

# Inserts Identification Table

Inserts

C

D

R

S

T

V

W

Solid CBN  
Ceramic

**C**

①

① Insert Shape  
Chart 1

**N**

②

② Relief Angle  
Chart 2

**M**

③

③ Tolerance  
Chart 3

**G**

④

④ Insert Hole of Breaker  
Chart 4

Chart 1: Insert Shape

Symbol	Insert Shape	Angle
<b>C</b>		80°
<b>D</b>		55°
<b>E</b>		75°
<b>F</b>		50°
<b>V</b>		35°
<b>R</b>		Round
<b>S</b>		Square
<b>T</b>		Triangle
<b>W</b>		Trigon
<b>A</b>		85°
<b>B</b>		82°
<b>K</b>		55°
<b>H</b>		Hexagonal
<b>O</b>		Octagonal
<b>P</b>		Pentagonal
<b>L</b>		Rectangular
<b>M</b>		Rhombic

Chart 2: Relief Angle

Symbol	Relief Angle
<b>A</b>	3°
<b>B</b>	5°
<b>C</b>	7°
<b>D</b>	15°
<b>E</b>	20°
<b>F</b>	25°
<b>G</b>	30°
<b>N</b>	0°
<b>P*</b>	11°
<b>O</b>	Others

★ Inserts with a 10° relief angle are sometimes considered as "P"

Chart 3: Tolerance(mm)

Symbol	Nose Height	Inscribed Circle	Thickness
<b>A</b>	± 0.005	± 0.025	± 0.025
<b>F</b>	± 0.005	± 0.013	± 0.025
<b>C</b>	± 0.013	± 0.025	± 0.025
<b>H</b>	± 0.013	± 0.013	± 0.025
<b>E</b>	± 0.025	± 0.025	± 0.025
<b>G</b>	± 0.025	± 0.025	± 0.13
<b>J*</b>	± 0.005	± 0.05~± 0.15	± 0.025
<b>K*</b>	± 0.013	± 0.05~± 0.15	± 0.025
<b>L*</b>	± 0.025	± 0.05~± 0.15	± 0.025
<b>M*</b>	± 0.08~± 0.2	± 0.05~± 0.15	± 0.13
<b>N*</b>	± 0.08~± 0.2	± 0.05~± 0.15	± 0.025
<b>U*</b>	± 0.13~± 0.38	± 0.08~± 0.25	± 0.13

★ Generally, these inserts have unground side faces

Chart 4: Insert Hole or Breaker

Symbol	Hole	Hole Style	Chip Breaker	Shape	Symbol	Hole	Hole Style	Chip Breaker	Shape
<b>N</b>	No Hole	—	Nil		<b>A</b>	With Hole	Straight Hole	Nil	
<b>R</b>	No Hole	—	One Face		<b>M</b>	With Hole	Straight Hole	One Face	
<b>F</b>	No Hole	—	Both Faces		<b>G</b>	With Hole	Straight Hole	Both Faces	
<b>W</b>	With Hole	Straight hole with top end counter-sink (40°~60°)	Nil		<b>B</b>	With Hole	Straight hole with top end counter-sink (70°~90°)	Nil	
<b>T</b>	With Hole	Straight hole with top end counter-sink (40°~60°)	One Face		<b>H</b>	With Hole	Straight hole with top end counter-sink (70°~90°)	One Face	
<b>Q</b>	With Hole	Straight hole with top end counter-sink (40°~60°)	Nil		<b>C</b>	With Hole	Straight hole with top end counter-sink (70°~90°)	Nil	
<b>U</b>	With Hole	Straight hole with top end counter-sink (40°~60°)	Both Faces		<b>J</b>	With Hole	Straight hole with top end counter-sink (70°~90°)	Both Faces	

● Tolerance of Nose Height (M-Class)(mm)

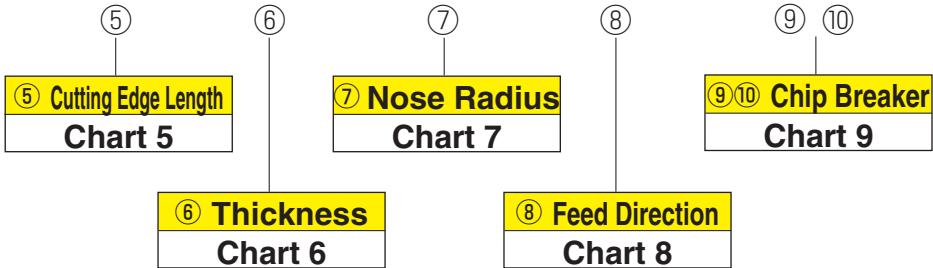
Inscribed Circle	Triangle	Square	80° Diamond	55° Diamond	35° Diamond	Round
6.35	± 0.08	± 0.08	± 0.08	± 0.11	± 0.16	—
9.525	± 0.08	± 0.08	± 0.08	± 0.11	± 0.16	—
12.70	± 0.13	± 0.13	± 0.13	± 0.15	—	—
15.875	± 0.15	± 0.15	± 0.15	± 0.18	—	—
19.05	± 0.15	± 0.15	± 0.15	± 0.18	—	—
25.40	± 0.18	± 0.18	± 0.18	—	—	—
31.75	—	± 0.20	—	—	—	—

● Tolerance of Inscribed Circle (M-Class)(mm)

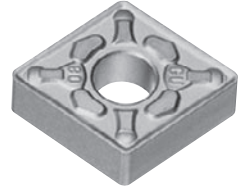
Inscribed Circle	Triangle	Square	80° Diamond	55° Diamond	35° Diamond	Round
6.35	± 0.05	± 0.05	± 0.05	± 0.05	—	—
9.525	± 0.05	± 0.05	± 0.05	± 0.05	± 0.05	± 0.05
12.70	± 0.08	± 0.08	± 0.08	± 0.08	—	± 0.08
15.875	± 0.10	± 0.10	± 0.10	± 0.10	—	± 0.10
19.05	± 0.10	± 0.10	± 0.10	± 0.10	—	± 0.10
25.40	± 0.13	± 0.13	± 0.13	—	—	± 0.13
31.75	—	± 0.15	—	—	—	± 0.15

# Inserts Identification Table

## 12 04 08 N - GU



Picture of insert shown as example  
(ISO Cat. No.)



### Chart 5: Cutting Edge Length (mm)

Shape	ISO	Cutting Edge	Inscribed Circle	Shape	ISO	Cutting Edge	Inscribed Circle	Shape	ISO	Cutting Edge	Inscribed Circle
C80° 	06	6.4	6.35	D55° 	07	7.7	6.35	W 	03	3.8	5.56
	08	8.0	7.94		11	11.6	9.525		04	4.3	6.35
	09	9.7	9.525		15	15.5	12.70		05	5.4	7.94
	12	12.9	12.70	19	19.4	15.875	06		6.5	9.525	
	16	16.1	15.875	V35° 	09	9.7	5.56		08	8.7	12.70
	19	19.3	19.05		11	11.1	6.35		10	10.9	15.875
			16		16.6	9.525					
S 	06	6.35	6.35	T 	06	6.9	3.97	R 	08	8.0	8.0
	S7	7.14	7.14		08	8.2	4.76		10	10.0	10.0
	07	7.94	7.94		09	9.6	5.56		12	12.0	12.0
	09	9.525	9.525		11	11.0	6.35		12	12.7	12.70
	12	12.7	12.70		16	16.5	9.525		15	15.875	15.875
	15	15.875	15.875		22	22.0	12.70		16	16.0	16.0
	19	19.05	19.05		27	27.5	15.875		19	19.05	19.05
	25	25.4	25.40		33	33.0	19.05		25	25.0	25.0
	31	31.75	31.75						25	25.4	25.40

### Chart 6: Thickness

ISO	Thickness (mm)
01	1.59
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
06	6.35
07	7.94
09	9.52

### Chart 7: Nose Radius

ISO	Nose Radius (mm)
00	Sharp Point
01	0.1
015	0.15
018	0.18
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
24	2.4
M0	Round Insert (Metric)
00	Round Insert (Metric)
00	Round Insert (Imperial)

### Chart 8: Feed Direction

ISO	Direction
R	Right-hand
L	Left-hand
N	Neutral

### Chart 9: Chip Breaker

Symbol	Process	Bumpy Type	Standard	Handed
F□	Fine Finishing To Finishing	FA, FL, FC FK, FP		FT, FX, FZ FY, FW
S□ L□	Light Cut	SC, SF, SP SS, SU, SX LU, LUW	EX	SD, SDW ST
G□ U□	General	GU, GUW UG, UP US, UX	UZ	UM
M□	Rough	MP, MU, MX	MC	MM HM
H□	Heavy	HG, HP, HU, HW		

Other specials	
Wide Chipbreaker	W
Double Positive Chipbreaker	GX
For Countersink	C
For Round Insert	RD, RP, RX
Special	AW, AG
Caburized Layer Removal	SV

Inserts

C

D

R

S

T

V

W

Solid CBN  
Ceramic