

Indexable Inserts for Turning

Negative / Positive / Ceramic B1 to B130

B



Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic
Solid CBN

Indexable Insert Identification Code	B2
Chipbreaker Selection	B4

NEW Chipbreakers EH type / SL type / RE type	B10
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Negative Inserts

C / 80° Diamond type (With Hole)	B12
D / 55° Diamond type (With Hole)	B23
S / Square type (With Hole)	B31
S / Square type (Without Hole)	B44
T / Triangular type (With Hole)	B46
T / Triangular type (Without Hole)	B56
V / 35° Diamond type (With Hole)	B58
W / Trigon type (With Hole)	B61

Positive Inserts

C / 80° Diamond type (With Hole)	B66
D / 55° Diamond type (With Hole)	B78
R / Round type (With Hole)	B86
S / Square type (With Hole)	B88
S / Square type (Without Hole)	B94
T / Triangular type (With Hole)	B98
T / Triangular type (Without Hole)	B99
V / 35° Diamond type (With Hole)	B116
W / Trigon type (With Hole)	B124

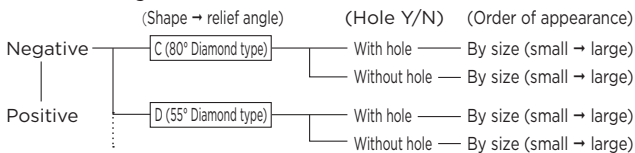
Ceramic Negative Insert (With Hole/Without Hole) ..	B126
Ceramic Positive Insert (Without Hole)	B127
Solid SUMIBORON	B128

Precautions When Using Wiper Inserts	B129
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Format of This Chapter

- (1) Turning insert listing order is negative type inserts followed by positive type inserts.
- (2) The order of listing in each type group is as follows: C (80° Diamond type) → D (55° Diamond type) → R (Round type) → S (Square type) → T (Triangular type) → V (35° Diamond type) → W (Trigon type).
- (3) Listings of inserts with the same relief angle starts with for those with holes and then those without holes.
- (4) Inserts are grouped by shape and then further divided by size (small to large according to cutting edge length and thickness).

•Structure Diagram



Symbols in Insert Diagrams

*Symbols conform to ISO13399.

L: Cutting edge length, IC: Inscribed circle, S: Thickness, RE: Corner radius, D1: Hole diameter (For SUMIBORON and SUMIDIA, L indicates side length.)

Handed Inserts

*Typically, photos show right-handed inserts.

Insert Grades

- (1) For IGETALLOY, the grades listed include Coated Carbide (CVD/PVD), Cermet, Cemented Carbide, and Ceramic.
- (2) SUMIBORON and SUMIDIA are described only in SUMIBORON section (→ page L34 onward), and SUMIDIA section (→ page M10 onward).

Stock Markings and Symbols

- mark: Standard stocked item
- mark: To be replaced with the new item featured on the same page
- ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

- * mark: Semi-standard stock (please confirm stock availability)
- mark: Stock or planned stock (please confirm stock availability)
- Blank: Made-to-order item
- mark: Not available

B1

Indexable Insert Identification Code

Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic
Solid CBN

B2

Example

C

N

M

G

(1)

(2)

(3)

(4)

(1) Insert Shape
Refer to Table 1

(3) Tolerance
Refer to Table 3

(2) Relief Angle
Refer to Table 2

(4) Insert Hole
Refer to Table 4

Table 1: (1) Insert Shape

Symbol	Insert Shape	Apex Angle
C		80°
D		55°
E		75°
F		50°
V		35°
R		Round type
S		Square type
T		Triangular type
W		Trigon type
A		85°
B		82°
K		55°
H		Hexagonal type
O		Octagonal type
P		Pentagonal type
L		Rectangular type
M		Diamond type

Table 2: (2) Relief Angle

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

* mark indicates inserts that are sometimes used with a 10° relief angle.

Table 3: (3) Tolerance (mm)

Symbol	Tolerance of Corner Height	Inscribed Circle	Thickness
A	± 0.005	± 0.025	± 0.025
F	± 0.005	± 0.013	± 0.025
C	± 0.013	± 0.025	± 0.025
H	± 0.013	± 0.013	± 0.025
E	± 0.025	± 0.025	± 0.025
G	± 0.025	± 0.025	± 0.13
J*	± 0.005	±0.05 to ±0.15	± 0.025
K*	± 0.013	±0.05 to ±0.15	± 0.025
L*	± 0.025	±0.05 to ±0.15	± 0.025
M*	±0.08 to ±0.2	±0.05 to ±0.15	± 0.13
N*	±0.08 to ±0.2	±0.05 to ±0.15	± 0.025
U*	±0.13 to ±0.38	±0.08 to ±0.25	± 0.13

* mark indicates inserts that generally have sintered side surfaces. Refer to the table below (reference) for details on M class precision.

Table 4: (4) Insert Hole

Symbol	Insert Hole	Hole Shape	Chipbreaker	Shape (Cross Section)	Symbol	Insert Hole	Hole Shape	Chipbreaker	Shape (Cross Section)
N	No	No	No		A	No	No	No	
R	No	No	One Face		M	Yes	Cylindrical	One Face	
F	No	No	Double-sided		G	No	No	Double-sided	
W	Yes	Straight hole + Single chamfer (40° to 60°)	No		B	Yes	Straight hole + Single chamfer (70° to 90°)	No	
T	Yes	Straight hole + Single chamfer (40° to 60°)	One Face		H	Yes	Straight hole + Single chamfer (70° to 90°)	One Face	
Q	Yes	Straight hole + Double chamfer (40° to 60°)	No		C	Yes	Straight hole + Double chamfer (70° to 90°)	No	
U	Yes	Straight hole + Double chamfer (40° to 60°)	Double-sided		J	Yes	Straight hole + Double chamfer (70° to 90°)	Double-sided	
					X	-	-	-	Special

(Reference) Breakdown of M-Class Tolerance by Shape and Size

● Tolerance of Corner Height (mm)

Inscribed Circle	Triangular type	Square type	80° Diamond type	55° Diamond type	35° Diamond type	Round type
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	-	-	-	-

● Inscribed Circle Tolerance (mm)

Inscribed Circle	Triangular type	Square type	80° Diamond type	55° Diamond type	35° Diamond type	Round type
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
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

Indexable Insert Identification Code

12 04 08 N-GE

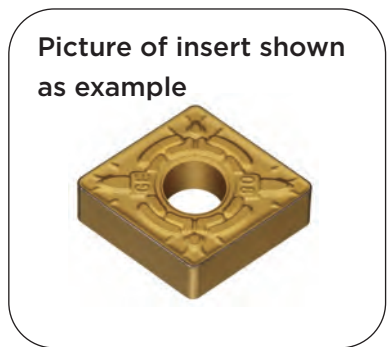
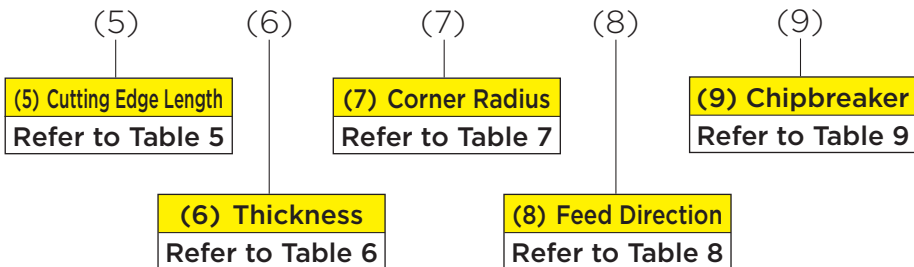


Table 5: (5) Cutting Edge Length (Typical Examples)

Note: Cutting edge length indicated is measured without corner radii.

Shape	Symbol	Cutting Edge Length (mm)		Shape	Symbol	Cutting Edge Length (mm)		Shape	Symbol	Cutting Edge Length (mm)		Inscribed Circle (mm)				
		Negative	Positive			Negative	Positive			Negative	Positive					
C 80° Diamond type	03	3.55	3.50	D 55° Diamond type	07	7.7	6.35	W Trigon type	03	3.8	5.56					
	04	4.37	4.30		09	9.7	7.94		04	4.3	6.35					
	06	6.4	6.35		11	11.6	9.525		05	5.4	7.94					
	08	8.0	7.94		15	15.5	12.70		06	6.5	3.2	9.525	3.97			
	09	9.7	9.525		19	19.4	15.875		08	8.7	4.6	12.70	4.76			
	12	12.9	12.70		V 35° Diamond type	08	8.3		4.76	10	10.9	15.875				
	16	16.1	15.875			09	9.7		5.56	11	4.3	6.35				
	19	19.3	19.05			11	11.1		6.35	16	6.5	9.525				
	25	25.8	25.4			16	16.6		9.525	08	8.0	8.0				
						22	22.1		12.7	10	10.0	10.0				
			22	22.1		12.7	12	12.0	12.0							
S Square type	06	6.35	6.35	T Triangular type	06	6.9	3.97	R Round type	12	12.70	12.70					
	S7	7.14	7.14		08	8.2	4.76		15	15.875	15.875					
	07	7.94	7.94		09	9.6	5.56		16	16.0	16.0					
	09	9.525	9.525		11	11.0	6.35		19	19.05	19.05					
	12	12.70	12.70		13	13.7	7.94		20	20.0	20.0					
	15	15.875	15.875		16	16.5	9.525		24	24.0	24.0					
	19	19.05	19.05		22	22.0	12.70		25	25.0	25.0					
	25	25.40	25.40		27	27.5	15.875		25	25.40	25.40					
	31	31.75	31.75		33	33.0	19.05		32	32.0	32.0					

Table 6: (6) Thickness

Symbol	Thickness (mm)
X1	*
01	1.59
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52

Table 7: (7) Corner Radius

Symbol	Corner Radius (mm)
00	Sharp Edged
003	0.03
008	0.08
01	0.1
015	0.15
018	0.18
02	0.2
035	0.35
04	0.4
08	0.8
10	1.0
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
M0	Round type (Metric)
00	Round type (Inch)
00	Round Insert (Imperial)

(*)
CCQT03X1 Insert Thickness: 1.40
CCQT04X1 Insert Thickness: 1.80

"M" after the corner radius code indicates negative tolerance.

Table 8: (8) Feed Direction

Symbol	Feed Direction
R	Right-Hand
L	Left-Hand
N	Neutral

Table 9: (9) Chipbreaker

Symbol	Application	3D type (Bumpy type)	Standard	Handed type
F□	Fine Cutting to Finishing	FA, FL, FE, FF, FB, FC, FK, FP		FT, FX, FZ FYS, FY, FW
S□ L□	Light Cutting	SE, SEW, SI, SC, SF, SS, SU, SX LU, LUW, LB		SD SDW ST
G□ U□	General Machining	GE, GU, GUW UG, UP US, UX	GZ UZ	UM
M□	Roughing	MP, MU, MX, ME	MC	MM HM
H□	Heavy Cutting	HG, HP, HF	HU HW	

Other Specials	
Wide Chipbreaker	W
Double Positive Chipbreaker	GX
For Chamfering	C
For Round type Inserts	RD, RP, RX, RH
For Exotic Alloy Turning	EF, EG, EX, EM
For Aluminum Alloy Turning	AW, AG, AX, AY, LD, GD
For Hardened Steel Turning	FV, LV, GH
For Carburised Layer Removal	SV
For Stainless Steel Turning	EF, EG, EM

Insert

B

Negative

Positive

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Ceramic Solid CBN

Chipbreaker Selection

Negative type Finishing to Medium Cutting

Insert

D

Negative

Positive

C

D

R

S

T

V

W

Ceramic
Solid CBN

Fine Cutting

FB type **P M K N S H**
Provides excellent chip control and cutting edge sharpness needed for low feed turning
0.80
27°
CNMG120400 type

FA type **P M K N S H**
Curved faced chipbreaker is effective for fine cutting
1.0
20°
CNMG120400 type

FL type **P M K N S H**
Optimal chipbreaker for chip control on rolled steel
1.0
10°
CNMG120400 type

FE type **P M K N S H**
Excellent chip evacuation for low to high feed turning
1.40
0.70
20°
CNMG120400 type

Legend

Chipbreaker **GU type** **P M K N S H** Work Material
Features
Photo
Relief Angle
Shapes In Stock
Typical Cross Section Shape
Cat. No. for Cross Section

General purpose chipbreaker with low cutting force and good wear resistance
0.25
2.05
7°
25°
CNMG120400 type

Finishing

LU type **P M K N S H**
Effective chip control for variable depths of cut and profiling
1.5
1.0
10°
CNMG120400 type

SU type **P M K N S H**
Effective at high feed and small depth of cut
1.3
13°
CNMG120400 type

SE type **P M K N S H**
Finishing chipbreaker reduces tool wear on rake face. Effective even for high-efficiency turning
0.1
1.5
5°
17°
CNMG120400 type

EF type **P M K N S H**
Exotic alloy finishing chipbreaker with excellent chip evacuation
1.2
20°
CNMG120400 type

LUW type **P M K N S H**
High-efficiency finishing chipbreaker with wiper edge
Wiper Insert
1.5
1.0
10°
CNMG120400 type

SEW type **P M K N S H**
New high-feed finishing chipbreaker with wiper edge
Wiper Insert
0.13
1.9
5°
17°
CNMG120400 type

FX type **P M K N S H**
Parallel chipbreaker with superior cutting edge sharpness
Sharp Edge
1.5
14°
TNGG160400 type

FY type **P M K N S H**
Wide chipbreaker with superior cutting edge sharpness
Sharp Edge
2.5
15°
TNGG160400 type

FT type **P M K N S H**
Arc-shaped ground type finishing chipbreaker
0.15
1.35
TNGG110300 type

Light to Medium Cutting

SJ type **P M K N S H**
Standard chipbreaker with excellent cutting edge strength
0.18
1.2
SNGG120400 type

ST type **P M K N S H**
Arc-shaped ground type chipbreaker for light cutting
0.15
1.65
TNGG160300 type

GX type **P M K N S H**
Double positive chipbreaker providing superior cutting edge sharpness
Sharp Edge Available
1.5
15°
SNGG120400 type

SX type **P M K N S H**
Enables profiling and step pull turning
0.2
1.35
3°
15°
CNMG120400 type

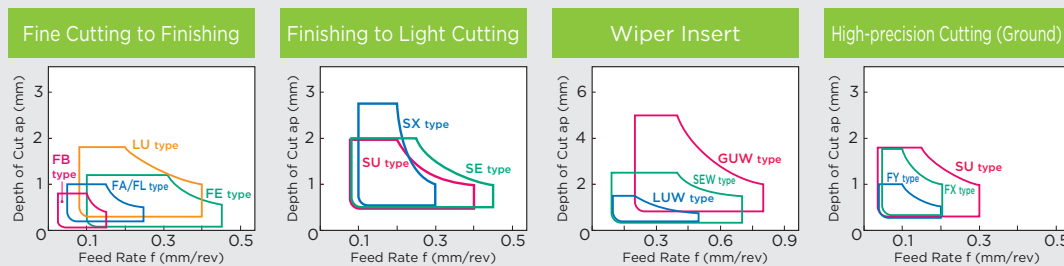
EX type **P M K N S H**
Standard Chipbreaker for Exotic Alloys
2.0
16°
CNMG120400 type

UP type **P M K N S H**
Double positive cutting edge ideal for stainless steel turning
2.1
10°
CNMG120400 type

 Bumpy Chipbreaker
 Standard Chipbreaker
 Handed Chipbreaker
 BREAK MASTER (CBN/PCD)
 For Chamfering

Applicable Work Materials: **P** Steel **M** Stainless Steel **K** Cast Iron **N** Non-Ferrous Metal **S** Exotic Alloy **H** Hardened Steel

Chipbreaker Application Range (Inscribed Circle of Insert up to $\phi 12.7$ mm)



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.). For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

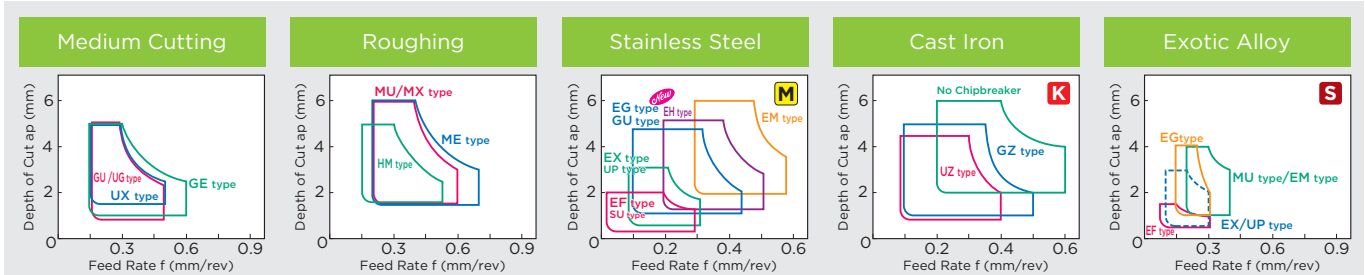
Negative type Medium Cutting to Roughing

Medium Cutting	GU type P M K N S H General purpose chipbreaker with low cutting force and good wear resistance CNMG1204CO type	GE type P M K N S H General purpose chipbreaker with high rake face wear resistance even in high-efficiency turning CNMG1204CO type	UX type P M K N S H General purpose chipbreaker with strong cutting edge and high reliability CNMG1204CO type	UG type P M K N S H Highly versatile, long-selling product CNMG1204CO type
	EG type P M K N S H General-purpose chipbreaker for exotic alloys with good chip control and wear resistance CNMG1204CO type	EH type P M K N S H High-strength chipbreaker with excellent stability in stainless steel turning CNMG1204CO type	UM type P M K N S H General-purpose ground type medium-cutting chipbreaker SNMG1204CO type Sharp Edge Available	GUW type P M K N S H Chipbreaker with wiper edge for high-efficiency medium finishing CNMG1204CO type Wiper Insert
Medium to Roughing	EM type P M K N S H Chipbreaker with excellent fracture and crater resistance CNMG1204CO type	MU type P M K N S H Economical double-sided chipbreaker with low cutting force for high-feed turning CNMG1204CO type	ME type P M K N S H Roughing chipbreaker that suppresses rake face damage in high-feed turning CNMG1204CO type	MX type P M K N S H Strong cutting edge for interrupted cutting CNMG1204CO type
	UZ type P M K N S H Standard chipbreaker with stable cutting performance CNMG1204CO type	GZ type P M K N S H Extremely reliable standard chipbreaker with cutting edge strength CNMG1204CO type	HM type P M K N S H Wide, M class, handed chipbreaker with low cutting force for medium to rough cutting TNMG1604CO type	MM type P M K N S H Ground chipbreaker with wide and gentle rake angle SNMG1204CO type

Bumpy Chipbreaker
Standard Chipbreaker
Handed Chipbreaker
BREAK MASTER (CBN/PCD)
For Chamfering

Applicable Work Materials: **P** Steel **M** Stainless Steel **K** Cast Iron **N** Non-Ferrous Metal **S** Exotic Alloy **H** Hardened Steel

Chipbreaker Application Range (Inscribed Circle of Insert up to $\phi 12.7$ mm)



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.). For details, refer to "Stock Items" in Chapter B.

Insert

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Chipbreaker Selection

Negative type Roughing

Rough to Heavy Cutting	HG type P M K N S H Excellent chip control for heavy cutting CNGM16P62CO type	MP type P M K N S H Single-sided chipbreaker with low cutting force for roughing C NMM1606CO type	HP type P M K N S H Strongest cutting edge for heavy cutting C NMM1606CO type
	HU type P M K N S H Heavy cutting chipbreaker with strong cutting edge for excellent chip control SNMM2507CO type	HW type P M K N S H Two-staged chipbreaker with excellent chip evacuation for heavy cutting SNMM3109CO type	HF type P M K N S H Heavy cutting chipbreaker with strong cutting edge for excellent chip evacuation in high-feed turning SNMM1906CO type

Negative type Aluminum Alloy Turning

Finishing

AX type P M K N S H
 Parallel AI chipbreaker with cutting edge sharpness

 CNGG1204CO type

Negative type Hardened Steel Turning

Finishing

GH type P M K N S H
 Hardened steel chipbreaker reduces cutting force and provides good chip evacuation

 CNGG1204CO type

Negative type Chamfering

Chamfering

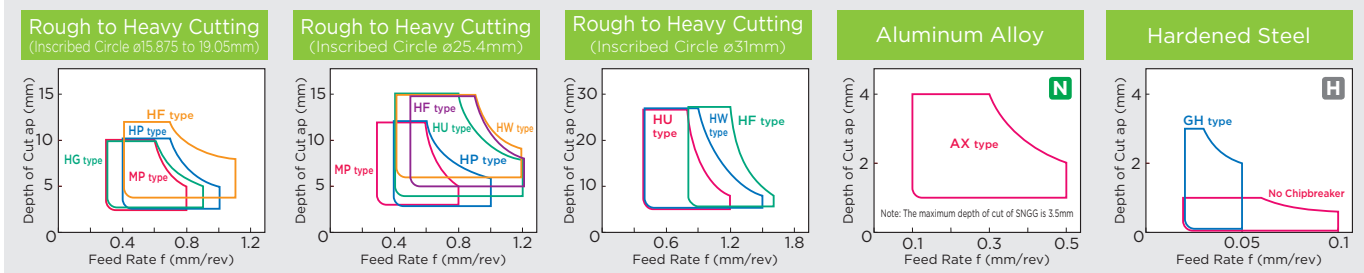
C type P M K N S H
 Ground type general-purpose chipbreaker

 SNGG1204CO type

Bumpy Chipbreaker	Standard Chipbreaker	Handed Chipbreaker
BREAK MASTER (CBN/PCD)	For Chamfering	

Applicable Work Materials: **P** Steel **M** Stainless Steel **K** Cast Iron **N** Non-Ferrous Metal **S** Exotic Alloy **H** Hardened Steel

Chipbreaker Application Range



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.). For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

Positive type M Class Finishing to Medium Cutting

Finishing to Light Cutting	FB type P M K N S H Finishing chipbreaker for mild steel turning with excellent chip control and surface finish 0.5 20° CCMT09T300 type 5° 7° 11° 	LU type P M K N S H Chip control significantly improved in fine cutting 0.8 15° CCMT09T300 type 5° 7° 11° 	LUW type P M K N S H High-performance finishing chipbreaker with wiper edge Wiper Insert 1.5 10° CCMT09T300 type 7° 11° 	FP type P M K N S H Provides good chip evacuation in fine cutting 1.40 10° CCMT09T300 type 7° 	FK type P M K N S H Finishing chipbreaker with sharp edge and good chip control 1.1 TPMT160400 type 11° 	
	Light to Medium Cutting	LB type P M K N S H Light-cutting chipbreaker with sharp edge and good chip control 0.8 15° CCMT09T300 type 5° 7° 11° 	SU type P M K N S H General purpose chipbreaker with excellent sharpness 1.45 8° TPMT110300 type 5° 7° 11° 	GU type P M K N S H General-purpose chipbreaker. 1st Recommendation 0.2 1.6 5° 15° CCMT09T300 type 5° 7° 11° 	SS type P M K N S H Medium-cutting chipbreaker providing good chip control 1.15 5° CPMH090300 type 11° 	US type P M K N S H For Small Hole Boring Bars 1.95 10° CPMH090300 type 11°
		MU type P M K N S H Chipbreaker with low cutting force for stable tool life 0.35 1.8 4° 20° TPMT160400 type 7° 11° 	SF type P M K N S H Very reliable chipbreaker with cutting edge sharpness 0.2 1.6 14° TPMT160400 type 11° 	UJ type P M K N S H Ensures stable tool life 0.1 1.5 5° TPMR160300 type 11° 		

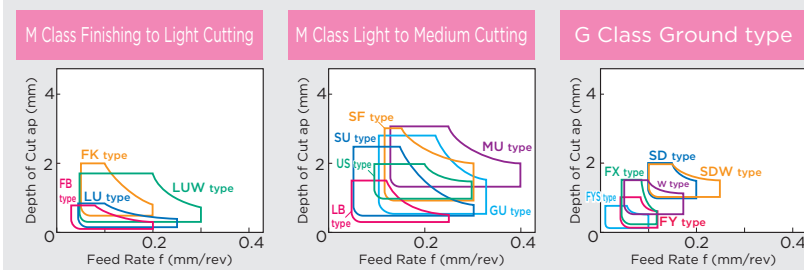
Positive type G Class Ground type

Finishing to Light Cutting	FW type P M K N S H Wide-dimpled chipbreaker with cutting edge sharpness 0.90 15° 20° TPMT110200 type 5° 11° 	FX type P M K N S H Parallel chipbreaker with sharp edge Sharp Edge 0.9 15° TPGT110300 type 5° 7° 11° 	FYS type P M K N S H Fine cutting chipbreaker with sharp edge Sharp Edge 0.5 15° CCGT04X100 type 5° 7° 	FY type P M K N S H Wide chipbreaker with sharp edge Sharp Edge 1.5 15° TPGT110300 type 5° 7° 11°
	W type P M K N S H Wide type finishing chipbreaker 0.15 1.0 10° TPGR110300 type 5° 11° 	SD type P M K N S H Stepped parallel ground breaker Sharp Edge Available 0.9 TPGT110300 type 7° 11° 	SDW type P M K N S H High-performance finishing chipbreaker with wiper edge. Parallel ground type chipbreaker Wiper Insert Sharp Edge Available 0.9 TPGX110300 type 11° 	

Bumpy Chipbreaker
 Standard Chipbreaker
 Handed Chipbreaker
 BREAK MASTER (CBN/PCD)
 For Chamfering

Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.). For details, refer to "Stock Items" in Chapter B.

Insert

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W

Ceramic Solid CBN

Chipbreaker Selection











Insert

Positive type G Class

Finishing to Light Cutting	FF type P M K N S H Realises outstanding chip control in fine cutting conditions  Sharp Edge Available 15° 7° CCGT09T300 type 	FC type P M K N S H Peripheral ground 3D chipbreaker with good chip control and cutting edge sharpness  Sharp Edge Available 7° 11° CCGT09T300 type 	SL type P M K N S H Sharp-edged chipbreaker with high machining quality for a wide range of applications from finishing to light cutting  Sharp Edge Available 7° 11° CCGT09T300 type 	SI type P M K N S H Sharp-edged chipbreaker for a wide range of applications from finishing to light cutting  Sharp Edge Available 7° 11° CCGT09T300 type 	SC type P M K N S H Two-step chipbreaker for light cutting  Sharp Edge Available 7° TCGT110300 type 
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B







Positive type Round type Inserts

Round type	RE type P M K N S H For steel and heat-resistant alloys balancing chip evacuation and low resistance  7° RCMT1204MON type 	RX type P M K N S H Round, bumpy type insert with excellent chip control  7° RCMT1606MON type 	RH type P M K N S H Highly reliable general-purpose chipbreaker providing good chip evacuation  7° RCMT160600 type 	RP type P M K N S H Standard chipbreaker for profiling  7° 11° RCMX1606MON type 	RD type P M K N S H Standard parallel chipbreaker with cutting edge sharpness  Sharp Edge Available 11° RCMT160400 type 
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Negative

Positive

Positive type Aluminum Alloy Turning

Finishing	AW type P M K N S H Finishing chipbreaker with excellent sharpness  Sharp Edge 7° VCGT160400 type 	AG type P M K N S H Chipbreaker with mirror finish and anti-adhesion  7° CCGT09T300 type 	AY type P M K N S H Chipbreaker with high-quality ground edge and excellent surface finish  Sharp Edge 5° 7° 11° CCGT09T300 type 
-----------	---	---	--

C

D

R

S

T

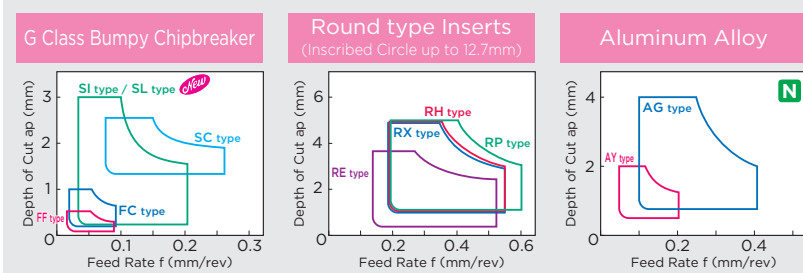
V

W

Ceramic Solid CBN

Applicable Work Materials: **P** Steel **M** Stainless Steel **K** Cast Iron **N** Non-Ferrous Metal **S** Exotic Alloy **H** Hardened Steel

Chipbreaker Application Range



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.). For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

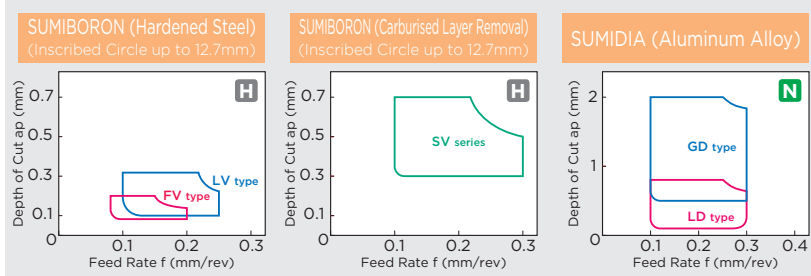
SUMIBORON Insert CBN

Finishing to Light Cutting	LV type PMKNSH Dramatically improves chip control during hardened steel finishing. 	FV type PMKNSH Dramatically improves chip control during hardened steel finishing.
	SV type PMKNSH Significantly improved chip control with carburised layer removal. 	

SUMIDIA Insert PCD

Finishing to Light Cutting	LD type PMKNSH Ideal chipbreaker for finishing of aluminum alloy thanks to special cutting edge shape. NP-CCMT060200 type	GD type PMKNSH Special cutting edge shape is ideal for medium finish to general purpose turning of aluminum alloy. NP-CCMT060200 type	DM type PMKNSH Perfect chipbreaker for high-speed finishing of aluminum alloy. NU-CCMT09T300 type
	Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel		
	Legend: Bumpy Chipbreaker Standard Chipbreaker Handed Chipbreaker BREAK MASTER (CBN/PCD) For Chamfering		

Chipbreaker Application Range



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.). For details, refer to "Stock Items" in Chapter B.

Insert

B

Negative

Positive

C

D

R

S

T

V

W

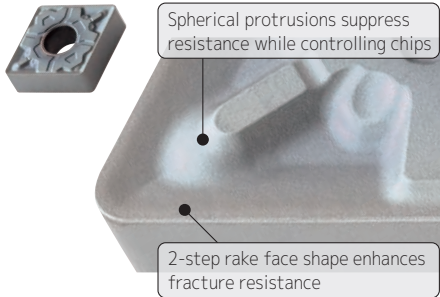
Ceramic
Solid CBN

EH type / SL type / RE type

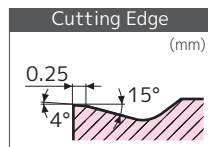
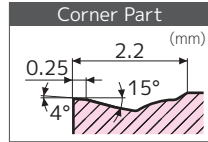
New EH type P Steel M Stainless Steel

1st recommendation for interrupted turning of stainless steel
Emphasising machining stability

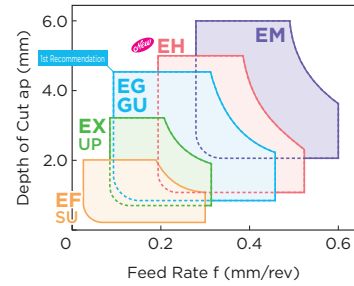
Features



Chipbreaker Cross Section (CNMG120400 type)

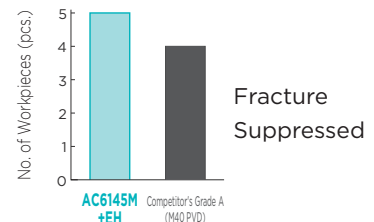
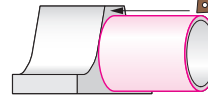


Application Range



Application Examples

SCS16 Valve Turning

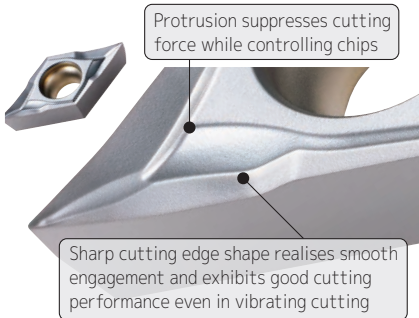


Tool: CNMG120408N-EH (AC6145M) Interrupted Machining
Cutting Conditions: $vc = 110\text{m/min}$ $f = 0.15\text{mm/rev}$ $a_p = 1.0\text{mm}$ Wet

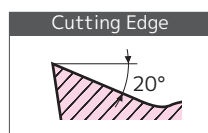
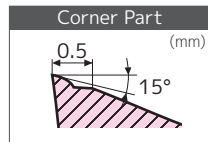
New SL type P Steel M Stainless Steel S Exotic Alloy

Exhibits excellent cutting edge sharpness over a wide range of cutting conditions
Emphasis on high machined surface quality

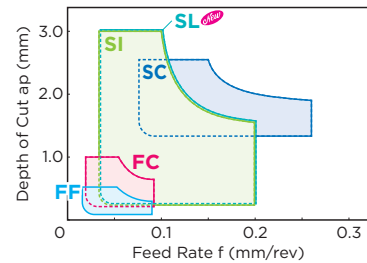
Features



Chipbreaker Cross Section (CCGT09T300 type)

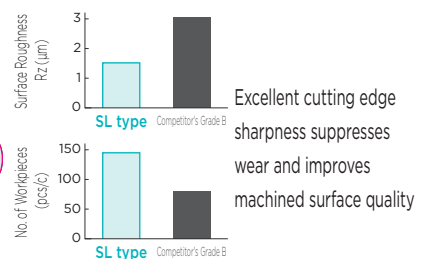
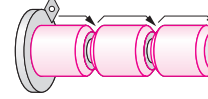


Application Range



Application Examples

SUS431 Valve Part Turning

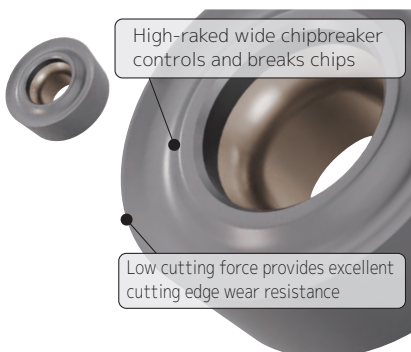


Tool: DCGT070202MN-SL (AC5025S)
Cutting Conditions: $vc = 270\text{m/min}$ $f = 0.04\text{mm/rev}$ $a_p = 0.25\text{mm}$ Wet

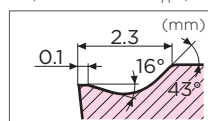
New RE type P Steel M Stainless Steel S Exotic Alloy

Round type chipbreaker with good chip breaking capability when turning heat-resistant alloys and steel

Features

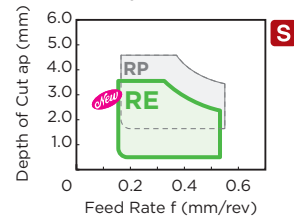


Chipbreaker Cross Section (RCMT1204M0N type)

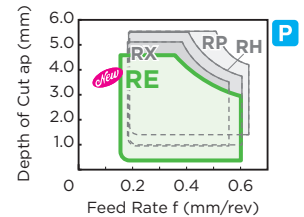


Application Range

Exotic Alloys



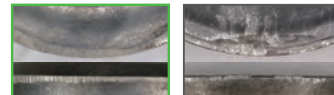
Steel



Application Examples

Inconel 718 Aircraft Engine Part Turning

Minimal adhesion

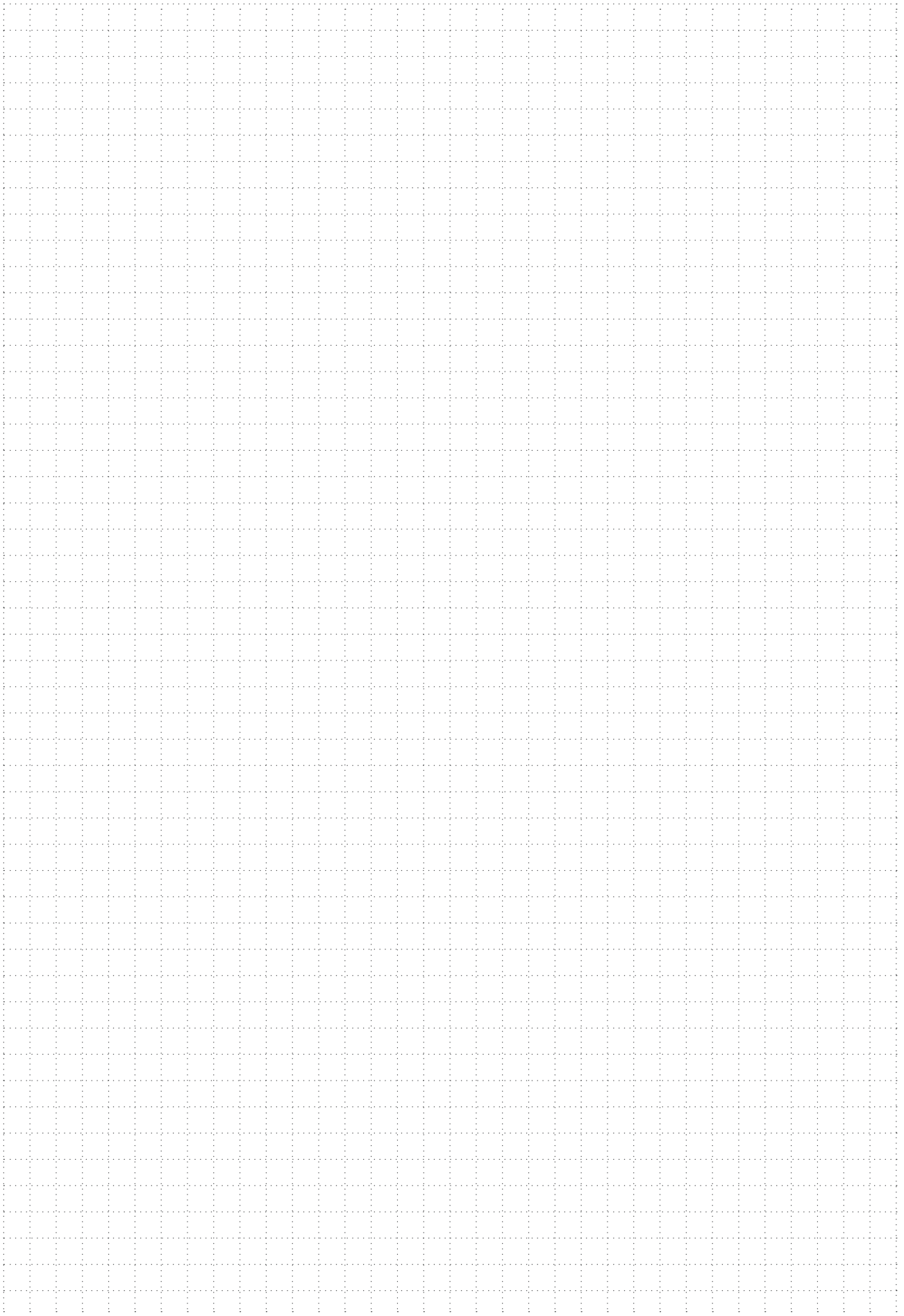


RE type Competitor's Grade C

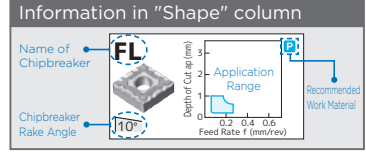
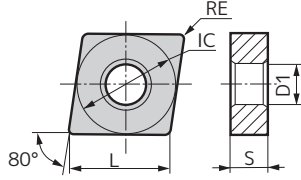
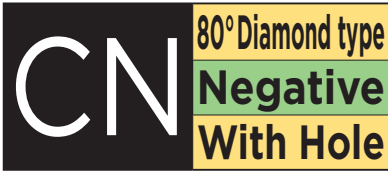
Low-resistance cutting edge design suppresses wear, extends tool life by 1.5x, and reduces machining noise

Tool: RCMT1606M0N-RE (AC5015S) Mill-scale Work
Cutting Conditions: $vc = 50\text{m/min}$ $f = 0.4\text{mm/rev}$ $a_p = 1.5$ to 2.0mm Wet

MEMO



80° Diamond type Negative Inserts



- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊕ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊞ Interrupted Cutting 1st Recommendation
- ⊟ Interrupted Cutting 2nd Recommendation

Insert
B
Negative
Positive
C
D
R
S
T
V
W
Ceramic
Solid CBN

CN		1204	
Dimensions (mm)	Cutting Edge Length L	12.9	Thickness S
	Inscribed Circle IC	12.7	Hole Dia. D1
			4.76
			5.16

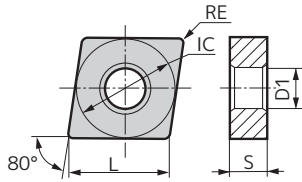
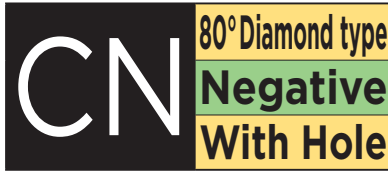
Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
Continuous Cutting 1st	●	●	●	●	●	●
Continuous Cutting 2nd	○	○	○	○	○	○
General Machining 1st	⊕	⊕	⊕	⊕	⊕	⊕
General Machining 2nd	⊖	⊖	⊖	⊖	⊖	⊖
Interrupted Cutting 1st	⊞	⊞	⊞	⊞	⊞	⊞
Interrupted Cutting 2nd	⊟	⊟	⊟	⊟	⊟	⊟

SUMIBORON (CBN) Inserts **L34** on **SUMIDIA (PCD) Inserts M10**
 Ceramic Inserts **B126**
 Applicable External Holders **C10 to C12** Applicable Boring Bars **E15, E23 to E25**

Coated Carbide
 Coated Cermet
 Cermet
 Cemented Carbide

Shape	Application Range	Cat. No.	Corner Radius RE	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1							
MU		CNMG 120408N-MU 120412N-MU 120416N-MU	0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●					
EH		CNMG 120404N-EH 120408N-EH 120412N-EH 120416N-EH	0.4 0.8 1.2 1.6										●●●●●	●●●●●	●●●●●	●●●●●																																	
EM		CNMG 120408N-EM 120412N-EM 120416N-EM	0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●			
ME		CNMG 120408N-ME 120412N-ME 120416N-ME	0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
MX		CNMG 120408N-MX 120412N-MX 120416N-MX	0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
UZ		CNMG 120404N-UZ 120408N-UZ 120412N-UZ 120416N-UZ	0.4 0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
GZ		CNMG 120404N-GZ 120408N-GZ 120412N-GZ 120416N-GZ	0.4 0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
MP		CNMM 120408N-MP 120412N-MP 120416N-MP	0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●
HG		CNMM 120408N-HG 120412N-HG 120416N-HG	0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●
HP		CNMM 120408N-HP 120412N-HP 120416N-HP	0.8 1.2 1.6	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●

80° Diamond type Negative Inserts



Grade Selection Guide A2

Chipbreaker Selection B4 on

Insert Grade Selection Guide by Work Material A10 on

- Continuous Cutting 1st Recommendation, Continuous Cutting 2nd Recommendation, General Machining 1st Recommendation, General Machining 2nd Recommendation, Interrupted Cutting 1st Recommendation, Interrupted Cutting 2nd Recommendation

CN 1906 product details including dimensions: Cutting Edge Length L 19.3, Thickness S 6.35, Inscribed Circle IC 19.05, Hole Dia. D1 7.94.

Material compatibility chart for CN 1906 showing recommended applications for various materials (P, M, K, N, S, H) across different grades.

Applicable External Holders C10 to C12, Applicable Boring Bars E25

Coated Carbide

Coated Cermet

Cemented Carbide

Main product selection table for CN 1906 series, listing shapes (UZ, GZ, MP, HG, HP, HF), application ranges, and catalog numbers across various grades.

CN 2507 product details including dimensions: Cutting Edge Length L 25.8, Thickness S 7.94, Inscribed Circle IC 25.4, Hole Dia. D1 9.12.

Material compatibility chart for CN 2507 showing recommended applications for various materials.

Coated Carbide

Coated Cermet

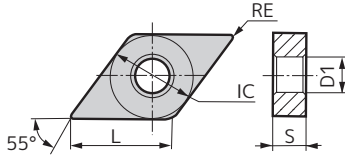
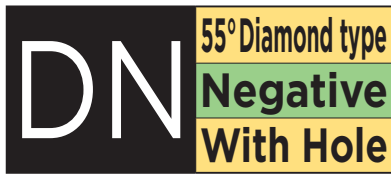
Cemented Carbide

Main product selection table for CN 2507 series, listing shapes (MP) and application ranges across various grades.

Vertical navigation bar with icons for Insert, Negative, Positive, C, D, R, S, T, V, W, and Ceramic Solid CBN.

▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

55° Diamond type Negative Inserts



Information in "Shape" column

Name of Chipbreaker: **FL**

Chipbreaker Rake Angle: 10°

Depth of Cut a_p (mm) vs Feed Rate f (mm/rev) graph

Application Range

Recommended Work Material

Legend: ● General Machining 1st Recommendation, ○ General Machining 2nd Recommendation, ⊕ Interrupted Cutting 1st Recommendation, ⊖ Interrupted Cutting 2nd Recommendation

Insert

B

Negative

Positive Cutting

C

D

R

S

T

V

W

Ceramic Solid CBN

DN 1104

Dimensions (mm): Cutting Edge Length L: 11.6, Thickness S: 4.76, Inscribed Circle IC: 9.525, Hole Dia. D1: 3.81

SUMIBORON (CBN) Inserts **L55**
 Applicable External Holders **C16** Applicable Boring Bars **E32, E33**

Application	Coated Carbide																Coated Cermet	Cermet	Cemented Carbide																																														
	CVD				PVD				CVD				PVD						PVD	ST10P	ST20E	A30	G10E	EH510	EH520	H1																																							
P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M								AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A																				
UM	●	○	⊕	○																																	●	●																											
Medium Cutting																																																																	
DNMG 110404R-UM																									●																																								
110404L-UM																																																																	
110408R-UM																																																																	
110408L-UM																																																																	
DNMG 110408N-GZ																																																																	
110412N-GZ																																																																	

UM type grade G10E cutting edge has sharp edge specifications.

DN 1504

Dimensions (mm): Cutting Edge Length L: 15.5, Thickness S: 4.76, Inscribed Circle IC: 12.7, Hole Dia. D1: 5.16

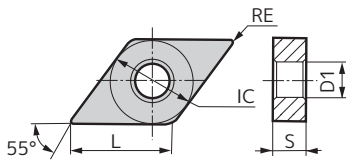
SUMIBORON (CBN) Inserts **L55** on SUMIDIA (PCD) Inserts **M13**
 SUMIDIA BINDERLESS Inserts **M31** Ceramic Inserts **B126**
 Applicable External Holders **C14 to C16** Applicable Boring Bars **E15, E31 to E33**

Application	Coated Carbide																Coated Cermet	Cermet	Cemented Carbide																																																
	CVD				PVD				CVD				PVD						PVD	ST10P	ST20E	A30	G10E	EH510	EH520	H1																																									
P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M								AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A																						
FB	●	○	⊕	○																																																															
150408N-FB																																																																			
FA	●	○	⊕	○																																																															
150408N-FA																																																																			
FL	●	○	⊕	○																																																															
150408N-FL																																																																			
FE	●	○	⊕	○																																																															
150408N-FE																																																																			
LU	●	○	⊕	○																																																															
150408N-LU																																																																			

55° Diamond type Negative Inserts

Indexable Inserts

DN 55° Diamond type Negative With Hole



Information in "Shape" column

- Name of Chipbreaker: FL
- Chipbreaker: 10°
- Depth of Cut ap (mm): 0 to 6
- Application Range: 0.2 to 0.6
- Feed Rate f (mm/rev): 0.2 to 0.6
- Recommended Work Material: (indicated by color)

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊙ General Machining 1st Recommendation
- ⊕ General Machining 2nd Recommendation
- ⊗ Interrupted Cutting 1st Recommendation
- ⊘ Interrupted Cutting 2nd Recommendation

DN 1504

Dimensions (mm): Cutting Edge Length L: 15.5, Thickness S: 4.76, Inscribed Circle IC: 12.7, Hole Dia. D1: 5.16

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
AC8115P	●	○	○	○	○	○
AC8020P	●	○	○	○	○	○
AC8025P	●	○	○	○	○	○
AC8035P	●	○	○	○	○	○
AC8015P	●	○	○	○	○	○
AC810P	●	○	○	○	○	○
AC820P	●	○	○	○	○	○
AC850P	●	○	○	○	○	○
AC6020M	●	○	○	○	○	○
AC6030M	●	○	○	○	○	○
AC6135M	●	○	○	○	○	○
AC6145M	●	○	○	○	○	○
AC6040M	●	○	○	○	○	○
AC650M	●	○	○	○	○	○
AC4010K	●	○	○	○	○	○
AC4015K	●	○	○	○	○	○
AC4125K	●	○	○	○	○	○
AC420K	●	○	○	○	○	○
AC503U	●	○	○	○	○	○
AC5005S	●	○	○	○	○	○
AC5015S	●	○	○	○	○	○
AC5025S	●	○	○	○	○	○
AC9115T	●	○	○	○	○	○
AC9125T	●	○	○	○	○	○
AC510U	●	○	○	○	○	○
AC520U	●	○	○	○	○	○
AC1030U	●	○	○	○	○	○
AC530U	●	○	○	○	○	○
ACZ150	●	○	○	○	○	○
T1500Z	●	○	○	○	○	○
T2500Z	●	○	○	○	○	○
T1000A	●	○	○	○	○	○
T1500A	●	○	○	○	○	○
ST10P	●	○	○	○	○	○
ST20E	●	○	○	○	○	○
A30	●	○	○	○	○	○
G10E	●	○	○	○	○	○
EH510	●	○	○	○	○	○
EH520	●	○	○	○	○	○
H1	●	○	○	○	○	○

SUMIBORON (CBN) Inserts L55 on SUMIDIA (PCD) Inserts M13
 SUMIDIA BINDERLESS Inserts M31 Ceramic Inserts B126
 Applicable External Holders C14 to C16 Applicable Boring Bars E15, E31 to E33

Coated Carbide

Coated Cermet

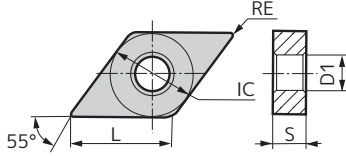
Cermet
Cemented Carbide

Shape	Application Range	Cat. No.	Corner Radius RE	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC850P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC650M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1										
GU		DNMG 150404N-GU 150408N-GU 150412N-GU 150416N-GU	0.4 0.8 1.2 1.6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
GE		DNMG 150404N-GE 150408N-GE 150412N-GE 150416N-GE	0.4 0.8 1.2 1.6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
UX		DNMG 150404N-UX 150408N-UX 150412N-UX	0.4 0.8 1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
UG		DNMG 150404N-UG 150408N-UG 150412N-UG 150416N-UG	0.4 0.8 1.2 1.6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
EG		DNMG 150404N-EG 150408N-EG 150412N-EG	0.4 0.8 1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
UM		DNMG 150404R-UM 150404L-UM 150408R-UM 150408L-UM	0.4 0.4 0.8 0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
UM		DNGG 150404R-UM 150404L-UM 150408R-UM 150408L-UM 150412R-UM 150412L-UM	0.4 0.4 0.8 0.8 1.2 1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		DNMA 150404 150408 150412	0.4 0.8 1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		DNGA 150402 150404 150408 150412	0.2 0.4 0.8 1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
MU		DNMG 150408N-MU 150412N-MU 150416N-MU	0.8 1.2 1.6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

G-class insert (DNGG) with UM type chipbreaker in ST10P and G10E grades has a sharp edge.
 G-class insert without chipbreaker (DNGA) has a sharp edge. (Excluding T1000A grade)

DN

55° Diamond type
Negative
With Hole



Information in "Shape" column

- Name of Chipbreaker: **FL**
- Chipbreaker: **Rake Angle 10°**
- Application Range: Graph showing Depth of Cut ap (mm) vs Feed Rate f (mm/rev)
- Recommended Work Material

Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic
Solid CBN

DN
1506

Dimensions (mm)

Cutting Edge Length L: 15.5

Thickness S: 6.35

Inscribed Circle IC: 12.7

Hole Dia. D1: 5.16

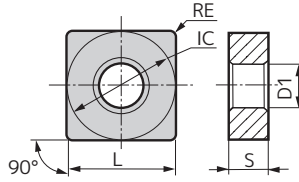
SUMIBORON (CBN) Inserts L61
Applicable External Holders C14, C16 Applicable Boring Bars E32

Recommended Application	P	M	K	N	S	H	Continuous Cutting 1st Recommendation	Continuous Cutting 2nd Recommendation	General Machining 1st Recommendation	General Machining 2nd Recommendation	Interrupted Cutting 1st Recommendation	Interrupted Cutting 2nd Recommendation
P Steel	●	○	○	○	○	○	●	○	○	○	○	○
M Stainless Steel	○	○	○	○	○	○	○	○	○	○	○	○
K Cast Iron	○	○	○	○	○	○	○	○	○	○	○	○
N Non-Ferrous Metal	○	○	○	○	○	○	○	○	○	○	○	○
S Exotic Alloy	○	○	○	○	○	○	○	○	○	○	○	○
H Hardened Steel	○	○	○	○	○	○	○	○	○	○	○	○

Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide										Coated Cermet		Cemented Carbide																														
				CVD			PVD		CVD			PVD		PVD																																
				AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC850P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1			
FB 27°		DNMG 150604N-FB 150608N-FB	0.4 0.8																																											
FA 20°		DNMG 150604N-FA 150608N-FA	0.4 0.8																																											
FE 20°		DNMG 150602N-FE 150604N-FE 150608N-FE 150612N-FE	0.2 0.4 0.8 1.2																																											
SU 13°		DNMG 150604N-SU 150608N-SU 150612N-SU	0.4 0.8 1.2																																											
SE 5°		DNMG 150604N-SE 150608N-SE 150612N-SE 150616N-SE	0.4 0.8 1.2 1.6																																											
SEW 5° -B129 Wiper		DNMX 150604N-SEW 150608N-SEW 150612N-SEW	0.4 0.8 1.2																																											
EF 20°		DNMG 150604N-EF 150608N-EF 150612N-EF	0.4 0.8 1.2																																											
SX 3°		DNMG 150604N-SX 150608N-SX	0.4 0.8																																											
EX 16°		DNMG 150604N-EX 150608N-EX 150612N-EX	0.4 0.8 1.2																																											
UP 10°		DNMG 150604N-UP 150608N-UP 150612N-UP 150616N-UP	0.4 0.8 1.2 1.6																																											

Square type Negative Inserts

SN Square type Negative With Hole



Information in "Shape" column

Name of Chipbreaker: **FL**

Chipbreaker Rake Angle: 10°

Depth of Cut ap (mm): 0 to 5

Application Range: 0.2 to 0.6

Feed Rate f (mm/rev): 0 to 0.6

Recommended Work Material

● Continuous Cutting 1st Recommendation
○ Continuous Cutting 2nd Recommendation

● General Machining 1st Recommendation
○ General Machining 2nd Recommendation

⚡ Interrupted Cutting 1st Recommendation
⚡ Interrupted Cutting 2nd Recommendation

SN **1204**

Dimensions (mm): Cutting Edge Length L: 12.7, Thickness S: 4.76, Inscribed Circle IC: 12.7, Hole Dia. D1: 5.16

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
AC8115P	●	○	○	○	○	○
AC8020P	○	○	○	○	○	○
AC8025P	○	○	○	○	○	○
AC8035P	○	○	○	○	○	○
AC8015P	○	○	○	○	○	○
AC810P	○	○	○	○	○	○
AC820P	○	○	○	○	○	○
AC850P	○	○	○	○	○	○
AC6020M	○	○	○	○	○	○
AC6030M	○	○	○	○	○	○
AC6135M	○	○	○	○	○	○
AC6145M	○	○	○	○	○	○
AC6040M	○	○	○	○	○	○
AC630M	○	○	○	○	○	○
AC4010K	○	○	○	○	○	○
AC4015K	○	○	○	○	○	○
AC4125K	○	○	○	○	○	○
AC420K	○	○	○	○	○	○
AC503U	○	○	○	○	○	○
AC5005S	○	○	○	○	○	○
AC5015S	○	○	○	○	○	○
AC5025S	○	○	○	○	○	○
AC9115T	○	○	○	○	○	○
AC9125T	○	○	○	○	○	○
AC510U	○	○	○	○	○	○
AC520U	○	○	○	○	○	○
AC1030U	○	○	○	○	○	○
AC530U	○	○	○	○	○	○
ACZ150	○	○	○	○	○	○
T1500Z	○	○	○	○	○	○
T2500Z	○	○	○	○	○	○
T1000A	○	○	○	○	○	○
T1500A	○	○	○	○	○	○
ST10P	○	○	○	○	○	○
ST20E	○	○	○	○	○	○
A30	○	○	○	○	○	○
G10E	○	○	○	○	○	○
EH510	○	○	○	○	○	○
EH520	○	○	○	○	○	○
H1	○	○	○	○	○	○

SUMIBORON (CBN) Inserts **L71** on

SUMIDIA BINDERLESS Inserts **M31** Ceramic Inserts **B126**

Applicable External Holders **C20 to C26** Applicable Boring Bars **E37 to E39**

Coated Carbide

Coated Cermet

Cermet
Cemented Carbide

Shape	Application Range	Cat. No.	Corner Radius RE	CVD	PVD	CVD	PVD	PVD	Coated Cermet	Cermet	Cemented Carbide		
UP 10°	 S	SNMG 120404N-UP 120408N-UP 120412N-UP	0.4 0.8 1.2	AC8115P									
				AC8020P									
				AC8025P									
GU 7°	 M	SNMG 120404N-GU 120408N-GU 120412N-GU 120416N-GU	0.4 0.8 1.2 1.6	AC8035P									
				AC8015P									
				AC810P									
GE 3°	 P	SNMG 120408N-GE 120412N-GE 120416N-GE	0.8 1.2 1.6	AC820P									
				AC850P									
				AC6020M									
UX 0°	 K	SNMG 120404N-UX 120408N-UX 120412N-UX 120416N-UX	0.4 0.8 1.2 1.6	AC6030M									
				AC6135M									
				AC6145M									
UG 4°	 M	SNMG 120408N-UG 120412N-UG 120416N-UG	0.8 1.2 1.6	AC630M									
				AC4010K									
				AC4015K									
EG 0°	 M	SNMG 120404N-EG 120408N-EG 120412N-EG	0.4 0.8 1.2	AC4125K									
				AC420K									
				AC503U									
UM 0°	 P	SNMG 120404R-UM 120404L-UM 120408R-UM 120408L-UM 120412R-UM 120412L-UM 120416R-UM 120416L-UM	0.4 0.4 0.8 0.8 1.2 1.2 1.6 1.6	AC5005S									
				AC5015S									
				AC5025S									
				AC9115T									
				AC9125T									
				AC510U									
UM 0° Sharp Edge	 P	SNGG 120404R-UM 120404L-UM 120408R-UM 120408L-UM 120412R-UM 120412L-UM 120416R-UM 120416L-UM	0.4 0.4 0.8 0.8 1.2 1.2 1.6 1.6	AC520U									
				AC1030U									
				AC530U									
				ACZ150									
				T1500Z									
SNMA Sharp Edge	 P	SNMA 120404 120408 120412 120416 120420	0.4 0.8 1.2 1.6 2.0	T2500Z									
				T1000A									
				T1500A									
				ST10P									
SNGA Sharp Edge	 P	SNGA 120404 120408 120412	0.4 0.8 1.2	ST20E									
				A30									
				G10E									

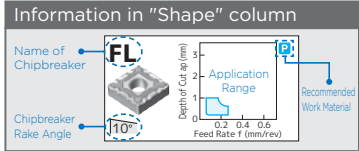
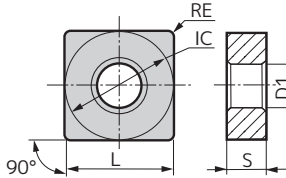
G-class insert (SNGG) with UM type chipbreaker has a sharp edge. (Excluding T1000A and T1500A grades)

M-class insert without chipbreaker (SNMA) in G10E and H1 grades has a sharp edge.

G-class insert without chipbreaker (SNGA) in AC503U, G10E and H1 grades has a sharp edge.

▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

Square type Negative Inserts



● Continuous Cutting 1st Recommendation
○ Continuous Cutting 2nd Recommendation
⊕ General Machining 1st Recommendation
⊖ General Machining 2nd Recommendation
⊗ Interrupted Cutting 1st Recommendation
⊘ Interrupted Cutting 2nd Recommendation

Insert

Dimensions	Cutting Edge Length L (mm)	12.7	Thickness S (mm)	4.76
	Inscribed Circle IC (mm)	12.7	Hole Dia. D1 (mm)	5.16

B

Negative

SUMIBORON (CBN) Inserts L71 on

SUMIDIA BINDERLESS Inserts M31 Ceramic Inserts B126

Applicable External Holders C20 to C26 Applicable Boring Bars E37 to E39

Positive

C

D

R

S

T

V

W

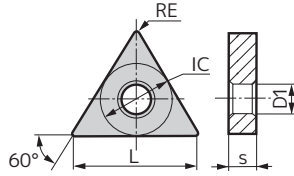
Ceramic Solid CBN

Recommended Application	Coated Carbide																											Coated Cermet	Cermet	Cemented Carbide		
	P	M	K	N	S	H	CVD	PVD	CVD	PVD	PVD			ST	ST	A30	G10F	EH	EH	H1												
P Steel	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○
M Stainless Steel	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	
K Cast Iron	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○		
N Non-Ferrous Metal	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○			
S Exotic Alloy	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○				
H Hardened Steel	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○	⊕	⊖	⊗	⊘	●	○					

Shape	Application Range	Cat. No.	Corner Radius RE
C For Chamfering 0° Sharp Edge	*Corner radius is not available as the insert is for chamfering.	SNGG 120400-C	(0.8)
AX For Aluminum 30° Sharp Edge		SNGG 120404R-AX 120404L-AX 120408R-AX 120408L-AX	0.4 0.4 0.8 0.8

C type chipbreaker in G10E grade has a sharp edge.
AX type chipbreaker has a sharp edge.

Triangular type Negative Inserts



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- General Machining 1st Recommendation
- General Machining 2nd Recommendation
- Interrupted Cutting 1st Recommendation
- Interrupted Cutting 2nd Recommendation

Dimensions (mm)	Cutting Edge Length L	11.0	Thickness S	2.78
	Inscribed Circle IC	6.35	Hole Dia. D1	2.76

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide	Coated Cermet	Cemented Carbide
GX 15° Sharp Edge	 (ap) 2, 1, 0 (r) 0.2, 0.4	TNGG 11T204R-GX 11T204L-GX 11T208R-GX 11T208L-GX	0.4	AC8115P		
			0.4	AC8020P		
			0.8	AC8025P		
			0.8	AC8035P		
TNGA 11T204 Sharp Edge			0.4	AC8015P		
				AC810P		

GX type chipbreaker in G10E and H1 grades has a sharp edge.
 G-class insert without chipbreaker (TNGA) in H1 grade has a sharp edge.

Dimensions (mm)	Cutting Edge Length L	13.7	Thickness S	3.18
	Inscribed Circle IC	7.94	Hole Dia. D1	3.15

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide	Coated Cermet	Cemented Carbide
GX 15° Sharp Edge	 (ap) 2, 1, 0 (r) 0.2, 0.4	TNGG 130304R-GX 130304L-GX 130308R-GX 130308L-GX	0.4	AC8115P		
			0.4	AC8020P		
			0.8	AC8025P		
			0.8	AC8035P		

GX type chipbreaker in G10E and H1 grades has a sharp edge.

Dimensions (mm)	Cutting Edge Length L	16.5	Thickness S	3.18
	Inscribed Circle IC	9.525	Hole Dia. D1	3.81

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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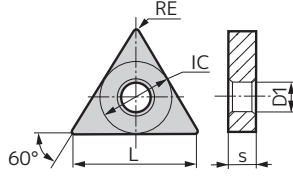
Applicable External Holders **C32 to C34**

Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide	Coated Cermet	Cemented Carbide
ST 0° Sharp Edge	 (ap) 2, 1, 0 (r) 0.2, 0.4	TNGG 160302R-ST 160302L-ST 160304R-ST 160304L-ST 160308R-ST 160308L-ST	0.2	AC8115P		
			0.2	AC8020P		
			0.4	AC8025P		
			0.4	AC8035P		
			0.8	AC8015P		
SX 3° Sharp Edge	 (ap) 2, 1, 0 (r) 0.2, 0.4	TNMG 160304N-SX 160308N-SX	0.4	AC810P		
			0.8	AC820P		
				AC830P		

ST type chipbreaker in ST10P and ST20E grades has a sharp edge.

Triangular type Negative Inserts

TN Triangular type Negative With Hole



Information in "Shape" column

- Name of Chipbreaker: **FL**
- Chipbreaker Rake Angle: **10°**
- Depth of Cut ap (mm): **0.2, 0.4, 0.6**
- Feed Rate f (mm/rev): **0.1**
- Application Range
- Recommended Work Material

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- General Machining 1st Recommendation
- General Machining 2nd Recommendation
- Interrupted Cutting 1st Recommendation
- Interrupted Cutting 2nd Recommendation

TN **1603**

Dimensions (mm): Cutting Edge Length L **16.5**, Thickness S **3.18**, Inscribed Circle IC **9.525**, Hole Dia. D1 **3.81**

Applicable External Holders **C32 to C34**

Medium Cutting	Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide																							Coated Cermet	Cermet	Cemented Carbide																
					CVD	PVD	CVD	PVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD																						
			TNMA 160304	0.4	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1		
			160308	0.8																																										
			160312	1.2																																										
Positive			TNGA 160302	0.2																																										
			160304	0.4																																										
			160308	0.8																																										
			160312	1.2																																										

G-class insert without chipbreaker (TNGA) in G10E and H1 grades has a sharp edge.

TN **1604**

Dimensions (mm): Cutting Edge Length L **16.5**, Thickness S **4.76**, Inscribed Circle IC **9.525**, Hole Dia. D1 **3.81**

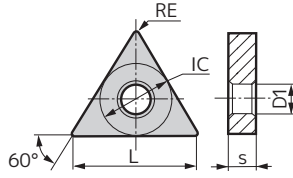
SUMIBORON (CBN) Inserts **L82 on** | SUMIDIA (PCD) Inserts **M18**

Ceramic Inserts **B126**

Applicable External Holders **C29 to C35, D29, D41** | Applicable Boring Bars **E15, E45 to E47**

Fine Cutting	Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide																							Coated Cermet	Cermet	Cemented Carbide																	
					CVD	PVD	CVD	PVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD	PVD	CVD	PVD																							
	FB		TNMG 160402N-FB	0.2	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1			
			160404N-FB	0.4																																											
			160408N-FB	0.8																																											
	FA		TNMG 160402N-FA	0.2																																											
			160404N-FA	0.4																																											
			160408N-FA	0.8																																											
	FL		TNMG 160404N-FL	0.4																																											
			160408N-FL	0.8																																											
	FE		TNMG 160402N-FE	0.2																																											
			160404N-FE	0.4																																											
			160408N-FE	0.8																																											
			160412N-FE	1.2																																											
	LU		TNMG 160402N-LU	0.2																																											
			160404N-LU	0.4																																											
			160408N-LU	0.8																																											
			160412N-LU	1.2																																											
	SU		TNMG 160402N-SU	0.2																																											
			160404N-SU	0.4																																											
			160408N-SU	0.8																																											
			160412N-SU	1.2																																											

Triangular type Negative Inserts



Information in "Shape" column

Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic Solid CBN

TN	2204
Dimensions (mm)	Cutting Edge Length L: 22.0
	Inscribed Circle IC: 12.7
Thickness S	4.76
Hole Dia. D1	5.16

Recommended Application	P Steel		M Stainless Steel		K Cast Iron		N Non-Ferrous Metal		S Exotic Alloy		H Hardened Steel	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Legend	●	○	●	○	●	○	●	○	●	○	●	○

SUMIBORON (CBN) Inserts **L87**
 Applicable External Holders **C30 to C35** Applicable Boring Bars **E47**

Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide												Coated Cermet	Cermet	Cemented Carbide																				
				CVD AC8115P	PVD AC8020P	CVD AC8025P	PVD AC8035P	CVD AC8015P	PVD AC810P	CVD AC820P	PVD AC820P	CVD AC6020M	PVD AC6030M	CVD AC6135M	PVD AC6040M	CVD AC630M	PVD AC4010K	CVD AC4015K	PVD AC4125K	CVD AC420K	PVD AC503U	PVD AC5005S	PVD AC5015S	PVD AC5025S	PVD AC9115T	PVD AC9125T	PVD AC510U	PVD AC520U	PVD AC1030U	PVD AC530U	PVD AC7150	PVD T1500Z	PVD T2500Z	PVD T1000A	PVD T1500A	ST10P	ST20E	A30
TNGA 220404 220408 220412 220416	Medium Cutting		0.4 0.8 1.2 1.6	[Symbol Matrix]																																		
MU	4°	TNMG 220408N-MU 220412N-MU 220416N-MU	0.8 1.2 1.6	[Symbol Matrix]																																		
ME	4°	TNMG 220408N-ME 220412N-ME 220416N-ME	0.8 1.2 1.6	[Symbol Matrix]																																		
MX	15°	TNMG 220408N-MX 220412N-MX	0.8 1.2	[Symbol Matrix]																																		
UZ	4°	TNMG 220408N-UZ 220412N-UZ 220416N-UZ 220420N-UZ	0.8 1.2 1.6 2.0	[Symbol Matrix]																																		
GZ	0°	TNMG 220408N-GZ 220412N-GZ 220416N-GZ	0.8 1.2 1.6	[Symbol Matrix]																																		
HM	15°	TNMG 220404R-HM 220404L-HM 220408R-HM 220408L-HM	0.4 0.4 0.8 0.8	[Symbol Matrix]																																		
MM	0°	TNGG 220404R-MM 220404L-MM 220408R-MM 220408L-MM 220412R-MM 220412L-MM 220416R-MM 220416L-MM	0.4 0.4 0.8 0.8 1.2 1.2 1.6 1.6	[Symbol Matrix]																																		
MP	0°	TNMM 220408N-MP 220412N-MP 220416N-MP	0.8 1.2 1.6	[Symbol Matrix]																																		
HG	0°	TNMM 220408N-HG 220412N-HG 220416N-HG	0.8 1.2 1.6	[Symbol Matrix]																																		
HP	0°	TNMM 220408N-HP 220412N-HP 220416N-HP	0.8 1.2 1.6	[Symbol Matrix]																																		

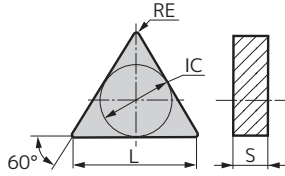
G-class insert without chipbreaker (TNGA) in G10E and H1 grades has a sharp edge.

▲ mark: To be replaced by a new product, to be ordered, or discontinued (please confirm stock availability)

Triangular type Negative Inserts

Indexable Inserts

TN Triangular type Negative Without Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊙ General Machining 1st Recommendation
- ⊚ General Machining 2nd Recommendation
- ⊛ Interrupted Cutting 1st Recommendation
- ⊜ Interrupted Cutting 2nd Recommendation

TN 1607			
Dimensions (mm)	Cutting Edge Length L	Thickness S	7.94
	Inscribed Circle IC		9.525

Ceramic Inserts **B126**

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide	Cermet	Cemented Carbide																																					
Medium Cutting		TNGN 160712	1.2	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1

TN 2204			
Dimensions (mm)	Cutting Edge Length L	Thickness S	4.76
	Inscribed Circle IC	Hole Dia. D1	12.7

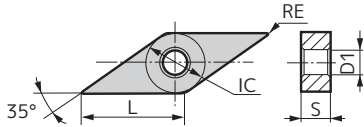
Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide	Cermet	Cemented Carbide																																						
Medium Cutting		TNMN 220408	0.8	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1	
			TNGN 220404	0.4	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
				0.8	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
				1.2	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
				1.6	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1

Insert
B
 Negative
 Positive
 C
 D
 R
 S
 T
 V
 W
 Ceramic Solid CBN

35° Diamond type Negative Inserts

VN 35° Diamond type Negative With Hole



Information in "Shape" column

Name of Chipbreaker: **FL**

Chipbreaker: **FL**

Chipbreaker: **10°**

Depth of Cut (mm): 0.2, 0.4, 0.6

Application Range

Recommended Work Material

● Continuous Cutting 1st Recommendation
○ Continuous Cutting 2nd Recommendation
⊙ General Machining 1st Recommendation
⊕ General Machining 2nd Recommendation
⊗ Interrupted Cutting 1st Recommendation
⊘ Interrupted Cutting 2nd Recommendation

VN **1604**

Dimensions (mm): Cutting Edge Length L: 16.6, Thickness S: 4.76, Inscribed Circle IC: 9.525, Hole Dia. D1: 3.81

Recommended Application	P	M	K	N	S	H	Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Exotic Alloy	Hardened Steel
	●	○	○	○	○	○	●	○	○	○	○	○

SUMIBORON (CBN) Inserts **M3** L105 on SUMIDIA (PCD) Inserts **M3** M25 SUMIDIA BINDERLESS Inserts **M3** M31
 Ceramic Inserts **M3** B126 Applicable External Holders **M3** C38, C39

Coated Carbide

Coated Cermet Cermet Cemented Carbide

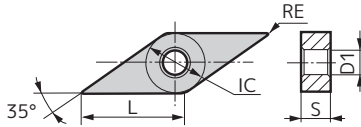
Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide													Coated Cermet		Cermet		Cemented Carbide																															
				AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC850P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10F	EH510	EH520	H1									
Fine Cutting	FB 27°	VNMG 160404N-FB	0.4																																																	
		VNMG 160408N-FB	0.8																																																	
	FA 20°	VNMG 160404N-FA	0.4																																																	
		VNMG 160408N-FA	0.8																																																	
Fine Cutting	FL 10°	VNMG 160404N-FL	0.4		●																																															
		VNMG 160408N-FL	0.8		●																																															
	FE 20°	VNMG 160402N-FE	0.2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		VNMG 160404N-FE	0.4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Finishing	LU 10°	VNMG 160402N-LU	0.2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		VNMG 160404N-LU	0.4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	SU 13°	VNMG 160402N-SU	0.2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		VNMG 160404N-SU	0.4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Finishing	SE 5°	VNMG 160404N-SE	0.4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		VNMG 160408N-SE	0.8		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	EF 20°	VNMG 160402N-EF	0.2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		VNMG 160404N-EF	0.4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Finishing	EF 20°	VNMG 160408N-EF	0.8		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		VNMG 160404N-EF	0.4		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Finishing	FY 15° Sharp Edge	VNMG 160402N-FY	0.2																																																	
		VNMG 160404N-FY	0.4																																																	
		VNMG 160408N-FY	0.8																																																	
		VNMG 160404L-FY	0.4																																																	
		VNMG 160408L-FY	0.8																																																	

FY type chipbreaker has a sharp edge.

35° Diamond type Negative Inserts

Indexable Inserts

VN 35° Diamond type Negative With Hole



Information in "Shape" column

Name of Chipbreaker: **FL**

Chipbreaker Rake Angle: **10°**

Depth of Cut ap (mm): 0 0.2 0.4 0.6

Application Range: (Graph showing ap vs. Feed Rate f)

Recommended Work Material: (Graph showing ap vs. Feed Rate f)

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊙ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊕ Interrupted Cutting 1st Recommendation
- ⊗ Interrupted Cutting 2nd Recommendation

VN 1604

Dimensions (mm)	Cutting Edge Length L	16.6	Thickness S	4.76
	Inscribed Circle IC	9.525	Hole Dia. D1	3.81

Recommended Application	Coated Carbide												Coated Cermet	Cermet	Cemented Carbide																														
	P	M	K	N	S	H	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10F	EH510	EH520

SUMIBORON (CBN) Inserts **IC** L105 on **IC** L105 on **IC** L105 on

SUMIDIA (PCD) Inserts **IC** M25 **IC** M25 **IC** M25

SUMIDIA BINDERLESS Inserts **IC** M31 **IC** M31 **IC** M31

Ceramic Inserts **IC** B126 **IC** B126 **IC** B126

Applicable External Holders **IC** C38, C39 **IC** C38, C39 **IC** C38, C39

Shape	Application Range	Cat. No.	Corner Radius RE
UZ Medium to Roughing 4° (ap) vs. (f) graph	 (ap) vs. (f) graph	VNMG 160404N-UZ	0.4
		VNMG 160408N-UZ	0.8
		VNMG 160412N-UZ	1.2
GZ Medium to Roughing 0° (ap) vs. (f) graph	 (ap) vs. (f) graph	VNMG 160404N-GZ	0.4
		VNMG 160408N-GZ	0.8
		VNMG 160412N-GZ	1.2
AX For Aluminum 30° Sharp Edge (ap) vs. (f) graph	 (ap) vs. (f) graph	VNGG 160402R-AX	0.2
		VNGG 160402L-AX	0.2
		VNGG 160404R-AX	0.4
		VNGG 160404L-AX	0.4
		VNGG 160408R-AX	0.8
		VNGG 160408L-AX	0.8

AX type chipbreaker has a sharp edge.

VN 2204

Dimensions (mm)	Cutting Edge Length L	22.1	Thickness S	4.76
	Inscribed Circle IC	12.7	Hole Dia. D1	5.16

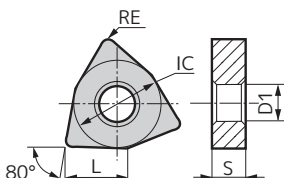
Recommended Application	Coated Carbide												Coated Cermet	Cermet	Cemented Carbide																														
	P	M	K	N	S	H	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10F	EH510	EH520

Shape	Application Range	Cat. No.	Corner Radius RE
UZ Medium to Roughing 4° (ap) vs. (f) graph	 (ap) vs. (f) graph	VNMG 220408N-UZ	0.8
		VNMG 220412N-UZ	1.2

Trigon type Negative Inserts

Indexable Inserts

WN Trigon type Negative With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

Continuous Cutting 1st Recommendation
 Continuous Cutting 2nd Recommendation
 General Machining 1st Recommendation
 General Machining 2nd Recommendation
 Interrupted Cutting 1st Recommendation
 Interrupted Cutting 2nd Recommendation

WN 06T3

Dimensions (mm)	Cutting Edge Length L	6.5	Thickness S	3.97
	Inscribed Circle IC	9.525	Hole Dia. D1	3.81

Recommended Application	Coated Carbide																Coated Cermet	Cemented Carbide																												
	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1

Shape	Application Range	Cat. No.	Corner Radius RE
SU 		WNMG 06T304N-SU	0.4
		06T308N-SU	0.8
UG 		WNMG 06T304N-UG	0.4
		06T308N-UG	0.8

Corner Radius RE	Coated Carbide																Coated Cermet	Cemented Carbide																					
	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520

WN 0604

Dimensions (mm)	Cutting Edge Length L	6.5	Thickness S	4.76
	Inscribed Circle IC	9.525	Hole Dia. D1	3.81

Applicable External Holders **C43** Applicable Boring Bars **E62, E63**

Recommended Application	Coated Carbide																Coated Cermet	Cemented Carbide																											
	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520

Shape	Application Range	Cat. No.	Corner Radius RE
FB 		WNMG 060404N-FB	0.4
		060408N-FB	0.8
FE 		WNMG 060404N-FE	0.4
		060408N-FE	0.8
LU 		WNMG 060404N-LU	0.4
		060408N-LU 060412N-LU	1.2
LUW 		WNMG 060404N-LUW	0.4
		060408N-LUW	0.8
SU 		WNMG 060404N-SU	0.4
		060408N-SU 060412N-SU	1.2
			0.8
SEW 		WNMG 060404N-SEW 060408N-SEW	0.4 0.8
EF 		WNMG 060404N-EF 060408N-EF	0.4 0.8

Corner Radius RE	Coated Carbide																Coated Cermet	Cemented Carbide																					
	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520

▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

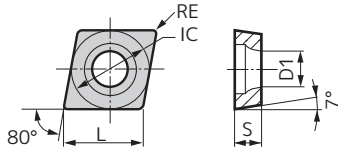
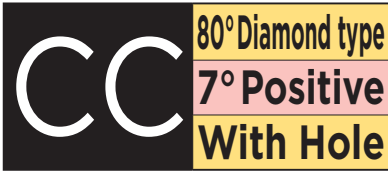
Insert
B
Negative
Positive



Ceramic
Solid CBN

80° Diamond type Positive Inserts

Indexable Inserts



Information in "Shape" column

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊕ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊠ Interrupted Cutting 1st Recommendation
- ⊡ Interrupted Cutting 2nd Recommendation

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
CC 0602	●	○	○	○	○	○

SUMIBORON (CBN) Inserts **L45, L46** SUMIDIA (PCD) Inserts **M11**
 SUMIDIA BINDERLESS Inserts **M31**
 Applicable External Holders: **C13, D26, D30, D31, D38** Applicable Boring Bars: **E18 to E20**

Shape	Application Range	Cat. No.	Corner Radius RE	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC850P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC510U	AC520U	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10F	EH510	EH520	H1			
FF (Fine Cutting)	15° Sharp Edge	CCGT 060201MN-FF 060202MN-FF 060204MN-FF	< 0.1 < 0.2 < 0.4																																											
FB	20°	CCMT 060202N-FB 060204N-FB	0.2 0.4																																											
LU	15°	CCMT 060202N-LU 060204N-LU	0.2 0.4	●	●	●	●	▲	▲	▲		●	●	●	▲	●																														
FP	10°	CCMT 060202N-FP 060208N-FP	0.2 0.8																																											
FC	15° Sharp Edge	CCGT 060201MN-FC 060202MN-FC 060204MN-FC	< 0.1 < 0.2 < 0.4																																											
FX (Finishing)	15° Sharp Edge	CCGT 0602003R-FX 0602003L-FX 060201R-FX 060201L-FX 060202R-FX 060202L-FX 060204R-FX 060204L-FX	0.03 0.03 0.1 0.1 0.2 0.2 0.4 0.4																				●	●																						
FX	15° Sharp Edge	CCET 0602003R-FX 0602003L-FX 060201R-FX 060201L-FX 060202R-FX 060202L-FX 060204R-FX 060204L-FX	0.03 0.03 0.1 0.1 0.2 0.2 0.4 0.4																																											
FY	15° Sharp Edge	CCET 0602003R-FY 0602003L-FY 0602008R-FY 0602008L-FY 060201R-FY 060201L-FY 0602018R-FY 0602018L-FY 060202R-FY 060202L-FY 060204R-FY 060204L-FY	0.03 0.03 0.08 0.08 0.1 0.1 0.18 0.18 0.2 0.2 0.4 0.4																																											

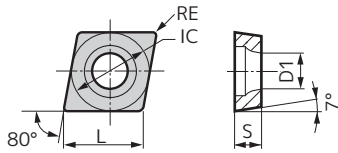
A "<" next to the corner radius RE indicates negative tolerance.
 FF type and FC type chipbreakers in AC5015S, AC5025S and AC1030U have a sharp edge.
 FX type and FY type chipbreakers have a sharp edge.

▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

80° Diamond type Positive Inserts

Indexable Inserts

CC 80° Diamond type
7° Positive
With Hole



Information in "Shape" column

Name of Chipbreaker: **FL**
Depth of Cut ap (mm): 0 to 4
Application Range: 0.2 to 0.6 (F)
Chipbreaker Rake Angle: 10°
Recommended Work Material

Insert

CC 0802

Dimensions (mm): Cutting Edge Length L: 8.0, Thickness S: 2.38, Inscribed Circle IC: 7.94, Hole Dia. D1: 3.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
Continuous Cutting 1st Recommendation	●	○	○	○	○	○
Continuous Cutting 2nd Recommendation	○	○	○	○	○	○
General Machining 1st Recommendation	○	○	○	○	○	○
General Machining 2nd Recommendation	○	○	○	○	○	○
Interrupted Cutting 1st Recommendation	○	○	○	○	○	○
Interrupted Cutting 2nd Recommendation	○	○	○	○	○	○

B

Shape	Application Range	Cat. No.	Corner Radius RE
SC (Light Cutting)	(ap) 0 to 4 (F) 0.2 to 0.6	CCMT 080204N-SC	0.4
SC (Light Cutting)	(ap) 0 to 4 (F) 0.2 to 0.6	CCGT 080201MN-SC 080202MN-SC	< 0.1 < 0.2
C		CCGW 080200 080201	0 0.1

Coated Carbide										Coated Cermet PVD	Cermet	Cemented Carbide										
CVD					PVD					PVD		T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

A "-" next to the corner radius RE indicates negative tolerance.

D

CC 0803

Dimensions (mm): Cutting Edge Length L: 8.0, Thickness S: 3.18, Inscribed Circle IC: 7.94, Hole Dia. D1: 3.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
Continuous Cutting 1st Recommendation	●	○	○	○	○	○
Continuous Cutting 2nd Recommendation	○	○	○	○	○	○
General Machining 1st Recommendation	○	○	○	○	○	○
General Machining 2nd Recommendation	○	○	○	○	○	○
Interrupted Cutting 1st Recommendation	○	○	○	○	○	○
Interrupted Cutting 2nd Recommendation	○	○	○	○	○	○

R

Shape	Application Range	Cat. No.	Corner Radius RE
SC (Light Cutting)	(ap) 0 to 4 (F) 0.2 to 0.6	CCMT 080304N-SC	0.4

Coated Carbide										Coated Cermet PVD	Cermet	Cemented Carbide										
CVD					PVD					PVD		T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

S

T

V

CC 0903

Dimensions (mm): Cutting Edge Length L: 9.7, Thickness S: 3.18, Inscribed Circle IC: 9.525, Hole Dia. D1: 4.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
Continuous Cutting 1st Recommendation	●	○	○	○	○	○
Continuous Cutting 2nd Recommendation	○	○	○	○	○	○
General Machining 1st Recommendation	○	○	○	○	○	○
General Machining 2nd Recommendation	○	○	○	○	○	○
Interrupted Cutting 1st Recommendation	○	○	○	○	○	○
Interrupted Cutting 2nd Recommendation	○	○	○	○	○	○

W

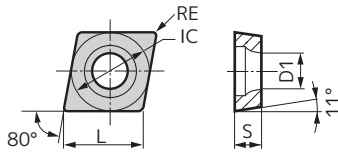
Shape	Application Range	Cat. No.	Corner Radius RE
SC (Light Cutting)	(ap) 0 to 4 (F) 0.2 to 0.6	CCMT 090308N-SC	0.8
SC (Light Cutting)	(ap) 0 to 4 (F) 0.2 to 0.6	CCGT 090301MN-SC 090302MN-SC	< 0.1 < 0.2
C		CCGW 090300 090301	0 0.1

Coated Carbide										Coated Cermet PVD	Cermet	Cemented Carbide										
CVD					PVD					PVD		T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

A "-" next to the corner radius RE indicates negative tolerance.

80° Diamond type Positive Inserts

CP 80° Diamond type
11° Positive
With Hole



Information in "Shape" column

Name of Chipbreaker: **FL**

Chipbreaker: **110°**

Depth of Cut ap (mm): 0 to 3

Application Range: 0.2 to 0.6

Feed Rate f (mm/rev): 0.6 to 1.0

Recommended Work Material: [Symbol]

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊙ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊕ Interrupted Cutting 1st Recommendation
- ⊖ Interrupted Cutting 2nd Recommendation

CP 0602

Dimensions (mm): Cutting Edge Length L: 6.4, Thickness S: 2.38, Inscribed Circle IC: 6.35, Hole Dia. D1: 2.8

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
AC8115P	●	○	○	○	○	○
AC820P	○	○	○	○	○	○
AC8025P	○	○	○	○	○	○
AC8035P	○	○	○	○	○	○
AC8015P	○	○	○	○	○	○
AC810P	○	○	○	○	○	○
AC820P	○	○	○	○	○	○
AC830P	○	○	○	○	○	○
AC6020M	○	○	○	○	○	○
AC6030M	○	○	○	○	○	○
AC6135M	○	○	○	○	○	○
AC6145M	○	○	○	○	○	○
AC6040M	○	○	○	○	○	○
AC630M	○	○	○	○	○	○
AC4010K	○	○	○	○	○	○
AC4015K	○	○	○	○	○	○
AC4125K	○	○	○	○	○	○
AC420K	○	○	○	○	○	○
AC503U	○	○	○	○	○	○
AC5005S	○	○	○	○	○	○
AC5015S	○	○	○	○	○	○
AC5025S	○	○	○	○	○	○
AC9115T	○	○	○	○	○	○
AC9125T	○	○	○	○	○	○
AC510U	○	○	○	○	○	○
AC520U	○	○	○	○	○	○
AC1030U	○	○	○	○	○	○
AC530U	○	○	○	○	○	○
ACZ150	○	○	○	○	○	○
T1500Z	○	○	○	○	○	○
T2500Z	○	○	○	○	○	○
T1000A	○	○	○	○	○	○
T1500A	○	○	○	○	○	○
ST10P	○	○	○	○	○	○
ST20E	○	○	○	○	○	○
A30	○	○	○	○	○	○
G10E	○	○	○	○	○	○
EH510	○	○	○	○	○	○
EH520	○	○	○	○	○	○
H1	○	○	○	○	○	○

Shape	Application Range	Cat. No.	Corner Radius RE
FX F finishing 15° Sharp Edge	[Graph]	CPGT 060204L-FX	0.4
US Light Cutting 15°	[Graph]	CPMT 060204N-US	0.4

Coated Carbide						Coated Cermet	Cermet	Cemented Carbide																															
CVD	PVD	CVD	PVD	CVD	PVD	PVD																																	
AC8115P	AC820P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1

FX type chipbreaker has a sharp edge.

CP 0802

Dimensions (mm): Cutting Edge Length L: 8.0, Thickness S: 2.38, Inscribed Circle IC: 7.94, Hole Dia. D1: 3.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
AC8115P	○	○	○	○	○	○
AC820P	○	○	○	○	○	○
AC8025P	○	○	○	○	○	○
AC8035P	○	○	○	○	○	○
AC8015P	○	○	○	○	○	○
AC810P	○	○	○	○	○	○
AC820P	○	○	○	○	○	○
AC830P	○	○	○	○	○	○
AC6020M	○	○	○	○	○	○
AC6030M	○	○	○	○	○	○
AC6135M	○	○	○	○	○	○
AC6145M	○	○	○	○	○	○
AC6040M	○	○	○	○	○	○
AC630M	○	○	○	○	○	○
AC4010K	○	○	○	○	○	○
AC4015K	○	○	○	○	○	○
AC4125K	○	○	○	○	○	○
AC420K	○	○	○	○	○	○
AC503U	○	○	○	○	○	○
AC5005S	○	○	○	○	○	○
AC5015S	○	○	○	○	○	○
AC5025S	○	○	○	○	○	○
AC9115T	○	○	○	○	○	○
AC9125T	○	○	○	○	○	○
AC510U	○	○	○	○	○	○
AC520U	○	○	○	○	○	○
AC1030U	○	○	○	○	○	○
AC530U	○	○	○	○	○	○
ACZ150	○	○	○	○	○	○
T1500Z	○	○	○	○	○	○
T2500Z	○	○	○	○	○	○
T1000A	○	○	○	○	○	○
T1500A	○	○	○	○	○	○
ST10P	○	○	○	○	○	○
ST20E	○	○	○	○	○	○
A30	○	○	○	○	○	○
G10E	○	○	○	○	○	○
EH510	○	○	○	○	○	○
EH520	○	○	○	○	○	○
H1	○	○	○	○	○	○

SUMIBORON (CBN) Inserts **L52** | SUMIDIA (PCD) Inserts **M12**

Applicable Boring Bars **E21, E22**

Shape	Application Range	Cat. No.	Corner Radius RE
FB Finishing 20°	[Graph]	CPMT 080204N-FB	0.4
LU Finishing 15°	[Graph]	CPMT 080204N-LU	0.4
SD Finishing to Light Cutting 0°	[Graph]	CPGT 080202N-SD 080204N-SD 080208N-SD	0.2 0.4 0.8
LB Light Cutting 15°	[Graph]	CPMT 080204N-LB	0.4
SU Light Cutting 8°	[Graph]	CPMT 080204N-SU 080208N-SU	0.4 0.8
SS Light to Medium Cutting 5° *1	[Graph]	CPMT 080208N-SS	0.8
		CPMW 080204 080208	0.4 0.8
MU Light to Medium Cutting 0°	[Graph]	CPMT 080204N-MU 080208N-MU	0.4 0.8

Coated Carbide						Coated Cermet	Cermet	Cemented Carbide																															
CVD	PVD	CVD	PVD	CVD	PVD	PVD																																	
AC8115P	AC820P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1

*1: Hole Dia. D1=4.8.

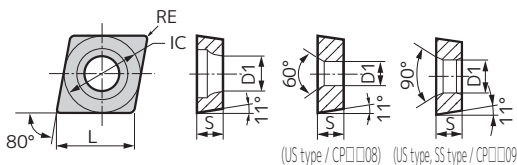
80° Diamond type Positive Inserts

CP

80° Diamond type

11° Positive

With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4** on

Insert Grade Selection Guide by Work Material **A10** on

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- General Machining 1st Recommendation
- General Machining 2nd Recommendation
- Interrupted Cutting 1st Recommendation
- Interrupted Cutting 2nd Recommendation

CP 0803

Dimensions (mm)	Cutting Edge Length L	8.0	Thickness S	3.18
	Inscribed Circle IC	7.94	Hole Dia. D1	3.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE
US 		CPMT 080308N-US	0.8

Coated Carbide	CVD	PVD	CVD	PVD	CVD	PVD	Coated Cermet	Cermet	Cemented Carbide																													
AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1

CP 0903

Dimensions (mm)	Cutting Edge Length L	9.7	Thickness S	3.18
	Inscribed Circle IC	9.525	Hole Dia. D1	4.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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SUMIBORON (CBN) Inserts **L53, L54** SUMIDIA (PCD) Inserts **M12**

Applicable Boring Bars **E12, E21, E22**

Shape	Application Range	Cat. No.	Corner Radius RE
FB 		CPMT 090304N-FB 090308N-FB	0.4 0.8
LU 		CPMT 090304N-LU 090308N-LU	0.4 0.8
LUW 		CPMT 090304N-LUW 090308N-LUW	0.4 0.8
SD 		CPGT 090302N-SD 090304N-SD 090308N-SD	0.2 0.4 0.8
LB 		CPMT 090304N-LB 090308N-LB	0.4 0.8
SU 		CPMT 090304N-SU 090308N-SU	0.4 0.8
SS 		CPMH 090308N-SS	0.8
US 		CPMH 090304N-US 090308N-US	0.4 0.8

Coated Carbide	CVD	PVD	CVD	PVD	CVD	PVD	Coated Cermet	Cermet	Cemented Carbide																													
AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1

*1: Hole Dia. D1=4.8.

▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

Insert

B

Negative

Positive

C

D

R

S

T

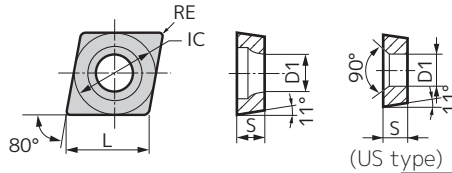
V

W

Ceramic Solid CBN

80° Diamond type Positive Inserts

CP 80° Diamond type
11° Positive
With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊕ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊛ Interrupted Cutting 1st Recommendation
- ⊜ Interrupted Cutting 2nd Recommendation

CP 1204

Dimensions (mm)	Cutting Edge Length L	12.9	Thickness S	4.76
	Inscribed Circle IC	12.7	Hole Dia. D1	5.5

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE
SD Finishing to Light Cutting 0°		CPGT 120402N-SD 120404N-SD 120408N-SD	0.2 0.4 0.8
US Light Cutting 10°		CPMH 120408N-US	0.8

Coated Carbide		Coated Cermet	Cermet	Cemented Carbide
CVD	PVD	CVD	PVD	PVD

CP 1604

Dimensions (mm)	Cutting Edge Length L	16.1	Thickness S	4.76
	Inscribed Circle IC	15.875	Hole Dia. D1	6.5

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE
US Light Cutting 10°		CPMH 160408N-US	0.8

Coated Carbide		Coated Cermet	Cermet	Cemented Carbide
CVD	PVD	CVD	PVD	PVD

Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic Solid CBN

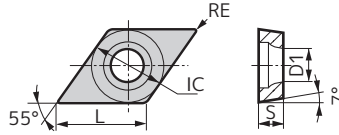
55° Diamond type Positive Inserts

DC

55° Diamond type

7° Positive

With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊕ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊛ Interrupted Cutting 1st Recommendation
- ⊚ Interrupted Cutting 2nd Recommendation

DC	0902	
Dimensions (mm)	Cutting Edge Length L: 9.7	Thickness S: 2.38
	Inscribed Circle IC: 7.94	Hole Dia. D1: 3.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE
Light Cutting 		DCGT 090201MN-SC 090202MN-SC	< 0.1 < 0.2
		DCGW 090200 090201	0 0.1

Coated Carbide																								Coated Cermet	Cermet	Cemented Carbide									
CVD								PVD								CVD								PVD								PVD			

A "<" next to the corner radius RE indicates negative tolerance.

DC	1103	
Dimensions (mm)	Cutting Edge Length L: 11.6	Thickness S: 3.18
	Inscribed Circle IC: 9.525	Hole Dia. D1: 4.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE
Light Cutting 		DCGT 110301MN-SC 110302MN-SC	< 0.1 < 0.2
		DCGW 110300 110301	0 0.1

Coated Carbide																								Coated Cermet	Cermet	Cemented Carbide									
CVD								PVD								CVD								PVD								PVD			

A "<" next to the corner radius RE indicates negative tolerance.

Insert

B

Negative

Positive

C

D

R

S

T

V

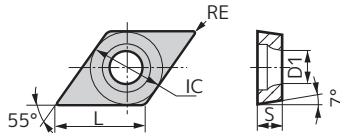
W

Ceramic Solid CBN

55° Diamond type Positive Inserts

Indexable Inserts

DC 55° Diamond type
7° Positive
With Hole



Information in "Shape" column

- FL: Name of Chipbreaker
- 110°: Chipbreaker Rake Angle
- Graph: Application Range (Depth of Cut ap (mm) vs Feed Rate f (mm/rev))
- Recommended Work Material

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- General Machining 1st Recommendation
- General Machining 2nd Recommendation
- Interrupted Cutting 1st Recommendation
- Interrupted Cutting 2nd Recommendation

DC **11T3**

Dimensions: Cutting Edge Length L 11.6 Thickness S 3.97
Inscribed Circle IC 9.525 Hole Dia. D1 4.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
Continuous Cutting 1st Recommendation	●	●	●	●	●	●
Continuous Cutting 2nd Recommendation	○	○	○	○	○	○
General Machining 1st Recommendation	●	●	●	●	●	●
General Machining 2nd Recommendation	○	○	○	○	○	○
Interrupted Cutting 1st Recommendation	●	●	●	●	●	●
Interrupted Cutting 2nd Recommendation	○	○	○	○	○	○

SUMIBORON (CBN) Inserts L65 on SUMIDIA (PCD) Inserts M15 SUMIDIA BINDERLESS Inserts M31
Applicable External Holders C17, D27, D28, D32, D33, D39 Applicable Boring Bars E13, E26 to E30

Coated Carbide Coated Cermet Cermet Cemented Carbide

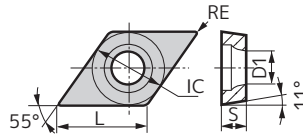
Shape	Application Range	Cat. No.	Corner Radius RE	CVD AC8115P	CVD AC8020P	CVD AC8025P	CVD AC8035P	CVD AC8015P	CVD AC810P	CVD AC820P	CVD AC830P	PVD AC6020M	PVD AC6030M	PVD AC6135M	PVD AC6145M	PVD AC6040M	PVD AC630M	CVD AC4010K	CVD AC4015K	CVD AC4125K	CVD AC420K	AC503U	AC5005S	AC5015S	AC5025S	PVD AC9115T	PVD AC9125T	PVD AC510U	PVD AC520U	PVD AC1030U	PVD AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10F	EH510	EH520	H1						
SL	Sharp Edge	DCGT 11T301MN-SL 11T302MN-SL 11T304MN-SL	< 0.1 < 0.2 < 0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
SC	Sharp Edge	DCGT 11T3003N-SC DCGT 11T301MN-SC 11T302MN-SC 11T304MN-SC 11T308MN-SC	0.03 < 0.1 < 0.2 < 0.4 < 0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
DCMW		DCMW 11T304 11T308	0.4 0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
DCGW		DCGW 11T300 11T301 11T302 11T304 11T308	0 0.1 0.2 0.4 0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
GU	Sharp Edge	DCMT 11T302N-GU 11T304N-GU 11T308N-GU 11T312N-GU	0.2 0.4 0.8 1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
MU	Sharp Edge	DCMT 11T304N-MU 11T308N-MU	0.4 0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
AG	Sharp Edge	DCGT 11T302N-AG 11T304N-AG 11T308N-AG	0.2 0.4 0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
AY	Sharp Edge	DCGT 11T301R-AY 11T301L-AY 11T302R-AY 11T302L-AY 11T304R-AY 11T304L-AY	0.1 0.1 0.2 0.2 0.4 0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

A "<" next to the corner radius RE indicates negative tolerance.
SL type chipbreaker in AC5015S, AC5025S and AC1030U grades has a sharp edge.
SC type chipbreaker in AC5015S, AC5025S, AC510U, AC520U, AC1030U, AC530U and ACZ150 grades has a sharp edge.
AG type and AY type chipbreakers have a sharp edge.

- Insert
- B
- Negative
- Positive
- C
- D
- R
- S
- T
- V
- W
- Ceramic Solid CBN

55° Diamond type Positive Inserts

DP **55° Diamond type**
11° Positive
With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ◐ General Machining 1st Recommendation
- ◑ General Machining 2nd Recommendation
- ⊗ Interrupted Cutting 1st Recommendation
- ⊘ Interrupted Cutting 2nd Recommendation

DP **0702**

Dimensions (mm)	Cutting Edge Length L	7.7	Thickness S	2.38
	Inscribed Circle IC	6.35	Hole Dia. D1	2.8

Recommended Application	Coated Carbide																						Coated Cermet	Cermet	Cemented Carbide																					
	CVD						PVD				CVD						PVD																													
P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST10P	ST20E	A30	G10E	EH510	EH520	H1
AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST10P	ST20E	A30	G10E	EH510	EH520	H1						

Shape	Application Range	Cat. No.	Corner Radius RE
FX 15° Sharp Edge		DPGT 0702003R-FX	0.03
		0702003L-FX	0.03
		070201R-FX	0.1
		070201L-FX	0.1
		070202R-FX	0.2
		070202L-FX	0.2
FY 15° Sharp Edge		DPGT 0702003R-FY	0.03
		0702003L-FY	0.03
		070201R-FY	0.1
		070201L-FY	0.1
		070202R-FY	0.2
		070202L-FY	0.2

FX type and FY type chipbreakers have a sharp edge.

DP **11T3**

Dimensions (mm)	Cutting Edge Length L	11.6	Thickness S	3.97
	Inscribed Circle IC	9.525	Hole Dia. D1	4.4

Recommended Application	Coated Carbide																						Coated Cermet	Cermet	Cemented Carbide																					
	CVD						PVD				CVD						PVD																													
P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST10P	ST20E	A30	G10E	EH510	EH520	H1
AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST10P	ST20E	A30	G10E	EH510	EH520	H1						

Shape	Application Range	Cat. No.	Corner Radius RE
FX 15° Sharp Edge		DPGT 11T3003R-FX	0.03
		11T3003L-FX	0.03
		11T301R-FX	0.1
		11T301L-FX	0.1
		11T302R-FX	0.2
		11T302L-FX	0.2
FY 15° Sharp Edge		DPGT 11T3003R-FY	0.03
		11T3003L-FY	0.03
		11T301R-FY	0.1
		11T301L-FY	0.1
		11T302R-FY	0.2
		11T302L-FY	0.2

FX type and FY type chipbreakers have a sharp edge.

Insert

B

Negative

Positive

C

D

R

S

T

V

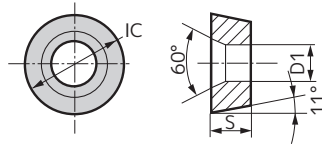
W

Ceramic
Solid CBN

Round type Positive Inserts

Indexable Inserts

RP Round type
11° Positive
With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊙ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊕ Interrupted Cutting 1st Recommendation
- ⊖ Interrupted Cutting 2nd Recommendation

Dimensions (mm)	Inscribed Circle IC	8.0 to 24.0	Thickness S	3.18 to 6.35
	Hole Dia. D1	3.3 to 7.3		

SUMIDIA (PCD) Inserts **M29**

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	IC	S	D1	Coated Carbide																							Coated Cermet	Cermet	Cemented Carbide																													
						CVD											PVD											PVD																																
Medium Cutting		RPGW 0803MO	8.0	3.18	3.3	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1															
		1004MO	10.0	4.76	3.8																																																							
		1204MO	12.0	4.76	4.3																																																							
		1604MO	16.0	4.76	5.3																																																							
		2004MO	20.0	4.76	6.3																																																							
Roughing	 <i>0°</i>	RPGT 0803MON-RD	8.0	3.18	3.3	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1															
		1004MON-RD	10.0	4.76	3.8																																																							
		1204MON-RD	12.0	4.76	4.3																																																							
		1604MON-RD	16.0	4.76	5.3																																																							
		2004MON-RD	20.0	4.76	6.3																																																							
2406MON-RD	24.0	6.35	7.3																																																									

Insert without chipbreaker in AC5015S, AC5025S, AC510U and G10E grades has a sharp edge.

Insert

B

Negative

Positive

C

D

R

S

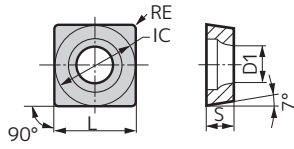
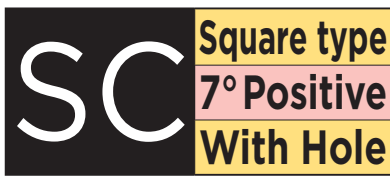
T

V

W

Ceramic Solid CBN

Square type Positive Inserts



Information in "Shape" column

Insert

Dimensions (mm)	Cutting Edge Length L	12.7	Thickness S	4.76
	Inscribed Circle IC	12.7	Hole Dia. D1	5.5

Applicable Boring Bars E36

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic Solid CBN

Recommended Application	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10F	EH510	EH520	H1				
P Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
M Stainless Steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
K Cast Iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
N Non-Ferrous Metal	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S Exotic Alloy	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H Hardened Steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

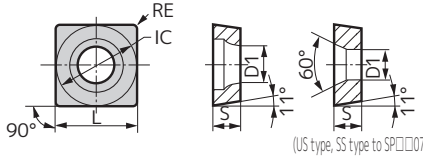
Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide																		Coated Cermet	Cermet	Cemented Carbide																										
				AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U		AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10F	EH510	EH520	H1						
FP 10°	P	SCMT 120404N-FP 120408N-FP	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
			0.8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
FX 15° Sharp Edge	P	SCGT 120404R-FX 120404L-FX 120408R-FX 120408L-FX	0.4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
			0.4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SU 8°	P	SCMT 120404N-SU 120408N-SU	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
			0.8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SC 6°	P	SCMT 120408N-SC	0.8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
			1.2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SCMW 120408 120412	P	SCMT 120408N-GU	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			1.2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MU 0°	P	SCMT 120408N-MU 120412N-MU	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			1.2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

FX type chipbreaker has a sharp edge.

Square type Positive Inserts

Indexable Inserts

SP Square type
11° Positive
With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- General Machining 1st Recommendation
- General Machining 2nd Recommendation
- Interrupted Cutting 1st Recommendation
- Interrupted Cutting 2nd Recommendation

SP 0602

Dimensions (mm)	Cutting Edge Length L	6.35	Thickness S	2.38
	Inscribed Circle IC	6.35	Hole Dia. D1	2.8

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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US Light Cutting

Application Range: **SPMT 060204N-US**

Corner Radius RE: 0.4

Material	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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SP 0702

Dimensions (mm)	Cutting Edge Length L	7.94	Thickness S	2.38
	Inscribed Circle IC	7.94	Hole Dia. D1	3.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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SS Light Cutting

Application Range: **SPMT 070208N-SS**

Corner Radius RE: 0.8

Material	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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SP 0703

Dimensions (mm)	Cutting Edge Length L	7.94	Thickness S	3.18
	Inscribed Circle IC	7.94	Hole Dia. D1	3.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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SD Finishing to Light Cutting

US Light Cutting

Application Range: **SPGT 070304R-SD**, **070304L-SD**, **070308R-SD**, **070308L-SD**

Application Range: **SPMT 070308N-US**

Application Range: **SPGW 070304**, **070308**

Corner Radius RE: 0.4, 0.4, 0.8, 0.8, 0.8

Material	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Insert without chipbreaker in G10E and H1 grades has a sharp edge.

Insert

B Negative

Positive

C

D

R

S

T

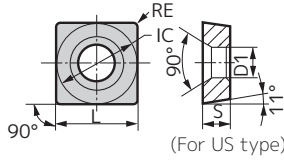
V

W Ceramic Solid CBN

Square type Positive Inserts

Indexable Inserts

SP Square type
11° Positive
With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- General Machining 1st Recommendation
- General Machining 2nd Recommendation
- Interrupted Cutting 1st Recommendation
- Interrupted Cutting 2nd Recommendation

SP **09T3**

Dimensions (mm)	Cutting Edge Length L	9.525	Thickness S	3.97
	Inscribed Circle IC	9.525	Hole Dia. D1	4.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape Application Range Cat. No. Corner Radius RE

US **SPMT 09T308N-US** 0.8

Coated Carbide	CVD	PVD	CVD	PVD	Coated Cermet	Cermet	Cemented Carbide
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SP **1204**

Dimensions (mm)	Cutting Edge Length L	12.7	Thickness S	4.76
	Inscribed Circle IC	12.7	Hole Dia. D1	5.5

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape Application Range Cat. No. Corner Radius RE

US **SPMH 120408N-US** 0.8

Coated Carbide	CVD	PVD	CVD	PVD	Coated Cermet	Cermet	Cemented Carbide
----------------	-----	-----	-----	-----	---------------	--------	------------------

SP **1504**

Dimensions (mm)	Cutting Edge Length L	15.875	Thickness S	4.76
	Inscribed Circle IC	15.875	Hole Dia. D1	6.5

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape Application Range Cat. No. Corner Radius RE

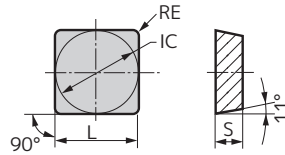
US **SPMH 150408N-US** 0.8

Coated Carbide	CVD	PVD	CVD	PVD	Coated Cermet	Cermet	Cemented Carbide
----------------	-----	-----	-----	-----	---------------	--------	------------------

- Insert
- B
- Negative
- Positive
- C
- D
- R
- S
- T
- V
- W
- Ceramic Solid CBN

Square type Positive Inserts

SP Square type
11° Positive
Without Hole



Information in "Shape" column

Name of Chipbreaker: **FL**

Chipbreaker Rate Angle: **11°**

Depth of Cut ap (mm): 0.2, 0.4, 0.6

Application Range: Graph showing Depth of Cut vs Feed Rate f (mm/rev)

Recommended Work Material: Indicated by colored circles in the chart

Continuous Cutting 1st Recommendation
 Continuous Cutting 2nd Recommendation
 General Machining 1st Recommendation
 General Machining 2nd Recommendation
 Interrupted Cutting 1st Recommendation
 Interrupted Cutting 2nd Recommendation

SP 0702				Coated Carbide																										Coated Cermet	Cemented Carbide												
Dimensions (mm)	Cutting Edge Length L	Thickness S	Corner Radius RE	CVD																										PVD	PVD												
7.94	7.94	2.38		AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
W		SPGR 070204L-W	0.4	●																										●	●												
Light Cutting		SPGN 070204	0.4	●																											●												

Insert without chipbreaker in H1 grade has a sharp edge.

SP 0903

Dimensions (mm): Cutting Edge Length L: 9.525, Thickness S: 3.18, Inscribed Circle IC: 9.525

Recommended Application	Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Exotic Alloy	Hardened Steel
●	○	○	○	○	○	○

SP 0903				Coated Carbide																										Coated Cermet	Cemented Carbide												
Dimensions (mm)	Cutting Edge Length L	Thickness S	Corner Radius RE	CVD																										PVD	PVD												
9.525	9.525	3.18		AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
FK		SPMR 090304N-FK 090308N-FK	0.4 0.8	●																										●	●												
W		SPGR 090304L-W	0.4	●																											●												
SF		SPMR 090304N-SF 090308N-SF	0.4 0.8	●																											●												
UJ		SPMR 090304N-UJ 090308N-UJ	0.4 0.8	●																											●												
Light to Medium Cutting		SPMN 090304 090308	0.4 0.8	●																											●												
Medium Cutting		SPGN 090302 090304 090308 090312	0.2 0.4 0.8 1.2	●																											●												

G-class insert without chipbreaker (SPGN) in AC5015S, AC5025S, AC510U, G10E and H1 grades has a sharp edge.

Insert

B

Negative

Positive

C

D

R

S

T

V

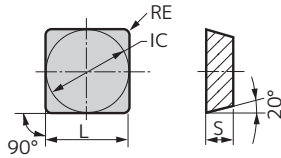
W

Ceramic Solid CBN

Square type Positive Inserts

Indexable Inserts

SE Square type
20° Positive
Without Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊙ General Machining 1st Recommendation
- ⊚ General Machining 2nd Recommendation
- ⊛ Interrupted Cutting 1st Recommendation
- ⊜ Interrupted Cutting 2nd Recommendation

SE 0702

Dimensions (mm)	Cutting Edge Length L	7.94	Thickness S	2.38
	Inscribed Circle IC	7.94		

Recommended Application	Coated Carbide															Coated Cermet	Cermet	Cemented Carbide																											
	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M			AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E
Light Cutting																																													
Application Range																																													
Cat. No.																																													
Corner Radius RE																																													

Shape	Application Range	Cat. No.	Corner Radius RE
		SEGN 070202 070204 070208	0.2 0.4 0.8

Insert without chipbreaker in H1 grade has a sharp edge.

SE 0903

Dimensions (mm)	Cutting Edge Length L	9.525	Thickness S	3.18
	Inscribed Circle IC	9.525		

SUMIDIA (PCD) Inserts **M17**

Recommended Application	Coated Carbide															Coated Cermet	Cermet	Cemented Carbide																											
	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M			AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E
Light Cutting																																													
Application Range																																													
Cat. No.																																													
Corner Radius RE																																													

Shape	Application Range	Cat. No.	Corner Radius RE
		SEGN 090302 090304 090308	0.2 0.4 0.8

Insert without chipbreaker in H1 grade has a sharp edge.

SE 1203

Dimensions (mm)	Cutting Edge Length L	12.7	Thickness S	3.18
	Inscribed Circle IC	12.7		

SUMIDIA (PCD) Inserts **M17**

Recommended Application	Coated Carbide															Coated Cermet	Cermet	Cemented Carbide																											
	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M			AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E
Light Cutting																																													
Application Range																																													
Cat. No.																																													
Corner Radius RE																																													

Shape	Application Range	Cat. No.	Corner Radius RE
		SEGN 120304 120308	0.4 0.8

Insert without chipbreaker in H1 grade has a sharp edge.

Insert

B

Negative

Positive

C

D

R

S

T

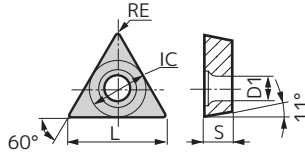
V

W

Ceramic Solid CBN

Triangular type Positive Inserts

Indexable Inserts



Grade Selection Guide A2

Chipbreaker Selection B4 on

Insert Grade Selection Guide by Work Material A10 on

Continuous Cutting 1st Recommendation
 Continuous Cutting 2nd Recommendation
 General Machining 1st Recommendation
 General Machining 2nd Recommendation
 Interrupted Cutting 1st Recommendation
 Interrupted Cutting 2nd Recommendation

Dimensions (mm)	Cutting Edge Length L	9.6	Thickness S	2.38
	Inscribed Circle IC	5.56	Hole Dia. D1	2.8

SUMIBORON (CBN) Inserts L92 SUMIDIA (PCD) Inserts M19

Applicable Boring Bars E40

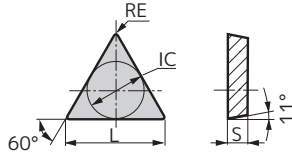
		Coated Carbide																	Coated Cermets	Cemented Carbide																											
		CVD						PVD				CVD					PVD																														
Shape	Application Range	Cat. No.		Corner Radius RE	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC650M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	AC2150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1			
Finishing	FB	TPMT 090202N-FB 090204N-FB	0.2 0.4																																												
	LU	TPMT 090202N-LU 090204N-LU	0.2 0.4	●●●	●	●	▲																																								
	FX	TPGT 090204L-FX	0.4																																												
Light Cutting	FY	TPGT 090201R-FY 090201L-FY 090202R-FY 090202L-FY 090204R-FY 090204L-FY	0.1 0.1 0.2 0.2 0.4 0.4																																												
	LB	TPMT 090202N-LB 090204N-LB	0.2 0.4	●●●●	●●●	●●	▲▲	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●		●																											
	SU	TPMT 090204N-SU	0.4																						●●●																						
For Aluminum	TPGW 090204 090208	0.4 0.8																		●●	●●																										
	AY	TPGT 090201R-AY 090201L-AY 090202R-AY 090202L-AY 090204R-AY 090204L-AY	0.1 0.1 0.2 0.2 0.4 0.4																																												

FX type, FY type and AY type chipbreakers have a sharp edge. Insert without chipbreaker in H1 grade has a sharp edge.

Insert B Negative Positive C D R S T V W Ceramic Solid CBN

Triangular type Positive Inserts

TP Triangular type
11° Positive
Without Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊙ General Machining 1st Recommendation
- ⊚ General Machining 2nd Recommendation
- ⊛ Interrupted Cutting 1st Recommendation
- ⊜ Interrupted Cutting 2nd Recommendation

TP 1604

Dimensions (mm)	Cutting Edge Length L	16.5	Thickness S	4.76
	Inscribed Circle IC	9.525		

Recommended Application	Coated Carbide																				Coated Cermet	Cermet	Cemented Carbide																						
	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520
Medium Cutting																																													

Shape	Application Range	Cat. No.	Corner Radius RE
Medium Cutting 		TPGN 160404	0.4
		160408	0.8
		160412	1.2
		160416	1.6

Insert without chipbreaker in G10E grade has a sharp edge.

TP 2204

Dimensions (mm)	Cutting Edge Length L	22.0	Thickness S	4.76
	Inscribed Circle IC	12.7		

Recommended Application	Coated Carbide																				Coated Cermet	Cermet	Cemented Carbide																						
	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520
Light to Medium Cutting																																													
Medium Cutting																																													

Shape	Application Range	Cat. No.	Corner Radius RE
Light to Medium Cutting 		TPMR 220408N-SF	0.8
		220412N-SF	1.2
Medium Cutting 		TPMN 220404	0.4
		220408	0.8
		220412	1.2
		220416	1.6
Medium Cutting 		TPGN 220404	0.4
		220408	0.8
		220412	1.2
		220416	1.6

G-class insert without chipbreaker (TPGN) in AC5015S, AC5025S, AC510U and G10E grades has a sharp edge.

Insert

B

Negative

Positive

C

D

R

S

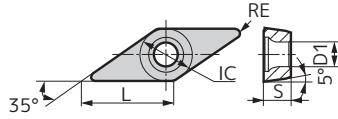
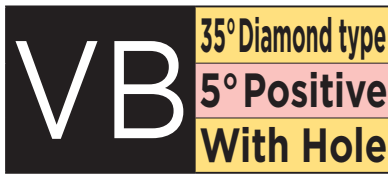
T

V

W

Ceramic Solid CBN

35° Diamond type Positive Inserts



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ◎ General Machining 1st Recommendation
- ⊙ General Machining 2nd Recommendation
- ⊛ Interrupted Cutting 1st Recommendation
- ⊞ Interrupted Cutting 2nd Recommendation

VB 1103	
Dimensions (mm)	Cutting Edge Length L 11.1
	Inscribed Circle IC 6.35
Thickness S	3.18
Hole Dia. D1	2.8

SUMIBORON (CBN) Inserts **L108, L109**

Applicable Boring Bars **E48, E50, E51, E53, E54, E56, E57**

Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide																		Cemented Carbide																																	
				CVD						PVD						CVD							PVD																																
				AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC650M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	AC2150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1												
LB 15°	Light Cutting	VBMT 110302N-LB 110304N-LB 110308N-LB	0.2	●	●	●				▲	▲	●	●	●	●	▲																																							
			0.4	●	●	●				▲	▲	●	●	●	●	▲																																							
			0.8	●	●	●				▲	▲	●	●	●	●	▲																																							
SU 8°	Light Cutting	VBMT 110302N-SU 110304N-SU 110308N-SU	0.2											●	●																																								
			0.4	●	●	●									●	●	▲	●																																					
			0.8	●	●	●									●	●	▲	●																																					
SI 15° Sharp Edge	Light to Medium Cutting	VBGT 110301MN-SI 110302MN-SI 110304MN-SI 110308MN-SI	< 0.1																																																				
			< 0.2																																																				
			< 0.4																																																				
			< 0.8																																																				
GU 5°	Light to Medium Cutting	VBMT 110304N-GU 110308N-GU	0.4	●	●	●	▲						●	●	●	▲																																							
			0.8	●	●	●	▲							●	●	●	▲																																						
AY 15° Sharp Edge	For Aluminum	VBGT 110301R-AY 110301L-AY 110302R-AY 110302L-AY 110304R-AY 110304L-AY	0.1																																																				
			0.1																																																				
			0.2																																																				
			0.2																																																				
			0.4																																																				

A "<" next to the corner radius RE indicates negative tolerance.
SI type chipbreaker in AC5015S, AC5025S, AC510U, AC520U, AC1030U and AC530U grades has a sharp edge.
AY type chipbreaker has a sharp edge.

Insert

B

Negative

Positive

C

D

R

S

T

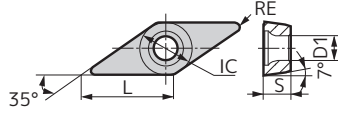
V

W

Ceramic Solid CBN

35° Diamond type Positive Inserts

VC 35° Diamond type
7° Positive
With Hole



Information in "Shape" column

- Name of Chipbreaker: **FL**
- Chipbreaker: 10°
- Depth of Cut (mm):
- Application Range:
- Recommended Work Material:
- Feed Rate f (mm/rev):

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- General Machining 1st Recommendation
- General Machining 2nd Recommendation
- Interrupted Cutting 1st Recommendation
- Interrupted Cutting 2nd Recommendation

VC 1103

Dimensions (mm)	Cutting Edge Length L	11.1	Thickness S	3.18
	Inscribed Circle IC	6.35	Hole Dia. D1	2.8

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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SUMIBORON (CBN) Inserts L113 SUMIDIA (PCD) Inserts M26 SUMIDIA BINDERLESS Inserts M31

Applicable External Holders C40, C41, D36, D40 Applicable Boring Bars ES2, ES5, ES8

Coated Carbide

Coated Cermet

Cermet
Cemented Carbide

Shape	Application Range	Cat. No.	Corner Radius RE	AC8115P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1								
Finishing FY	 15° Sharp Edge	VCMT 110301R-FY	0.1																																															
		110301L-FY	0.1																																															
		110302R-FY	0.2																																															
		110302L-FY	0.2																																															
		110304R-FY	0.4																																															
110304L-FY	0.4																																																	
Finishing FY	 15° Sharp Edge	VCET 1103008R-FY	0.08																																															
		1103008L-FY	0.08																																															
		110301R-FY	0.1																																															
		110301L-FY	0.1																																															
		1103018R-FY	0.18																																															
1103018L-FY	0.18																																																	
Light Cutting SU	 8°	VCMT 110302N-SU	0.2																																															
		110304N-SU	0.4																																															
		110308N-SU	0.8																																															
Light Cutting SI	 15° Sharp Edge	VCMT 110301MN-SI	< 0.1																																															
		110302MN-SI	< 0.2																																															
		110304MN-SI	< 0.4																																															
Light Cutting SL	 15° Sharp Edge	VCMT 110301MN-SL	< 0.1																																															
		110302MN-SL	< 0.2																																															
		110304MN-SL	< 0.4																																															
For Aluminum AG	 20° Sharp Edge	VCMT 110302N-AG	0.2																																															
		110304N-AG	0.4																																															

A "<" next to the corner radius RE indicates negative tolerance.

FY type and AG type chipbreakers have a sharp edge.

SI type and SL type chipbreakers in AC5015S, AC5025S, AC510U, AC520U, AC1030U and AC530U grades has a sharp edge.

VC 1604

Dimensions (mm)	Cutting Edge Length L	16.6	Thickness S	4.76
	Inscribed Circle IC	9.525	Hole Dia. D1	4.4

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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SUMIBORON (CBN) Inserts L114 SUMIDIA (PCD) Inserts M26, M27 SUMIDIA BINDERLESS Inserts M31

Applicable External Holders C40, C41 Applicable Boring Bars ES2, ES5

Coated Carbide

Coated Cermet

Cermet
Cemented Carbide

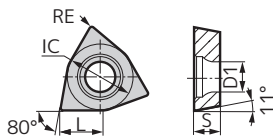
Shape	Application Range	Cat. No.	Corner Radius RE	AC8115P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1						
Finishing FB	 20°	VCMT 160404N-FB	0.4																																													
		160408N-FB	0.8																																													
Finishing LU	 15°	VCMT 160404N-LU	0.4																																													
		160408N-LU	0.8																																													

▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

Trigon type Positive Inserts

Indexable Inserts

WP Trigon type
11° Positive
With Hole



Grade Selection Guide **A2**

Chipbreaker Selection **B4 on**

Insert Grade Selection Guide by Work Material **A10 on**

- Continuous Cutting 1st Recommendation
- Continuous Cutting 2nd Recommendation
- ⊕ General Machining 1st Recommendation
- ⊖ General Machining 2nd Recommendation
- ⊛ Interrupted Cutting 1st Recommendation
- ⊜ Interrupted Cutting 2nd Recommendation

WP **1102**

Dimensions (mm)	Cutting Edge Length L	4.3	Thickness S	2.38
	Inscribed Circle IC	6.35	Hole Dia. D1	2.8

Applicable Boring Bars **E61**

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide	Cemented Carbide	
Light Cutting LB		WPMT 110204N-LB	0.4	AC8115P, AC8020P, AC8025P, AC8035P, AC8015P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6135M, AC6145M, AC6040M, AC630M, AC4010K, AC4015K, AC4125K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC9115T, AC9125T, AC510U, AC520U, AC1030U, AC530U, ACZ150, T1500Z, T2500Z, T1000A, T1500A, ST10P, ST20E, A30, G10E, EH510, EH520, H1	AC8115P, AC8020P, AC8025P, AC8035P, AC8015P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6135M, AC6145M, AC6040M, AC630M, AC4010K, AC4015K, AC4125K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC9115T, AC9125T, AC510U, AC520U, AC1030U, AC530U, ACZ150, T1500Z, T2500Z, T1000A, T1500A, ST10P, ST20E, A30, G10E, EH510, EH520, H1	AC8115P, AC8020P, AC8025P, AC8035P, AC8015P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6135M, AC6145M, AC6040M, AC630M, AC4010K, AC4015K, AC4125K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC9115T, AC9125T, AC510U, AC520U, AC1030U, AC530U, ACZ150, T1500Z, T2500Z, T1000A, T1500A, ST10P, ST20E, A30, G10E, EH510, EH520, H1

WP **1603**

Dimensions (mm)	Cutting Edge Length L	6.5	Thickness S	3.18
	Inscribed Circle IC	9.525	Hole Dia. D1	4.4

Applicable Boring Bars **E61**

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel	AC8115P	AC8020P	AC8025P	AC8035P	AC8015P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6135M	AC6145M	AC6040M	AC630M	AC4010K	AC4015K	AC4125K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC9115T	AC9125T	AC510U	AC520U	AC1030U	AC530U	ACZ150	T1500Z	T2500Z	T1000A	T1500A	ST10P	ST20E	A30	G10E	EH510	EH520	H1
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Shape	Application Range	Cat. No.	Corner Radius RE	Coated Carbide	Cemented Carbide	
Light Cutting LB		WPMT 160308N-LB	0.8	AC8115P, AC8020P, AC8025P, AC8035P, AC8015P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6135M, AC6145M, AC6040M, AC630M, AC4010K, AC4015K, AC4125K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC9115T, AC9125T, AC510U, AC520U, AC1030U, AC530U, ACZ150, T1500Z, T2500Z, T1000A, T1500A, ST10P, ST20E, A30, G10E, EH510, EH520, H1	AC8115P, AC8020P, AC8025P, AC8035P, AC8015P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6135M, AC6145M, AC6040M, AC630M, AC4010K, AC4015K, AC4125K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC9115T, AC9125T, AC510U, AC520U, AC1030U, AC530U, ACZ150, T1500Z, T2500Z, T1000A, T1500A, ST10P, ST20E, A30, G10E, EH510, EH520, H1	AC8115P, AC8020P, AC8025P, AC8035P, AC8015P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6135M, AC6145M, AC6040M, AC630M, AC4010K, AC4015K, AC4125K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC9115T, AC9125T, AC510U, AC520U, AC1030U, AC530U, ACZ150, T1500Z, T2500Z, T1000A, T1500A, ST10P, ST20E, A30, G10E, EH510, EH520, H1

Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic Solid CBN

▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

Ceramic Inserts

Negative With Hole

(Legend) Continuous ● 1st Recommended
○ 2nd Recommended
General Machining ○ 1st Recommended
○ 2nd Recommended
Interrupted Cutting ✱ 1st Recommended
✱ 2nd Recommended

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
●	●	●	●	●	●	○

		Ceramics		Dimensions (mm)			
		NB90S	NB100C	Inscribed Circle	Thickness	Corner Radius	Hole Diameter
◇ 80° Diamond type							
Shape	Cat. No.						
	CNGA 120404	●	●	12.70	4.76	0.4	5.16
	CNGA 120408	●	●	12.70	4.76	0.8	5.16
	CNGA 120412	●	●	12.70	4.76	1.2	5.16

◇ 55° Diamond type

	DNGA 150404		●	12.70	4.76	0.4	5.16
	DNGA 150408		●	12.70	4.76	0.8	5.16
	DNGA 150412			12.70	4.76	1.2	5.16

○ Square type

	SNGA 120404		●	12.70	4.76	0.4	5.16
	SNGA 120408		●	12.70	4.76	0.8	5.16
	SNGA 120412		●	12.70	4.76	1.2	5.16

△ Triangular type

	TNGA 160404		●	9.525	4.76	0.4	3.81
	TNGA 160408	●	●	9.525	4.76	0.8	3.81
	TNGA 160412			9.525	4.76	1.2	3.81
	TNGA 160416			9.525	4.76	1.6	3.81

◇ 35° Diamond type

	VNGA 160404		●	9.525	4.76	0.4	3.81
	VNGA 160408		●	9.525	4.76	0.8	3.81

Negative Without Hole

(Legend) Continuous ● 1st Recommended
○ 2nd Recommended
General Machining ○ 1st Recommended
○ 2nd Recommended
Interrupted Cutting ✱ 1st Recommended
✱ 2nd Recommended

Recommended Application	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
●	●	●	●	●	●	○

		Ceramics		Dimensions (mm)			
		NB90S	NB100C	Inscribed Circle	Thickness	Corner Radius	Hole Diameter
◇ 80° Diamond type							
Shape	Cat. No.						
	CNGN 120408	●	—	12.70	4.76	0.8	—
	CNGN 120412	●	—	12.70	4.76	1.2	—
	CNGN 120416		—	12.70	4.76	1.6	—
	CNGN 120712		—	12.70	7.94	1.2	—

◇ 55° Diamond type

	DNGN 150408	●	—	12.70	4.76	0.8	—
	DNGN 150412		—	12.70	4.76	1.2	—
	DNGN 150416		—	12.70	4.76	0.8	—
	DNGN 150712	●	—	12.70	7.94	1.2	—

◇ 75° Diamond type

	ENGN 130408		—	12.70	4.76	0.8	—
	ENGN 130412		—	12.70	4.76	1.2	—
	ENGN 130708	●	—	12.70	7.94	0.8	—
	ENGN 130712	●	—	12.70	7.94	1.2	—

○ Round type

	RNGN 120400		—	12.70	4.76	—	—
	RNGN 120700	●	—	12.70	7.94	—	—
	RNGN 150700		—	15.875	7.94	—	—

□ Square type

	SNGN 120408	●	—	12.70	4.76	0.8	—
	SNGN 120412	●	—	12.70	4.76	1.2	—
	SNGN 120416	●	—	12.70	4.76	1.6	—
	SNGN 120420		—	12.70	4.76	2.0	—
	SNGN 120708		—	12.70	7.94	0.8	—
	SNGN 120712	●	—	12.70	7.94	1.2	—
	SNGN 120716		—	12.70	7.94	1.6	—
	SNGN 120720	●	—	12.70	7.94	2.0	—

△ Triangular type

	TNGN 160404	●	—	9.525	4.76	0.4	—
	TNGN 160408	●	—	9.525	4.76	0.8	—
	TNGN 160412	●	—	9.525	4.76	1.2	—
	TNGN 160712		—	9.525	7.94	1.2	—

Insert

B

Negative

Positive

C

D

R

S

T

V




W

Ceramic
Solid CBN


Positive Without Hole

- (Legend)
- Continuous
 - 1st Recommended
 - 2nd Recommended
 - General Machining
 - 1st Recommended
 - 2nd Recommended
 - Interrupted Cutting
 - ✱ 1st Recommended
 - ✱ 2nd Recommended


Recommended Application	P	M	K	N	S	H
Steel	●	○	○	○	○	○
Stainless Steel	○	○	○	○	○	○
Cast Iron	○	○	○	○	○	○
Non-Ferrous Metal	○	○	○	○	○	○
Exotic Alloy	○	○	○	○	○	○
Hardened Steel	○	○	○	○	○	○

Shape	Cat. No.	Ceramics		Dimensions (mm)			
		NB90S	NB100C	Inscribed Circle	Thickness	Corner Radius	Hole Diameter
	RBGN 120700	○	—	12.70	7.94	—	—
	RBGN 150700	○	—	15.875	7.94	—	—
	RBGN 250900	○	—	25.40	9.52	—	—
	RBG 12S	○	—	12.00	11.0	—	—
	RBG 16S	●	—	16.00	13.0	—	—
	RBG 20S	●	—	20.00	15.0	—	—
	RBG 26S	○	—	26.00	16.0	—	—
	RCGX 090700	○	—	9.525	7.94	—	—
	RCGX 120700	○	—	12.70	7.94	—	—

Square type

Shape	Cat. No.	NB90S	NB100C	Inscribed Circle	Thickness	Corner Radius	Hole Diameter
	SPGN 090308	○	—	9.525	3.18	0.8	—
	SPGN 120308	●	—	12.70	3.18	0.8	—

Triangular type

Shape	Cat. No.	NB90S	NB100C	Inscribed Circle	Thickness	Corner Radius	Hole Diameter
	TPGN 110304	●	●	6.35	3.18	0.4	—
	TPGN 110308	●	○	6.35	3.18	0.8	—
	TPGN 160304	●	●	9.525	3.18	0.4	—
	TPGN 160308	●	●	9.525	3.18	0.8	—

Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic Solid CBN

Refer to pages L124 to L127 for solid SUMIBORON dedicated holders.

- Insert**
- B** 80° Diamond type
 - Negative**
 - Positive**
 - C** 55° Diamond type
 - D** Round type
 - R** Square type
 - S**
 - T**
 - V**
 - W**
 - Ceramic Solid CBN** Triangular type

Shape	Cat. No.	Applications		Dimensions (mm)				Applicable Holder
		K Cast Iron	H Hardened Steel	Inscribed Circle	Thickness	Corner Radius	Hole	
	CNGN 090308	●	●	9.525	3.18	0.8	No	External Dia.
	CNGN 090308LF	●	●	9.525	3.18	0.8	No	
	CNGN 090312	●	●	9.525	3.18	1.2	No	
	CNGN 090312LF	●	●	9.525	3.18	1.2	No	
	CNGN 120408	●	●	12.70	4.76	0.8	No	External Dia.
	CNGN 120412	●	●	12.70	4.76	1.2	No	
	CNGN 120416	●	●	12.70	4.76	1.6	No	
	CNGA 120408	●	●	12.70	4.76	0.8	Yes	
	CNGA 120412	●	●	12.70	4.76	1.2	Yes	External Dia. to Internal Dia. , to
	CNGX 120408	●	●	12.70	4.76	0.8	Dimple	External Dia.
CNGX 120412	●	●	12.70	4.76	1.2	Dimple		
CNGX 120416	●	●	12.70	4.76	1.6	Dimple		
	DNGN 110308	●	●	9.525	3.18	0.8	No	External Dia.
	DNGN 110308LF	●	●	9.525	3.18	0.8	No	
	DNGN 110312	●	●	9.525	3.18	1.2	No	
	DNGN 110312LF	●	●	9.525	3.18	1.2	No	
	RNGN 090300	●	●	9.525	3.18	—	No	External Dia.
	RNGN 090300LF	●	●	9.525	3.18	—	No	
	RNGN 120300	●	●	12.70	3.18	—	No	External Dia.
	RNGN 120300LF	●	●	12.70	3.18	—	No	
	SNGN 090308	●	●	9.525	3.18	0.8	No	External Dia.
	SNGN 090308LF	●	●	9.525	3.18	0.8	No	
	SNEN 090308W	●	●	9.525	3.18	0.8	No	Milling Cutters
	SNEN 090308LFW	●	●	9.525	3.18	0.8	No	
	SNGN 090312	●	●	9.525	3.18	1.2	No	External Dia.
	SNGN 090312LF	●	●	9.525	3.18	1.2	No	
	SNGN 120308	●	●	12.70	3.18	0.8	No	
	SNGN 120308LF	●	●	12.70	3.18	0.8	No	
	SNGN 120312	●	●	12.70	3.18	1.2	No	
	SNGN 120312LF	●	●	12.70	3.18	1.2	No	
	SNGN 120408	●	●	12.70	4.76	0.8	No	
	SNGN 120412	●	●	12.70	4.76	1.2	No	
	SNGN 120416	●	●	12.70	4.76	1.6	No	
	SNGN 120420	●	●	12.70	4.76	2.0	No	
	SNGA 120408	●	●	12.70	4.76	0.8	Yes	
	SNGA 120412	●	●	12.70	4.76	1.2	Yes	
	SNGX 120408	●	●	12.70	4.76	0.8	Dimple	External Dia.
	SNGX 120412	●	●	12.70	4.76	1.2	Dimple	
	SNGX 120416	●	●	12.70	4.76	1.6	Dimple	
	TNGN 110308	●	●	6.35	3.18	0.8	No	External Dia.
	TNGN 110308LF	●	●	6.35	3.18	0.8	No	
	TNGN 110312	●	●	6.35	3.18	1.2	No	
	TNGN 110312LF	●	●	6.35	3.18	1.2	No	
	TNGN 160408	●	●	9.525	4.76	0.8	No	External Dia.
	TNGN 160412	●	●	9.525	4.76	1.2	No	
	TNGN 160416	●	●	9.525	4.76	1.6	No	
	TNGN 160420	●	●	9.525	4.76	2.0	No	
	TNGA 160408	●	●	9.525	4.76	0.8	Yes	External Dia. to External Dia.
	TNGA 160412	●	●	9.525	4.76	1.2	Yes	Internal Dia. , to

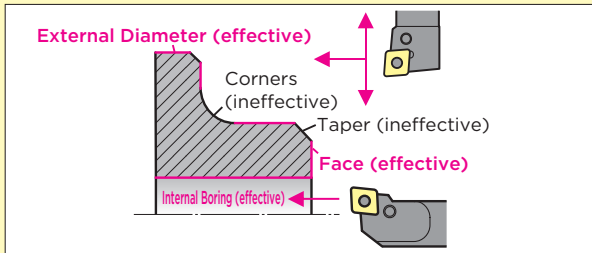
*Part number suffix: LF: Sharp edged W: Wiper type LFW: Wiper sharp edged

Precautions When Using Wiper Inserts

Effectiveness of Wiper Inserts

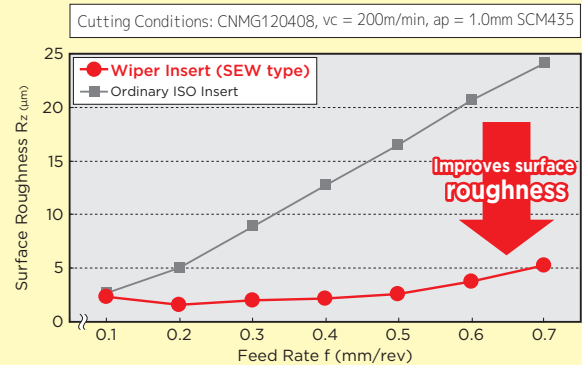
Wiper inserts are effective for external/internal diameter machining and for facing as shown in the figure below, and surface roughness of the machined surface can be maintained even in high-feed turning.

Effective Range of Wiper Inserts



- * Note that wiper inserts leave the same machined surface roughness as normal inserts at tapers and corners.
- * The cutting edge position may need to be offset depending on the insert shape. See the offset table below.

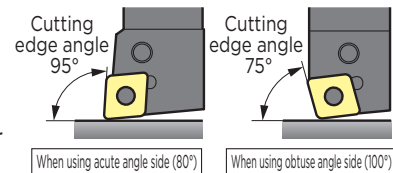
Machined Surface Roughness (actual measurements)



Coated Carbide / Coated Cermet / Cermet

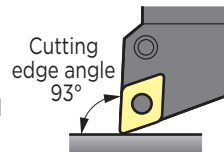
CNMG/WNMG/CCMT/CPMT type LUW/GUW/SEW type Chipbreaker (LUW type chipbreaker only for CCMT/CPMT type)

- Use a holder with a cutting edge angle of 95° .
- Machining program modification not required. CNMG type / WNMG type / CCMT type / CPMT type wiper inserts allow use without modifying the machining program.
- The obtuse (100°) corner on the CNMG type can also provide a wiper effect.



DNMX type SEW type chipbreakers

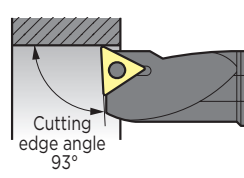
- Use a holder with a cutting edge angle of 93° .
- Machining program **modification required**. DNMX type wiper inserts do not comply with the ISO standard. Modify the machining program as explained on page B130.



DNMX type Machining Program Modification Guide
(→ page B130)

TPGX type SDW type chipbreakers

- Use a boring bar with a 93° cutting angle.
- Machining program **modification required**. TPGX type wiper inserts do not comply with the ISO standard. Correct the cutting edge position (tool offset) as explained on the right.



Cutting Edge Position Correction for TPGX type chipbreaker (SDW)

Internal boring

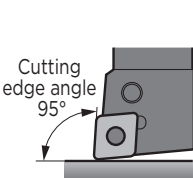
Corner Radius	X-axis direction	Z-axis direction
R0.4	0.12	-0.02
R0.8	0.12	-0.02

Note: Unlike the other profiles, the TPGX type is only effective for boring.

CBN (SUMIBORON / Coated SUMIBORON)

CNGA type/CCGW type/WNGA type WG type / WH type Wiper Insert

- Use a holder with a cutting edge angle of 95° .
- Machining program **modification required**. CNGA type / CCGW type / WNGA type wiper inserts do not comply with the ISO standard profiles. Correct the cutting edge position (tool offset) as explained on the right.

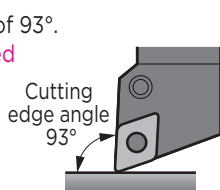


CNGA type / CCGW type / WNGA type Wiper Insert Cutting Edge Position Offset (WG type / WH type)

Corner Radius	Type	X-axis direction	Z-axis direction
R0.4	WG type	-0.02	-0.02
	WH type	-0.06	-0.06
R0.8/R1.2	WG type	-0.01	-0.01
	WH type	-0.06	-0.06

DNGA type / DCGW type WG type / WH type Wiper Insert

- Use a holder with a cutting edge angle of 93° .
- Machining program **modification required**. DNGA type / DCGW type wiper inserts do not comply with the ISO standard profiles. Correct the cutting edge position (tool offset) as explained on the right.



DNGA type / DCGW type Wiper Insert Cutting Edge Position Offset (WG type / WH type)

Corner Radius	Type	X-axis direction	Z-axis direction
R0.4	WG type	-0.17	-0.01
	WH type	-0.70	-0.06
R0.8	WG type	-0.05	0
	WH type	-0.58	-0.05

Note: Unlike other contour shapes, the DNGA/DCGW types can only exhibit wiper effect for external and internal diameter machining, and cannot be used for facing.

Insert
B
Negative
Positive
C
D
R
S
T
V
W
Ceramic
Solid CBN

Precautions When Using Wiper Inserts

Tool Program Correction Guide for DNMX type Wiper Inserts (Compensation: mm)

(1) Cutting edge position compensation (tool offset) in X and Z axes

The cutting edge position for this insert differs from standard ISO inserts and therefore requires dimensional correction in the X and Z axes as shown in the table on the right.

* The X-axis compensation is a positive value for internal boring.

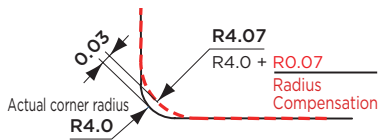
External Turning		
Corner Radius	X-axis direction	Z-axis direction
R0.4	-0.14	-0.02
R0.8	-0.14	-0.02
R1.2	-0.1	-0.03

(2) Tool compensation for corners (based on compensation in step (1))

The programmed tool path must be corrected to prevent the insert from gouging into the workpiece's corner radius.

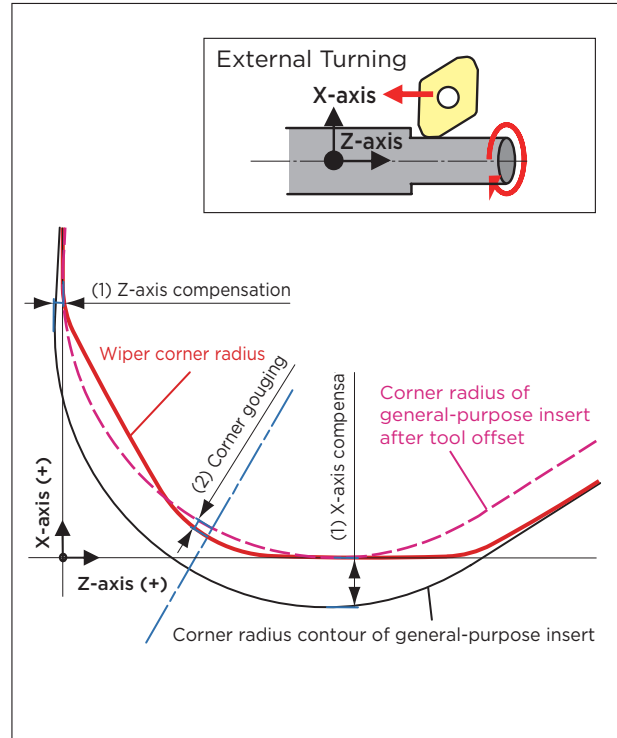
Programmed corner radius = actual corner radius + radius compensation

Example) To machine an R4.0 corner (using an R0.8 corner)



Corner Radius	Amount of Engagement	Radius Compensation
R0.4	0.02	+R0.04
R0.8	0.03	+R0.07
R1.2	0.08	+R0.18

● Insert Corner Radius Diagram



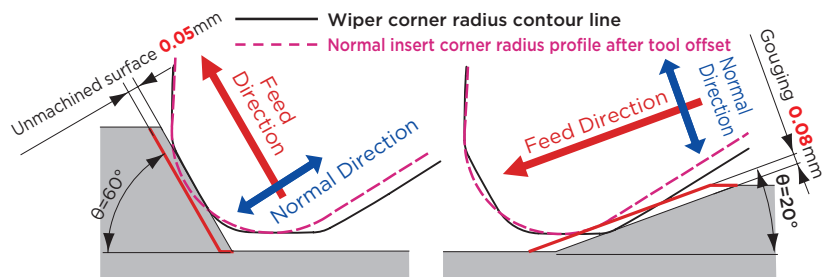
(3) Tool compensation for tapers (based on compensation in step (1))

When machining tapers, the programmed tool path may leave gouged or unmachined surfaces. Make corrections in the normal direction as shown below.

Compensation + indicates gouging
Compensation - indicates unmachined surfaces.

Example) To machine a 60°/-20° taper angle (θ) with a R0.8 corner radius

Corner Radius	Taper Angle (θ)				
	-25°	-20°	-15°	-10°	-5°
R0.4	0.08	0.07	0.05	0.04	0.02
R0.8	0.09	0.08	0.06	0.05	0.02
R1.2	0.05	0.05	0.05	0.03	0.02



Corner Radius	Taper Angle (θ)																		
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
R0.4	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04	-0.05	-0.05	-0.05	-0.03	-0.02	-0.02	-0.01	0.00
R0.8	0.00	0.01	0.02	0.03	0.03	0.03	0.03	0.02	0.01	0.00	-0.02	-0.03	-0.05	-0.04	-0.03	-0.02	-0.01	0.00	0.00
R1.2	0.00	0.02	0.04	0.06	0.07	0.08	0.08	0.07	0.06	0.05	0.03	0.00	-0.03	-0.02	-0.01	0.00	0.01	0.00	0.00

Insert

B

Negative

Positive

C

D

R

S

T

V

W

Ceramic Solid CBN