DIA EDGE

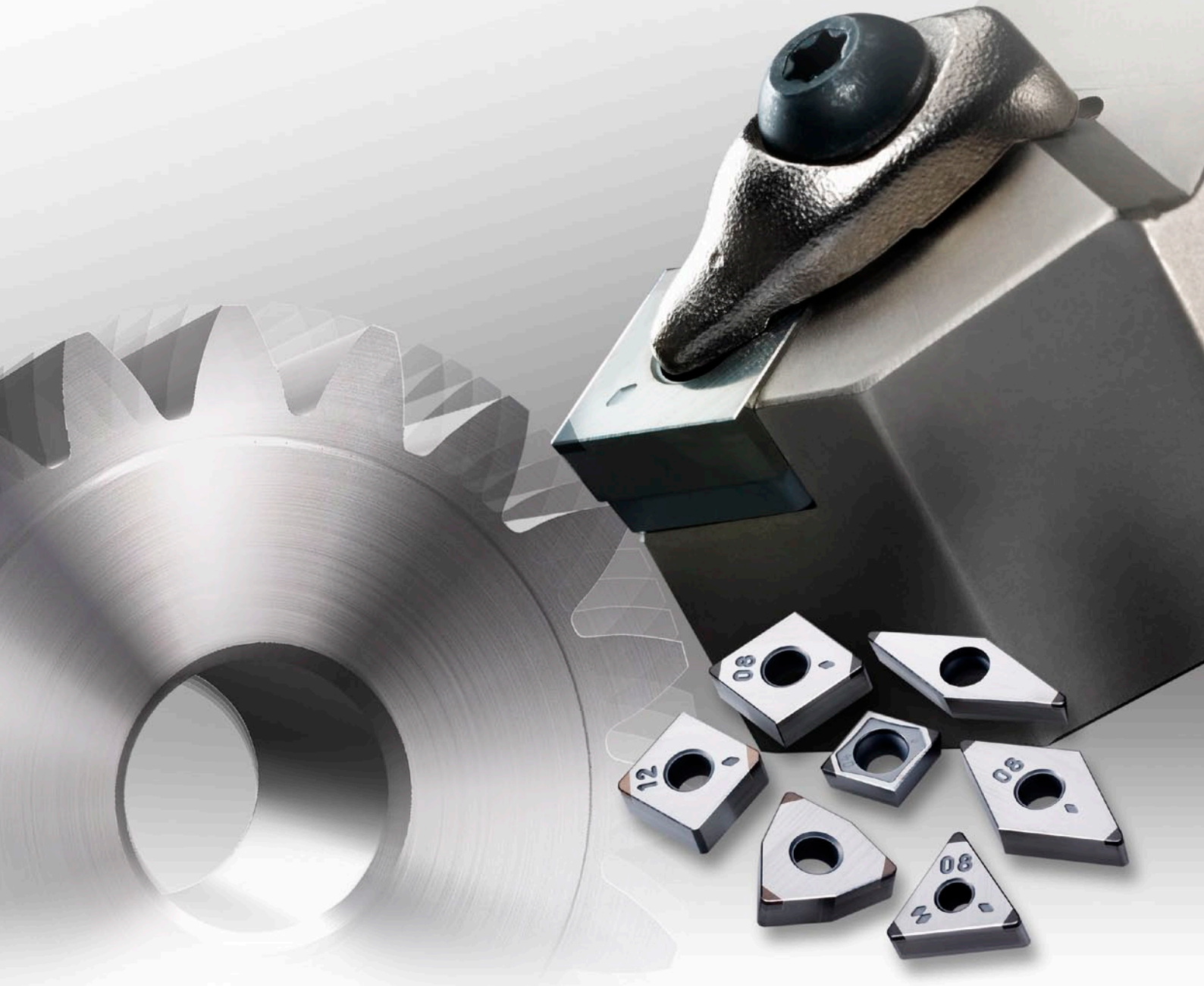
TOOL NEWS B246G

CBN Grade for Sintered Alloys and Cast Irons

# MB4120

New Product

## Excellent Fracture Resistance and Stable Cutting Improves Productivity



MITSUBISHI MATERIALS CORPORATION

# CBN Grade for Sintered Alloys and Cast Irons

# MB4120

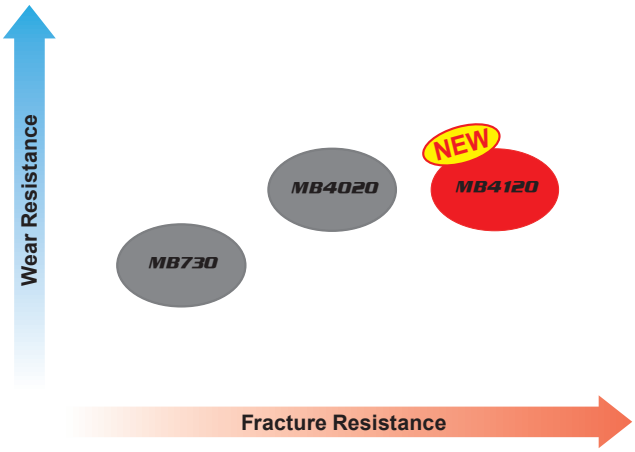
**Increasing the CBN particle content and bonding strength makes it suitable for machining various sintered materials.**

## High Fracture Resistance

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

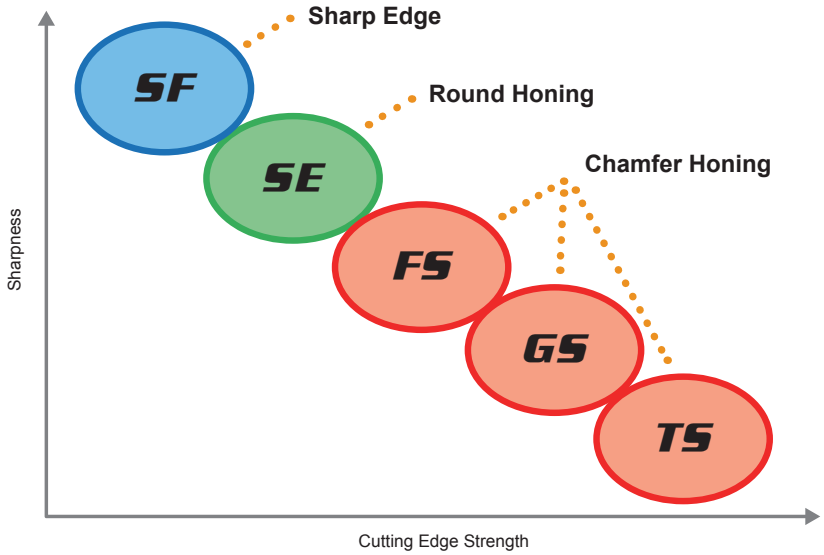
## High Adhesion Strength of Fine CBN Particles

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




## A Wide Range of Edge Preparation (Honing) are Available

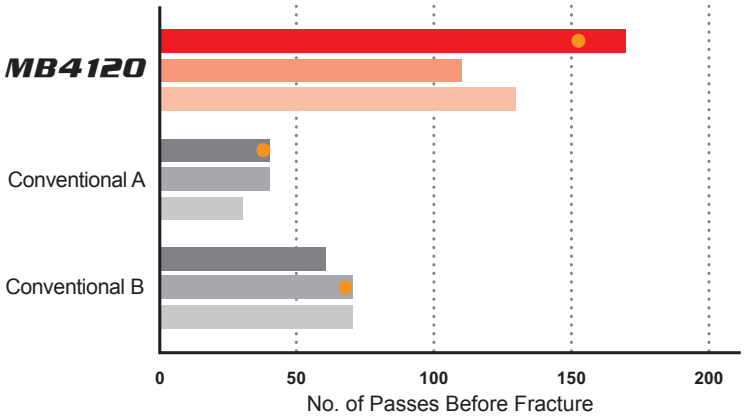
The SF type offers a sharper cutting edge, leading to the reduction in cutting resistance and burr development and an increase in surface finishes. The SF type is the first recommendation but, to increase cutting edge strength and chipping resistance there are also the SE, FS, GS and TS edge preparations.



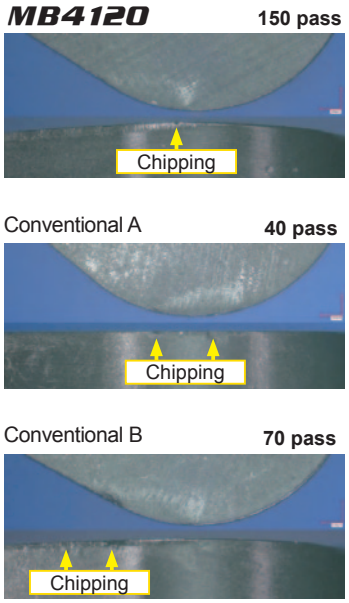
# Cutting Performance

## Fracture Resistance Comparison During Interrupted Facing of High Strength Sintered Alloy

**Increased fracture resistance even during heavy interrupted machining.**

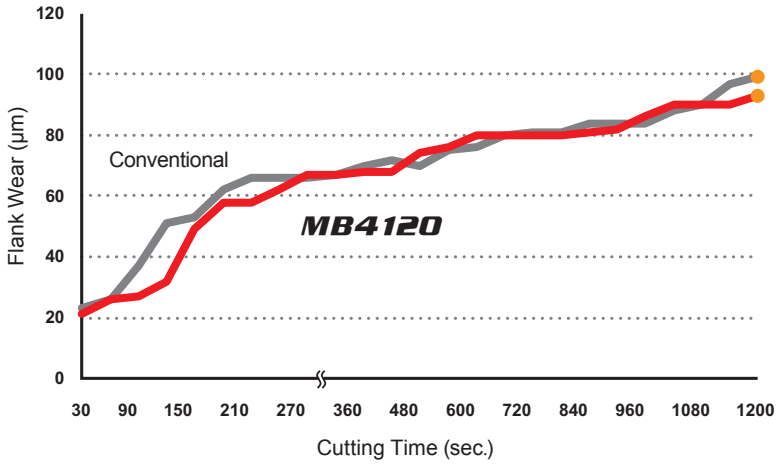



<Cutting Conditions>
Work Material : High Strength Sintered Alloy
Insert : NP-TNGA160408SE3
Cutting Speed : vc=150m/min
Feed per Rev. : f=0.15mm/rev
Depth of Cut : ap=0.1mm
Cutting Mode : Wet Cutting

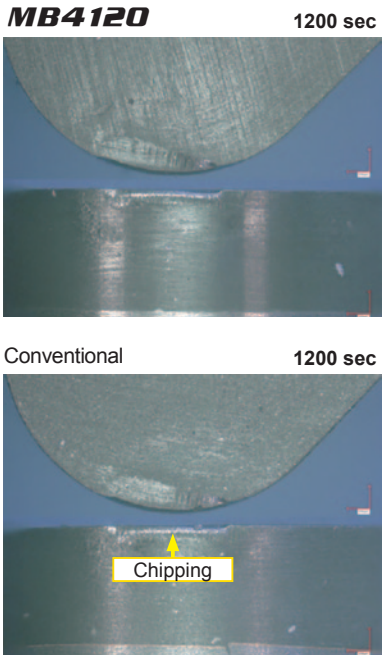



## Comparison in Continuous Machining of AISI No 35 B

**Excellent fracture resistance compared to conventional products.**



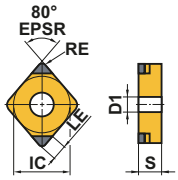

<Cutting Conditions>
Work Material : AISI No 35 B (Perlite)
Insert : NP-TNGA160408SF3
Cutting Speed : vc=800m/min
Feed per Rev. : f=0.1mm/rev
Depth of Cut : ap=0.2mm
Cutting Mode : Dry Cutting



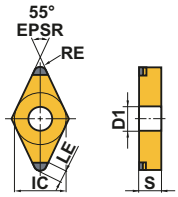
## Negative Inserts (With Hole)

G Class

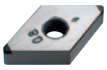
CNGA




DNGA




| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2 | | | |
|  | | | |

| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2 | | | |
|  | | | |

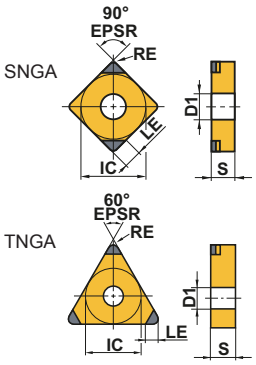
(mm)

| Order Number | MB4120 | Cutting Edges | IC | S | RE | D1 | LE |
|---|---|---|---|---|---|---|---|
| **NP-CNGA120404SF2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 1.9 |
| **NP-CNGA120408SF2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-CNGA120412SF2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.3 |
| **NP-CNGA120404SE2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 1.9 |
| **NP-CNGA120408SE2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-CNGA120412SE2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.3 |
| **NP-CNGA120404FS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 1.9 |
| **NP-CNGA120408FS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-CNGA120412FS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.3 |
| **NP-CNGA120404GS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 1.9 |
| **NP-CNGA120408GS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-CNGA120412GS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.3 |
| **NP-CNGA120404TS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 1.9 |
| **NP-CNGA120408TS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-CNGA120412TS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.3 |
| **NP-DNGA150404SF2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150408SF2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150412SF2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150604SF2** | ● | 2 | 12.7 | 6.35 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150608SF2** | ● | 2 | 12.7 | 6.35 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150612SF2** | ● | 2 | 12.7 | 6.35 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150404SE2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150408SE2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150412SE2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150604SE2** | ● | 2 | 12.7 | 6.35 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150608SE2** | ● | 2 | 12.7 | 6.35 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150612SE2** | ● | 2 | 12.7 | 6.35 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150404FS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150408FS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150412FS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150604FS2** | ● | 2 | 12.7 | 6.35 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150608FS2** | ● | 2 | 12.7 | 6.35 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150612FS2** | ● | 2 | 12.7 | 6.35 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150404GS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150408GS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150412GS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150604GS2** | ● | 2 | 12.7 | 6.35 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150608GS2** | ● | 2 | 12.7 | 6.35 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150612GS2** | ● | 2 | 12.7 | 6.35 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150404TS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150408TS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150412TS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 1.9 |
| **NP-DNGA150604TS2** | ● | 2 | 12.7 | 6.35 | 0.4 | 5.16 | 2.1 |
| **NP-DNGA150608TS2** | ● | 2 | 12.7 | 6.35 | 0.8 | 5.16 | 2.0 |
| **NP-DNGA150612TS2** | ● | 2 | 12.7 | 6.35 | 1.2 | 5.16 | 1.9 |

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

# Negative Inserts (With Hole)

## G Class



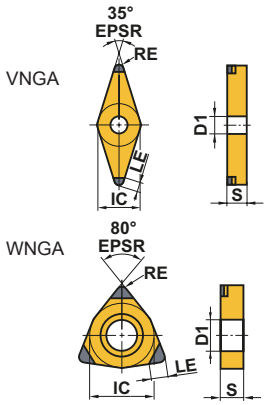

| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2 | | | |
|  | | | |
| NEW PETIT CUT | | | |
| NP_○○3 | | | |
|  | | | |

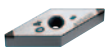
(mm)

| Order Number | MB4120 | Cutting Edges | IC | S | RE | D1 | LE |
|---|---|---|---|---|---|---|---|
| **NP-SNGA120404SF2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-SNGA120408SF2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.3 |
| **NP-SNGA120412SF2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.5 |
| **NP-SNGA120404SE2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-SNGA120408SE2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.3 |
| **NP-SNGA120412SE2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.5 |
| **NP-SNGA120404FS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-SNGA120408FS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.3 |
| **NP-SNGA120412FS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.5 |
| **NP-SNGA120404GS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-SNGA120408GS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.3 |
| **NP-SNGA120412GS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.5 |
| **NP-SNGA120404TS2** | ● | 2 | 12.7 | 4.76 | 0.4 | 5.16 | 2.1 |
| **NP-SNGA120408TS2** | ● | 2 | 12.7 | 4.76 | 0.8 | 5.16 | 2.3 |
| **NP-SNGA120412TS2** | ● | 2 | 12.7 | 4.76 | 1.2 | 5.16 | 2.5 |
| **NP-TNGA160404SF3** | ● | 3 | 9.525 | 4.76 | 0.4 | 3.81 | 1.6 |
| **NP-TNGA160408SF3** | ● | 3 | 9.525 | 4.76 | 0.8 | 3.81 | 1.8 |
| **NP-TNGA160412SF3** | ● | 3 | 9.525 | 4.76 | 1.2 | 3.81 | 1.9 |
| **NP-TNGA160404SE3** | ● | 3 | 9.525 | 4.76 | 0.4 | 3.81 | 1.6 |
| **NP-TNGA160408SE3** | ● | 3 | 9.525 | 4.76 | 0.8 | 3.81 | 1.8 |
| **NP-TNGA160412SE3** | ● | 3 | 9.525 | 4.76 | 1.2 | 3.81 | 1.9 |
| **NP-TNGA160404FS3** | ● | 3 | 9.525 | 4.76 | 0.4 | 3.81 | 1.6 |
| **NP-TNGA160408FS3** | ● | 3 | 9.525 | 4.76 | 0.8 | 3.81 | 1.8 |
| **NP-TNGA160412FS3** | ● | 3 | 9.525 | 4.76 | 1.2 | 3.81 | 1.9 |
| **NP-TNGA160404GS3** | ● | 3 | 9.525 | 4.76 | 0.4 | 3.81 | 1.6 |
| **NP-TNGA160408GS3** | ● | 3 | 9.525 | 4.76 | 0.8 | 3.81 | 1.8 |
| **NP-TNGA160412GS3** | ● | 3 | 9.525 | 4.76 | 1.2 | 3.81 | 1.9 |
| **NP-TNGA160404TS3** | ● | 3 | 9.525 | 4.76 | 0.4 | 3.81 | 1.6 |
| **NP-TNGA160408TS3** | ● | 3 | 9.525 | 4.76 | 0.8 | 3.81 | 1.8 |
| **NP-TNGA160412TS3** | ● | 3 | 9.525 | 4.76 | 1.2 | 3.81 | 1.9 |

## Positive Inserts (With Hole)

G Class




| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2  | | | |
| NEW PETIT CUT | | | |
| NP_○○3  | | | |

(mm)

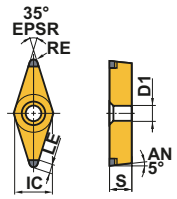
| Order Number | MB4120 | Cutting Edges | IC | S | RE | D1 | LE |
|---|---|---|---|---|---|---|---|
| **NP-VNGA160404SF2** | ● | 2 | 9.525 | 4.76 | 0.4 | 3.81 | 2.5 |
| **NP-VNGA160408SF2** | ● | 2 | 9.525 | 4.76 | 0.8 | 3.81 | 2.0 |
| **NP-VNGA160404SE2** | ● | 2 | 9.525 | 4.76 | 0.4 | 3.81 | 2.5 |
| **NP-VNGA160408SE2** | ● | 2 | 9.525 | 4.76 | 0.8 | 3.81 | 2.0 |
| **NP-VNGA160404FS2** | ● | 2 | 9.525 | 4.76 | 0.4 | 3.81 | 2.5 |
| **NP-VNGA160408FS2** | ● | 2 | 9.525 | 4.76 | 0.8 | 3.81 | 2.0 |
| **NP-VNGA160404GS2** | ● | 2 | 9.525 | 4.76 | 0.4 | 3.81 | 2.5 |
| **NP-VNGA160408GS2** | ● | 2 | 9.525 | 4.76 | 0.8 | 3.81 | 2.0 |
| **NP-VNGA160404TS2** | ● | 2 | 9.525 | 4.76 | 0.4 | 3.81 | 2.5 |
| **NP-VNGA160408TS2** | ● | 2 | 9.525 | 4.76 | 0.8 | 3.81 | 2.0 |
| **NP-WNGA080408SF3** | ● | 3 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-WNGA080408SE3** | ● | 3 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-WNGA080408FS3** | ● | 3 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-WNGA080408GS3** | ● | 3 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |
| **NP-WNGA080408TS3** | ● | 3 | 12.7 | 4.76 | 0.8 | 5.16 | 2.1 |

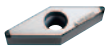
● : Inventory maintained in Japan. (1 insert in one case.)

# Positive Inserts (With Hole)

## G Class

VBGW




| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2 | | | |
|  | | | |
| | | | |
| | | | |

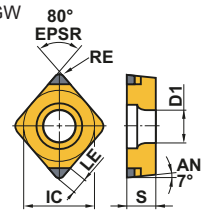
(mm)

| Order Number | MB4120 | Cutting Edges | IC | S | RE | D1 | LE |
|---|---|---|---|---|---|---|---|
| **NP-VBGW110304SF2** | ● | 2 | 6.35 | 3.18 | 0.4 | 2.85 | 2.5 |
| **NP-VBGW110308SF2** | ● | 2 | 6.35 | 3.18 | 0.8 | 2.85 | 2.0 |
| **NP-VBGW160404SF2** | ● | 2 | 9.525 | 4.76 | 0.4 | 4.43 | 2.5 |
| **NP-VBGW160408SF2** | ● | 2 | 9.525 | 4.76 | 0.8 | 4.43 | 2.0 |
| **NP-VBGW110304SE2** | ● | 2 | 6.35 | 3.18 | 0.4 | 2.85 | 2.5 |
| **NP-VBGW110308SE2** | ● | 2 | 6.35 | 3.18 | 0.8 | 2.85 | 2.0 |
| **NP-VBGW160404SE2** | ● | 2 | 9.525 | 4.76 | 0.4 | 4.43 | 2.5 |
| **NP-VBGW160408SE2** | ● | 2 | 9.525 | 4.76 | 0.8 | 4.43 | 2.0 |
| **NP-VBGW110304FS2** | ● | 2 | 6.35 | 3.18 | 0.4 | 2.85 | 2.5 |
| **NP-VBGW110308FS2** | ● | 2 | 6.35 | 3.18 | 0.8 | 2.85 | 2.0 |
| **NP-VBGW160404FS2** | ● | 2 | 9.525 | 4.76 | 0.4 | 4.43 | 2.5 |
| **NP-VBGW160408FS2** | ● | 2 | 9.525 | 4.76 | 0.8 | 4.43 | 2.0 |
| **NP-VBGW110304GS2** | ● | 2 | 6.35 | 3.18 | 0.4 | 2.85 | 2.5 |
| **NP-VBGW110308GS2** | ● | 2 | 6.35 | 3.18 | 0.8 | 2.85 | 2.0 |
| **NP-VBGW160404GS2** | ● | 2 | 9.525 | 4.76 | 0.4 | 4.43 | 2.5 |
| **NP-VBGW160408GS2** | ● | 2 | 9.525 | 4.76 | 0.8 | 4.43 | 2.0 |

## Positive Inserts (With Hole)

G Class

CCGW




| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2  | | | |
| | | | |
| | | | |

(mm)

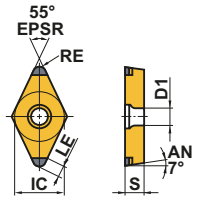
| Order Number | MB4120 | Cutting Edges | IC | S | RE | D1 | LE |
|---|---|---|---|---|---|---|---|
| **NP-CCGW060202SF2** | ● | 2 | 6.35 | 2.38 | 0.2 | 2.8 | 1.8 |
| **NP-CCGW060204SF2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 1.9 |
| **NP-CCGW060208SF2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.1 |
| **NP-CCGW09T302SF2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.8 |
| **NP-CCGW09T304SF2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 1.9 |
| **NP-CCGW09T308SF2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.1 |
| **NP-CCGW060202SE2** | ● | 2 | 6.35 | 2.38 | 0.2 | 2.8 | 1.8 |
| **NP-CCGW060204SE2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 1.9 |
| **NP-CCGW060208SE2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.1 |
| **NP-CCGW09T302SE2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.8 |
| **NP-CCGW09T304SE2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 1.9 |
| **NP-CCGW09T308SE2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.1 |
| **NP-CCGW060202FS2** | ● | 2 | 6.35 | 2.38 | 0.2 | 2.8 | 1.8 |
| **NP-CCGW060204FS2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 1.9 |
| **NP-CCGW060208FS2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.1 |
| **NP-CCGW09T302FS2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.8 |
| **NP-CCGW09T304FS2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 1.9 |
| **NP-CCGW09T308FS2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.1 |
| **NP-CCGW060202GS2** | ● | 2 | 6.35 | 2.38 | 0.2 | 2.8 | 1.8 |
| **NP-CCGW060204GS2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 1.9 |
| **NP-CCGW060208GS2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.1 |
| **NP-CCGW09T302GS2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.8 |
| **NP-CCGW09T304GS2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 1.9 |
| **NP-CCGW09T308GS2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.1 |
| **NP-CCGW060208TS2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.1 |
| **NP-CCGW09T308TS2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.1 |

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

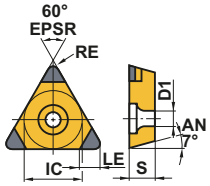
# Positive Inserts (With Hole)

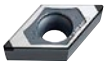
## G Class

DCGW




TCGW




| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2  | | | |
| NEW PETIT CUT | | | |
| NP_○○3  | | | |

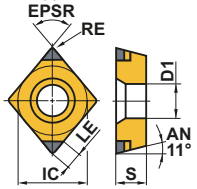
(mm)

| Order Number | MB4120 | Cutting Edges | IC | S | RE | D1 | LE |
|---|---|---|---|---|---|---|---|
| **NP-DCGW070204SF2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 2.1 |
| **NP-DCGW070208SF2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.0 |
| **NP-DCGW11T302SF2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.5 |
| **NP-DCGW11T304SF2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 2.1 |
| **NP-DCGW11T308SF2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.0 |
| **NP-DCGW070204SE2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 2.1 |
| **NP-DCGW070208SE2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.0 |
| **NP-DCGW11T302SE2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.5 |
| **NP-DCGW11T304SE2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 2.1 |
| **NP-DCGW11T308SE2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.0 |
| **NP-DCGW070204FS2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 2.1 |
| **NP-DCGW070208FS2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.0 |
| **NP-DCGW11T302FS2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.5 |
| **NP-DCGW11T304FS2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 2.1 |
| **NP-DCGW11T308FS2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.0 |
| **NP-DCGW070204GS2** | ● | 2 | 6.35 | 2.38 | 0.4 | 2.8 | 2.1 |
| **NP-DCGW070208GS2** | ● | 2 | 6.35 | 2.38 | 0.8 | 2.8 | 2.0 |
| **NP-DCGW11T302GS2** | ● | 2 | 9.525 | 3.97 | 0.2 | 4.4 | 1.5 |
| **NP-DCGW11T304GS2** | ● | 2 | 9.525 | 3.97 | 0.4 | 4.4 | 2.1 |
| **NP-DCGW11T308GS2** | ● | 2 | 9.525 | 3.97 | 0.8 | 4.4 | 2.0 |
| **NP-TCGW110204SF3** | ● | 3 | 6.35 | 2.38 | 0.4 | 2.8 | 1.6 |
| **NP-TCGW110208SF3** | ● | 3 | 6.35 | 2.38 | 0.8 | 2.8 | 1.8 |
| **NP-TCGW110204SE3** | ● | 3 | 6.35 | 2.38 | 0.4 | 2.8 | 1.6 |
| **NP-TCGW110208SE3** | ● | 3 | 6.35 | 2.38 | 0.8 | 2.8 | 1.8 |
| **NP-TCGW110204FS3** | ● | 3 | 6.35 | 2.38 | 0.4 | 2.8 | 1.6 |
| **NP-TCGW110208FS3** | ● | 3 | 6.35 | 2.38 | 0.8 | 2.8 | 1.8 |
| **NP-TCGW110204GS3** | ● | 3 | 6.35 | 2.38 | 0.4 | 2.8 | 1.6 |
| **NP-TCGW110208GS3** | ● | 3 | 6.35 | 2.38 | 0.8 | 2.8 | 1.8 |

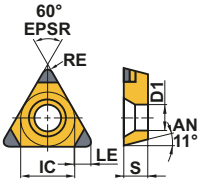
## Positive Inserts (With Hole)

G Class

CPGB




TPGB



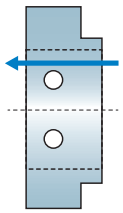
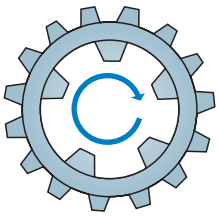
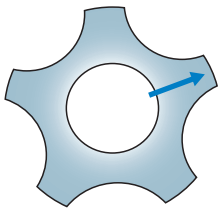
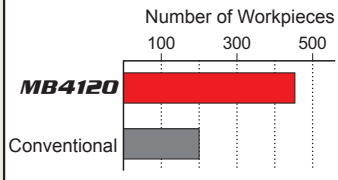
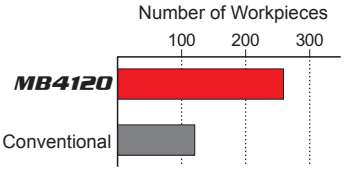
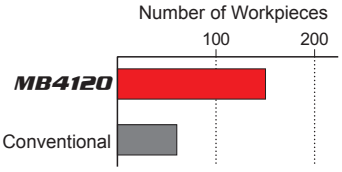

| NEW PETIT CUT | | | |
|---|---|---|---|
| NP_○○2 | | | |
|  | | | |
| NEW PETIT CUT | | | |
| NP_○○3 | | | |
|  | | | |

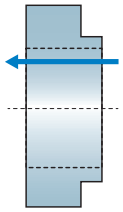
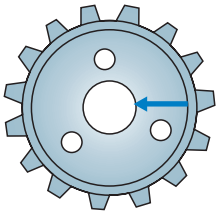
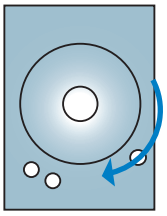
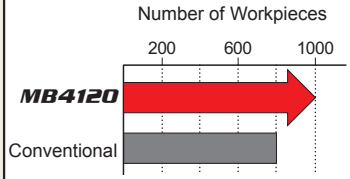
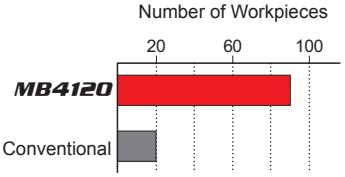
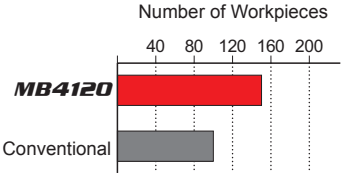
(mm)

| Order Number | MB4120 | Cutting Edges | IC | S | RE | D1 | LE |
|---|---|---|---|---|---|---|---|
| **NP-CPGB080202SE2** | ● | 2 | 7.94 | 2.38 | 0.2 | 3.5 | 1.8 |
| **NP-CPGB080204SE2** | ● | 2 | 7.94 | 2.38 | 0.4 | 3.5 | 1.9 |
| **NP-CPGB090302SE2** | ● | 2 | 9.525 | 3.18 | 0.2 | 4.5 | 1.8 |
| **NP-CPGB090304SE2** | ● | 2 | 9.525 | 3.18 | 0.4 | 4.5 | 1.9 |
| **NP-CPGB090308SE2** | ● | 2 | 9.525 | 3.18 | 0.8 | 4.5 | 2.1 |
| **NP-CPGB080202FS2** | ● | 2 | 7.94 | 2.38 | 0.2 | 3.5 | 1.8 |
| **NP-CPGB080204FS2** | ● | 2 | 7.94 | 2.38 | 0.4 | 3.5 | 1.9 |
| **NP-CPGB090302FS2** | ● | 2 | 9.525 | 3.18 | 0.2 | 4.5 | 1.8 |
| **NP-CPGB090304FS2** | ● | 2 | 9.525 | 3.18 | 0.4 | 4.5 | 1.9 |
| **NP-CPGB090308FS2** | ● | 2 | 9.525 | 3.18 | 0.8 | 4.5 | 2.1 |
| **NP-TPGB090202SF3** | ● | 3 | 5.56 | 2.38 | 0.2 | 2.9 | 1.5 |
| **NP-TPGB090204SF3** | ● | 3 | 5.56 | 2.38 | 0.4 | 2.9 | 1.6 |
| **NP-TPGB110302SF3** | ● | 3 | 6.35 | 3.18 | 0.2 | 3.4 | 1.5 |
| **NP-TPGB110304SF3** | ● | 3 | 6.35 | 3.18 | 0.4 | 3.4 | 1.6 |
| **NP-TPGB110308SF3** | ● | 3 | 6.35 | 3.18 | 0.8 | 3.4 | 1.8 |
| **NP-TPGB090202SE3** | ● | 3 | 5.56 | 2.38 | 0.2 | 2.9 | 1.5 |
| **NP-TPGB090204SE3** | ● | 3 | 5.56 | 2.38 | 0.4 | 2.9 | 1.6 |
| **NP-TPGB110302SE3** | ● | 3 | 6.35 | 3.18 | 0.2 | 3.4 | 1.5 |
| **NP-TPGB110304SE3** | ● | 3 | 6.35 | 3.18 | 0.4 | 3.4 | 1.6 |
| **NP-TPGB110308SE3** | ● | 3 | 6.35 | 3.18 | 0.8 | 3.4 | 1.8 |
| **NP-TPGB090202FS3** | ● | 3 | 5.56 | 2.38 | 0.2 | 2.9 | 1.5 |
| **NP-TPGB090204FS3** | ● | 3 | 5.56 | 2.38 | 0.4 | 2.9 | 1.6 |
| **NP-TPGB110302FS3** | ● | 3 | 6.35 | 3.18 | 0.2 | 3.4 | 1.5 |
| **NP-TPGB110304FS3** | ● | 3 | 6.35 | 3.18 | 0.4 | 3.4 | 1.6 |
| **NP-TPGB110308FS3** | ● | 3 | 6.35 | 3.18 | 0.8 | 3.4 | 1.8 |
| **NP-TPGB090202GS3** | ● | 3 | 5.56 | 2.38 | 0.2 | 2.9 | 1.5 |
| **NP-TPGB090204GS3** | ● | 3 | 5.56 | 2.38 | 0.4 | 2.9 | 1.6 |
| **NP-TPGB110302GS3** | ● | 3 | 6.35 | 3.18 | 0.2 | 3.4 | 1.5 |
| **NP-TPGB110304GS3** | ● | 3 | 6.35 | 3.18 | 0.4 | 3.4 | 1.6 |
| **NP-TPGB110308GS3** | ● | 3 | 6.35 | 3.18 | 0.8 | 3.4 | 1.8 |

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

## Application Examples

| Insert | NP-DCGW11T308SF2 | NP-DCGW11T308SF2 | NP-DCGW11T308SF2 |
|---|---|---|---|
| Workpiece | General Sintered Alloy  | General Sintered Alloy  | Iron-based Sintered Alloy (60HRB) Ra≦1.0μm  |
| Component | Housing(Interrupted Boring) | Case(Interrupted Boring) | Pinion(Interrupted Facing) |
| Cutting Conditions: Cutting Speed **vc** (m/min) | 200 | 180 | 200 |
| Cutting Conditions: Feed per Rev. **f** (mm/rev) | 0.07 | 0.25 | 0.04 – 0.05 |
| Cutting Conditions: Depth of Cut **ap** (mm) | 0.2 | 0.2 – 0.3 | 0.4 |
| Cutting Mode | Wet Cutting | Wet Cutting | Wet Cutting |
| Results |   Double the tool life of the conventional product. |   Double the tool life of the conventional product. |   As compared with the conventional product, good surface finishes were maintained and 2.5 times longer tool life was achieved. |

| Insert | NP-TNGA160408SF3 | NP-TNGA160408SE3 | NP-CNGA120408SF2 |
|---|---|---|---|
| Workpiece | High Strength Sintered Alloy  | General Sintered Alloy  | Cast Iron  |
| Component | Sprocket(Continuous Boring) | Sprocket(Interrupted Facing) | Mechanical Parts(Interrupted Facing) |
| Cutting Conditions: Cutting Speed **vc** (m/min) | 250 | 240 | 600 |
| Cutting Conditions: Feed per Rev. **f** (mm/rev) | 0.1 | 0.12 | 0.175 – 0.25 |
| Cutting Conditions: Depth of Cut **ap** (mm) | 0.1 | 0.05 | 0.15 – 0.2 |
| Cutting Mode | Wet Cutting | Wet Cutting | Dry Cutting |
| Results |   When comparing with the conventional product after machining the same number of workpieces, flank wear was smaller and further tool life extension can be expected. |   As compared with the conventional cermet product, higher surface quality and more than 4 times longer tool life was achieved. |   There is no abnormal damage and more than 1.5 times longer tool life was achieved. |

The above application examples are customer's applications, so it can be different from the recommended conditions.

## Recommended Cutting Conditions

### Sintered Alloys

(mm)

| Work Material | Grade | Cutting Conditions | **vc** (m/min) 100 150 200 250 300 | **f** (mm/rev) | **ap** | Cutting Mode |
|---|---|---|---|---|---|---|
| General Sintered Alloys | **MB4120** | Turning | | ≤0.2 | ≤0.3 | Dry, Wet |
| High Strength Sintered Alloys | **MB4120** | Turning | | ≤0.2 | ≤0.3 | Dry, Wet |
| Hardened Sintered Alloys | **MB4120** | Turning | | ≤0.2 | ≤0.3 | Dry, Wet |

### Cast Irons

(mm)

| Work Material | Grade | Cutting Conditions | **vc** (m/min) 100 150 200 250 300 | **f** (mm/rev) | **ap** | Cutting Mode |
|---|---|---|---|---|---|---|
| Gray Cast Irons | **MB4120** | Turning | | ≤0.2 | ≤0.3 | Dry, Wet |

For Your Safety
●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or driver.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(Tools specifications subject to change without notice.)


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