4	1.9	4.4	EPSR 80° RE LE IC D1 AN 7° S	C022 D008 E030 E034
	BF-CCGT09T308TS2		●																	9.525	3.97	0.8	2.1	4.4		
	BF-CCGT09T304TA2						▲													9.525	3.97	0.4	1.8	4.4		
	BF-CCGT09T308TA2						▲													9.525	3.97	0.8	2.0	4.4		
(With Breaker)																										
NEW PETIT CUT	BM-CCGT09T304TA2			●																9.525	3.97	0.4	1.9	4.4	EPSR 80° RE LE IC D1 AN 7° S	C022 D008 E030 E034
	BM-CCGT09T308TA2			●																9.525	3.97	0.8	2.1	4.4		
(With Breaker)																										
NEW PETIT CUT	NP-CCMB060204G												▲							6.35	2.38	0.4	1.9	2.8	EPSR 80° LE RE IC D1 AN 7° S	C022 D008 E006 E030 E034
	* NP-CCGW03S102FS		●					●												3.57	1.39	0.2	1.1	2.0		C022 D008 E006 E016 E030 E034
	* NP-CCGW03S104FS		●					●			▲									3.57	1.39	0.4	1.1	2.0		
	* NP-CCGW04T002FS		●					●												4.37	1.79	0.2	1.5	2.4		
	* NP-CCGW04T004FS		●					●			▲									4.37	1.79	0.4	1.5	2.4		
	* NP-CCGW03S102GS	●																		3.57	1.39	0.2	1.1	2.0		
	* NP-CCGW03S104GS	●																		3.57	1.39	0.4	1.1	2.0		
	* NP-CCGW04T002GS	●																		4.37	1.79	0.2	1.5	2.4		
	* NP-CCGW04T004GS	●																		4.37	1.79	0.4	1.5	2.4		
	NP-CCGW09T302GS																●	●		9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304GS																●	●		9.525	3.97	0.4	1.9	4.4		
	* NP-CCGW03S102FA										▲									3.57	1.39	0.2	1.1	2.0		
	* NP-CCGW04T002FA										▲									4.37	1.79	0.2	1.5	2.4		
	NP-CCGW060202F											▲								6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204F											▲								6.35	2.38	0.4	1.9	2.8		
	NP-CCGW09T302F											▲								9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304F										□	▲								9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308F										□									9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202G										▲		▲							6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204G										▲		▲							6.35	2.38	0.4	1.9	2.8		
	NP-CCGW060208G										▲									6.35	2.38	0.8	2.1	2.8		

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

● = NEW

80° CC TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CCGW09T302G										▲		▲						9.525	3.97	0.2	1.8	4.4	EPSR 80°	C022 D008 E006 E030 E034
	NP-CCGW09T304G										▲		▲						9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308G										▲								9.525	3.97	0.8	2.1	4.4		
	NP-CCGW060202T													▲					6.35	2.38	0.2	1.8	2.8		
	NP-CCGW060204T													▲					6.35	2.38	0.4	1.9	2.8		
	NP-CCGW09T302T													▲					9.525	3.97	0.2	1.8	4.4		
	NP-CCGW09T304T										□			▲					9.525	3.97	0.4	1.9	4.4		
	NP-CCGW09T308T										□								9.525	3.97	0.8	2.1	4.4		
NEW PETIT CUT	* NP-CCMW03S102F											▲							3.57	1.39	0.2	1.1	2.0	EPSR 80°	E016
	* NP-CCMW03S104F											▲							3.57	1.39	0.4	1.1	2.0		
	* NP-CCMW04T002F											▲							4.37	1.79	0.2	1.5	2.4		
	* NP-CCMW04T004F											▲							4.37	1.79	0.4	1.5	2.4		
	CCGW060202FS														●				6.35	2.38	0.2	—	2.8	EPSR 80°	C022 D008 E006 E030 E034
	CCGW060204FS														●				6.35	2.38	0.4	—	2.8		
	CCGW060208FS														●				6.35	2.38	0.8	—	2.8		
	CCGW09T304FS														●				9.525	3.97	0.4	—	4.4		
	CCGW09T308FS														●				9.525	3.97	0.8	—	4.4		
	CCMW060202																□	□	6.35	2.38	0.2	2.8	2.8	EPSR 80°	C022 D008 E006 E030 E034
	CCMW060204																□	□	6.35	2.38	0.4	2.8	2.8		
	CCMW09T302																□	□	9.525	3.97	0.2	3.7	4.4		
	CCMW09T304																□	□	9.525	3.97	0.4	3.7	4.4		
	CCMW09T308																□	□	9.525	3.97	0.8	3.6	4.4		
	CCMW120404																□	□	12.7	4.76	0.4	3.7	5.5		
	CCMW120408																□	□	12.7	4.76	0.8	3.6	5.5		
	CCMW120412																□	□	12.7	4.76	1.2	3.6	5.5		

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

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

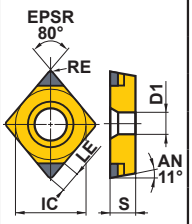
80° CP TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

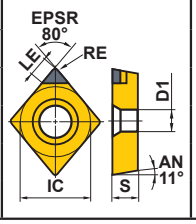
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CPGB080202FS2														●	●			7.94	2.38	0.2	1.8	3.5		
	NP-CPGB080204FS2		●												●	●			7.94	2.38	0.4	1.9	3.5		
	NP-CPGB080208FS2		●																7.94	2.38	0.8	2.1	3.5		
	NP-CPGB090302FS2	●	●												●	●			9.525	3.18	0.2	1.8	4.5		
	NP-CPGB090304FS2	●		●											●	●			9.525	3.18	0.4	1.9	4.5		
	NP-CPGB090308FS2	●		●											●	●			9.525	3.18	0.8	2.1	4.5		
	NP-CPGB090312FS2			●															9.525	3.18	1.2	2.3	4.5		
	NP-CPGB080204GS2	●	●																7.94	2.38	0.4	1.9	3.5		
	NP-CPGB080208GS2	●	●																7.94	2.38	0.8	2.1	3.5		
	NP-CPGB090302GS2	●	●																9.525	3.18	0.2	1.8	4.5		
	NP-CPGB090304GS2	●	●																9.525	3.18	0.4	1.9	4.5		
	NP-CPGB090308GS2	●	●																9.525	3.18	0.8	2.1	4.5		
	NP-CPGB080204GA2			●	●		▲												7.94	2.38	0.4	1.9	3.5		
	NP-CPGB080208GA2			●	●		▲												7.94	2.38	0.8	2.1	3.5		
	NP-CPGB080212GA2			●	●														7.94	2.38	1.2	2.3	3.5		
	NP-CPGB090302GA2			●															9.525	3.18	0.2	1.8	4.5		
	NP-CPGB090304GA2			●	●		▲				▲								9.525	3.18	0.4	1.9	4.5		
	NP-CPGB090308GA2			●	●		▲												9.525	3.18	0.8	2.1	4.5		
	NP-CPGB090312GA2			●	●														9.525	3.18	1.2	2.3	4.5		
	NP-CPGB080204TA2				●														7.94	2.38	0.4	1.9	3.5		
	NP-CPGB080208TA2				●														7.94	2.38	0.8	2.1	3.5		
	NP-CPGB080212TA2				●														7.94	2.38	1.2	2.3	3.5		
	NP-CPGB090304TA2			●	●														9.525	3.18	0.4	1.9	4.5		
	NP-CPGB090308TA2			●	●														9.525	3.18	0.8	2.1	4.5		
	NP-CPGB090312TA2			●	●														9.525	3.18	1.2	2.3	4.5		
	NP-CPGB080202SE2														●	●			7.94	2.38	0.2	1.8	3.5		
	NP-CPGB080204SE2														●	●			7.94	2.38	0.4	1.9	3.5		
	NP-CPGB090302SE2														●	●			9.525	3.18	0.2	1.8	4.5		
	NP-CPGB090304SE2														●	●			9.525	3.18	0.4	1.9	4.5		
	NP-CPGB090308SE2														●	●			9.525	3.18	0.8	2.1	4.5		
NEW PETIT CUT	NP-CPMB080204G												▲						7.94	2.38	0.4	1.9	3.5		
	NP-CPMB090304G												▲						9.525	3.18	0.4	1.9	4.5		



E006



E006

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

55° DC TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DCGW070202GA2			●			▲	●		▲									6.35	2.38	0.2	2.3	2.8	EPSR 55° RE D1 LE IC S AN 7°	C023 D009 D026 E008 E009 E029 E031
	NP-DCGW070204GA2			●	●		▲	●		▲									6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208GA2				●		▲			▲									6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302GA2			●			▲	●		▲									9.525	3.97	0.2	2.3	4.4		
	NP-DCGW11T304GA2			●	●		▲	●		▲									9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308GA2			●	●		▲	●		▲									9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070202GS2	●	●																6.35	2.38	0.2	2.3	2.8		
	NP-DCGW070204GS2	●	●			▲									●				6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208GS2	●	●												●				6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302GS2	●	●			▲									●				9.525	3.97	0.2	2.3	4.4		
	NP-DCGW11T304GS2	●	●			▲					▲				●				9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T304GS2																●	●	9.525	3.97	0.4	1.5	4.4		
	NP-DCGW11T308GS2	●	●			▲					▲				●				9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T308GS2																●	●	9.525	3.97	0.8	1.7	4.4		
	NP-DCGW070202GN2						▲												6.35	2.38	0.2	2.3	2.8		
	NP-DCGW070204GN2						▲												6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208GN2						▲												6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302GN2						▲												9.525	3.97	0.2	2.3	4.4		
	NP-DCGW11T304GN2						▲												9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308GN2						▲												9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T304GH2		●	●	●														9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308GH2		●	●	●														9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T304G2										▲								9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308G2										▲								9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T304FA2																●	●	9.525	3.97	0.4	1.5	4.4		
	NP-DCGW11T308FA2																●	●	9.525	3.97	0.8	1.7	4.4		
	NP-DCGW070202FS2		●					●											6.35	2.38	0.2	2.3	2.8		
	NP-DCGW070204FS2		●	●				●							●	●			6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208FS2		●					●							●	●			6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302FS2	●	●					●							●	●			9.525	3.97	0.2	2.3	4.4		
	NP-DCGW11T304FS2	●	●	●				●							●	●			9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308FS2	●	●	●				●							●	●			9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070204TA2			●	●			●	●										6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070204TA2													▲					6.35	2.38	0.4	1.5	2.8		
	NP-DCGW070208TA2				●				●										6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302TA2													▲					9.525	3.97	0.2	2.3	4.4		
	NP-DCGW11T304TA2			●	●			●	●										9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T304TA2													▲					9.525	3.97	0.4	1.5	4.4		
	NP-DCGW11T308TA2			●	●			●	●										9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T308TA2													▲					9.525	3.97	0.8	1.7	4.4		

● = NEW

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

Work Material			Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
	H	Hardened Materials	●	●	●	✱	●	●	●	●	✱	●	●	●	✱	●		●	●							
	K	Cast Iron														●		●	●							
	S	Heat-resistant Alloy, Titanium Alloy																	●							
		Sintered Alloy														●	●									
Shape		Order Number																		IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT		NP-DCGW070204TS2														●				6.35	2.38	0.4	2.1	2.8	EPSR 55° RE LE IC D1 AN 7° S	C023 D009 D026 E008 E009 E029 E031
		NP-DCGW070208TS2														●				6.35	2.38	0.8	2.0	2.8		
		NP-DCGW11T302TS2														●				9.525	3.97	0.2	2.3	4.4		
		NP-DCGW11T304TS2														●				9.525	3.97	0.4	2.1	4.4		
		NP-DCGW11T308TS2														●				9.525	3.97	0.8	2.0	4.4		
		NP-DCGW11T304TH2			●	●				●										9.525	3.97	0.4	2.1	4.4		
		NP-DCGW11T308TH2			●	●				●										9.525	3.97	0.8	2.0	4.4		
		NP-DCGW070204SF2														●	●			6.35	2.38	0.4	2.1	2.8		
		NP-DCGW070208SF2														●	●			6.35	2.38	0.8	2.0	2.8		
		NP-DCGW11T302SF2														●	●			9.525	3.97	0.2	1.5	4.4		
		NP-DCGW11T304SF2														●	●			9.525	3.97	0.4	2.1	4.4		
		NP-DCGW11T308SF2														●	●			9.525	3.97	0.8	2.0	4.4		
		NP-DCGW070204SE2														●	●			6.35	2.38	0.4	2.1	2.8		
		NP-DCGW070208SE2														●	●			6.35	2.38	0.8	2.0	2.8		
		NP-DCGW11T302SE2														●	●			9.525	3.97	0.2	1.5	4.4		
		NP-DCGW11T304SE2														●	●			9.525	3.97	0.4	2.1	4.4		
		NP-DCGW11T308SE2														●	●			9.525	3.97	0.8	2.0	4.4		
NEW PETIT CUT *		TNP-DCGW11T304G2										▲								9.525	3.97	0.4	2.1	4.4	EPSR 55° RE LE IC D1 AN 7° S	C023 D009 D026 E008 E009 E029 E031
		TNP-DCGW11T308G2										▲								9.525	3.97	0.8	2.1	4.4		
NEW PETIT CUT		BF-DCGT11T304TA2					▲													9.525	3.97	0.4	2.1	4.4	EPSR 55° RE LE IC D1 AN 7° S	C023 D009 D026 E008 E009 E029 E031
		BF-DCGT11T308TA2					▲													9.525	3.97	0.8	2.0	4.4		
		BF-DCGT11T304TS2		●																9.525	3.97	0.4	2.1	4.4		
		BF-DCGT11T308TS2		●																9.525	3.97	0.8	2.0	4.4		
(With Breaker)																										
NEW PETIT CUT		BM-DCGT11T304TA2			●															9.525	3.97	0.4	2.1	4.4	EPSR 55° RE LE IC D1 AN 7° S	C023 D009 D026 E008 E009 E029 E031
		BM-DCGT11T308TA2			●															9.525	3.97	0.8	2.0	4.4		
(With Breaker)																										

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

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

● = NEW

55° DC TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DCGW11T302GS																●	●	9.525	3.97	0.2	1.5	4.4	EPSR 55°	C023 D009 D026 E008 E009 E029 E031
	NP-DCGW11T304GS																●	●	9.525	3.97	0.4	1.5	4.4		
	NP-DCGW070202G										▲								6.35	2.38	0.2	2.3	2.8		
	NP-DCGW070204G										▲								6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208G										▲								6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302G										▲								9.525	3.97	0.2	2.3	4.4		
	NP-DCGW11T302G												▲						9.525	3.97	0.2	1.5	4.4		
	NP-DCGW11T304G										▲								9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T304G												▲						9.525	3.97	0.4	1.5	4.4		
	NP-DCGW11T308G										▲								9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070202F											▲							6.35	2.38	0.2	1.5	2.8		
	NP-DCGW070204F											▲							6.35	2.38	0.4	1.5	2.8		
	NP-DCGW11T302F											▲							9.525	3.97	0.2	1.5	4.4		
	NP-DCGW11T304F										□								9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T304F											▲							9.525	3.97	0.4	1.5	4.4		
	NP-DCGW11T308F										□								9.525	3.97	0.8	2.0	4.4		
NEW PETIT CUT	NP-DCGW070202T													▲					6.35	2.38	0.2	1.5	2.8	EPSR 55°	C023 D009 D026 E008 E009 E029 E031
	NP-DCGW070204T													▲					6.35	2.38	0.4	1.5	2.8		
	NP-DCGW11T302T													▲					9.525	3.97	0.2	1.5	4.4		
	NP-DCGW11T304T										□								9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T304T													▲					9.525	3.97	0.4	1.5	4.4		
	NP-DCGW11T308T										□								9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T308T													▲					9.525	3.97	0.8	1.7	4.4		
NEW PETIT CUT	NP-DCMW070204G												▲						6.35	2.38	0.4	1.5	2.8	EPSR 55°	C023 D009 D026 E008 E009 E029 E031
	NP-DCMW11T304G												▲						9.525	3.97	0.4	1.5	4.4		
	DCGW070204FS															●			6.35	2.38	0.4	—	2.8	EPSR 55°	C023 D009 D026 E008 E009 E029 E031
	DCGW070208FS															●			6.35	2.38	0.8	—	2.8		
	DCMW070202																□	□	6.35	2.38	0.2	3.7	2.8	EPSR 55°	C023 D009 D026 E008 E009 E029 E031
	DCMW070204																□	□	6.35	2.38	0.4	3.5	2.8		
	DCMW11T302																□	□	9.525	3.97	0.2	3.7	4.4		
	DCMW11T304																□	□	9.525	3.97	0.4	3.5	4.4		

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

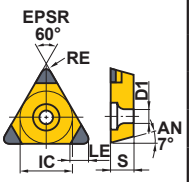
60° TC TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

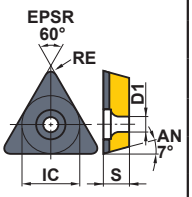
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Honing (Last letter of order number) : Refer to page B016.

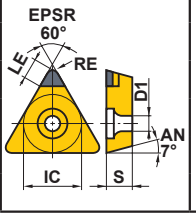
Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TCGW090202GA3					▲													5.56	2.38	0.2	1.5	2.5		
	NP-TCGW090204GA3					▲													5.56	2.38	0.4	1.6	2.5		
	NP-TCGW090208GA3					▲													5.56	2.38	0.8	1.8	2.5		
	NP-TCGW110202GA3					▲													6.35	2.38	0.2	1.5	2.8		
	NP-TCGW110204GA3					▲													6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208GA3					▲													6.35	2.38	0.8	1.8	2.8		
	NP-TCGW130304GA3					▲													7.94	3.18	0.4	1.6	3.4		
	NP-TCGW130308GA3					▲													7.94	3.18	0.8	1.8	3.4		
	NP-TCGW16T304GA3					▲													9.525	3.97	0.4	1.6	4.4		
	NP-TCGW16T308GA3					▲													9.525	3.97	0.8	1.8	4.4		
	NP-TCGW090204GS3		●																5.56	2.38	0.4	1.6	2.5		
	NP-TCGW090208GS3		●																5.56	2.38	0.8	1.8	2.5		
	NP-TCGW110202GS3		●																6.35	2.38	0.2	1.5	2.8		
	NP-TCGW110204GS3		●												●				6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208GS3		●												●				6.35	2.38	0.8	1.8	2.8		
	NP-TCGW130304GS3		●																7.94	3.18	0.4	1.6	3.4		
	NP-TCGW130308GS3		●																7.94	3.18	0.8	1.8	3.4		
	NP-TCGW16T304GS3		●																9.525	3.97	0.4	1.6	4.4		
	NP-TCGW16T308GS3		●																9.525	3.97	0.8	1.8	4.4		
	NP-TCGW110204FA3																●	●	6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208FA3																●	●	6.35	2.38	0.8	1.8	2.8		
	NP-TCGW110204FS3														●	●			6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208FS3														●	●			6.35	2.38	0.8	1.8	2.8		
	NP-TCGW110204TS3															●			6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208TS3															●			6.35	2.38	0.8	1.8	2.8		
	NP-TCGW110204SF3														●	●			6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208SF3														●	●			6.35	2.38	0.8	1.8	2.8		
	NP-TCGW110204SE3														●	●			6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208SE3														●	●			6.35	2.38	0.8	1.8	2.8		
	TCGW090204FS															●			5.56	2.38	0.4	—	2.5		
	TCGW090208FS															●			5.56	2.38	0.8	—	2.5		
	TCGW110204FS															●			6.35	2.38	0.4	—	2.8		
	TCGW110208FS															●			6.35	2.38	0.8	—	2.8		
	TCMW110202																□	□	6.35	2.38	0.2	2.8	2.8		
	TCMW110204																□	□	6.35	2.38	0.4	2.6	2.8		



C027
E028



C027
E028



C027
E028

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

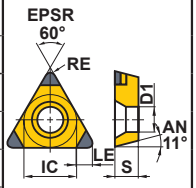
60° TP TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TPGB080204GA3			●	▲					▲									4.76	2.38	0.4	1.6	2.4		
	NP-TPGB080208GA3			●	▲														4.76	2.38	0.8	1.8	2.4		
	NP-TPGB090204GA3			●	●	▲			●	▲									5.56	2.38	0.4	1.6	2.9		
	NP-TPGB090208GA3			●	●	▲			●										5.56	2.38	0.8	1.8	2.9		
	NP-TPGB110302GA3			●					●										6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304GA3			●	●	▲			●										6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308GA3			●	●	▲			●										6.35	3.18	0.8	1.8	3.4		
	NP-TPGB160304GA3			●	●	▲			●		▲								9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308GA3			●	●	▲			●										9.525	3.18	0.8	1.8	4.4		
	NP-TPGB080204GS3	●	●																4.76	2.38	0.4	1.6	2.4		
	NP-TPGB080208GS3	●	●																4.76	2.38	0.8	1.8	2.4		
	NEW NP-TPGB090202GS3														●				5.56	2.38	0.2	1.5	2.9		
	NP-TPGB090204GS3	●	●												●				5.56	2.38	0.4	1.6	2.9		
	NP-TPGB090208GS3	●	●																5.56	2.38	0.8	1.8	2.9		
	NP-TPGB110302GS3	●	●												●				6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304GS3	●	●												●				6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308GS3	●	●												●				6.35	3.18	0.8	1.8	3.4		
	NP-TPGB160304GS3	●	●																9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308GS3	●	●																9.525	3.18	0.8	1.8	4.4		
	NP-TPGB160304GH3		●	●	●														9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308GH3		●	●	●														9.525	3.18	0.8	1.8	4.4		
	NP-TPGB090202FS3														●	●			5.56	2.38	0.2	1.5	2.9		
	NP-TPGB090204FS3														●	●			5.56	2.38	0.4	1.6	2.9		
	NP-TPGB110302FS3	●	●					●							●	●			6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304FS3	●	●	●				●							●	●			6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308FS3	●	●	●				●							●	●			6.35	3.18	0.8	1.8	3.4		
	NP-TPGB160304FS3			●															9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308FS3			●															9.525	3.18	0.8	1.8	4.4		
	NP-TPGB080204TA3				●					●									4.76	2.38	0.4	1.6	2.4		
	NP-TPGB080208TA3				●					●									4.76	2.38	0.8	1.8	2.4		
	NP-TPGB090204TA3				●					●									5.56	2.38	0.4	1.6	2.9		
	NP-TPGB090208TA3				●					●									5.56	2.38	0.8	1.8	2.9		
	NP-TPGB110304TA3			●	●				●	●									6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308TA3			●	●				●	●									6.35	3.18	0.8	1.8	3.4		
	NP-TPGB160304TA3			●	●				●	●									9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308TA3			●	●				●	●									9.525	3.18	0.8	1.8	4.4		
	NP-TPGB160304TH3			●	●					●									9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308TH3			●	●					●									9.525	3.18	0.8	1.8	4.4		
	NP-TPGB090202SF3														●	●			5.56	2.38	0.2	1.5	2.9		
	NP-TPGB090204SF3														●	●			5.56	2.38	0.4	1.6	2.9		
	NP-TPGB110302SF3														●	●			6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304SF3														●	●			6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308SF3														●	●			6.35	3.18	0.8	1.8	3.4		



E007

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

● = NEW

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TPGB090202SE3														●	●			5.56	2.38	0.2	1.5	2.9	EPSR 60° RE D1 AN 11° IC LE S	E007
	NP-TPGB090204SE3														●	●			5.56	2.38	0.4	1.6	2.9		
	NP-TPGB110302SE3														●	●			6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304SE3														●	●			6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308SE3														●	●			6.35	3.18	0.8	1.8	3.4		
NEW PETIT CUT	NP-TPGX080202GA3						□												4.76	2.38	0.2	1.5	2.5	EPSR 60° RE D1 AN 11° IC LE S	E025
	NP-TPGX080204GA3						□												4.76	2.38	0.4	1.6	2.5		
	NP-TPGX080208GA3						□												4.76	2.38	0.8	1.8	2.5		
	NP-TPGX090204GA3						□												5.56	2.38	0.4	1.6	3.0		
	NP-TPGX090208GA3						□												5.56	2.38	0.8	1.8	3.0		
	NP-TPGX110304GA3						□												6.35	3.18	0.4	1.6	3.5		
	NP-TPGX110308GA3						□												6.35	3.18	0.8	1.8	3.5		
	NP-TPGX080202GS3					▲													4.76	2.38	0.2	1.5	2.5		
	NP-TPGX080204GS3					▲													4.76	2.38	0.4	1.6	2.5		
	NP-TPGX090202GS3					▲													5.56	2.38	0.2	1.5	3.0		
	NP-TPGX090204GS3					▲													5.56	2.38	0.4	1.6	3.0		
	NP-TPGX110304GS3					▲													6.35	3.18	0.4	1.6	3.5		
	NP-TPGX110308GS3					▲													6.35	3.18	0.8	1.8	3.5		
NEW PETIT CUT	NP-TPMB080204G												▲						4.76	2.38	0.4	1.6	2.4	EPSR 60° RE LE D1 AN 11° IC S	E007
	NP-TPMB090204G												▲						5.56	2.38	0.4	1.6	2.9		
	NP-TPMB110304G												▲						6.35	3.18	0.4	1.6	3.4		
	NP-TPMB160304G												▲						9.525	3.18	0.4	1.6	4.4		
NEW PETIT CUT	NP-TPGX090204G										▲								5.56	2.38	0.4	1.6	3.0	EPSR 60° RE LE D1 AN 11° IC S	E025
	NP-TPGX090208G										▲								5.56	2.38	0.8	1.8	3.0		
	NP-TPGX110304G										▲								6.35	3.18	0.4	1.6	3.5		
	NP-TPGX110308G										▲								6.35	3.18	0.8	1.8	3.5		
	NP-TPGX080202F											▲							4.76	2.38	0.2	1.5	2.5		
	NP-TPGX080204F											▲							4.76	2.38	0.4	1.6	2.5		
	NP-TPGX090202F											▲							5.56	2.38	0.2	1.5	3.0		
	NP-TPGX090204F											▲							5.56	2.38	0.4	1.6	3.0		
	NP-TPGX110304F											▲					●		6.35	3.18	0.4	1.6	3.5		
	NP-TPGX110308F											▲					●		6.35	3.18	0.8	1.8	3.5		
	NP-TPGX080202T													▲					4.76	2.38	0.2	1.5	2.5		
	NP-TPGX080204T													▲					4.76	2.38	0.4	1.6	2.5		
	NP-TPGX090202T													▲					5.56	2.38	0.2	1.5	3.0		
	NP-TPGX090204T													▲					5.56	2.38	0.4	1.6	3.0		
	NP-TPGX110304T													▲▲				●	6.35	3.18	0.4	1.6	3.5		
	NP-TPGX110308T													▲▲				●	6.35	3.18	0.8	1.8	3.5		

● = NEW

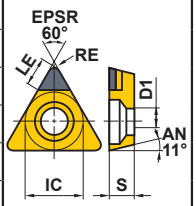
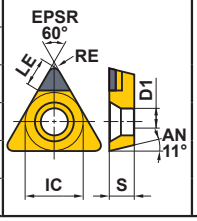
GRADES ➤ B006
IDENTIFICATION ➤ B002

60° TP TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	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 B016.

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
	TPGX080202																●	●	4.76	2.38	0.2	1.9	2.5	 TPGX16○○○○ 	E025
	TPGX080204											▲					●	●	4.76	2.38	0.4	1.7	2.5		
	TPGX080208																□	□	4.76	2.38	0.8	1.4	2.5		
	TPGX090202																●	●	5.56	2.38	0.2	2.8	3.0		
	TPGX090204											▲					●	●	5.56	2.38	0.4	2.6	3.0		
	TPGX090208																□	□	5.56	2.38	0.8	2.3	3.0		
	TPGX110302																□	□	6.35	3.18	0.2	2.8	3.5		
	TPGX110304											▲					●	●	6.35	3.18	0.4	2.6	3.5		
	TPGX110308											▲					●	●	6.35	3.18	0.8	2.3	3.5		
	TPGX160304																●	□	9.525	3.18	0.4	3.7	4.8		
	TPGX160308																●	□	9.525	3.18	0.8	3.4	4.8		
	TPGX160404																□	□	9.525	4.76	0.4	3.7	4.8		
	TPGX160408																□	□	9.525	4.76	0.8	3.4	4.8		

● = NEW

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

▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

35° VB TYPE INSERTS WITH HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

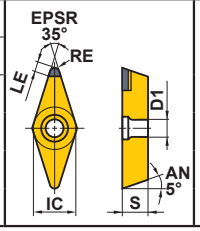
Honing (Last letter of order number) : Refer to page B016.

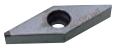
Shape	Order Number	Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-VBGW110302GA2			●				●											6.35	3.18	0.2	2.5	2.85		
	NP-VBGW110304GA2			●	●			●											6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308GA2			●	●			●											6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160402GA2			●				●											9.525	4.76	0.2	2.5	4.43		
	NP-VBGW160404GA2			●	●		▲	●		▲									9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408GA2			●	●		▲	●		▲									9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110302GS2	●	●																6.35	3.18	0.2	2.5	2.85		
	NP-VBGW110304GS2	●	●												●				6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110304GS2																	●	6.35	3.18	0.4	1.4	2.85		
	NP-VBGW110308GS2	●	●												●				6.35	3.18	0.8	2.0	2.85		
	NP-VBGW110308GS2																	●	6.35	3.18	0.8	1.5	2.85		
	NP-VBGW160402GS2	●	●																9.525	4.76	0.2	2.5	4.43		
	NP-VBGW160404GS2	●	●												●				9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160404GS2																●	●	9.525	4.76	0.4	1.4	4.43		
	NP-VBGW160408GS2	●	●												●				9.525	4.76	0.8	2.0	4.43		
	NP-VBGW160408GS2																●	●	9.525	4.76	0.8	1.5	4.43		
	NP-VBGW160404GH2		●	●	●														9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408GH2		●	●	●														9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110302FS2		●					●											6.35	3.18	0.2	2.5	2.85	EPSR 35° RE	D010 D011 E011 E012 H013
	NP-VBGW110304FS2		●					●							●	●			6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308FS2		●					●							●	●			6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160402FS2		●					●											9.525	4.76	0.2	2.5	4.43		
	NP-VBGW160404FS2			●											●	●			9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408FS2			●											●	●			9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110304TA2				●														6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308TA2				●														6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160404TA2			●	●			●											9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408TA2			●	●			●											9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110304TS2															●			6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308TS2															●			6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160404TS2															●			9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408TS2															●			9.525	4.76	0.8	2.0	4.43		
	NP-VBGW160404TH2			●	●														9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408TH2			●	●														9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110304SF2														●	●			6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308SF2														●	●			6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160404SF2														●	●			9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408SF2														●	●			9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110304SE2														●	●			6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308SE2														●	●			6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160404SE2														●	●			9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408SE2														●	●			9.525	4.76	0.8	2.0	4.43		

● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

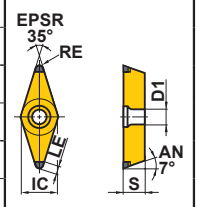
35° VB TYPE INSERTS WITH HOLE

Work Material			Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
	H	Hardened Materials	●	●	◐	✲	●	◐	●	◐	✲	◐	●	◐	✲	◐		●	◐							
	K	Cast Iron														◐		●	◐							
	S	Heat-resistant Alloy, Titanium Alloy																	◐							
		Sintered Alloy														◐	◐									
NEW PETIT CUT	NP-VBGW160404G										▲									9.525	4.76	0.4	2.5	4.43		E011 H013
	NP-VBGW160408G										▲									9.525	4.76	0.8	2.0	4.43		



Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting
Honing (Last letter of order number) : Refer to page B016.

35° VC TYPE INSERTS WITH HOLE

Work Material			Coated CBN						CBN										Dimensions (mm)					Geometry	Applicable Holder Page
			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE	D1		
	H	Hardened Materials	●	●	◐	✲	●	◐	●	◐	✲	◐	●	◐	✲	◐		●	◐							
	K	Cast Iron														◐		●	◐							
	S	Heat-resistant Alloy, Titanium Alloy																	◐							
		Sintered Alloy														◐	◐									
NEW PETIT CUT	NP-VCGW160404GA2				●	●		▲				▲								9.525	4.76	0.4	2.5	4.4		C028 C029 E032 E033
	NP-VCGW160408GA2				●	●		▲				▲								9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404GS2		●	●																9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408GS2		●	●																9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404GH2			●	●	●														9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408GH2			●	●	●														9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404FS2			●	●				●											9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408FS2			●	●				●											9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404TA2				●	●														9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408TA2				●	●														9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404TS2			●																9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408TS2			●																9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404TH2				●	●														9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408TH2				●	●														9.525	4.76	0.8	2.0	4.4		

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting
Honing (Last letter of order number) : Refer to page B016.

● = NEW

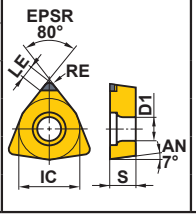
● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.
(1 insert in one case)

80° WC TYPE INSERTS WITH HOLE

Work Material			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730
			Coated CBN						CBN										
									NEW							NEW			
	H	Hardened Materials	●	●	◐	✣	●	◐	●	◐	✣	◐	●	◐	✣	◐		●	●
	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 B016.

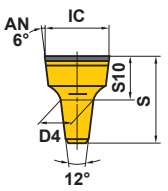
Shape	Order Number	IC	S	RE	LE	D1	Geometry	Applicable Holder Page
	**NP-WCMWL30204FA**	4.76	2.38	0.4	1.9	2.3		E027
	NP-WCMWL30208FA	4.76	2.38	0.8	2.1	2.3		

● = NEW

RTG TYPE INSERTS WITHOUT HOLE

Work Material			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	MB4120	MB4020	MB710	MB730
			Coated CBN						CBN										
									NEW							NEW			
	H	Hardened Materials	●	●	◐	✣	●	◐	●	◐	✣	◐	●	◐	✣	◐		●	●
	K	Cast Iron																	◐
	S	Heat-resistant Alloy, Titanium Alloy														◐	◐		
		Sintered Alloy																	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	IC	S	S10	D4	Geometry	Applicable Holder Page
	**RTG05A**	5	7.5	3.5	2.5		C035
	RTG06A	6	7.5	3.5	3.5		
	RTG07A	7	11	5.0	3.5		
	RTG08A	8	11	5.0	4.5		
	RTG10A	10	14	6.5	5.5		

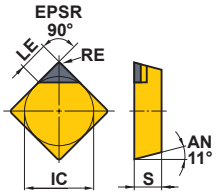
● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

90° SP TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)				Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	NEW MB8120	NEW MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE		
	**SPGN090302**																□	□	9.525	3.18	0.2	4.1		–
	SPGN090304																●	□	9.525	3.18	0.4	4.0		
	SPGN090308																●	□	9.525	3.18	0.8	4.1		
	SPGN090312																□	□	9.525	3.18	1.2	4.1		
	SPGN120304																●	●	12.7	3.18	0.4	4.0		
	SPGN120308																●	●	12.7	3.18	0.8	4.1		
	SPGN120312																□	□	12.7	3.18	1.2	4.1		
	SPGN120408																□	□	12.7	4.76	0.8	4.1		
	SPGN120412																□	□	12.7	4.76	1.2	4.1		

● = NEW

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

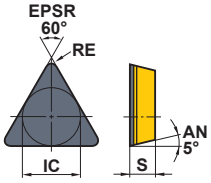
▲ : Inventory maintained in Japan. To be replaced by new products. However, the order for MB810, MB825, MB835 and MBC010 will be discontinued by the end of March 2020. The alternative grade for MB810, MB825 and MB835 is the MB8100 series, and the alternative grade for MBC010 is BC8105.

(1 insert in one case)

60° TB TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

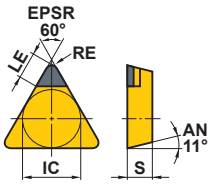
Shape	Order Number	Coated CBN						CBN										Dimensions (mm)				Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE		
	**TBGN060104**											▲					●	□	3.97	1.59	0.4	5.9		–
	TBGN060108											▲					●	□	3.97	1.59	0.8	4.9		

● = NEW

60° TP TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	Coated CBN						CBN										Dimensions (mm)				Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	IC	S	RE	LE		
	**TPGN090204**																□	□	5.56	2.38	0.4	2.6		E026
	TPGN110302																□	□	6.35	3.18	0.2	2.8		
	TPGN110304																●	●	6.35	3.18	0.4	2.6		
	TPGN110308																□	□	6.35	3.18	0.8	2.3		
	TPGN160304																●	●	9.525	3.18	0.4	3.7		
	TPGN160308																●	●	9.525	3.18	0.8	3.4		
	TPGN160312																□	□	9.525	3.18	1.2	3.1		
	TPGN160408																□	□	9.525	4.76	0.8	3.4		
	TPGN220408																□	□	12.7	4.76	0.8	3.4		

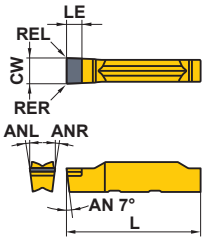
● = NEW

GRADES ➤ B006
IDENTIFICATION ➤ B002

GY TYPE INSERTS WITHOUT HOLE

Work Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated CBN						CBN									Dimensions (mm)					Geometry	Applicable Holder Page
		BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	NEW MB8110	MB8120	MB8130	MB8025	MB810	MB825	MB835	NEW MB4120	MB4020	MB710	MB730	CW	RER REL	L	LE	ANR ANL		
	GY1G0200D020N-GFGS		●								●								2.00	0.2	20.70	2.7	3°		F016 —027 F030 —035 F038 —087
	GY1G0239E020N-GFGS		●								●								2.39	0.2	20.70	2.7	7°		
	GY1G0250E020N-GFGS		●								●								2.50	0.2	20.70	2.7	7°		
	GY1G0300F020N-GFGS		●								●								3.00	0.2	20.70	2.7	7°		
	GY1G0318F020N-GFGS		●								●								3.18	0.2	20.70	2.7	7°		
	GY1G0400G020N-GFGS		●								●								4.00	0.2	25.65	2.7	7°		
	GY1G0475H020N-GFGS		●								●								4.75	0.2	25.65	2.7	7°		
	GY1G0500H020N-GFGS		●								●								5.00	0.2	25.65	2.7	7°		
	GY1G0600J020N-GFGS		●																6.00	0.2	25.65	2.7	7°		

● = NEW

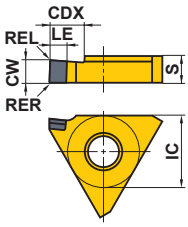
● : Inventory maintained in Japan. (1 insert in one case)

GRADES ➤ B006
IDENTIFICATION ➤ B002

MGTR TYPE INSERTS WITH HOLE

Work Material			BC8105	BC8110	BC8120	BC8130	MBC010	MBC020	MB8110 NEW	MB8120 NEW	MB8130 NEW	MB8025	MB810	MB825	MB835	MB4120 NEW	MB4020	MB710	MB730
	H	Hardened Materials	●	●	◕	✲	●	◕	●	◕	✲	◕	●	◕	✲	◕		●	◕
	K	Cast Iron														◕		●	◕
	S	Heat-resistant Alloy, Titanium Alloy																	◕
		Sintered Alloy														◕	◕		

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✲ : Unstable Cutting

Shape	Order Number	CW	LE	CDX	IC	S	RER REL	Geometry	Applicable Holder Page
	**MGTR43125**	1.25	2.7	1.2	12.7	4.76	0.2	 Right hand insert only.	F116 H014
	MGTR43150	1.50	2.7	3.0	12.7	4.76	0.2		
	MGTR43200	2.00	2.7	3.0	12.7	4.76	0.2		
	MGTR43250	2.50	2.7	4.5	12.7	4.76	0.3		
	MGTR43300	3.00	2.7	4.5	12.7	4.76	0.3		
	MGTR43350	3.50	2.7	4.5	12.7	4.76	0.3		
	MGTR43400	4.00	2.7	4.5	12.7	4.76	0.3		

● = NEW

PCD TURNING INSERTS [NEGATIVE]

80° CN TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-CNMM120402R-F**	●	12.7	4.76	0.2	1.8	5.16	EPSR 80° LE RE IC D1 S	C008 C009 E013 E036 E041 H006 −008
	NP-CNMM120402L-F	□	12.7	4.76	0.2	1.8	5.16		
	NP-CNMM120404R-F	●	12.7	4.76	0.4	1.9	5.16		
	NP-CNMM120404L-F	□	12.7	4.76	0.4	1.9	5.16		
	NP-CNMM120408R-F	●	12.7	4.76	0.8	2.1	5.16		
	NP-CNMM120408L-F	□	12.7	4.76	0.8	2.1	5.16		
(With Breaker)								Right hand insert shown.	
	CNMA120404	●	12.7	4.76	0.4	3.7	5.16	EPSR 80° LE RE IC D1 S	C008 C009 E013 E036 E041 H006 −008
	CNMA120408	●	12.7	4.76	0.8	3.6	5.16		

55° DN TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

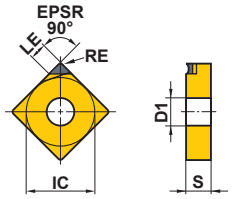
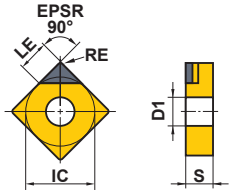
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-DNMM150402R-F**	●	12.7	4.76	0.2	1.5	5.16	EPSR 55° LE RE IC D1 S	C010 C011 E013 E036 −041 H009 −011
	NP-DNMM150402L-F	□	12.7	4.76	0.2	1.5	5.16		
	NP-DNMM150404R-F	●	12.7	4.76	0.4	1.5	5.16		
	NP-DNMM150404L-F	□	12.7	4.76	0.4	1.5	5.16		
	NP-DNMM150408R-F	●	12.7	4.76	0.8	1.7	5.16		
	NP-DNMM150408L-F	□	12.7	4.76	0.8	1.7	5.16		
(With Breaker)								Right hand insert shown.	
	DNGA150404	●	12.7	4.76	0.4	2.9	5.16	EPSR 55° LE RE IC D1 S	C010 C011 E013 E036 −041 H009 −011
	DNGA150408	●	12.7	4.76	0.8	2.5	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	●

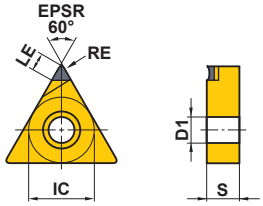
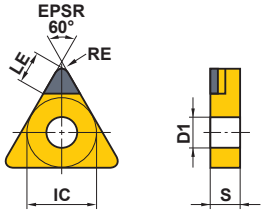
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-SNMM120404R-F**	●	12.7	4.76	0.4	2.1	5.16		C012 −015 E014 E035
	NP-SNMM120404L-F	□	12.7	4.76	0.4	2.1	5.16		
	**NP-SNMM120408R-F**	●	12.7	4.76	0.8	2.3	5.16		
	NP-SNMM120408L-F	□	12.7	4.76	0.8	2.3	5.16		
(With Breaker)								Right hand insert shown.	
	SNGA120404	□	12.7	4.76	0.4	3.8	5.16		C012 −015 E014 E035
	**SNGA120408**	●	12.7	4.76	0.8	3.8	5.16		

60° TN TYPE INSERTS WITH HOLE

Work Material			
	N	Non-ferrous Metal	●

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-TNMM160402R-F**	●	9.525	4.76	0.2	1.5	3.81		C016 C017 E014 E035 E040
	NP-TNMM160402L-F	□	9.525	4.76	0.2	1.5	3.81		
	NP-TNMM160404R-F	●	9.525	4.76	0.4	1.6	3.81		
	**NP-TNMM160404L-F**	□	9.525	4.76	0.4	1.6	3.81		
	NP-TNMM160408R-F	●	9.525	4.76	0.8	1.8	3.81		
	NP-TNMM160408L-F	□	9.525	4.76	0.8	1.8	3.81		
(With Breaker)								Right hand insert shown.	
	TNGA160402	●	9.525	4.76	0.2	3.1	3.81		C016 C017 E014 E035 E040
	TNGA160404	●	9.525	4.76	0.4	3.0	3.81		
	**TNGA160408**	●	9.525	4.76	0.8	2.8	3.81		

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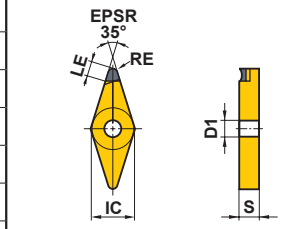
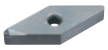
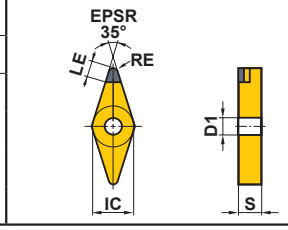
35° VN TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

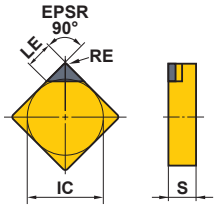
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-VNMM160402R-F**	●	9.525	4.76	0.2	1.3	3.81		C018 −020 E015 E042
	NP-VNMM160402L-F	□	9.525	4.76	0.2	1.3	3.81		
	**NP-VNMM160404R-F**	●	9.525	4.76	0.4	1.4	3.81		
	NP-VNMM160404L-F	□	9.525	4.76	0.4	1.4	3.81		
	NP-VNMM160408R-F	●	9.525	4.76	0.8	1.5	3.81		
	NP-VNMM160408L-F	□	9.525	4.76	0.8	1.5	3.81		
(With Breaker)								Right hand insert shown.	
	VNGA160404	●	9.525	4.76	0.4	2.6	3.81		C018 −020 E015 E042
	**VNGA160408**	●	9.525	4.76	0.8	1.8	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				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting
	N	Non-ferrous Metal	●	

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE		
	SNGN120404	□	12.7	4.76	0.4	3.8		–
	SNGN120408	●	12.7	4.76	0.8	3.8		

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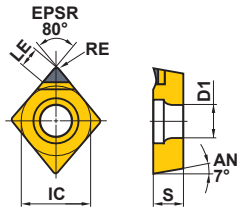
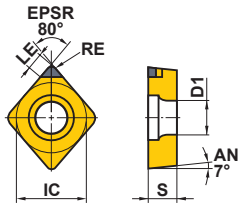
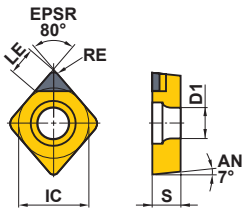
IDENTIFICATION ➤ B002

PCD TURNING INSERTS [POSITIVE]

80° CC TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

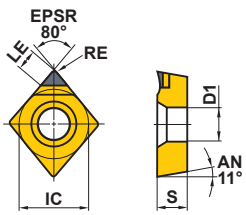
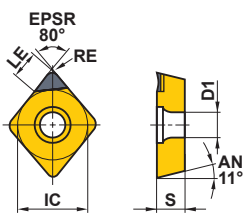
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT  (With Breaker)	NP-CCMH060202	●	6.35	2.38	0.2	1.8	2.8		C022 D008 E006 E030 E034
	NP-CCMH060204	●	6.35	2.38	0.4	1.9	2.8		
NEW PETIT CUT 	* NP-CCMW03S102	●	3.57	1.39	0.2	1.8	2.0		E016
	* NP-CCMW03S104	●	3.57	1.39	0.4	1.9	2.0		
	* NP-CCMW04T002	●	4.37	1.79	0.2	1.8	2.4		
	* NP-CCMW04T004	●	4.37	1.79	0.4	1.9	2.4		
	CCMW060202	●	6.35	2.38	0.2	2.9	2.8		C022 D008 E006 E030 E034
	CCMW060204	●	6.35	2.38	0.4	2.9	2.8		
	CCMW09T302	●	9.525	3.97	0.2	3.3	4.4		
	CCMW09T304	●	9.525	3.97	0.4	3.3	4.4		

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

80° CP TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

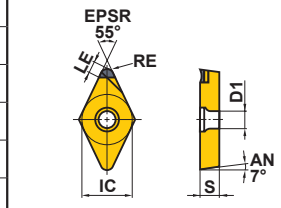
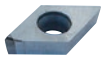
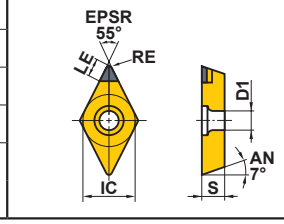
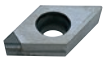
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT  (With Breaker)	NP-CPMH080202	●	7.94	2.38	0.2	1.8	3.5		E006
	NP-CPMH080204	●	7.94	2.38	0.4	1.9	3.5		
	NP-CPMH090302	●	9.525	3.18	0.2	1.8	4.5		
	NP-CPMH090304	●	9.525	3.18	0.4	1.9	4.5		
 (With Breaker)	CPGT080202	●	7.94	2.38	0.2	3.7	3.4		–
	CPGT080204	●	7.94	2.38	0.4	3.7	3.4		
	CPGT090302	●	9.525	3.18	0.2	3.3	4.4		
	CPGT090304	●	9.525	3.18	0.4	3.3	4.4		

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

55° DC TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

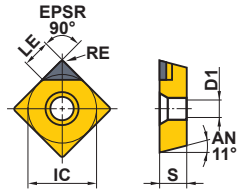
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✥ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-DCMT070202R-F**	●	6.35	2.38	0.2	1.5	2.8		C023 D009 D026 E008 E009 E029 E031
	NP-DCMT070202L-F	●	6.35	2.38	0.2	1.5	2.8		
	NP-DCMT070204R-F	●	6.35	2.38	0.4	1.5	2.8		
	**NP-DCMT070204L-F**	●	6.35	2.38	0.4	1.5	2.8		
	NP-DCMT11T302R-F	●	9.525	3.97	0.2	1.5	4.4		
	NP-DCMT11T302L-F	●	9.525	3.97	0.2	1.5	4.4		
	NP-DCMT11T304R-F	●	9.525	3.97	0.4	1.5	4.4		
(With Breaker)	**NP-DCMT11T304L-F**	●	9.525	3.97	0.4	1.5	4.4	Left hand insert shown.	
	DCMW070202	●	6.35	2.38	0.2	2.7	2.8		C023 D009 D026 E008 E009 E029 E031
	DCMW070204	●	6.35	2.38	0.4	2.6	2.8		
	**DCMW11T302**	●	9.525	3.97	0.2	3.0	4.4		
	DCMW11T304	●	9.525	3.97	0.4	2.9	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 MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
	SPGX090304	●	9.525	3.18	0.4	3.8	4.8		—
	**SPGX090308**	●	9.525	3.18	0.8	3.8	4.8		

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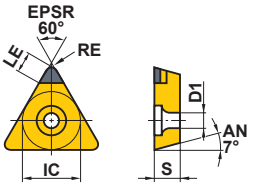
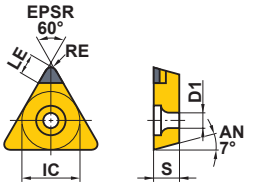
IDENTIFICATION ➤ B002

60° TC TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

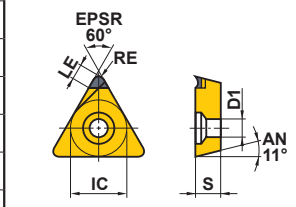
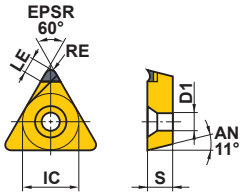
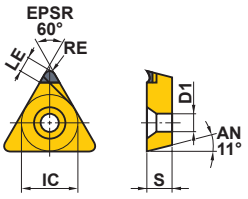
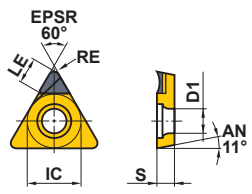
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
	**TCMW110202**	●	6.35	2.38	0.2	2.8	2.8		C027 E028
	TCMW110204	●	6.35	2.38	0.4	2.6	2.8		
	**TCGW060102**	●	3.97	1.59	0.2	1.5	2.3		–
	TCGW060104	●	3.97	1.59	0.4	1.6	2.3		
	TCGW060108	●	3.97	1.59	0.8	1.4	2.3		

● : 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) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

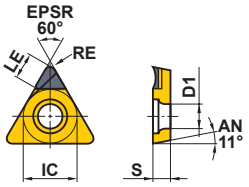
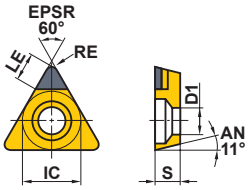
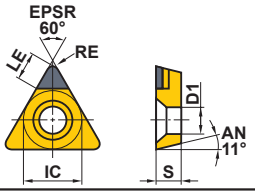
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	NP-TPMX090202R-F	●	5.56	2.38	0.2	1.5	3.0		E025
	NP-TPMX090202L-F	●	5.56	2.38	0.2	1.5	3.0		
	NP-TPMX090204R-F	□	5.56	2.38	0.4	1.6	3.0		
	NP-TPMX090204L-F	●	5.56	2.38	0.4	1.6	3.0		
	NP-TPMX090208R-F	□	5.56	2.38	0.8	1.8	3.0		
	NP-TPMX090208L-F	●	5.56	2.38	0.8	1.8	3.0		
	NP-TPMX110302R-F	□	6.35	3.18	0.2	1.5	3.5		
	NP-TPMX110302L-F	●	6.35	3.18	0.2	1.5	3.5		
	NP-TPMX110304R-F	□	6.35	3.18	0.4	1.6	3.5		
	NP-TPMX110304L-F	●	6.35	3.18	0.4	1.6	3.5		
	NP-TPMX110308R-F	□	6.35	3.18	0.8	1.8	3.5	NP-TPMX16□□□□R/L-F	
	NP-TPMX110308L-F	●	6.35	3.18	0.8	1.8	3.5		
	NP-TPMX160302R-F	□	9.525	3.18	0.2	1.5	4.8		
	NP-TPMX160302L-F	●	9.525	3.18	0.2	1.5	4.8		
	NP-TPMX160304R-F	□	9.525	3.18	0.4	1.6	4.8		
	NP-TPMX160304L-F	●	9.525	3.18	0.4	1.6	4.8		
	NP-TPMX160308R-F	□	9.525	3.18	0.8	1.8	4.8		
(With Breaker)	NP-TPMX160308L-F	●	9.525	3.18	0.8	1.8	4.8	Right hand insert shown.	
NEW PETIT CUT	NP-TPMH080202R-F	●	4.76	2.38	0.2	1.5	2.4		E007
	NP-TPMH080202L-F	●	4.76	2.38	0.2	1.5	2.4		
	NP-TPMH080204R-F	●	4.76	2.38	0.4	1.6	2.4		
	NP-TPMH080204L-F	●	4.76	2.38	0.4	1.6	2.4		
	NP-TPMH090202R-F	●	5.56	2.38	0.2	1.5	2.9		
	NP-TPMH090202L-F	●	5.56	2.38	0.2	1.5	2.9		
	NP-TPMH090204R-F	●	5.56	2.38	0.4	1.6	2.9		
	NP-TPMH090204L-F	●	5.56	2.38	0.4	1.6	2.9		
	NP-TPMH110302R-F	●	6.35	3.18	0.2	1.5	3.4		
	NP-TPMH110302L-F	●	6.35	3.18	0.2	1.5	3.4		
	NP-TPMH110304R-F	●	6.35	3.18	0.4	1.6	3.4		
	NP-TPMH110304L-F	●	6.35	3.18	0.4	1.6	3.4		
	NP-TPMH160302R-F	●	9.525	3.18	0.2	1.5	4.4		
	NP-TPMH160302L-F	●	9.525	3.18	0.2	1.5	4.4		
	NP-TPMH160304R-F	●	9.525	3.18	0.4	1.6	4.4		
(With Breaker)	NP-TPMH160304L-F	●	9.525	3.18	0.4	1.6	4.4	Left hand insert shown.	
	TPGT160302R-F	●	9.525	3.18	0.2	3.1	4.4		–
	TPGT160302L-F	●	9.525	3.18	0.2	3.1	4.4		
	TPGT160304R-F	●	9.525	3.18	0.4	3.0	4.4		
	TPGT160304L-F	●	9.525	3.18	0.4	3.0	4.4		
(With Breaker)								Right hand insert shown.	

GRADES ➤ B021
IDENTIFICATION ➤ B002

60° TP TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

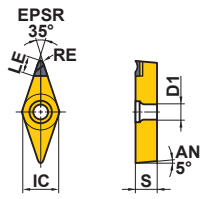
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
 (With Breaker)	**TPGV090202R-F**	●	5.56	2.38	0.2	2.8	2.8	 Right hand insert shown.	–
	TPGV090202L-F	●	5.56	2.38	0.2	2.8	2.8		
	TPGV090204R-F	●	5.56	2.38	0.4	2.6	2.8		
	TPGV090204L-F	●	5.56	2.38	0.4	2.6	2.8		
	TPGV110302R-F	●	6.35	3.18	0.2	2.8	3.4		
	TPGV110302L-F	●	6.35	3.18	0.2	2.8	3.4		
	TPGV110304R-F	●	6.35	3.18	0.4	2.6	3.4		
	TPGV110304L-F	●	6.35	3.18	0.4	2.6	3.4		
	**TPGX080202**	●	4.76	2.38	0.2	1.9	2.5	 TPGX16○○○○ 	E025
	TPGX080204	●	4.76	2.38	0.4	1.7	2.5		
	TPGX080208	●	4.76	2.38	0.8	1.4	2.5		
	TPGX090202	●	5.56	2.38	0.2	2.8	3.0		
	TPGX090204	●	5.56	2.38	0.4	2.6	3.0		
	TPGX090208	●	5.56	2.38	0.8	2.3	3.0		
	TPGX110302	●	6.35	3.18	0.2	2.8	3.5		
	TPGX110304	●	6.35	3.18	0.4	2.6	3.5		
	TPGX110308	●	6.35	3.18	0.8	2.3	3.5		
	TPGX160304	●	9.525	3.18	0.4	3	4.8		
	TPGX160308	●	9.525	3.18	0.8	2.7	4.8		

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

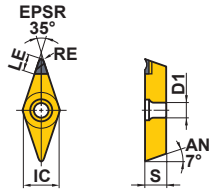
35° VB TYPE INSERTS WITH HOLE

Work Material				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
	N	Non-ferrous Metal	●	

Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
	NP-VBGT110301R-F	●	6.35	3.18	0.1	2.6	2.85		D010 D011 E011 E012
	NP-VBGT110302R-F	●	6.35	3.18	0.2	2.6	2.85		
	NP-VBGT110304R-F	●	6.35	3.18	0.4	2.5	2.85		
	NP-VBGT1103V5R-F	●	6.35	3.18	0.05	2.5	2.85		
(With Breaker)									

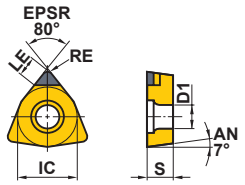
35° VC TYPE INSERTS WITH HOLE

Work Material				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
	N	Non-ferrous Metal	●	

Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
	NP-VCGT080201R-F	●	4.76	2.38	0.1	2.6	2.4		C028 D011 E011 E012 E032
	NP-VCGT080202R-F	●	4.76	2.38	0.2	2.6	2.4		
	NP-VCGT080204R-F	●	4.76	2.38	0.4	2.5	2.4		
	NP-VCGT0802V5R-F	●	4.76	2.38	0.05	2.5	2.4		
	NP-VCGT110301R-F	●	6.35	3.18	0.1	2.6	2.8		
	NP-VCGT110302R-F	●	6.35	3.18	0.2	2.6	2.8		
	NP-VCGT110304R-F	●	6.35	3.18	0.4	2.5	2.8		
(With Breaker)	NP-VCGT1103V5R-F	●	6.35	3.18	0.05	2.5	2.8		

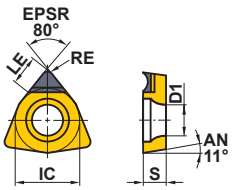
80° WC TYPE INSERTS WITH HOLE

Work Material				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
	N	Non-ferrous Metal	●	

Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
	WCMWL30202	●	4.76	2.38	0.2	1.6	2.3		E027
	WCMWL30204	□	4.76	2.38	0.4	1.7	2.3		
	WCMW040202	●	6.35	2.38	0.2	2.9	2.8		
	WCMW040204	□	6.35	2.38	0.4	3.0	2.8		
	WCMW06T304	●	9.525	3.97	0.4	3.0	4.4		
	WCMW06T308	□	9.525	3.97	0.8	3.3	4.4		

80° WP TYPE INSERTS WITH HOLE

Work Material				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
	N	Non-ferrous Metal	●	

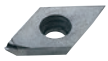
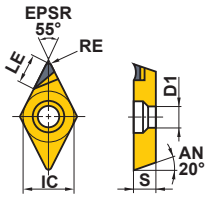
Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
 (With Breaker)	WPGT040202	●	6.35	2.38	0.2	2.9	2.8		E010
	WPGT040204	●	6.35	2.38	0.4	2.9	2.8		
	WPGT060302	●	9.525	3.18	0.2	3.3	4.4		
	WPGT060304	●	9.525	3.18	0.4	3.3	4.4		

● : 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	●

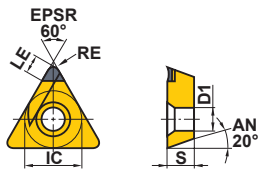
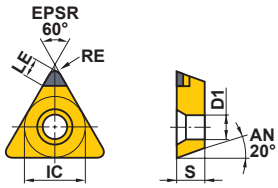
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
 (With Breaker)	DEGX150402R-F	●	12.7	4.76	0.2	3.0	5.1	 Right hand insert shown.	C032
	DEGX150402L-F	●	12.7	4.76	0.2	3.0	5.1		
	DEGX150404R-F	●	12.7	4.76	0.4	2.9	5.1		
	DEGX150404L-F	●	12.7	4.76	0.4	2.9	5.1		

60° TE TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
 (With Breaker)	TEGX160302R	●	9.525	3.18	0.2	3.8	4.4	 Right hand insert shown.	C033 E043
	TEGX160302L	●	9.525	3.18	0.2	3.8	4.4		
	TEGX160304R	●	9.525	3.18	0.4	3.7	4.4		
	TEGX160304L	●	9.525	3.18	0.4	3.7	4.4		
	TEGX160302	●	9.525	3.18	0.2	3.1	4.4		C033 E043
	TEGX160304	●	9.525	3.18	0.4	3.0	4.4		

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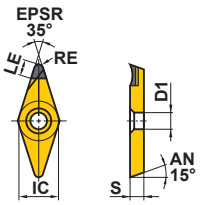
35° VD TYPE INSERTS WITH HOLE

Work Material	N	Non-ferrous Metal	●

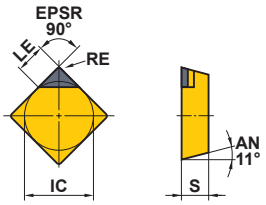
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
 (With Breaker)	**VDGX160302R-F**	●	9.525	3.18	0.2	3.1	4.5	 Right hand insert shown.	C034
	VDGX160302L-F	●	9.525	3.18	0.2	3.1	4.5		
	VDGX160304R-F	●	9.525	3.18	0.4	2.7	4.5		
	VDGX160304L-F	●	9.525	3.18	0.4	2.7	4.5		

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

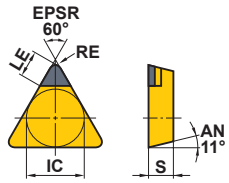
90° SP TYPE INSERTS WITHOUT HOLE

Work Material				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✥ : Unstable Cutting
	N	Non-ferrous Metal	●	

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE		
	SPGN090302	●	9.525	3.18	0.2	3.8		–
	SPGN090304	●	9.525	3.18	0.4	3.8		
	SPGN090308	●	9.525	3.18	0.8	3.8		
	SPGN090312	□	9.525	3.18	1.2	3.8		
	SPGN120304	●	12.7	3.18	0.4	3.8		
	SPGN120308	●	12.7	3.18	0.8	3.8		
	SPGN120312	●	12.7	3.18	1.2	3.8		

60° TP TYPE INSERTS WITHOUT HOLE

Work Material				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✥ : Unstable Cutting
	N	Non-ferrous Metal	●	

Shape	Order Number	PCD	Dimensions (mm)				Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE		
	TPGN110302	●	6.35	3.18	0.2	2.8		E026
	TPGN110304	●	6.35	3.18	0.4	2.6		
	TPGN110308	●	6.35	3.18	0.8	2.3		
	TPGN160302	●	9.525	3.18	0.2	3.1		
	TPGN160304	●	9.525	3.18	0.4	3.0		
	TPGN160308	●	9.525	3.18	0.8	2.7		
	TPGN160312	□	9.525	3.18	1.2	2.4		

GRADES ➤ B021
IDENTIFICATION ➤ B002